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BY

Debra A. Bemben, Ph.D.

Michael G. Bemben, Ph.D.

Mark A. Anderson, Ph.D.

Randa L. Shehab, Ph.D.

Rosemary Knapp, Ph.D.

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ABSTRACT

Variability in peripheral Quantitative Computed Tomography (pQCT) measurement sites limits direct comparisons of results between studies. Further, it is unclear what estimates or surrogates of bone strength are most indicative of changes in fracture resistance due to aging, disease, or interventions. The purpose of this study was to examine the effects of age and gender on tibia morphology, and to relate indicators of tibia mass and shape to hip and spine areal bone mineral densities (aBMD) and bone mineral content (BMC) as assessed by Dual Energy X-ray Absorptiometry (DXA). Additional purposes of this study were to determine which tibia site or sites are most sensitive for detecting age, gender, or menopause-related morphology changes. **Methods:** Self-identifying Caucasian men (n=55) and women (n=59) ages 20-59 years had their total body, lumbar spine, and dual proximal femur aBMD and BMC measured with DXA (GE Lunar Prodigy). Body composition (total and leg bone free lean body mass (BFLBM) and fat mass (FM)) were assessed from the total body scan. Their non-dominant tibias were measured with pQCT (Stratec XCT 3000) at every 10% of the limb length from 5%-95% from distal to proximal. Volumetric BMD, BMC, and area of the total, cortical and trabecular bone were determined. Also, periosteal (PeriC) and endosteal (EndoC) circumferences, cortical thickness (CTh), bone strength index (BSI), strength strain index (SSI), moments of inertia (Imax, Imin) mass ratios, and strength to mass ratios were quantified. General health information, menstrual history, dietary intake averaged over the previous year, and lifetime bone specific physical activity (BPAQ) were assessed by questionnaires for regression analysis. Participants were grouped by decade and by gender. **Results:** Bone morphology and strength characteristics varied along the tibia in a nonlinear fashion. There were significant ($p<0.01$) site effects for all BMC, vBMD, area, strength (SSI, Imin, Imax, SSI:Tot.BMC ratio), PeriC and EndoC. Total vBMD peaked at the 35%, while cortical BMC peaked at 55% with minimums at 5% and 85%. Total BMC, SSI, SSI:Tot.BMC ratio, and Imax all peaked at the 85% site. Large gender differences (21-28%) in Tot.BMC were paralleled by differences in Tot.Area (14-25%), due to differences in Cort.BMC and area (21-25%) ($p<0.01$). Gender differences ($p<0.01$) in Imax, SSI, and SSI:Tot.BMC ratio were smallest at the 15% sites and increased through the diaphysis. Women had significantly ($p<0.05$) greater Cort.vBMD than men. Men had significantly ($p<0.01$) greater Tot.BMC ratios at 5%:35% 5%:65%, and 5%:85%. Site*gender interaction effects were significant ($p<0.05$) for area, BMC, circumference, and strength variables. CTh and total vBMD were lowest ($p<0.05$) in 50-59 yr group, and several trends ($p<0.10$) existed for BMC variables. EndoC was highest in the 50-59 yr group, and Imax was highest in the 40-49 yr group. Site*age interactions existed for Cort.vBMD, Tot.BMC, SSI, Imax, EndoC, and SSI:Tot.BMC. There were significant age effects for total vBMD and area, trabecular area, cortical area, SSI, Imax, and SSI:Tot.BMC. BMC ratios for 5:35% and 5:65% were highest ($p<0.05$) the in 20-29 yr group. Tibia total BMC and vBMD were moderately-to-strongly correlated with hip BMC and aBMD values ($r = 0.31$-0.76). **Conclusion:** Gender differences were mostly found in bone size variables, whereas age differences were mostly found in density and cortical thickness values. The magnitude of age and gender differences also varied by measurement site. Standardization of measurement sites is recommended for future reference database development and comparison.

CHAPTER I

INTRODUCTION

Material and structural properties of bone tissue adapt in response to imposed strain from mechanical loading (27). Most mechanical loading on bone comes from muscular contractions, and is important for the development and maintenance of bone strength. In addition to bone loss that occurs with aging and after menopause (67), research has shown that prolonged unloading of a bone results in bone content loss that may not completely recover once an individual has already reached their peak bone mass (70). Excessive bone loss due to prolonged unloading places one at greater risk for osteoporosis, which is characterized by decreased bone mineral density (BMD) and a deterioration of microarchitecture, making bone more fragile and susceptible to fracture (49).

Osteoporosis and low bone mass is known to affect over 44 million Americans, and is a causal risk factor for hip and vertebral fractures (54). The incidence of fractures increases with age in both men and women, and the lifetime risk for osteoporotic fractures has reported to be comparable to or greater than getting heart disease or certain cancers (54). Prevention of osteoporosis to prevent fragility fractures is of interest, as hip fractures increase mortality risk (15). Treating osteoporotic fractures has been reported to cost from nearly $17 billion to over $36 billion (90). The primary measure for the diagnosis of osteoporosis is BMD, a surrogate of bone strength, as fracture risk increases up to a factor of 3 for each standard deviation decrease in BMD (39). However, fracture risk also increases with suboptimal bone geometry, changing material properties of bone, and higher rates of bone loss that cannot be measured by a single BMD test (12).

Many aspects of bone quality and fracture risk in humans can be assessed noninvasively, including the mass, size, and shape of bones. Dual-Energy X-ray Absorptiometry (DXA) measures areal BMD (aBMD) and bone mineral content (BMC) in a 2-dimensional plane and is used to diagnose osteoporosis, as normative values for aBMD have been developed for postmenopausal women (24). Areal BMD is not a true bone density, as it is calculated by dividing the BMC by the bone area in the frontal view. The utility of DXA is limited since normative values are based primarily on Caucasian populations (49), many fragility fractures occur before an individual meets the DXA-based criteria for osteoporosis (90), and DXA is unable to measure cross-sectional bone geometry or separate cortical and trabecular bone data to aid in the prediction of bone strength.

Peripheral Quantitative Computed Tomography (pQCT) complements DXA because it can assess total, cortical and trabecular volumetric BMD (vBMD), mass, area, and tissue distribution in cross-sectional slices of long bones. This can provide information about resistance to fracture from bending, torsional, and compressive loads, and pQCT-assessed bone variables have been shown to strongly predict breaking strength (86). Men typically have larger bone cross-sectional areas than women, providing greater resistance to fracture (59). Gender comparisons of bone loss patterns appear to be age and menopausal status dependent. Evidence suggests that men and premenopausal women lose trabecular bone in a similar fashion before midlife (68), but that at menopause, trabecular and cortical bone loss is accelerated in women. Trabecular bone loss still predominates during this time, but in late menopause, total bone loss slows and further losses come predominantly from cortical bone. In later life in men, bone loss accelerates, primarily from cortical bone (67, 69). In both men and women, cortical and trabecular bone losses markedly affect the structural integrity of the bone, and these losses can individually be detected with pQCT (22, 67). However, pQCT cannot be used to diagnose osteoporosis (5), since adult normative data have not been developed for pQCT measures, and pQCT is unable to measure the most clinically relevant sites (proximal femur and lumbar spine). Currently, the International Society for Clinical Densitometry (ISCD) Position Stand (5) reports that the distal radius can be used to predict hip fracture risk for postmenopausal women. However, obtaining a forearm scan without movement artifact can present a challenge, often requiring repeat scans.

To date, there are no recommendations for using the tibia for bone health assessment or hip fracture risk prediction. Given that the tibia is exposed to multiple modes, frequencies, durations, amplitudes and rates of mechanical loading from physical activities, its characteristics may be more closely related to the hip than the forearm. Since it is relatively easy to obtain a tibia pQCT scan without movement artifact, exploring the relationships between tibia bone characteristics and hip and spine characteristics deserves consideration. Detecting bone loss from pathologies, aging, or disuse, or predicting fracture risk with the tibia will be more valuable if it is known at which tibia site(s) bone loss can be detected most readily, and under what bone loss conditions. Variability in selected tibia sites between studies can make comparison of results or development of screening recommendations more difficult. Studies that include more representative sites of the tibia can better define the clinical scope of the pQCT. Also, as the cross-sectional cortical and trabecular morphology is not homogeneous throughout the tibia, it is possible that a ratio or combination of tibia sites may be a valuable indicator of trabecular- or cortical-specific bone changes to better predict fracture risk, or to improve treatment strategies (14). The purpose of this study was to examine the relationship of age and gender with tibia morphology, and to relate indicators of tibia mass and shape on hip and spine aBMD and BMC as assessed by DXA. Additional purposes of this study were to determine which tibia site or sites are most sensitive for detecting age-, gender-, or menopause-related morphology changes.

Research Questions

The specific research questions of this study were as follows.

1. What relationships do age and gender have with bone mass, bone shape, and bone strength indicators throughout the adult tibia?
2. What tibia site(s) and characteristics are most sensitive for detecting age-related differences?
3. What tibia site(s) and characteristics are most sensitive for detecting menopause-related differences?
4. What are the relationships between pQCT-assessed bone mass, bone shape, and bone strength indicators at individual tibia sites or as ratios between multiple tibia sites and DXA-assessed bone mass and aBMD?

Hypotheses

1. I hypothesized that men would have greater periosteal circumference, cortical thickness, total and cortical area, total vBMD and SSI than women at any tibia

site and any age. With age, women would develop a greater endosteal circumference than men. Men and premenopausal women would have similar cortical vBMD, trabecular content and vBMD. Trends for increases in bone size would begin at age 40 for both genders, but rates of change would be more rapid for women.

2. I hypothesized that sites closest to the bone ends would be most sensitive to age related changes. There would be decreases in cortical area and thickness, and decreases in trabecular content. There would be increases in total and trabecular bone area. SSI (measure of torsional strength at diaphyseal sites) would not significantly change with decreased cortical content when total bone area increases. The ratio of total bone mass between the 5% site and more proximal sites until 75% would decrease.
3. I hypothesized that menopause-related changes would be most evident with trabecular content and vBMD loss in the distal and proximal tibia sites (5%, 15%, and 95%), and cortical area and thickness loss in the diaphyseal sites. Also, there would be a change in the ratio of cortical content in diaphyseal sites to trabecular content in epiphyseal sites.
4. I hypothesized that total BMC of a tibia slice would be the strongest predictor of hip aBMD and BMC variables at any given pQCT site, but correlations would be strongest at non-diaphyseal sites. Total area, cortical BMC and area would be strongly related to hip aBMD and BMC. Volumetric BMD would only be correlated to hip aBMD and BMC variables at the tibia 5%, 15%, 85%, and 95%

sites, and would not be related at sites 25-75%. Trabecular bone variables would not be related to hip aBMD or BMC variables at sites 35-75%

Significance of the Study

The measurement of areal BMD by Dual-Energy X-Ray Absorptiometry (DXA) is the gold standard for the diagnosis of osteoporosis in Caucasian postmenopausal women (102). However, BMD is now recognized as only one of several aspects of whole bone strength, including the amount, shape and architecture of the bone, and bone material properties (11). Peripheral QCT is a relatively new technique which measures bone geometry and volumetric BMD for the total bone as well as the trabecular and cortical compartments of the bone, thus providing additional information about bone strength characteristics compared to DXA. The significance of this study is helping determine age- and gender-related changes to tibia morphology that affects resistance to fracture, and relating these findings to DXA-measured hip and spine aBMD to help develop clinical utility for pQCT.

Assumptions

1. Subjects accurately and honestly completed all questionnaires.
2. Questionnaires used in this study were valid and appropriate for use in this study population.
3. Women accurately knew their menopausal status.

Delimitations

1. Bone quality findings can only be applied to healthy Caucasian men and women ages 20-59 years.

2. Findings from this study can only be applied to men and women who are not completely sedentary, and men and women who do not engage in more than 15 hours of moderate to vigorous exercise per week.
3. Subjects with amputations, cerebral vascular accidents, or knee or hip replacements were excluded from the study.
4. Pregnant women were excluded from the study.
5. Individuals taking oral contraceptives, hormone replacement therapy (androgens or estrogens), or medications for bone health were excluded from the study.

Limitations

1. Participants were healthy volunteers and thus may not be truly representative of the larger population.
2. The DXA has a 300 pound weight limit, therefore participants were required to weigh less than 300 lbs.
3. Since this was a cross-sectional study, previous bone health or rates of bone remodeling cannot be known.

Operational Definitions

Areal Bone Mineral Density (aBMD) - the amount of bone mineral per unit of a 2-dimensional geometric area as measured by BMC/area (24).

Bone Mineral Content (BMC) - the amount of mineral mass measured in a bone, bony area, or the body.

Bone Remodeling Sequence - the sequence of bone renewal that consists of the resorption of old or damaged bone and the deposition of new bone in place where old bone was removed (52).

Bone Strength Index (BSI) - a product of squared total vBMD and area. It gives a measure of compressive bone strength at the metaphysis.

Cortical Bone - compact, highly calcified (~90%) bone, predominately found on the diaphysis of long bones.

Dual-Energy X-Ray Absorptiometry (DXA) - a low-voltage x-ray procedure that quantifies fat and bone free lean body mass, and the areal bone mineral content (g) and density (g/cm^2) of the total body, lumbar spine, forearm, and proximal femur (24).

Endosteal Circumference- internal perimeter of the cortical bone (14).

Imax - Termed as the larger of Ix and Iy. (See Moment of Inertia of an Area)

Imin - Termed as the smaller of I_x and I_y. (See Moment of Inertia of an Area)

Moment of Inertia of an Area (AKA: Second Moment of an Area, Cross-Sectional Moment of Inertia)- With respect to an axis in the plane of the area: $I_x = \int y^2\, dA$, $I_y = \int x^2\, dA$, where x is the perpendicular distance from dA, an element of the area, to the y-axis, and y is the perpendicular distance from dA to the x-axis. In this document, the central axes are assumed (the axes intersect at the center of mass of the object) (103).

Osteoblast - a mononucleated cell arising from the mesenchymal stem cell lineage. Its function is to promote bone formation by producing type I collagen and other noncollagenous proteins, and assisting with the initiation of bone resorption (51).

Osteoclast - a large, multinucleated cell arising from the hematopoietic cell lineage. Its function is to the resorption of bone for the purposes of bone remodeling and calcium homeostasis (51).

Osteocyte - a mature bone cell that is thought to be the mechanostat, or strain sensor, of the bone tissue (9).

Osteoporosis - characterized by low bone mass and a deterioration of microarchitecture of bone tissue, leading to increased fragility and increased risk of fracture (51).

Periosteal Circumference- external perimeter of the tibia cross-section (14).

Peripheral Quantitative Computed Tomography (pQCT)- a low-voltage x-ray procedure that quantifies total, trabecular, and cortical volumetric bone mineral density (mg/cm^3) (ToD, TrD and CoD, respectively), bone mineral content (mg/mm) (ToC, TrC, and CoC, respectively), bone area (mm^2) (ToA, TrA, and CoA, respectively), moments of inertia (mm^3) and resistance, and strength-strain indices (85).

Section Modulus - Moment of Inertia of an Area divided by the maximum radius. It is a measure of rigidity (103).

Strength Strain Index (SSI) - a cortical density weighted section modulus of the bone. It gives a measure of bending and torsional strength of diaphyseal sites.

Trabecular Bone - also called cancellous bone; spongy bone enclosing spaces filled with bone marrow, blood vessels and connective tissue, and is only 15-25% calcified. It fulfills primarily metabolic functions for the body (51).

Volumetric Bone Mineral Density - the amount of bone mineral content in a 3 dimensional volume.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The ability of bone to resist fracture is related to the geometry and structure of the bone, as well as the amount of bone (11, 12). Bone is an anisotropic composite material, organized to withstand loads that are customarily placed upon it (47). The load that causes bone to fracture is dependent on the bone site being tested, the magnitude of the load, the duration of the load, and the direction that the load is applied in reference to the bone site being tested (11, 51). When the bone receives excessive loading in a manner that is not customary, a fracture is more likely to occur.

Assessment of bone strength is important for identifying persons at greater risk of fracture and for monitoring bone health interventions and treatments. Many characteristics related to bone strength can be measured by noninvasive imaging techniques, including with Dual Energy X-ray Absorptiometry (DXA) and peripheral Quantitative Computed Tomography (pQCT). pQCT has now been used in research for several years to describe the effects of aging, gender, menopause, mechanical loading and unloading, pharmaceutical treatments, and pathologies on cortical and trabecular bone health. However, pQCT still has very limited clinical utility due to the heterogeneity of scanning locations and analysis techniques in research, and the resulting lack of a reference database with which to evaluate patient results. The purpose of this review is to examine current findings on how pQCT-assessed bone characteristics, with a primary focus on the tibia, have been shown to predict failure loads, and how pQCT-assessed tibia morphology is affected by aging, gender, menopause, and mechanical loading and unloading. The literature is presented in the following sections: 1. Bone Characteristics and Fracture Risk, 2. Age- and Gender-Related Effects on Bone Characteristics, 3. Effects of Menopause on Bone Health, 4. Effects of Physical Activity on Bone Characteristics, and 5. Effects of Unloading on Bone Health.

Bone Characteristics and Fracture Risk

DXA has been used for many years for diagnosing osteoporosis, since areal bone mineral density (aBMD) is predictive of fracture risk and is used as a surrogate of bone strength. Areal BMD and BMC values from DXA are based on two dimensional imaging in the sagital or frontal planes, and can only give total aBMD and BMC values. DXA is unable to separate cortical and trabecular bone characteristics, limiting the clinician's ability to detect the pattern of bone loss. Bone geometry data is limited to the area, and DXA cannot give any indication about cross-sectional shape. Also, the weight limit of DXA tables limits the access to spine and hip scans for larger people.

Separate analyses of total, cortical, and trabecular bone and information about bone geometry is accomplished with pQCT by imaging transverse slices of known thickness in the appendicular skeleton. Tibias can enter the gantry from two directions, allowing for heavier subjects to be scanned, requiring only a sufficiently strong chair. Further, pQCT scans also have a lower effective radiation dose than DXA, lowering the risk for children that require screening.

The precision and accuracy of pQCT has been demonstrated in multiple studies. Sievanen et al. (85) reported coefficients of variation ranging from 0.5% to 7.7%, depending on the variable being measured. Typically, area and strength index (which incorporates area) measures had greater variability than density values. Wachter et al. (88, 89) showed that cancellous BMD measurement of resected femoral neck specimens by pQCT was more closely related (r = 0.73 - 0.82) to Young's modulus and strength determined by uniaxial compression testing than apparent trabecular thickness, separation or number determined by CT scans and subsequent image analysis. Cortical BMD measurement of resected femoral diaphysis specimens also was strongly correlated with yield stress (r = 0.77 for polynomial regression). Total area and trabecular and total bone density of the radius measured by pQCT have been reported to show strong agreement with CT scans (4). Ashe et al. utilized radial specimens from female cadavers to perform pQCT scans at the 4% and 30% sites and a DXA forearm scan (2). Ashe et al. then performed ashing, histomorphometry, and biomechanical testing of the 30% site. Total BMC of the 4% and 30% sites; cortical BMC, thickness, and area at the 30% sites; and 33% aBMD (DXA) all similarly predicted forearm failure load ($r^2 = 0.75 – 0.81$). Polar strength-strain index (SSI), total and cortical vBMD were moderate predictors ($r^2 = 0.47-0.61$) of failure load, however, total area of the 30% site and 4% aBMD were not effective predictors. Wilhelm et al. validated the measurement of SSI, a function of cortical density and bone geometry in cadaver radii, showing that SSI was very strongly related to failure loading in 3 and 4 point bending tests (100). These findings were in agreement with those of Siu et al., showing that aBMD and strength indices incorporating both cortical BMD and area with pQCT predicted long bone strength similarly, and that the strength index predicted failure better than cortical vBMD or area alone (86).

Assessment of cortical bone depends on the relationship between cortical thickness and scan resolution. Essentially, the cortical thickness must be consistently thicker than the resolution of the scan, or invalid results will be generated because of partial volume effects. Each voxel (a 3-D pixel) is assigned a density value that is the average density within that voxel. A voxel at the border between bone and soft tissue, for example, may include both bone and soft tissue, but the average density will dictate whether that voxel will be considered bone or soft tissue during analysis. There are differing amounts of cortical and trabecular bone at different sites of a long bone, therefore multiple sites may be needed if investigators wish to gain information about cortical and trabecular bone quality. Recently, Capozza et al. proposed the use of bone mass ratios of multiple tibia sites and "distribution/mass" curves as new indicators of bone health or potential diagnostic tools (14). Their study utilized a small sample in a narrow age range, and did not compare the measured ratios to any diagnostic criteria. Therefore, while their ideas have merit, more studies are needed to determine what normal ratios are versus what ratios could be considered pathological.

Age- and Gender-Related Effects on Bone Characteristics

Incidences of fragility fractures are higher in women than men, and increase with age for both genders (54). Gender and age differences in fracture risk are related to cross-sectional bone geometry, which cannot be measured with DXA. Center et al. estimated femoral neck vBMD from DXA scans by taking the measured diameter of a section of the femoral neck, and then assumed the femoral neck to be a cylinder to obtain a volume (15). This was performed to account for bone size differences between genders, but is limited by the assumption that bone content is uniform throughout the cross-sectional slice. In this cross-sectional study of older men and women with and without hip fracture (15), men in the nonfracture group had approximately 14% greater aBMD and almost 33% greater BMC and CSA at the femoral neck than did women. Gender differences in aBMD (21%), BMC (39%) and CSA (38%) were more evident in the hip fracture group. Women without hip fractures had greater aBMD, vBMD, BMC (24-29%) and CSA (6%) than women with hip fractures, and men without hip fractures had higher BMD and BMC (19-23%) amounts, but CSA was similar. In men, vBMD was more sensitive for predicting hip fracture than aBMD, but aBMD and vBMD sensitivity was similar in women. However, the specificity for predicting hip fracture was better for aBMD for both men and women.

Studies using pQCT tibia scans have demonstrated BMC, vBMD, and area differences between genders and between age groups within gender. Wilks et al. found that at the 4% tibia site, gender differences were highest for trabecular BMC (35-41%) and smallest for trabecular vBMD (9-19%) (101). At the 38% tibia site, gender differences in cortical BMC corresponded to differences in cortical area, and there were no significant differences in cortical vBMD or circularity. There were, however, gender differences of 38-53% in torsion strength, and relative strength differences were greater than content and area differences. Gender differences were larger between controls than they were between athletic groups.

In a study by Nieves et al. examining gender-related differences in bone characteristics in adolescent elite military cadets, proximal femur BMC and aBMD values were significantly greater in males than height- and weight-matched females, but lumbar spine values were not significantly different (55). Further, all total and cortical bone variables of the tibia diaphysis, including vBMD, area, content, and thickness were 5%-14% lower in females. Endosteal circumference was the only bone quality variable that did not reach statistical significance. The authors did note significant differences in lean mass, and these differences explained part of the gender differences in bone parameters.

Evans et al. (23) examined tibia 4%, 38%, and 66% characteristics in male and female military recruits. Area values were 21.7-25.6% smaller in women, but when adjusting for height and weight, area differences were reduced to 9.4-15.8%. Moments of inertia values were 41.5-44.6% lower in women, and were 27.4-31.2% lower after adjusting for height and weight. Interestingly, cortical vBMD was 2-3% higher in women, both before and after adjusting for body size. These results suggest that the distribution of the bone mass was more important for gender differences in bone strength than was bone mass or bone density.

Age-related differences in tibia bone quality have been reported in young adult and middle-aged adults. Sherk et al. reported that men ages 50-64 years had lower trabecular vBMD and tended to have lower total vBMD at the 4% tibia site than men ages 18-30 years (82). Total vBMD was also lower at the tibia 66% site in middle-aged men. Although the tibia 4% site is common for examining the epiphysis, there is variability in scan locations for the diaphysis, as 38%, 50%, and 66% have all be used by researchers. Since studies have not compared the ability to detect small bone changes between the diaphyseal sites, direct comparison between studies should be done with caution.

Effects of Menopause on Bone Health

Few studies investigating the effects of menopause in the absence of co-morbidities on tibia bone strength and morphology have been conducted using the non-high resolution pQCT. Some pQCT studies exclusively scanned the radius, which is difficult to scan without having movement artifact. The International Society for Clinical Densitometry Position Stand states that the radius can be used to predict hip fracture in postmenopausal women, but not in other populations (5). The radius is relatively non-weight bearing, thus it may be a poorer indicator of the ability of the skeleton to adapt to mechanical loading than the weight-bearing tibia.

Peripheral QCT scanning has shown sensitivity in detecting vBMD, BMC, and area changes and rates of bone loss in pre, peri, and postmenopausal women, but the magnitude of differences can depend on scan analysis methods. Whether a voxel is considered cortical bone or trabecular bone depends on the setting of density threshold. A higher density threshold will reduce the number of voxels that are considered cortical bone, but vBMD will increase simply because of the changed exclusivity of analysis. Hasagawa et al. reported that distal forearm vBMD (30-35%), cortical area, cortical thickness and moments of interia values were markedly lower in postmenopausal women than premenopausal women, and differences in cortical bone variables were much larger (58-64% lower in postmenopausal) when a higher threshold was used for analysis (18-37% lower in postmenopausal women for lower threshold) (30). Further, age-matched postmenopausal women with vertebral fracture had lower vBMD, cortical area, cortical thickness and moments of inertia values than postmenopausal women without fracture. Again, these differences were magnified when higher thresholds were used. Roldan et al. found that late postmenopausal women had increased cortical porosity than premenopausal women by determining the proportions of the tibia slice within low, medium, and high vBMD thresholds (74).

Rates of trabecular bone loss in the distal radius were similar for naturally and ovariectomized postmenopausal women in a study by Hernandez et al., but rates of cortical and total bone loss were greater in naturally postmenopausal women (33). The researchers did note a large heterogeneity of bone loss in both groups. Since the distal radius is typically used for total and trabecular bone analysis, it is unclear if rates of bone loss would have differed between groups at a diaphyseal site. Since neither Hasegawa et al. nor Hernandez et al. measured the tibia, it is not known if sites exposed to higher amounts of mechanical loading would have resulted in smaller group differences (31, 33).

In a longitudinal study measuring spine aBMD with DXA and vBMD with QCT for 5 years and radius and tibia vBMD with pQCT for 4 years, perimenopausal women were shown to experience the most rapid losses in BMD at the spine as measured by QCT and DXA and linear regression analysis compared to premenopausal and late postmenopausal women (5.47%/yr and 2.59%/yr, respectively, vs. 2.35%/yr and 1.51%/yr for premenopausal, and 2.24%/yr and 1.39%/yr for late postmenopausal), trabecular vBMD at the distal radius (4.92%/yr, vs. 1.22%/yr and 2.45%/yr) and tibia (6.45%/yr vs. 1.58%/yr and 1.98%/yr), and total vBMD of the tibia (5.07%/yr vs. 2.05%/yr and 2.34%/yr at metaphysis; 3.84%/yr vs. 1.33%/yr (premenopausal) at diaphysis), compared to premenopausal and late postmenopausal women, based on linear regression analysis (36). Measured spine BMD losses were up to 2 times greater with QCT than DXA. Measured rates of trabecular bone loss were greater than rates of total bone loss. Mean rates of vBMD losses in the tibia were larger than vBMD losses in the radius. Bone density losses appeared higher in perimenopausal women than early postmenopausal women, but variability was also greater, so differences were not significant. Rates of BMD loss in the spine and distal radius and tibia sites were higher in women within the first 5 years of menopause than women more than 5 years after menopause (spine: 4.76%/yr (QCT) and 2.29%/yr (DXA) vs. 2.28%/yr (QCT) and 1.37%/yr (DXA); radius and tibia: 2.74%/yr – 5.27%/yr vs. 1.58%/yr – 2.28%/yr).

Similar findings were reported by Tsurusaki et al. (91). Similar rates of bone loss occurred in the tibia between premenopausal and late postmenopausal women, which ranged between less than ¼ to ½ the rate of bone loss in perimenopausal women. Strangely, although correlations between tibia pQCT variables and spinal QCT were stronger than correlations between radius pQCT variables and spinal QCT, odds ratios of radius variables for fracture risk were reported, but odds ratios for tibia variables were not. It is apparent that more research is needed to determine the sensitivity of the pQCT for detecting rapid bone changes in the tibia specific to menopause, and relating the findings to predicting fracture risk.

Effects of Physical Activity on Bone Characteristics

Frost greatly contributed to the development of the Utah paradigm of skeletal physiology (27). This paradigm can largely be considered a physiological explanation of Wolff's Law, which states that bone architecture is designed to meet the functional demands of the bone. The general mechanism that allows the skeleton to detect where and when a bone needs more strength or has too much, based on modeling and remodeling thresholds, is referred to as the mechanostat (27). Most mechanical loading on bone comes from muscular contractions (27), and loading varies by magnitude, rate, duration, and the frequency of loading. Bone adapts to a combination of these variables by arranging tissue in a manner that is least likely to fracture from previously experienced loads (24, 27, 51). Turner proposed that to stimulate the bone modeling process, loads must be dynamic, be non-routine, and can be of short duration (92). Since the bone remodeling cycle typically takes 3-6 months to complete (52), long-term (12-24 months) training studies are required to detect meaningful bone changes by noninvasive imaging. As a result, many studies have quantified the effects of physical activity on bone health via regression analyses or by cross-sectional studies of athletic and nonathletic groups.

Relationships between physical activity levels and aBMD and BMC may be age and gender-specific, as Hogstrom et al. found that total and high impact physical activity predicted femoral neck BMC and aBMD in men ($r^2 = 0.41$-0.61), but not in women (35). Uusi-Rasi et al. found that physically active premenopausal women had 6.9% higher distal tibia trabecular vBMD than postmenopausal women, and tibial shaft BMC, cortical area, and BSI were 5-8.6% higher in postmenopausal women (94).

Several studies have utilized an osteogenic index (OI) of activities, which uses ground reaction forces, time durations, and frequency of participating in the activity, as a predictor of bone health (19, 57). It has been reported that the OI of activities decreases with age in men. Lifetime and mid adulthood (ages 19-50 yrs) OI was positively associated with velocity of sound (VOS) of the heel using ultrasound, total and cortical area, cortical content, and polar moment of inertia using QCT with differences ranging from 7-14% between the lifetime high-impact and lifetime low-impact groups (19). There was little evidence in this study to suggest that high impact activities in youth was protective of bone health if later life physical activities were low-impact, as bone characteristics in this group were not significantly different than those of the lifetime low-impact group. Activity levels did not predict DXA-based bone variables, but hip aBMD variables were highest in the lifetime high-impact group.

The effects of physical activity on bone health can also depend on the age of high-impact activity participation, and whether activity levels are maintained throughout the lifespan or are interrupted. In a cross-sectional study by Nilsson et al., young men ages 18-20 yrs who were continuously active from childhood through early adulthood had greater cortical area, thickness, and vBMD; trabecular vBMD; and periosteal circumference of the 25% tibia site compared to men who ceased to be active during late childhood (mean ± SD duration of inactivity: 3.4 ± 2.5 yrs) and men who had always inactive (57). Tibia values were significantly higher in men that ceased to be active compared to men that were always inactive, demonstrating lasting positive effects of interrupted previous physical activity during adolescence. Quantifying the osteogenic index of previous activities did not improve the relationship between tibia bone quality and previous physical activity, as they each predicted between 1.3-7.9% of the variability in cortical bone quality. The duration of inactivity was significantly negatively correlated with cortical bone variables, but was not a significant predictor of cortical bone variables.

Just as high-impact activities are associated with greater BMD and BMC values, several studies have found that muscular power is predictive of bone strength. Ashe et al. reported that muscle power predicted up to 9% of variance in bone strength indices at midtibia in older women (3). Recently, Cousins et al. found that older men in the highest quartile of leg power had significantly (2.7-4.8%) greater total area at the distal tibia than all lower quartile groups (18). Further, SSI, section modulus, and cortical area at the 66% tibia site were 4-6% higher in men in the highest quartile of leg power than those in the lowest quartile. Distal tibia total area and 66% tibia cortical area and vBMD were also highest in men in the highest physical activity quartile.

Direct comparisons of athletic and untrained populations have illustrated the effects of physical activity on bone mass, area or distribution. Higher impact activities and activities that resist gravity are most beneficial. Colletti et al. examined spine and hip aBMD in resistance-trained young adult men, and found that they had greater lumbar spine, femoral neck, and trochanter aBMD than controls, but radius aBMD was not significantly different between these two groups (17).

Premenopausal women athletes competing in high-impact, odd-impact, and repetitive low-impact sports had greater SSI values at mid-tibia than controls (63). Cortical BMC values were 12-43% higher in athletes than controls, depending on athletic group or tibia section (anterior, posterior, lateral, medial). However, there were no significant differences in bone strength between athletic groups. As a model of high-impact and high-magnitude loading, Heinonen et al. tested elite triple jumpers and compared femur and tibia bone characteristics to gender-, age-, height-, and weight-matched controls (32). They found that cortical thickness and area percent differences ranged from 19-24% in the tibial diaphysis and 52-56% at the distal tibia, and total and trabecular vBMD percent differences ranged from 18-41% at the tibia and femur epiphyseal sites. Total area differences were usually not significant.

Liu et al. had complementary results, as young male jumpers had significantly greater polar moments of intertia, and greater cortical content, area, and thickness in the tibia than swimmers and untrained controls (47). Further, total area was greater in jumpers than controls. Bone characteristics of male swimmers were not significantly different from controls. Activity-based differences in bone characteristics were far more evident in women, as group differences in men were typically 8-10%, whereas differences in women ranged from 4-82%. Female jumpers had significantly lower cortical vBMD, but greater cortical BMC, thickness and area, total area, polar moments of inertia, and SSI than controls. Further, jumpers had greater total vBMD, cortical BMC, thickness, and area, and polar moments of inertia than swimmers. Interestingly, swimmers had lower total and cortical vBMD than controls, but had greater total and trabecular area, polar moments of inertia, and SSI. Area was negatively correlated with cortical vBMD in this study.

Wilks et al. found that race walkers, long and middle distance runners, and sprinters all had more favorable bone characteristics in the tibia than controls, and there were no significant differences between running and walking groups in bone characteristics (100). Male sprinters had 6-8% greater total area and trabecular BMC, and 15% greater trabecular vBMD than controls at the tibia 4% site. Male long distance runners also had greater total area than controls. Female sprinters had 18% greater trabecular BMC and 13% greater trabecular vBMD than controls, and middle distance runners had 8% greater trabecular vBMD than controls. Activity group differences in cortical BMC corresponded with group differences in area and bone strength at the 38% site, and differences were more evident in women than in men (4-17% greater than controls in men, 8-26% greater than controls in women). Interestingly, while cortical BMC, cortical area and bone strength increased as rates of loading increased (race walking to sprinting), cortical vBMD was highest in controls. Within gender, activity-group differences in forearm bone characteristics were largely nonexistent.

While muscular contractions may be necessary for maintenance of bone quality, they may not always be sufficient. Smathers et al. showed that competitive cyclists had 7.1% lower AP spine aBMD than age- and weight-matched untrained controls (87). Total hip, trochanter, and femoral neck aBMD was 1.7-4.8% lower in cyclists, and aBMD differences existed regardless of resistance training status. However, there was no significant difference in the prevalence of osteopenia or osteoporosis between cyclists and controls. In a recent study by Sherk et al., resistance-trained young men had significantly greater lumbar spine and femoral neck aBMD than rock climbers and untrained controls, but there were no significant differences in any pQCT-measured bone characteristics in the tibia or forearm (81). This may have been a result of sample size, or lifetime bone loading history, as subjects were only required to be engaged in their activities for 1 year.

Effects of Unloading on Bone Health

As tibia scanning with pQCT is able to detect bone differences in activity or athletic groups, pQCT is also used to detect rapid bone losses from skeletal unloading. Modes of prolonged skeletal unloading used in research included bed rest, stroke, spinal cord injuries, space flight, and amputation. Bed rest studies have used varied durations of unloading, but all have shown large losses in bone content. Thirty-five days of bed rest resulted in bone content losses of up to 3%, depending on the tibial or femur site examined in a study by Rittweger et al. (73). Cortical bone content losses were greater than trabecular bone losses, and cortical losses at the proximal tibia exceeded 15%. Bone cross-sectional area, endosteal circumference, and periosteal circumference did not greatly change during the 5 weeks of bed rest. In 2005, Rittweger et al. reported smaller losses in a protocol using 90 days of bed rest plus 14 days of recovery (71). Mean tibia BMC losses of up to 2% occurred, with the largest changes occurring at the epiphysis. This small mean change, however, was likely due to large intersubject variability. A protocol of 60 days of bed rest caused approximately 3.5-4% decreases in trochanter and hip aBMD in healthy women (88). Finally, simply not using a limb while a fracture is healing is likely to cause decreases in bone density. Veitch et al. reported total and trabecular vBMD losses of 18%-30% in tibiae 24 weeks post-fracture (96).

Large decrements in tibia and femur bone mass (25-58%), total and trabecular vBMD (45-73%), and cortical area (28-43%) in men and women with spinal cord injuries have been reported (22, 72). Eser et al. have suggested that after spinal cord injury, bone may take up to 7 years to reach a steady state, based on exponential decay curves (22). Even with unilateral paralysis, bone losses are not limited to the paretic side. Lazoura et al. found that between 3 and 12 months post-stroke, men showed decreases in femoral neck and trochanter BMD of 8.3% each in the unaffected side and 11.8% and 10.4%, respectively, for the paretic side (43). Female stroke patients lost nearly 11% of BMD from the nonparetic femoral neck and trochanter and lost approximately 13% on the paretic side. Jorgensen et al. followed patients for one year post-stroke, and found that BMC of the paretic leg decreased 7%, whereas the nonparetic leg decreased by 2% (38). BMC losses in the paretic leg became significant at 7 months post-stroke, and losses were slightly more severe in patients who did not learn to walk 2 months after stroke. These results are comparable to a study by Pang et al., where patients who were more than one year post-stroke had 3.7-4.8% difference between hip aBMD values (61).

Both complete and incomplete recoveries of bone characteristics after unloading have been reported in literature. Spaceflight for 4-6 months resulted in femoral neck total, trabecular and cortical vBMD losses of 4-16.5%, cortical and total mass losses of 11-12%, and cortical volume losses of 8%. Total and cortical volume showed the most complete recovery in 12 months post-flight, with preflight to 12-month recovery ratio values of 0.99 and 1.05, respectively. Total and trabecular vBMD values exhibited the weakest recovery, with preflight to 12-month recovery ratio values of 0.91 and 0.89. After 12 months of recovery from spaceflight, femoral neck bending and compression strength estimations were 10% and 14% lower than preflight values (41). Rittweger et al. conducted a 1-year follow-up of their 90-day bed rest study and found that bone losses of the tibial diaphysis was insignificant by 6 months post bed rest, and at 1 year there was a significant increase in BMC (70). Losses were still statistically significant for the tibial epiphysis after 1 year.

Lower limb amputations are a special case of skeletal unloading in nature, and the degree of bone quality losses partly depends on whether the amputation occurs above or below the knee. Transfemoral amputees have exhibited the largest relative differences between limbs, ranging from 16% to 58% differences in hip aBMD (45, 77, 80). When testing WWII amputee veterans with an average time since amputation of 26 years, the affected hip had 18-25% lower aBMD than the unaffected hip (40). Transtibial and transfemoral results were not reported separately in that study. Differences in hip aBMD in transtibial amputees have been reported to be between 8-17% (45, 76, 80). One human study in transtibial and transfemoral amputees tested volumetric bone characteristics of the end of the residual limb using pQCT, and found lower total and cortical vBMD and residual limb area, compared to a comparable slice on the intact limb (80).

Summary

Research has shown that tibia scans with pQCT can predict failure loads, and has illustrated some effects of age, gender, menopause, and mechanical loading on bone. However, optimal pQCT scanning locations, analysis algorithms, and results interpretation have not been clearly established, and the clinical scope has not been defined. Also, the cost of a pQCT is much greater than DXA, and current acquisition and analysis software for pQCT is not as user friendly as the software for DXA. It is possible, however, that with continued research, pQCT tibia scanning can be optimized, and software can become more user-friendly as clinical use guidelines become more established. These advances may make assessment of bone health with pQCT a sufficiently highly effective technique for bone health screening for at-risk populations so as to rationalize its cost.

CHAPTER III

METHODS

This cross-sectional study assessed age and gender differences in bone mass, bone shape, and bone strength indicators throughout the adult tibia. In addition, this study helped to determine what tibia site(s) are most sensitive to age-related or menopause-related changes. Finally, this study assessed relationships between pQCT-assessed bone mass, bone shape, and bone strength indicators at individual tibia sites or as ratios between multiple tibia sites and DXA-assessed bone mineral content (BMC) and areal bone mineral density (aBMD).

Participants

Participants for this study were Caucasian men and women ages 20-59 years (n=114). Fifteen subjects per gender, per decade were tested for the 20-29 year olds and 50-59 year olds. Also, 15 men ages 30-39, 10 men ages 40-49, 14 women ages 30-39, and 15 women ages 40-49 were tested. Volunteers were recruited from the Norman and Oklahoma City areas. Participants read and signed a written consent form and an Authorization to Use or Disclose Protected Health Information form. All methods were approved by the University of Oklahoma Institutional Review Board.

Inclusion Factors

1. Participants were healthy and free of any disease or disorder known to cause changes in bone health.
2. Men and women were between 20-59 years of age.
3. Premenopausal women subjects were with regular menstrual cycles (eumenorrheic).
4. Men and women self-identified as being Caucasian.

Exclusion Factors

1. Individuals with amputations or who had had a cerebral vascular accident were not allowed to participate.

2. Women who were pregnant or thought they might be pregnant were not allowed to participate.

3. Women who were taking oral contraceptives, DepoProvera, or hormone replacement therapy were not allowed to participate. Women were also not taking any other form of birth control containing hormones.

4. Men who were taking androgen replacement therapy or anabolic steroids were not allowed to participate.

5. Individuals who participated in more than 15 hours of moderate to vigorous exercise per week were not allowed to participate.

6. Individuals who participated in fewer than 75 minutes of moderate to vigorous physical activity per week were not allowed to participate.

7. Individuals who exceeded the 300-pound weight limit were not allowed to participate.

8. Individuals with any metabolic diseases known to cause significant losses of BMD were not allowed to participate.

9. Individuals with a hip replacement and/or a metal device implanted in the hips were not allowed to participate.

10. Individuals who were not Caucasian were not allowed to participate.

Research Design

This cross-sectional study employed a mixed factorial research design with two group variables (gender and age decade) and one repeated measures variable (limb site). This study tested healthy men and women who were grouped by decade. Participants had their non-dominant leg scanned with pQCT at 10 cross-sectional sites, ranging from 5% to 95% of the limb length. Also, participants had their total body, lumbar spine, and dual proximal femur scanned with DXA. Characteristics of the tibia were compared between genders, age group, and tibia site. These variables were also used to predict DXA-assessed aBMD and BMC values.

Timeline of Subject Recruitment and Testing

Subjects were recruited by flyers, mass email, and by word of mouth. They were screened for inclusion/exclusion criteria before making an appointment for testing. All testing occurred during a single visit to the University of Oklahoma Bone Density Research Laboratory.

Questionnaires

Several questionnaires were administered to gather information regarding important potential confounding variables that affect bone health such as medications, menstrual history, and physical activity levels. Dietary analyses were conducted to assess energy, calcium and vitamin D intakes. Energy availability (difference between energy intake and energy expenditure) is important to consider since energy deficits have been shown to affect bone metabolism (96).

The following questionnaires were used in this study.

1. Medical History Screening – This form was used to identify whether subjects met the inclusion/exclusion criteria for the study and to document medications taken by subjects.
2. Bone-Specific Physical Activity Questionnaire (BPAQ) – This validated questionnaire was used to quantify exposure to bone-loading physical activities throughout the lifespan (99).
3. Block 2005 Food Frequency Questionnaire – The 110-item questionnaire was analyzed for nutrient intake (calcium, phosphorous, Vitamin D) and for energy intake (total kcal, protein grams, % intake as protein). This instrument is an updated version of the original 100-item Block Food Frequency Questionnaire used by the National Cancer Institute.
4. Menstrual History (women only) – This questionnaire provided information about menstrual cycle characteristics, menopausal status, and previously-used oral contraceptive or hormone replacement therapy.

Body Weight and Height

Body weight and height were measured during each visit to the Bone Density Laboratory using a wall stadiometer and a Tanita BWB-800 digital scale (Tanita Corporation of America, Inc., Arlington Heights, IL).

Bone Scans

1. Dual-Energy X-Ray Absorptiometry (DXA)

DXA (GE Lunar Prodigy, Prodigy enCORE software version 13.31.016, Madison, WI) was used to measure areal BMD (g/cm^2) and BMC (g) of the total body, anterioposterior (AP) lumbar spine (L1-L4), and the dual proximal femur (femoral neck, trochanter, and total hip). Quality assurance testing (QA) was performed each day that scans were performed to ensure that the DXA was operating properly. The first step of QA for the DXA was a scanning calibration block of known density, and a series of mechanical functioning tests, which the software ran automatically. All individual tests must pass for the overall QA to pass. The second step of the QA testing was scanning a phantom spine block of known density. The L2-L4 density must fall within the predetermined range to pass.

For the total body scan, the participants laid supine on the DXA table with arms close to the sides. Velcro straps were placed around their legs to ensure that the legs remained still and relaxed. For the AP lumbar spine scan, the legs were lifted and supported by a foam block, such that the there was a bend in the knee, and the angle created by the thighs and the scanning bed was between 45-90 degrees. The technician ensured that the iliac crests were even, and the lumbar spine was resting flat on the scanner bed. The scanner arm was centered with the torso as marked by the participant's navel, and placed approximately 5 cm below the navel to ensure that the iliac crests as well as the T12 vertebra were visible on the scan. Arms were crossed over the chest such that the upper arms were perpendicular to the scanner bed. The scan progressed from L5 to T12 vertebrae. Scan speeds for the total body and lumbar spine were determined by the measured thickness of the subject at the naval (Thick = >25 cm; Standard = 13 – 25 cm; and Thin = < 13 cm). The dual femur scans were performed using the detail setting. Participants' legs were internally rotated and secured in place to ensure proper exposure of the femoral neck and the femur was positioned parallel to the scanning boundary. The scan began just below the pubic symphysis, centered on the thigh being scanned, and finished 3 to 4 sweeps above the head of the femur.

The in vitro precision and accuracy of the DXA GE Lunar Prodigy in the Bone Density Research Laboratory was 0.6% and 0.8%, respectively. The in vivo precision (%CV) was less than 1% for all of the BMD sites (total body – 0.6%, AP spine – 0.9%, dual proximal femur – 0.4 to 0.8%). All DXA scans were performed by the same qualified technician.

2. Peripheral Quantitative Computed Tomography (pQCT)

A pQCT scanner XCT 3000 with software version 6.00 (Stratec Medizintechnik GmbH, Pforzheim, Germany) was used to measure cortical vBMD (mg/cm^3), BMC (mg/mm), and area (mm^2); trabecular vBMD (mg/cm^3), BMC (mg/mm), and area (mm^2); and total bone vBMD (mg/cm^3), BMC (mg/mm) and area (mm^2) at 10 sites of the non dominant tibia from 5-95% (distal to proximal) of the tibia length in 10% increments. Compressive, bending and torsional strength was estimated from these scans and were represented as bone strength (BSI), strength-strain indices (SSI) (mm^3), moments of inertia (Imax, Imin), and SSI:Total BMC ratios. Other variables that are indicative of bone size and shape that were recorded were periosteal (PeriC) (mm) and endosteal circumferences (EndoC) (mm), the ratio of Imax/Imin, and cortical thickness (CTh). Also, Total BMC ratios between 5% and 15%, 5% and 35%, 5% and 65%, and 5% and 85% were determined, based on ratios at or near sites suggested by Capozza et al. (14) (5%:15%, 5%:35%), commonly used sites (5%:15%, 5%:35%, 5%:65%), or at a potentially new useful site (5%:85%). Total cross-sectional area (TCSA) (mm^2), fat cross-sectional area (FCSA) (mm^2), and muscle cross-sectional area (MCSA) (mm^2)

were determined at the tibia 65% site. This series of scans provided representative sampling for the entire tibia, and took 30-45 minutes to complete. Quality assurance test scans were completed each testing day, where a phantom cone of known densities underwent a scout view scan, and a series of 4 scans that the software ran automatically. The densities must be within 99% accuracy in order for the quality assurance test to pass.

Scan sites were determined by measuring the length of the tibia from the medial tibial plateau to the apex of the medial malleolus, and directing the software to measure at percentages of the limb length proximal to a distal reference point. To perform the scans, each participant was seated in the scanning chair with the limb in the support holders and positioned in the center of the scanning area. The participant was asked to remain very still. Scans were performed as 2 sets of 5 in order to reduce the duration of continued stillness for the subject. In the Bone Density Research Laboratory, the *in vivo* (%CV) precision for measuring total bone vBMD, BMC and area at the tibia 4%, 38%, and 66% sites ranged from 0.3-1.9%. Precision ranges for measuring vBMD, BMC and area variables for the trabecular and cortical compartments were 1.1-5% and 0.5-1.7%, respectively. All pQCT scans were performed by the same qualified technician. Figure 1 shows a sample scan for all 10 sites.

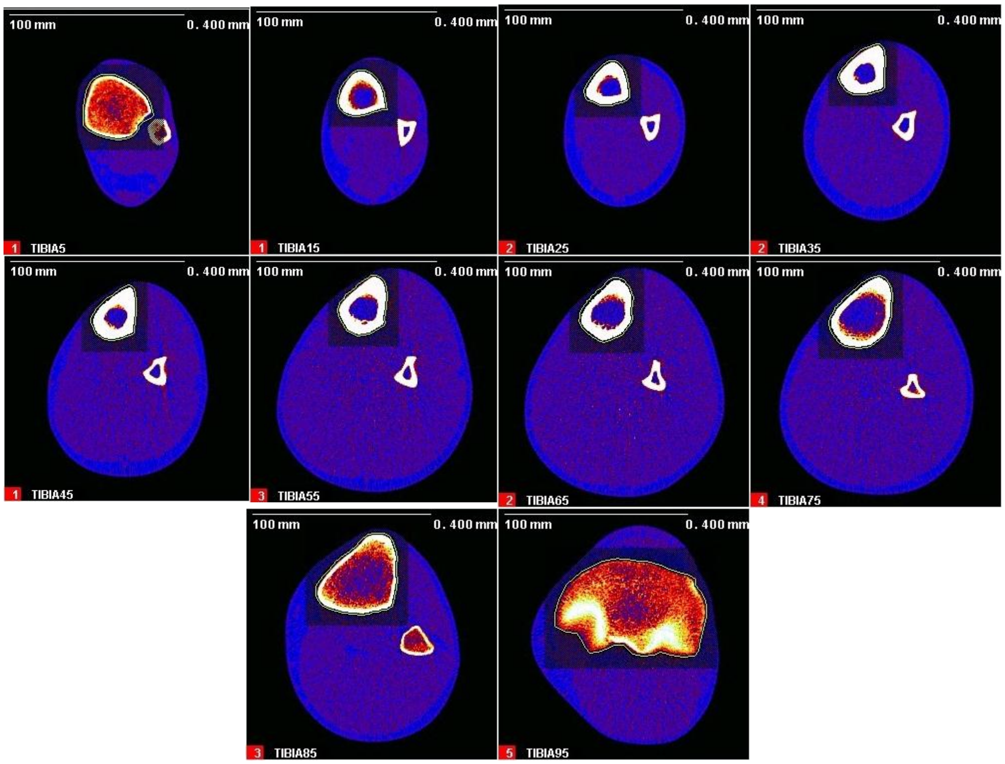

Figure 1. Representative examples of all 10 tibia sites from 5% to 95% of the tibia length from distal to proximal.

The Stratec software uses contour and peeling methods (modes) based on threshold ranges that differentiate bone from soft tissue, and then differentiates cortical from trabecular bone. All scans were analyzed by the same technician. Sites 15%-75% were analyzed using the same modes to obtain total and cortical bone characteristics. Since trabecular bone was visible in many participants at the 15% site, this information was also used at this site. Total and trabecular bone characteristics were determined at the 5% and 85% sites. Since the 85% site typically had a viable cortical shell to negate partial volume effects cortical characteristics were used at this site. Partial volume effects occur at the border between soft tissue and the cortical shell, and between cortical bone and trabecular bone, when a voxel contains both bone and soft tissue or both cortical and trabecular bone. A voxel is given a value that is the average of all density values within the voxel. Cortical shells that are thin relative to the scan resolution are more prone to under or over estimations in cortical values. The 95% proved to be a very unique site for assessing bone quality, as there was no cortical shell, and required a special set of analysis techniques. Only trabecular vBMD was used from this site due to the large intersubject variability in characteristics.

The outer threshold used for determining total bone characteristics of the diaphyseal sites was 710 mg/cm^3, and the inner threshold was 480 mg/cm^3. The threshold used for defining cortical bone was 710 mg/cm^3. Contour mode 1, Peel mode 2 and Cort Mode 2, which are all driven by user-defined thresholds, were used for these sites. When evaluating SSI, a cortical threshold of 480 mg/cm^3 was used to allow subcortical bone to be included in the strength determination. To prevent streaking effects caused by analyzing bone cross-sections with a discontinuous cortical shell, the outer threshold used for determining total bone characteristics of the 5% and 85% sites was 650 mg/cm^3, and an inner threshold of 169 mg/cm^3. Contour mode 3 and Peel mode 4 were used. The cortical threshold remained at 710 mg/cm^3. The thresholds used for the 95% site were 40 and 480 mg/cm^3. Contour mode 3 and peel mode 4 were used at this site.

The Stratec software gave information about mass moments of inertia (I) in the x-y plane; however, the axes of the image were rotated with respect to the principal axes of the tibia slice. To obtain the rotated I_x and I_y, the following translation was used:

$$\alpha = (\tan^{-1} (2I_{xy}/(I_x\text{-}I_y)))/2$$

$$I_{rotatedx} = (I_x + I_y)/2 + ((I_x - I_y)/2)\cos 2\alpha - I_{xy}\sin 2\alpha$$

$$I_{rotatedy} = (I_x + I_y)/2 - ((I_x - I_y)/2)\cos 2\alpha + I_{xy}\sin 2\alpha$$

The larger value was denoted as I_{max}, and the smaller value was denoted as I_{min}. Bone strength index is a compressive strength index that was calculated by two equations because they have been reported differently in manuals and literature:

$$BSI_1 = \text{Total vBMD} * \text{Total Area}^2$$

$$BSI_2 = (\text{Total Area} * \text{Total vBMD})^2$$

In order to segment the images into fat, muscle and bone so that the cross-sectional areas of each can be determined, pQCT images were analyzed with the integrated software using median filter modes for noise suppression. The ‘F03F05’ filter combined a 3x3 median filter with a threshold range of -500 to 500 mg/ccm with a 5x5 median filter with a threshold range of -500 to 300 mg/ccm. Since pQCT analysis outputs were designed primarily for cancellous (Calcbd) and cortical (Cortbd) bone characterization, acquiring muscle CSA and fat CSA data from pQCT images was a function of two Calcbd analyses of an image using separate thresholds ranges to peel away fat, muscle, and bone (and marrow). Both analyses used a threshold-driven contour detection and peel. The segmentation threshold value range used in analysis 1 to separate fat + marrow from muscle + bone was -100 to 40 mg/ccm, and the threshold value range used in analysis 2 to separate bone from muscle and marrow from fat was 710 and 40 mg/ccm. Total area of analysis 1 represented total CSA. Muscle CSA is derived by subtracting the bone area of analysis 2 from muscle + bone area of analysis 1. Fat CSA was derived by subtracting the marrow area of analysis 2 from the fat + marrow area of analysis 1.

Statistical Analyses

Data are reported as mean ± SE for all dependent variables. Statistical analyses were performed using SPSS for Windows version 18.0 (SPSS, Inc., Chicago, IL). Four (decade) by two (gender) by n (site) repeated measures ANOVAs were used to detect significant site, age, gender, site*age, site*gender, age*gender, and site*age*gender effects on all tibia variables at each site. Bonferroni post hoc tests were used for pairwise age-group and site comparisons when testing for main effects. When a site*gender interaction was significant, independent t-tests were performed to determine gender differences at each site. When a significant site*age interaction occurred, one-way ANOVAs were used to determine age group differences at each site. When a significant age*gender interaction occurred, gender differences were determined for each age group, and age group differences were determined within each gender. Specifically, total BMC, vBMD, area, and periosteal circumference were compared at sites 5%-85%. Trabecular BMC, vBMD and area were compared between the 5%, 15%, and 85% sites. Cortical BMC, vBMD, area, endosteal circumference, SSI, Imax, Imin, SSI:Total BMC, and cortical thickness were compared between sites 15%-85%. The bone mass ratios were also compared between genders and age groups. Four (decade) by two (gender) ANOVAs were used to detect significant age, gender, and age*gender interaction effects for the DXA aBMD and BMC variables.

The prevalence of osteopenia and osteoporosis was determined using T-scores according to the World Health Organization criteria (normal, T-score ≥ –1.0; osteopenia, T-score –1.1 to –2.4; and osteoporosis, T-score ≤ –2.5) using the young adult reference database (5, 85). The association between age or gender group with the prevalence of osteopenia or osteoporosis was determined using Chi-Square analyses. Gender-specific T-scores were generated for the tibia total BMC ratios based on the 20-29 year age group. Zero Order Pearson Product Moment Correlation Coefficients were used to determine relationships between dietary variables (energy intake, calcium/vitamin D intake), body composition, age, bone-loading physical activity scores from BPAQ, and the bone variables. Significant correlates were then used as covariates in the previously described analyses. Also, significant correlates were used in stepwise linear regression with pQCT bone variables to predict DXA-derived bone variables. The level of significance was set at $p \leq 0.05$. The assumption of sphericity was violated in every pQCT-related repeated measures ANOVA, so the Greenhouse-Geisser adjustment was used to determine significance.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this study was to examine the effects of age and gender on tibia morphology, and to relate indicators of tibia mass and shape on hip and spine aBMD and BMC as assessed by DXA. Additional purposes of this study were to determine which tibia site or sites are most sensitive for detecting age, gender, or menopause-related morphology changes.

General Subject Characteristics

Participants were grouped by gender and decade from 20-59 years. There were 15 participants each in the 20-29 (20s) men and women, 30-39 (30s) men, 40-49 (40s) women, and 50-59 (50s) men and women groups. There were 14 women in the 30-39 group, and 10 men in the 40-49 group. There were a total of 114 participants. Of the women participants, 32.2% (n = 19) were postmenopausal. None of the women, regardless of menopausal status, had taken any form of estrogen or progesterone in the past year, including oral contraceptives, NuvaRing, DepoProvera, Mirena IUD, Premarin, or other estrogen/progesterone patches or vaginal creams. Of the premenopausal women (n = 38), 71% (n = 27) were previous oral contraceptive users, and the time since last usage ranged from 1 year to 31 years. Two women were perimenopausal according to self-report. The time since menopause ranged from 1 to 20 years, and 6 of the 19 postmenopausal women had had a hysterectomy. Of the postmenopausal women, 4 were previous hormone replacement therapy (HRT) users, and the time since HRT use ranged from 1 year to 8 years.

Body Composition by DXA

Table 1 shows the age, height, weight and body composition variables (bone-free lean body mass (BFLBM), fat mass (FM), body fat %) of each group. Two-way ANOVAs were used for age and gender with body composition variables. As expected, there was a significant ($p < 0.01$) difference between age groups. There was not a significant age difference within gender groups. Men were significantly ($p < 0.01$) taller and heavier than women, and they had significantly ($p < 0.01$) greater total and leg BFLBM. There were no significant age effects for height or BFLBM, but there was a trend for an age effect for weight ($p = 0.060$). There was a significant ($p < 0.01$) age effect for total body FM and significant age ($p < 0.05$) and gender ($p < 0.01$) effects for leg FM, where the 40s age group had higher fat mass values than the 20s age group, and women had greater leg fat mass values than men. The overall weight range for this study was 46.8 kg (women) -131.8 kg (men), and body fat percentage ranged from 15.3-51.5% in women and 6.2-44.6% in men.

Table 1. Age and Body Composition Variables for Each Group. (Mean ± SE)

Variable	Age & Gender Group	20-29 M = 15 W = 15	30-39 M = 15 W = 14	40-49 M = 10 W = 15	50-59 M = 15 W = 15
Age [c]	Men	24.3 ± 0.8	34.6 ± 0.8	46.1 ± 0.9	54.8 ± 0.8
(yrs)	Women	21.2 ± 0.3	35.3 ± 0.9	47.0 ± 0.5	55.2 ± 0.7
Ht[a]	Men	176.9 ± 1.6	180.4 ± 1.3	177.3 ± 1.9	178.9 ± 2.2
(cm)	Women	165.2 ± 1.3	163.6 ± 2.4	164.4 ± 1.4	165.3 ± 1.6
Wt[a]	Men	82.9 ± 4.1	91.7 ± 3.5	90.0 ± 5.9	88.1 ± 4.6
(kg)	Women	65.0 ± 3.1	69.2 ± 3.7	78.7 ± 5.7	73.1 ± 4.2
BFLBM[a]	Men	63.5 ± 2.4	61.0 ± 1.2	60.2 ± 2.6	59.9 ± 2.1
(kg)	Women	39.8 ± 1.1	40.9 ± 1.9	44.7 ± 2.0	37.5 ± 2.9
FM[c]	Men	16.2 ± 2.1	27.1 ± 3.0	26.3 ± 3.9	24.8 ± 2.9
(kg)	Women	21.9 ± 2.3	24.8 ± 2.5	31.7 ± 4.0	37.5 ± 2.9
Leg	Men	21.8 ± 0.9	21.2 ± 0.6	20.6 ± 1.1	20.4 ± 0.8
BFLBM[a] (kg)	Women	13.7 ± 0.5	14.0 ± 0.7	15.3 ± 0.7	13.6 ± 0.7
Leg	Men	5.2 ± 0.7	8.8 ± 1.0	7.2 ± 1.2	6.7 ± 0.8
FM (kg)[ad]	Women	8.6 ± 0.9	10.1 ± 1.1	12.3 ± 1.6	11.2 ± 1.3
Total body	Men	19.0 ± 2.2	28.5 ± 2.4	28.1 ± 2.6	27.3 ± 1.7
fat %[ac]	Women	33.1 ± 1.8	35.4 ± 2.3	38.1 ± 2.9	39.7 ± 2.2

Significant gender difference [a] $p < 0.01$, [b] $p < 0.05$. Significant age effect [c] $p<0.01$ [d] $p<0.05$. Ht: Height; Wt: Weight; BFLBM: Bone-Free Lean Body Mass; FM: Fat Mass.

Physical Activity and Diet

Bone-specific physical activity levels throughout the lifespan were assessed by questionnaire and are reported in Table 2. There were significant ($p < 0.05$) age and gender effects for past and total physical activity, where 20s were more active than 50s, and women were more active than men. Age*gender interaction effects were significant for total physical activity ($p < 0.05$), but this was only a trend for past physical activity ($p = 0.07$). There were no significant group differences in current bone loading physical activity. Dietary intake averaged over the previous year was assessed with a food frequency questionnaire, and average daily caloric intake, absolute and relative protein intake, and calcium, phosphorous, and vitamin D intakes are also reported in Table 2. There were significant ($p < 0.01$) gender differences in total intake and protein intake, percentage of total intake as protein, and phosphorous intake, where men consumed more than women. Significant age group differences were found for protein ($p < 0.05$) and phosphorous intake ($p < 0.01$); both declined with age. Age*gender interactions ($p < 0.05$) were found for % of intake as protein, calcium intake and phosphorous intake. Calcium intake declined with age in men, and increased with age in women. Almost 1/3 (37/114) of this sample had an average daily calcium intake below the estimated average daily requirement of 800 mg/day, and 55/114 (48%) had an average daily intake below the recommended dietary allowance of 1000 mg/day (75). Over half of the participants (64/114) had an average daily vitamin D intake below the estimated average requirement of 400 IU/day, and 95/114 participants were below the recommended dietary allowance of 600 IU/day (75).

Table 2. Physical Activity (PA) and Selected Dietary Intake Variables for Each Group. (Mean ± SE)

Variable	Age & Gender Group	20-29 M = 15 W = 15	30-39 M = 15 W = 14	40-49 M = 10 W = 15	50-59 M = 15 W = 15
Current PA	Men	4.0 ± 0.8	4.5 ± 1.6	4.3 ± 1.4	3.1 ± 1.1
	Women	11.6 ± 6.2	5.2 ± 1.1	3.8 ± 1.8	2.0 ± 0.7
Past PA[bd]	Men	64.9 ± 10.3	69.1 ± 16.6	75.8 ± 19.8	57.5 ± 11.4
	Women	179.8 ± 33.7	125.1 ± 48.2	112.3 ± 33.9	36.0 ± 7.0
Total PA[bdf]	Men	34.4 ± 5.2	36.8 ± 8.2	40.0 ± 10.1	30.3 ± 5.6
	Women	95.7 ± 15.7	65.2 ± 24.1	58.1 ± 17.5	19.0 ± 3.5
Total Intake[a] (kcal)	Men	2426 ± 302	1984 ± 158	1869 ± 191	1582 ± 127
	Women	1680 ± 193	1433 ± 127	1699 ± 142	1579 ± 192
Protein[ad] (g)	Men	112 ± 16	80 ± 7	74 ± 9	64 ± 5
	Women	65 ± 8	55 ± 5	68 ± 6	59 ± 7
% Protein[af]	Men	19 ± 1	16 ± 1	16 ± 0	16 ± 1
	Women	16 ± 0	15 ± 1	16 ± 1	15 ± 1
Calcium[f] (mg)	Men	1432 ± 196	1021 ± 104	1137 ± 159	976 ± 122
	Women	870 ± 122	919 ± 103	1265 ± 150	1265 ± 150
Phosphorous[acf] (mg)	Men	1960 ± 272	1333 ± 117	1309 ± 149	1058 ± 84
	Women	1154 ± 137	968 ± 90	1237 ± 96	1137 ± 139
Vitamin D (IU)	Men	649 ± 267	338 ± 63	306 ± 87	413 ± 66
	Women	236 ± 51	336 ± 64	377 ± 76	387 ± 65

Significant gender difference [a] $p < 0.01$, [b] $p < 0.05$. Significant age effect [c] $p<0.01$ [d] $p<0.05$. Significant age*gender interaction [e] $p < 0.01$, [f] $p < 0.01$.

Areal Bone Mineral Density, Bone Mineral Content, and Osteoporosis Classifications

Table 3 shows the total body, lumbar spine (L1-L4) and proximal femur (total hip, femoral neck, trochanter) aBMD values of each group. Figure 2 shows the lumbar spine and proximal femur aBMD values by age group. Total body aBMD was significantly ($p < 0.01$) greater in men than women. There was also a significant ($p < 0.05$) age effect, however, there were no significant pairwise differences between age groups. When correcting for BFLBM, age and gender effects for total aBMD were no longer significant, but a trend ($p = 0.08$) appeared for age*gender interaction effects. Lumbar spine aBMD was not significantly different between groups. Correcting for total BFLBM made the gender differences significant (Estimated means ± SE: Men: 1.201 ± 0.024; Women: 1.289 ± 0.023, $p < 0.05$) and caused a trend ($p = 0.096$) for an age*gender interaction. Correcting lumbar spine aBMD for total FM caused an age trend to appear ($p = 0.07$). There were significant ($p < 0.01$) age and gender effects for all hip aBMD variables. Total hip, femoral neck, and trochanter aBMD was 7.6%, 6.3%, and 11.5% lower, respectively, in women compared to men. Trochanter aBMD was only 0.4% lower in women after correcting for total BFLBM, making the gender difference nonsignificant. The 20s group had 10.3% and 15.2% greater trochanter aBMD than the 30s and 50s group, respectively, and correcting for total BFLBM reduced age differences to only 0.3-2.2%. Correcting for total FM did not affect hip aBMD results.

Gender differences in BMC were more pronounced, as shown in Figure 3. The gender effect was significant ($p < 0.01$) for L1-L4 lumbar spine, as values were 16% lower in women. Gender effects were no longer significant when correcting for BFLBM, but remained significant when correcting for FM. Age and gender effects on total hip and femoral neck BMC were each significant ($p < 0.01$). In pairwise comparisons, the 20s group had significantly ($p < 0.01$) greater total hip (13.4%) and femoral neck (20%) BMC than the 50s group. There was a trend ($p = 0.083$) for 40s to have greater total hip BMC than 50s. Age differences in total hip BMC were less pronounced, but still significant ($p < 0.05$) when correcting for BFLBM, and 20s still had greater BMC than the 50s group. Age differences in femoral neck BMC become more pronounced after correcting for BFLBM, as there was a trend for the 20s group to have greater femoral neck BMC than the 30s group ($p = 0.056$), and the 20s group had significantly ($p \leq 0.05$) greater BMC values than the 40s (9.4%) and 50s (16.5%) group. Men had 29% and 23% greater total hip and femoral neck BMC, respectively, than women. Correcting for BFLBM in the total hip BMC comparison resulted in the gender effect becoming a trend ($p = 0.075$), and the gender difference was reduced to 7.4%. When correcting for BFLBM, the gender effect on femoral neck BMC was no longer significant (1.5% difference), however, the age*gender interaction became a trend ($p = 0.085$). In the 30s and 50s groups, women had greater BMC values than men. The total hip BMC differences between 20s and 50s were reduced to 4.8% when correcting for FM, but this difference was still significant ($p < 0.05$). Also, the gender difference in total hip BMC was slightly increased to 30.4%. Correcting for FM very slightly increased the gender effect on femoral neck BMC, and resulted in the 20s group having significantly ($p < 0.05$) greater femoral neck BMC (11-12% greater) than all other age groups. Men had 48% greater trochanter BMC than women ($p < 0.01$), and when correcting for BFLBM or for FM, the gender difference remained significant ($p < 0.05$, 14% and 49% greater in men, respectively). Age group effects were not significant for trochanter BMC, but when correcting for FM, the age effect became a trend ($p = 0.088$). Gender differences were also significant ($p < 0.01$) for total body BMC, and remained significant ($p < 0.05$) after correcting for BFLBM.

Table 4 shows the prevalence of osteopenia and osteoporosis in this sample. No women and only one man met the criterion for osteoporosis at any site. At the lumbar spine, 23.6% of men and 5.0% of women had a T-score between -1.0 and -2.4. For the hip sites, 14.5%, 25.5%, and 32.7% of men and 16.9%, 20.3%, and 23.7% met the criterion for osteopenia at the total hip, femoral neck, and greater trochanter, respectively. Both gender and age were significantly associated with lumbar spine osteoporosis classification, but surprisingly, men had the higher prevalence. There were no significant associations between gender and osteoporosis classification at any hip site. There was a trend for significant associations with age and total hip ($p = 0.088$) and trochanter ($p = 0.086$) osteoporosis classification. Age was significantly ($p < 0.05$) associated with femoral neck osteoporosis classification.

Table 3. Areal Bone Mineral Density (aBMD) of the Total Body, AP Lumbar Spine, and Proximal Femur (Total Hip, Femoral Neck, Trochanter). (Mean ± SE)

aBMD (g/cm^2)	Age & Gender Group	20-29 M = 15 W = 15	30-39 M = 15 W = 14	40-49 M = 10 W = 15	50-59 M = 15 W = 15
Total Body	Men	1.319 ± 0.017	1.271 ± 0.028	1.322 ± 0.036	1.232 ± 0.022
	Women	1.187 ± 0.019	1.203 ± 0.020	1.194 ± 0.016	1.164 ± 0.022
L1-L4 Lumbar Spine	Men	1.293 ± 0.024	1.206 ± 0.043	1.285 ± 0.063	1.215 ± 0.038
	Women	1.245 ± 0.025	1.305 ± 0.032	1.238 ± 0.026	1.184 ± 0.035
Total Hip[ac]	Men	1.244 ± 0.038	1.076 ± 0.044	1.143 ± 0.045	1.029 ± 0.028
	Women	1.086 ± 0.038	1.057 ± 0.030	1.036 ± 0.025	0.968 ± 0.028
Femoral Neck[ac]	Men	1.240 ± 0.044	1.065 ± 0.043	1.081 ± 0.043	0.969 ± 0.024
	Women	1.103 ± 0.038	1.047 ± 0.036	0.989 ± 0.023	0.945 ± 0.026
Trochanter[ac] (20s>30s, 50s)	Men	1.027 ± 0.034	0.877 ± 0.040	0.963 ± 0.047	0.857 ± 0.762
	Women	0.856 ± 0.034	0.830 ± 0.028	0.821 ± 0.026	0.779 ± 0.024

Significant gender difference [a] $p < 0.01$, [b] $p < 0.05$. Significant age effect [c] $p<0.01$ [d] $p<0.05$. 20s: 20-29 age group; 30s: 30-39 age group; 40s: 40-49 age group; 50s: 50-59 age group.

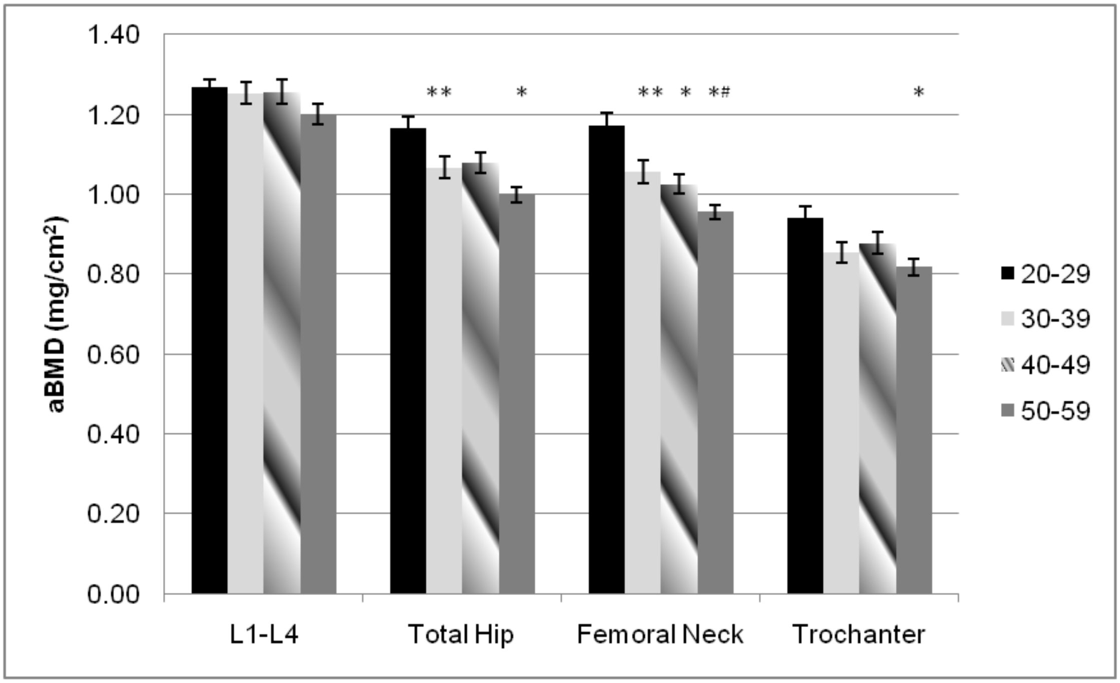

Figure 2. Lumbar Spine and Proximal Femur Areal Bone Mineral Density (aBMD) by Age Group. (Mean ± SE). *p < 0.01, *p < 0.05: Significantly different from 20-29 group. #p < 0.05: Significantly different from 30-39 group.

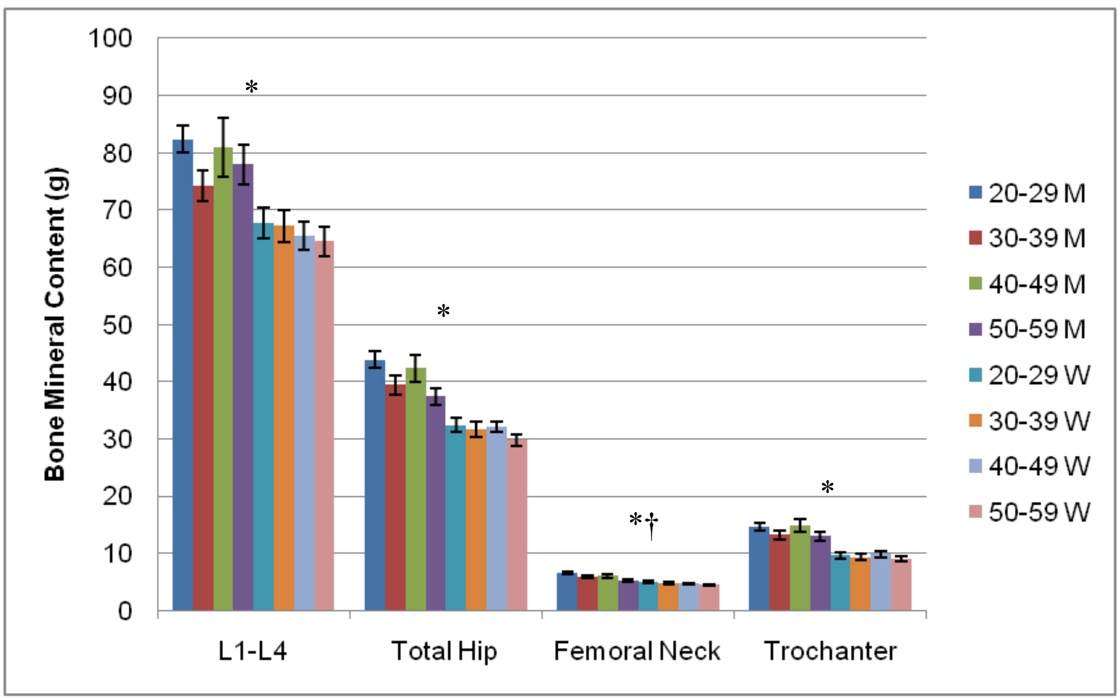

Figure 3. Bone Mineral Content of the Lumbar Spine (L1-L4) and Proximal Femur for Each Group. Mean ± SE. *p < 0.01: Gender effect significant at all sites. †p < 0.05: 20s > 50s at Femoral Neck.

Table 4. Prevalence of Normal/Osteopenia/Osteoporosis at the Lumbar Spine and Proximal Femur. (Mean ± SE)

Age Group	Gender Group	L1-L4[ab]	Total Hip	Femoral Neck[a]	Trochanter
20-29	Men (n = 15)	15/0/0	15/0/0	14/1/0	14/1/0
	Women (n = 15)	15/0/0	12/3/0	13/2/0	11/4/0
30-39	Men (n = 15)	9/6/0	13/2/0	11/4/0	6/9/0
	Women (n = 14)	14/0/0	12/2/0	13/1/0	13/1/0
40-49	Men (n = 10)	7/3/0	9/1/0	7/3/0	8/2/0
	Women (n = 15)	15/0/0	14/1/0	13/2/0	13/2/0
50-59	Men (n = 15)	11/4/0	10/5/0	9/6/0	8/6/1
	Women (n = 15)	12/3/0	11/4/0	8/7/0	8/7/0

[a]$p < 0.05$ Significant association for age group and bone health status [b]$p < 0.01$ Significant association for gender and bone health status.

Soft Tissue Measurements by pQCT

Soft tissue comparisons were also made using pQCT. Total (TCSA), fat (FCSA), and muscle (MCSA) cross-sectional areas were determined at the 65% tibia site, and group values are reported in Table 5. There was no significant age or age*gender interaction for TCSA, and there was only a trend ($p = 0.099$) for a gender effect. There were significant ($p \leq 0.05$) age and gender effects for FCSA, as women had greater FCSA values, and there was a trend ($p = 0.057$) for 20s to have lower FCSA than 40s. Men had significantly ($p < 0.01$) greater MCSA than women.

Table 5. Total (TCSA), Fat (FCSA) and Muscle (MCSA) of the Calf Muscles. (Mean ± SE)

Age	Gender	TCSA (mm^2)	FCSA (mm^2)[ab]	MCSA (mm^2)[a]
20-29	Men (n = 15)	11111.7 ± 360.8	1314.9 ± 163.2	9101.4 ± 360.6
	Women (n = 15)	10302.2 ± 562.2	2788.0 ± 282.2	6988.6 ± 327.5
30-39	Men (n = 15)	11937.0 ± 557.3	2196.1 ± 291.4	8985.2 ± 311.3
	Women (n = 14)	10669.9 ± 562.4	3095.2 ± 344.8	6996.7 ± 282.1
40-49	Men (n = 10)	11945.2 ± 496.3	1741.7 ± 276.0	9462.2 ± 329.4
	Women (n = 15)	12353.8 ± 809.8	4172.6 ± 585.1	7609.7 ± 291.8
50-59	Men (n = 15)	11441.7 ± 490.0	1534.3 ± 169.7	9154.3 ± 388.3
	Women (n = 15)	10628.7 ± 548.9	3080.2 ± 305.7	7011.2 ± 341.4

[a]$p < 0.01$ Significant gender effect. [b]$p < 0.05$ Significant age effect.

Bone Characteristics by pQCT

Figures 4 and 5 present the total BMC and area values for each age and gender group at each site, respectively. Total BMC values along the tibia uniquely exhibited a quintic form. The lowest values were at the 15% site, and the highest values were at the 85% site. There were significant site, site*gender, site*age, and gender effects, and there was a trend for a significant age effect. The 55%, 65%, and 75% sites were not significantly different from each other. Total BMC was 21-27.9% lower in women than men, with the largest difference occurring at the 5% site and the smallest difference at the 75% site. All sites were significant for gender. Age was only significant at the 85% site, but pairwise comparisons did not find significant differences between decades. Means were highest in the 20s group at the 5% and 85% sites. 30s and 40s groups were within 2.5% of each other at all sites (within 1% at 15-75) and were same or greater than 20s at 15-75. 35% was 5.4% higher in 40 yr olds and 40s were 7.5% higher than 50s at this site. When correcting for total BFLBM, the site*gender interaction was no longer significant, and the age trend was lost. A trend ($p = 0.094$) for a site*age*gender interaction appeared, in that gender differences appeared to be greatest in 40s, which varied by site. This is potentially because women appeared to be similar between 20s and 30s, then lower in 40s, and then 40s were similar to 50s. In men, there were increases until 40s, then values were lower in 50s. However, these findings were not significant. When correcting for total FM, age became significant ($p < 0.05$), with 20s having higher values than 50s, and again the 5% and 85% sites had the most marked declines.

For total area, there were significant ($p < 0.05$) site, site*gender, gender, and age effects. Total area was not significantly different between the 15% and 45% sites, but all other sites were different. Gender differences were significant at every site, and ranged from 14.4% (at 5%) to 24.6% (at 35%) lower in women. Total area was 3.3% (at 55%)-23.4% (at 15%) lower in 20s than 30s, and this difference was significant ($p < 0.05$). When correcting for BFLBM, the gender*site interaction was lost. The significant age effect was lost when correcting for FM.

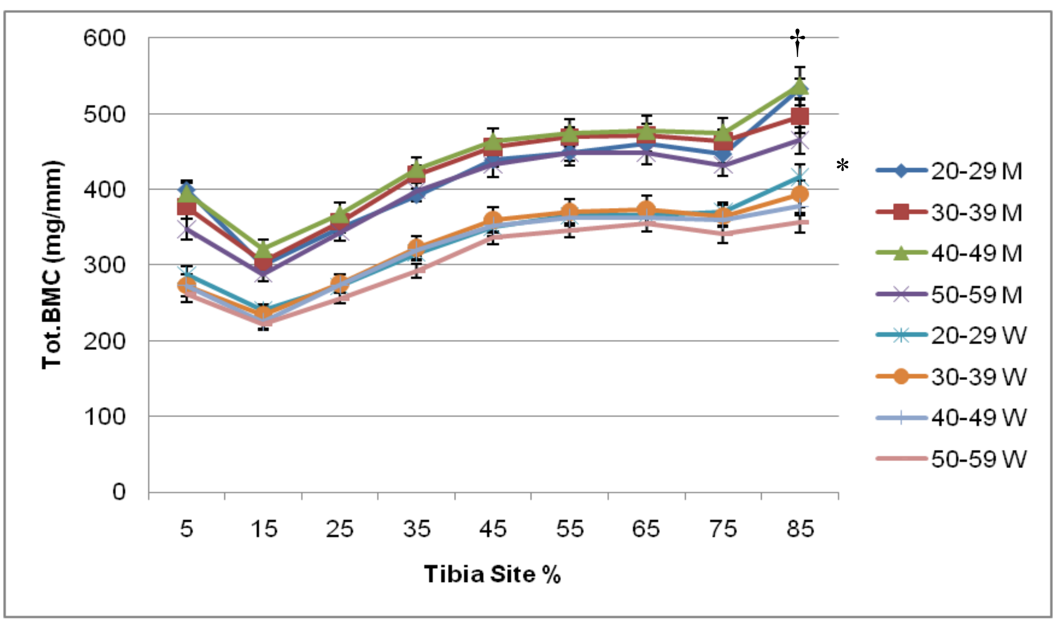

Figure 4. Total BMC at Each Tibia Site from 5% to 85% of the Limb Length. Mean ± SE. *$p < 0.01$; Gender effect significant at all sites. †$p < 0.05$ Significant age effect. Sites 55%-75% were similar ($p > 0.05$) to each other.

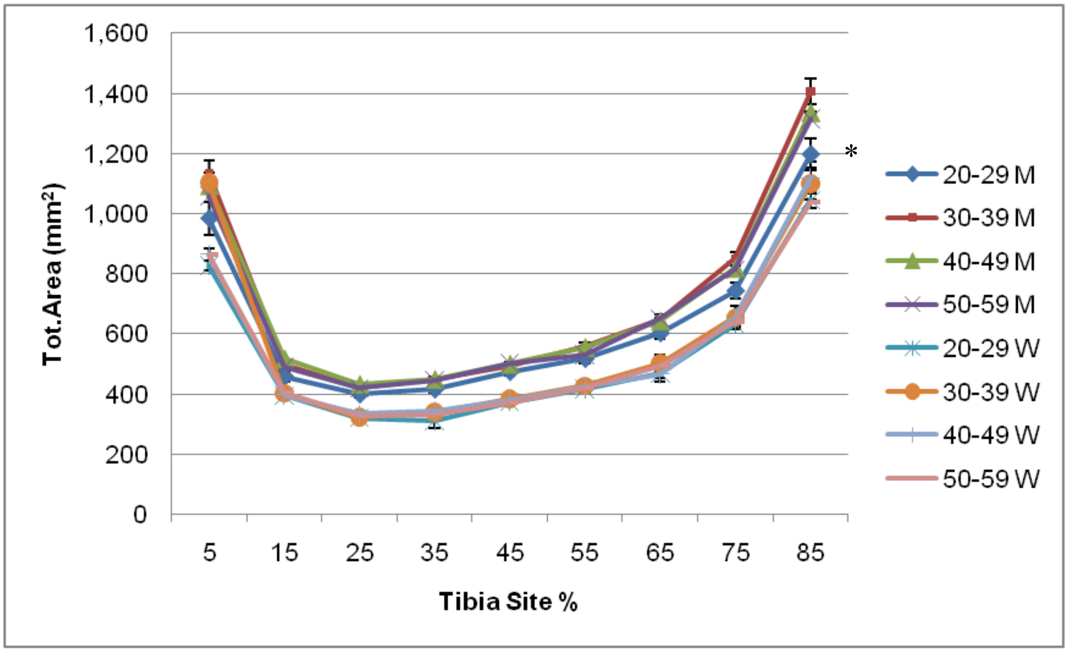

Figure 5. Total Bone Area at Each Tibia Site from 5% to 85% of the Limb Length. Mean ± SE. *p < 0.01 (0.05 at 5% site); Gender significant at all sites. Trend for age effect at sites 5% (p = 0.075) and 15% (p = 0.064). 15% site similar to 45% site.

Figures 6 and 7 present the cortical BMC and area values for each age and gender group at each site, respectively. Unlike the relationship between the total BMC and area curves, the shape of the cortical area curve along the tibia strongly resembled the cortical BMC curve. There were significant ($p < 0.01$) site, site*gender interaction, and gender effects, and there was a trend for the age effect. Cortical BMC peaked at the 55% site, was lowest at the 15% site, and the shape of the curve appeared to take on a quadratic form. The only sites that were not significantly different from each other were 35% versus 75% and 45% versus 65%. Gender differences were significant at all sites, and cortical BMC was 21.3-24.6% lower in women. Gender differences were larger at the tibia ends (15%, 85%). The site*gender interaction was no longer significant when BFLBM was used as a covariate, and the age trend was lost. Interestingly, the age effect became significant when FM was used as a covariate, but pairwise comparisons were not significant.

For cortical area, there were significant ($p < 0.01$) site, site*gender interaction, and gender effects, and there was a trend ($p = 0.097$) for an age effect. The 25% site was not significantly different from the 85% site, and the 55% site was not significantly different from the 65% site. All other sites were significantly different. Cortical area peaked at the 55% and 65% sites. Cortical area was 23-25.6% lower in women, and this range was consistent throughout the tibia. When correcting for BFLBM, the site*gender interaction and age trend were lost. When correcting for FM, age became significant ($p < 0.05$), but pairwise comparisons were not significant.

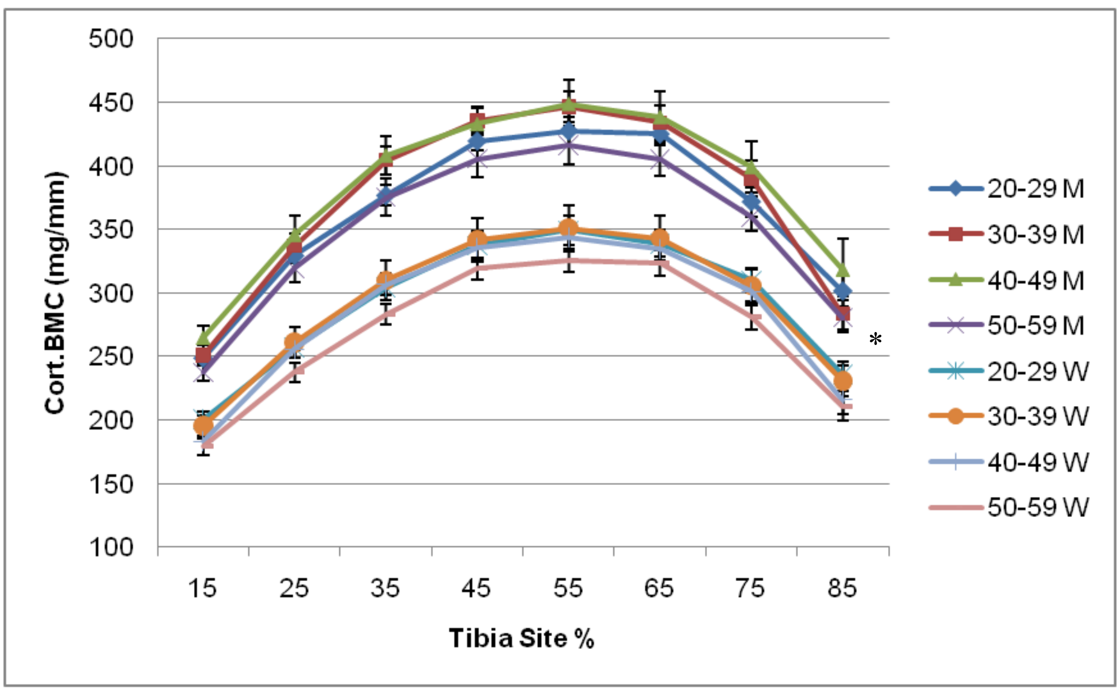

Figure 6. Cortical BMC at Each Tibia Site from 5% to 85% of the Limb Length. Mean ± SE. * $p < 0.01$; Gender effect significant at all sites. Similar sites were 35% and 75%, and 45% and 65%.

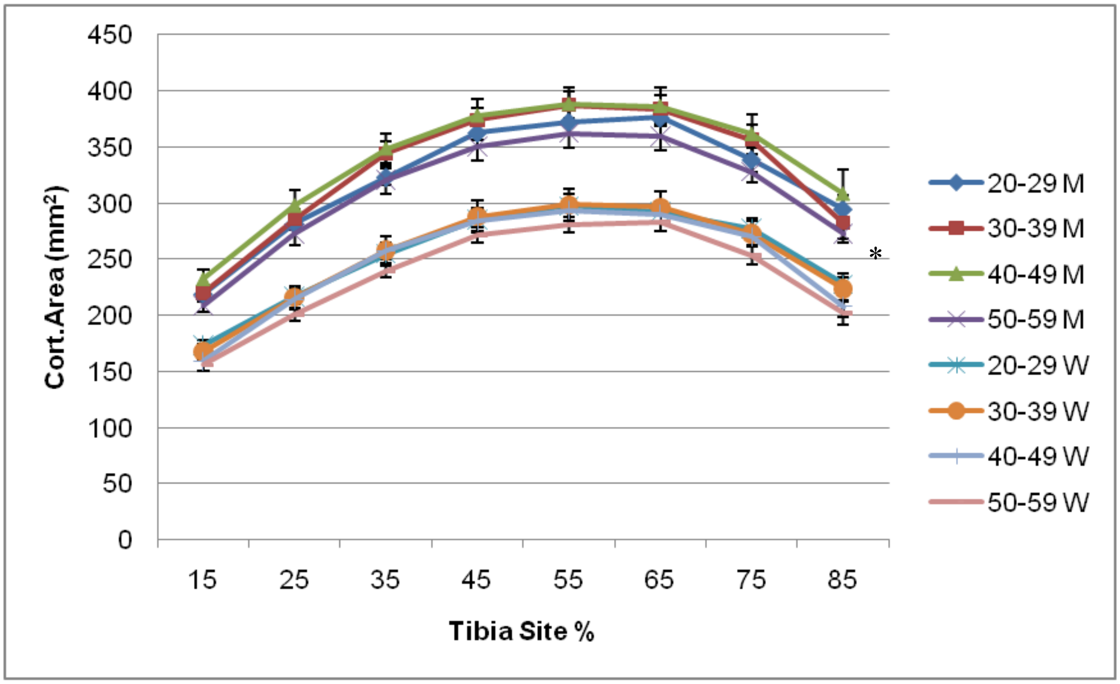

Figure 7. Cortical Bone Area at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. *p < 0.01; Gender effect significant at all sites. 25% site was similar to the 85% site, and 55% site was similar to 65% site.

Figures 8 and 9 show the total and cortical volumetric BMD (vBMD) at each site. There were significant ($p < 0.05$) site, gender*site, age*site, and age effects for Total vBMD. Total vBMD values along the tibia also appeared to take on somewhat of a quadratic pattern, and values peaked at the 35% site. The 25% and 55% sites were the only sites that were not significant from each other. Gender differences in total vBMD ranged from being 9.9% lower in women at the 5% site to 1.2% higher in women at the 45% site. Women had greater vBMD than men from the 35%-65% sites, but these differences were not significant. Gender differences were significant at the 5%, 15%, and 85% sites, and there was a trend at the 25% site. Subjects in the 20s group had significantly greater total vBMD than 50s, and there was a trend for 40s to have greater total vBMD than 50s (3.3-7.2% lower). Total vBMD values were 5.4-17.2% lower in

50-somethings than 20-somethings, and differences were highest at the 5%, 15%, 75%, and 85% sites.

Significant ($p < 0.01$) site, site*age, and gender effects, and a trend ($p = 0.083$) for site*gender existed for cortical vBMD. Cortical vBMD very gradually increased as the site became more distal, peaking at the 25% site. The 15% site was not significantly different from the 65% site, and the 25% was not significantly different from the 35% site. There was a trend for age at the 25% site, and age groups were within 2% of each other at all sites. Cortical vBMD values were 0.9-2.0% higher in women, and this was significant at sites 25%-75%. There was a trend ($p = 0.052$) for a gender difference at the 85% site. When correcting for BFLBM, the site*gender interaction trend disappeared, but when correcting for FM, site*gender became significant, as gender effects were significant ($p < 0.05$) at all sites except for the 15% site.

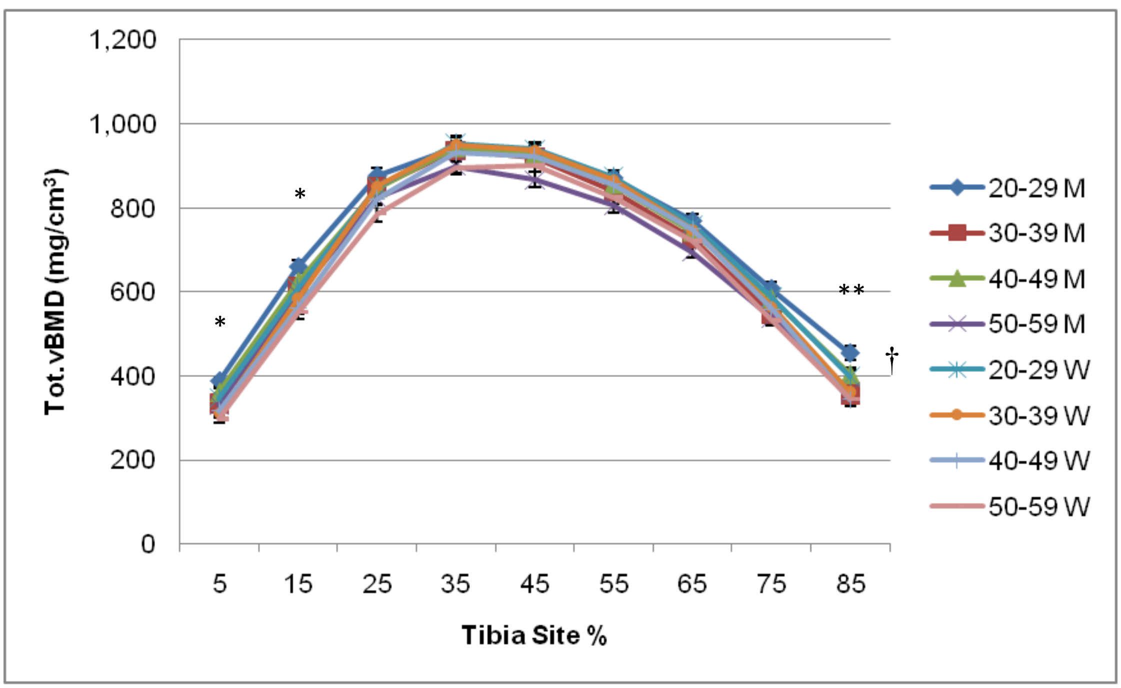

Figure 8. Total Volumetric Bone Mineral Density (vBMD) at Each Tibia Site from 5% to 85% of the Limb Length. Mean ± SE. †$p < 0.01$ ($p < 0.05$ at 25%); Age effect significant at all sites. *$p < 0.01$; **$p < 0.05$; Significant gender effect. 25% site similar ($p > 0.05$) to 55% site.

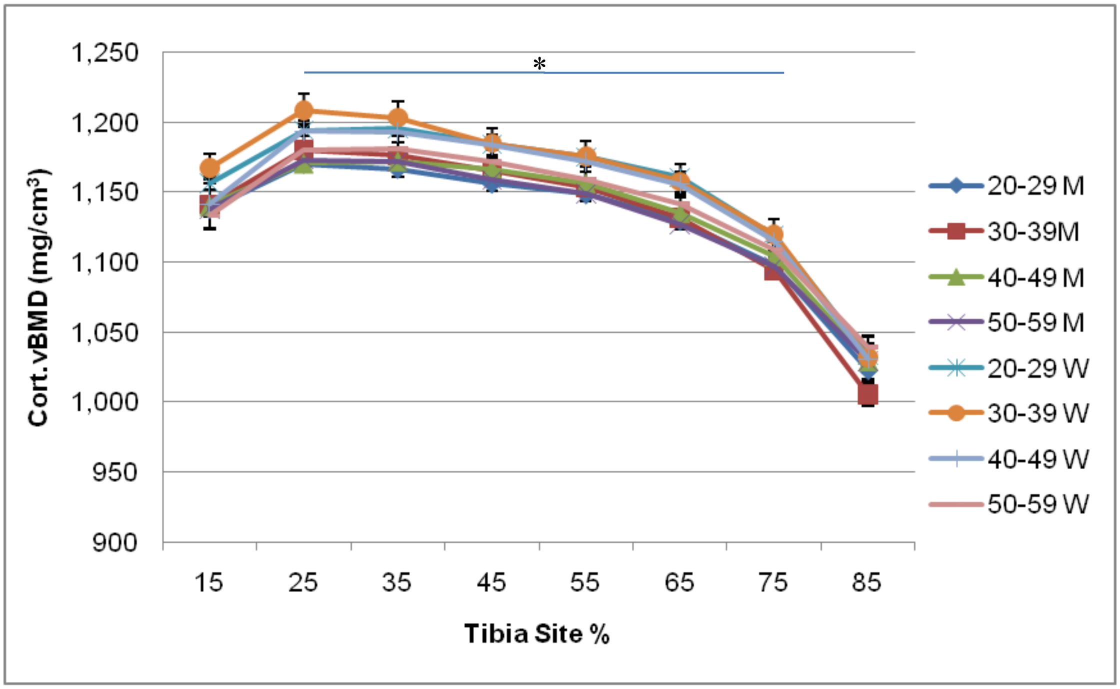

Figure 9. Cortical Volumetric Bone Mineral Density (vBMD) at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. *p < 0.01; Gender effects were significant at sites 25%-75%. Trend for gender at 85% (p = 0.052). Similar sites were 15% to 65%, and 25% to 35%.

Figures 10, 11, and 12 show trabecular BMC, area, and vBMD values for each group at the 5%, 15%, and 85% sites. There were significant ($p < 0.01$) site and gender effects, site*gender*age interaction and a trend for an age effect ($p = 0.08$) and a site*gender interaction ($p = 0.06$) effect for trabecular BMC. Trabecular BMC values were highest at the 5% site and lowest at the 15% site. Male trabecular BMC values were 17.7-24.7% higher than women values overall. At the 5% site, gender differences were largest in the 20s (41% lower in women), and smallest in the 50s (10.8% lower in women.) At the 15% site, 20s and 30s women had 117.5% and 7.9% higher trabecular BMC values, whereas 40s and 50s women had 52.3% and 59.7% lower trabecular BMC values. Finally, at the 85% site, 20s women had 5.1% higher values than men, but 30s, 40s, and 50s women had 11.3%, 42.5%, and 40.1% lower values than men. Correcting for BFLBM eliminated the site*gender interaction trend and the site effect, but made the age effect significant ($p < 0.05$), with 50s having lower values than 20s. Correcting for FM made the site*gender interactions and age effect significant ($p < 0.05$). In this analysis, 50s had lower values than 20s and 30s, and gender effects were much greater at the 5% and 85% sites than the 15% site.

There were significant ($p < 0.05$) site and age*gender interaction effects for trabecular vBMD. Trabecular vBMD was 40%, 136%, and 73% higher in 20s women than 20s men at the 5%, 15%, and 85% sites, respectively. It was 34%, 38%, and 52% higher in 30s women than 30s men, but it was 26%, 42%, and 56% lower in 40s women than 40s men, and 32%, 58%, and 53% lower in 50s women than 50s men. Also, while trabecular vBMD in women was highest in the 20s age group, it was highest in the 40s age group in men. At the 5% site, 20s women had significantly ($p < 0.05$) greater trabecular vBMD values than 50s women, and at the 85% site, 20s women were significantly ($p < 0.05$) greater than 40s and 50s women. The age*gender interaction effect remained significant when correcting for BFLBM, but the site effect was no longer significant. Correcting for FM did not affect the trabecular vBMD results.

Site, gender, age, and site*gender interaction effects were significant ($p < 0.05$) for trabecular area. Correcting for BFLBM eliminated the site*gender interaction and the gender effect, but correcting for fat mass did not affect the trabecular area results. The 15% tibia site was significantly lower than the 5% and 85% sites, but 5% and 85% sites were not significantly different. Men had 11.7-16.7% greater trabecular bone area than women at all 3 sites ($p < 0.05$), and the largest difference was at the 85% site. The

30s group had significantly (12.3-27.7%) greater trabecular area than the 20s group ($p < 0.01$).

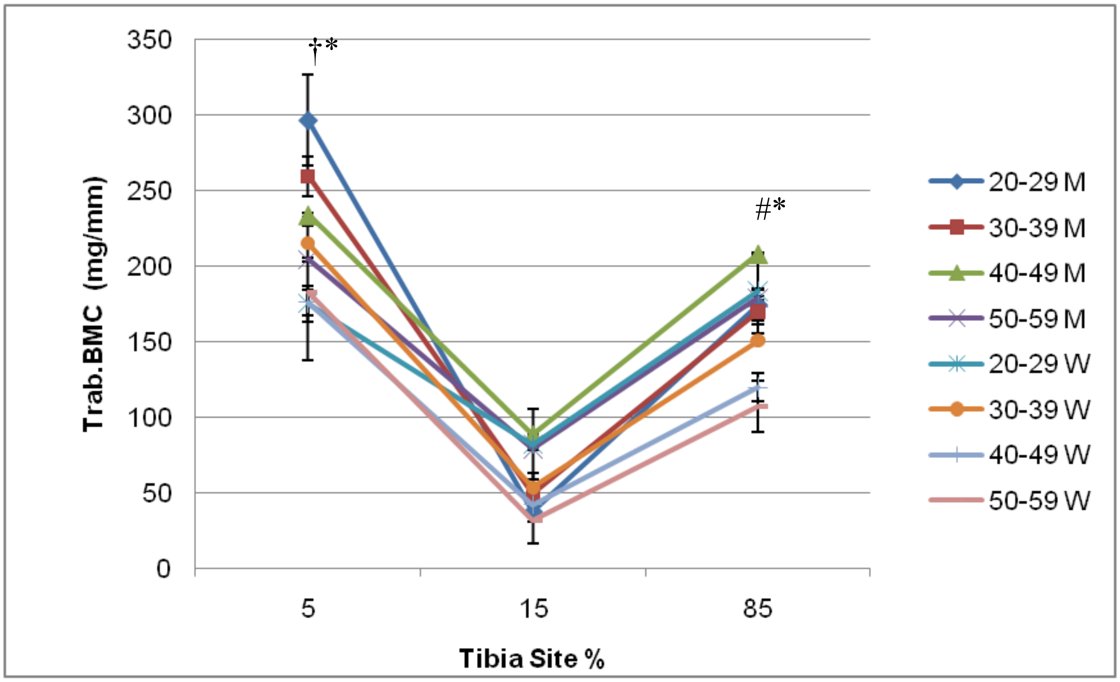

Figure 10. Trabecular Bone Mineral Content (BMC) of the 5%, 15%, and 85% sites. Mean ± SE. Significant site, gender, and site*gender*age effect ($p < 0.01$). All sites are significantly different. * $p < 0.01$ Gender effect. † $p < 0.05$; 20-29 group different from 50-59 group in men. # $p < 0.05$; 20-29 group different from 40-49 and 50-59 groups in women.

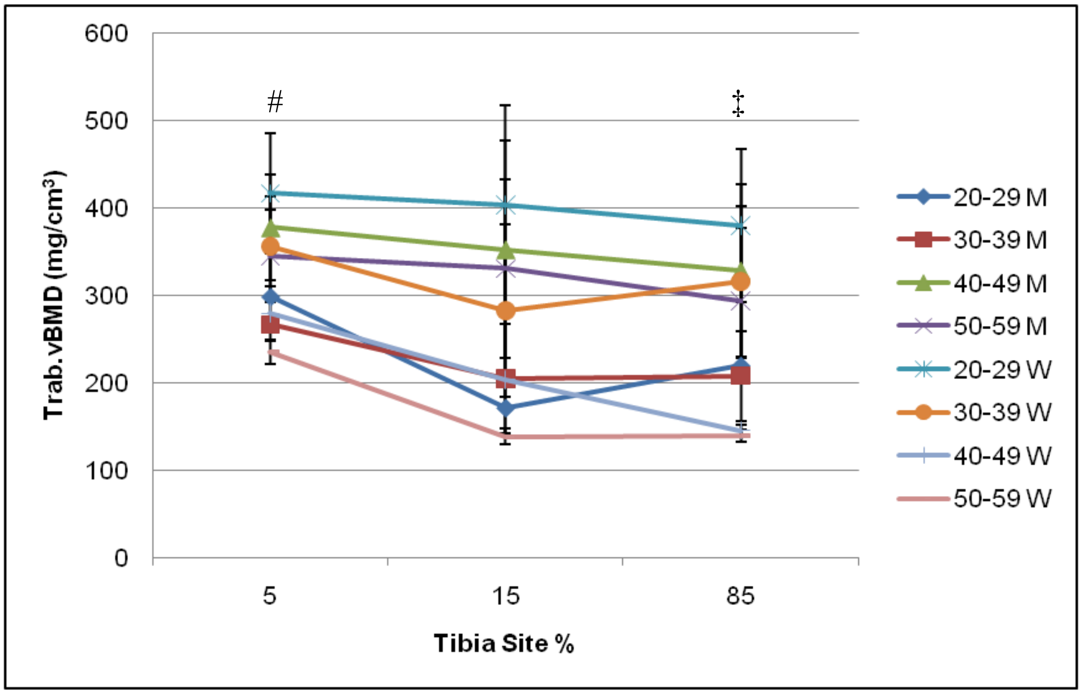

Figure 11. Trabecular Volumetric Bone Mineral Density of the 5%, 15%, and 85% Sites. Mean ± SE. Significant site and age*gender interaction effects, $p < 0.05$. 5% significantly ($p < 0.01$) different than 15% and 85%. # $p < 0.05$ Significant difference between 20-29 group and 50-59 group in women. ‡ $p < 0.05$ Significant difference between 20-29 group and 40-49 group in women.

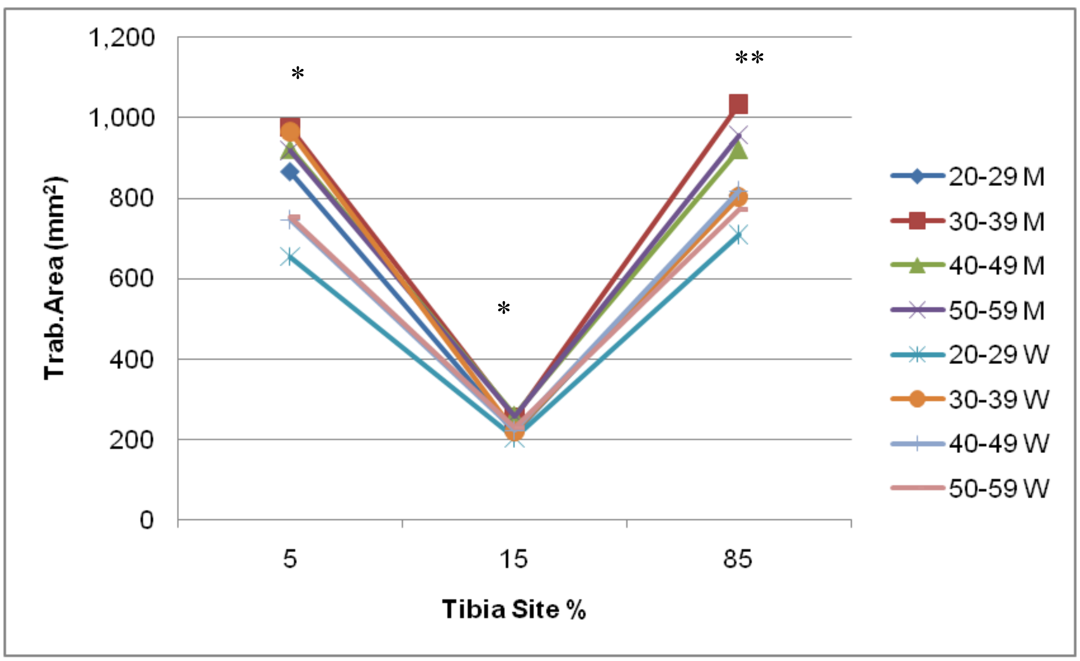

Figure 12. Trabecular Area of the 5%, 15% and 85% Sites. Mean ± SE. Significant site, gender, age, and site*gender interaction effects. 15% site is significantly different from 5% and 85% ($p < 0.01$). * $p < 0.01$, ** $p < 0.05$ Gender significant at all sites. † $p < 0.01$ 30s age group > 20s age group.

Total BMC ratios of 5%:15%, 5%:35%, 5%:65%, and 5%:85% were calculated to evaluate trabecular-to-cortical bone proportions within the tibia, and are displayed in Table 6. The total BMC 5%:15% ratio was highest, whereas the 5%:85% ratio was lowest. The 5%:15% ratio only showed a trend ($p = 0.071$) for a gender effect. For the 5%:35% ratio, there was a significant ($p < 0.05$) age and gender effect, and a trend ($p = 0.078$) for an age*gender interaction effect. Men had 5.4% higher values than women. Significant age group differences for the 5:35% ratio were between 20s and 30s (11.1% lower in 30s), 20s and 40s (8.1% lower in 40s), and a trend ($p = 0.051$) for 20s and 50s (8% lower in 50s). The 5%:65% ratio had a significant ($p < 0.01$) age and gender effect. For this ratio, 20s were significantly greater than 30s (7.9%, $p < 0.05$) and 50s (8.7%, $p < 0.01$). Men had 8% higher values than women. Finally, the 5%:85% ratio had a significant ($p < 0.01$) gender effect, where men had 5% greater values. T-scores for the 5%:35% and 5%:65% total BMC ratios were generated for each gender, based on the 20s age group. They were significantly correlated ($r = 0.24$-0.27, $p<0.05$) with hip T-scores. Means, SD, and SE for the pQCT results are shown in tabular form in APPENDIX D.

Table 6. Total BMC Ratios between Tibia Sites. (Mean ± SE)

		Total BMC Ratio			
Age	**Gender**	5%:15%	5%:35%[b]	5%:65%[a]	5%:85%[a]
20-29	Men (n = 15)	1.34 ± 0.04	1.02 ± 0.03	0.87 ± 0.02	0.75 ± 0.02
	Women (n = 15)	1.20 ± 0.02	0.91 ± 0.03	0.79 ± 0.02	0.70 ± 0.02
30-39[de]	Men (n = 15)	1.24 ± 0.02	0.90 ± 0.02	0.80 ± 0.01	0.76 ± 0.02
	Women (n = 14)	1.16 ± 0.02	0.84 ± 0.02	0.73 ± 0.02	0.69 ± 0.01
40-49[c]	Men (n = 10)	1.23 ± 0.03	0.92 ± 0.02	0.83 ± 0.02	0.86 ± 0.05
	Women (n = 15)	1.26 ± 0.09	0.86 ± 0.02	0.75 ± 0.02	0.73 ± 0.01
50-59[f]	Men (n = 15)	1.21 ± 0.02	0.89 ± 0.02	0.79 ± 0.02	0.77 ± 0.02
	Women (n = 15)	1.18 ± 0.03	0.91 ± 0.04	0.74 ± 0.02	0.74 ± 0.02

[a]p < 0.01, [b]p < 0.05 Significant gender effect. [c]p < 0.01, [d]p < 0.05 Significantly lower than 20-29 group for 5%:35%. [e]p < 0.01, [f]p < 0.05 Significantly lower than 20-29 group for 5%:65%.

Differences in content and area values can be thought to affect periosteal and endosteal circumferences, and as a result cortical thickness. Figure 13 presents the periosteal circumferences (PeriC) from 5% to 85%, and Figures 14 and 15 show the endosteal circumferences (EndoC) and cortical thickness values from 15% to 85% of the tibia length, respectively. There were significant ($p < 0.01$) site, site*gender, gender effects for PeriC, and there was a trend for a site*age interaction ($p = 0.055$). Only sites 25% vs. 55% were not significantly different from each other. Men had 9.7-13.0% higher PeriC values than women, and gender effects were significant at all sites. Correcting for BFLBM made the site*gender interaction nonsignificant, and made the site*age and age*gender interactions significant ($p < 0.05$). In this analysis, PeriC appeared to peak in 30s, with a trend for 30s > 20s. The gender effect was <1% in 20s, but was approximately 6%, 7%, and 4.5% in 30s, 40s, and 50s. The age effect became a trend ($p = 0.057$) after correcting for BFLBM. Correcting for FM also made the site*age interaction significant ($p < 0.05$).

Site, site*age, site*gender, age, and gender effects were all significant ($p < 0.05$) for EndoC. All sites were significantly different from each other ($p < 0.01$, except 25% vs. 45%, $p < 0.05$). Twenties had 4.1-8.7% and 1.8-13.1% lower EndoC values than 30s and 50s, respectively ($p < 0.05$). The difference between 20s and 30s peaked at the 55% site, and the peak difference between 20s and 50s was at 35% site. Differences between 20s and 30s were smaller at more distal sites, whereas the smallest difference between 20s and 50s was at the 85% site. Age differences were significant ($p < 0.05$) at sites 25%, 35%, and 55%-85%, and a trend ($p < 0.10$) existed at sites 15% and 45%. Women had 6.5-12.0% lower EndoC values than men, and the largest differences were closest to the midshaft, but differences were significant at all sites. Site*gender interaction and gender effects were not significant for EndoC after correcting for BFLBM, however, site*age*gender became significant ($p < 0.05$). Correcting for FM did not affect the EndoC results.

Cortical thickness had significant ($p < 0.01$) site, site*gender, age, and gender effects. There was a trend ($p = 0.067$) for a difference between the 35% and 55% sites, but all other sites were significantly different from each other. The 50s group had significantly ($p < 0.05$) lower values than all other age groups. The age effect was significant ($p < 0.05$) at sites 35%-55%, and there was a trend ($p < 0.10$) for the age effect at sites 25%, 65%, and 75%. Gender differences were significant ($p < 0.01$) at all sites. Site*gender effects were no longer significant after using BFLBM as a covariate.

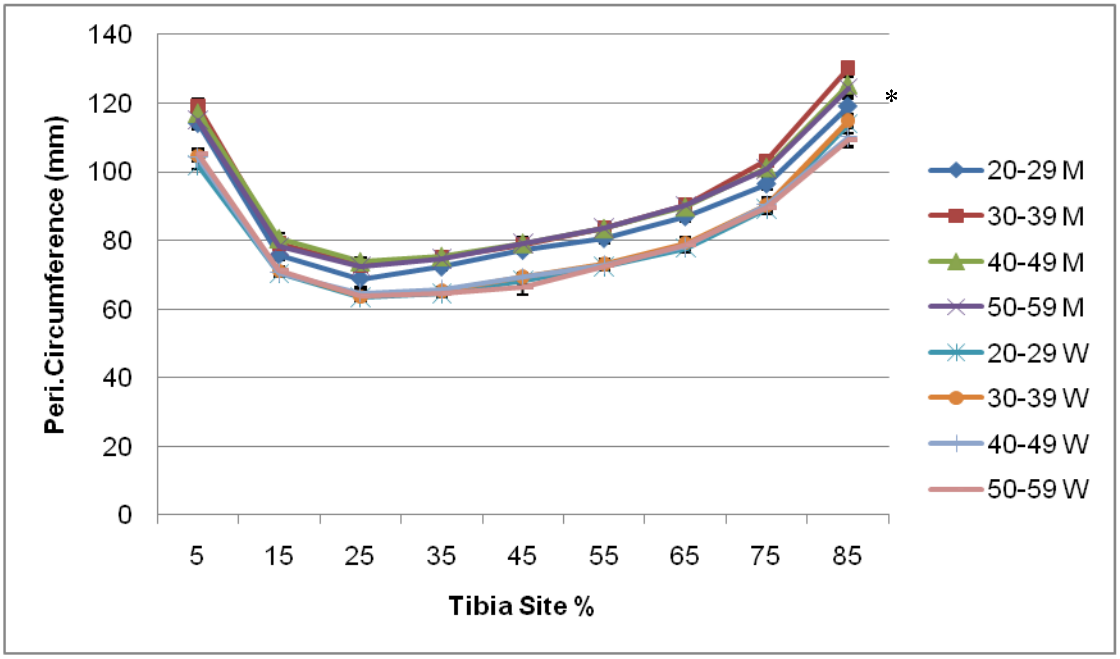

Figure 13. Periosteal Circumference at Each Tibia Site from 5% to 85% of the Limb Length. Mean ± SE. Significant ($p < 0.01$) site, site*gender, gender effects. Only sites 25% vs 55% were not significantly different from each other. *$p < 0.01$ Gender effect significant at all sites.

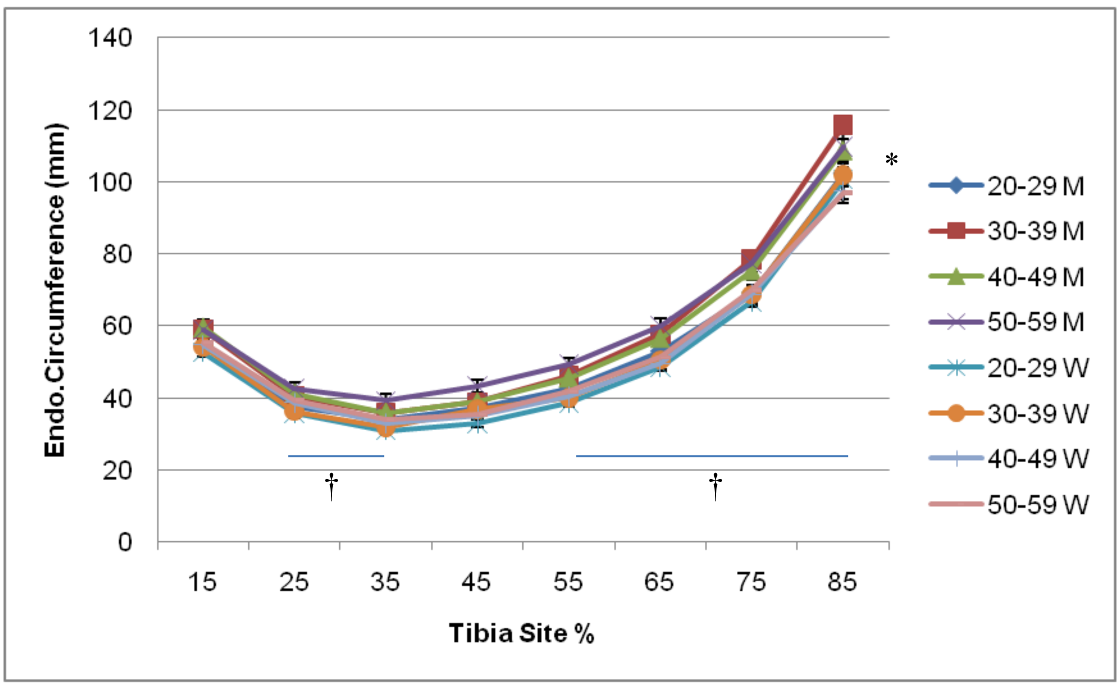

Figure 14. Endosteal Circumference at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. $p < 0.05$ Significant site, site*age, site*gender, age, and gender effects. $p < 0.01$ (except 25% vs. 45%, $p < 0.05$) All sites were significantly different from each other. *$p < 0.01$ Gender effect significant at all sites. †$p<0.05$ Significant age effect.

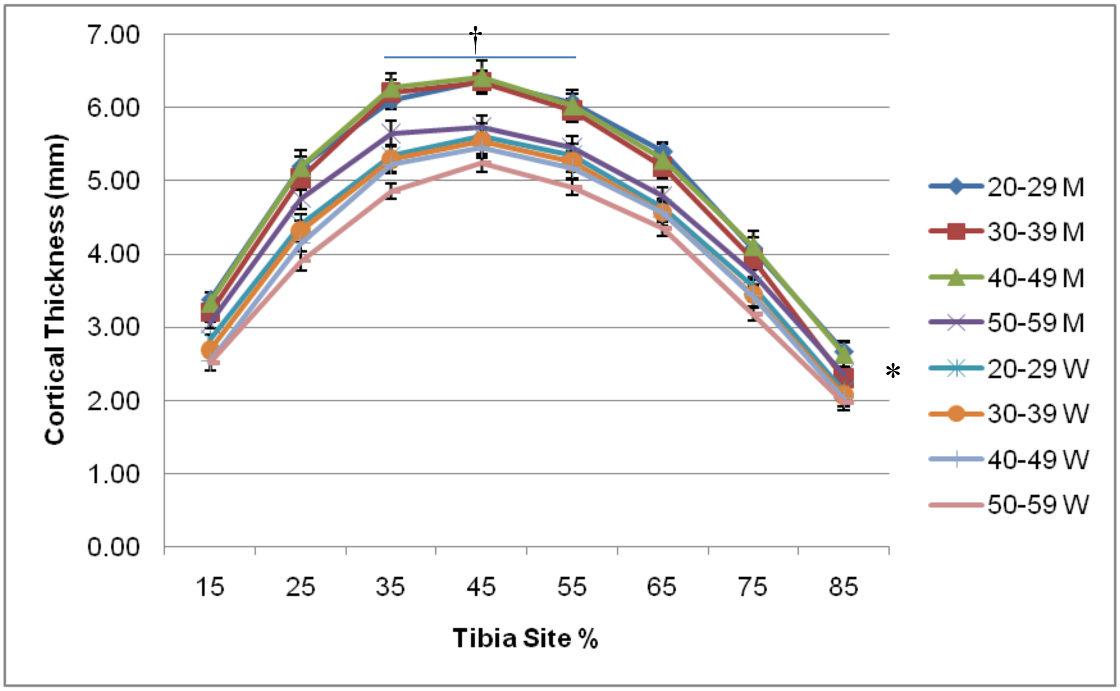

Figure 15. Cortical Thickness at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. Significant ($p < 0.01$) site, site*gender, age, and gender effects. Trend ($p=0.067$) for a difference between the 35% and 55% sites. All other sites significantly different from each other. †$p < 0.05$: Age effect. *$p < 0.01$: Gender effect significant at all sites.

The 95% tibia site was drastically different from all other tibia sites in terms of shape and the relative make up of cortical and trabecular bone. There was no cortical shell as this site, and for many subjects, portions of the epicondyle appeared. This may have been a result of normal variations in the shape of the tibial plateau or epicondyles, or it may be been indicative of arthritic changes. Positioning error may have also played a larger role at this site than for other sites. For some subjects, tibia length required that the 95% site be measured separately, with the entire set-up being shifted to allow the gantry to access the site. In these instances, scout views could not be used. For some subjects, obtaining a 95% measure was not possible due to holder limits on thigh size. Due to these measurement issues, only trabecular vBMD values were used from this site and were not compared to other trabecular rich sites. Table 7 shows the trabecular vBMD values for each group. The 20s group had significantly ($p < 0.01$) greater values than all other group. There was also a significant ($p < 0.01$) age*gender interaction effect, as the gender difference was not significant for the 20s and 30s groups, but 40s men had significantly greater trabecular vBMD values than 40s women, and 50s women had higher values than 50s men.

Table 7. Trabecular Volumetric Bone Mineral Density (vBMD) (mg/cm3) at the Tibia 95% Site for Each Group (Mean ± SE).

Age & Gender Group	20-29† M = 14 W = 15	30-39 M = 15 W = 13	40-49 M = 9 W = 12	50-59 M = 13 W = 14
Men	242.71 ± 6.65	209.35 ± 8.20	236.36 ± 12.58	178.02 ± 6.13
Women	240.59 ± 7.61	214.37 ± 10.54	193.53 ± 10.01	210.09 ± 9.36

†$p < 0.01$ Significant age effect, 20s > all other groups. $p < 0.01$ Significant age*gender interaction effect.

Possible Effects of Menopause on Bone Variables

Although there was generally a lack of age*gender interaction effects, secondary analyses were performed to determine if correcting for age resulted in differences in bone characteristics between pre- and postmenopausal women. There were no significant differences in DXA aBMD or BMC values between menopausal groups that were distinct from age differences. Also, there were no significant differences between menopause groups for total area, PeriC, EndoC, cortical vBMD, area, or thickness, trabecular BMC, vBMD, or area, or any strength estimates. There were significant ($p < 0.05$) site*menopause interaction effects for total BMC and vBMD, and there was a trend ($p = 0.061$) for an interaction effect for cortical BMC. Group differences in total BMC after correcting for age ranged from <1% to 9.6%. Group differences in total vBMD after correcting for age ranged from <1% to 7%. Postmenopausal women had lower values than premenopausal women, and group differences in both variables peaked in the diaphysis. Finally there was a trend ($p = 0.061$) for a menopause effect on 5%:35% Total BMC ratio. The main menopause effect was not significant for any variable.

Bone Strength Estimations by pQCT

Bone strength was estimated using moments of inertia (Imax, Imin), strength strain index (SSI) and bone strength index (BSI). An SSI:Total BMC ratio was calculated at each site to determine the bone strength relative to bone mass. Figures 16 and 17 show the SSI and SSI:ToC ratios at each tibia site. Strength and strength to mass ratios were greatest at the most proximal sites. Site, gender and site*gender effects were significant ($p < 0.01$) for SSI. SSI of the 15% and 25% sites were not significantly different from each other, but all other sites were significantly different. Men had 28.1-31.2% higher SSI values than women. Correcting for BFLBM made the site*gender, age*gender, and site*age*gender interactions a trend ($p = 0.056$, 0.061, and 0.064), as gender differences were reduced to 9.4-14% higher in men. Correcting for FM did not affect the SSI results.

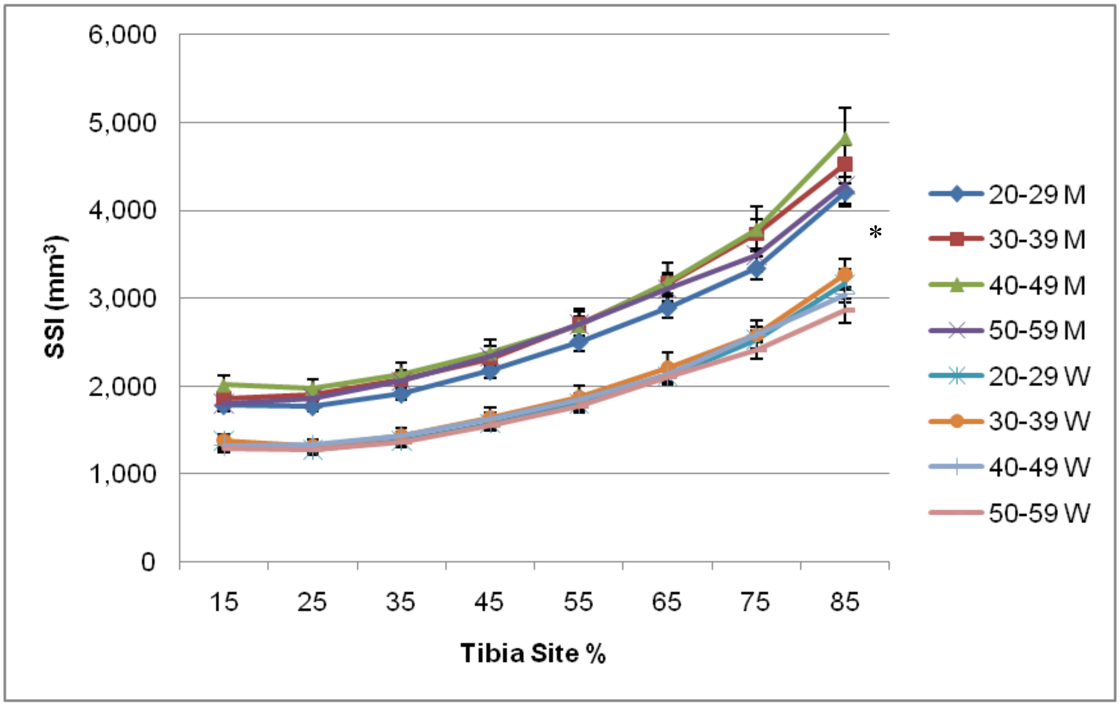

Figure 16. Strength Strain Index (SSI) at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. $p < 0.01$; Site, gender and site*gender effects. 15% and 25% sites were not significantly different from each other, but all other sites were significantly different. *$p < 0.01$: Gender was significant at all sites.

Strength to mass ratio, as represented as SSI:Total BMC, had significant ($p < 0.01$) site, site*age, site*gender, age, and gender effects. All sites were significantly different. The 20s group had significantly lower ($p < 0.05$) SSI:Total BMC than 30s (1.3-11.3%) and 50s (3.6-10%), and there was a trend ($p = 0.075$) to have lower SSI:Total BMC than 40s (1.2-9.2%). Women had 4.8-12.5% lower SSI:Total BMC than men. Site*gender became a trend when correcting for BFLBM ($p = 0.096$), and gender was no longer significant. Gender differences were reduced to being 4.8% lower (at 85% site) to 1.2% greater (at 15% site) in women. Correcting for fat mass did not remove any significant effects.

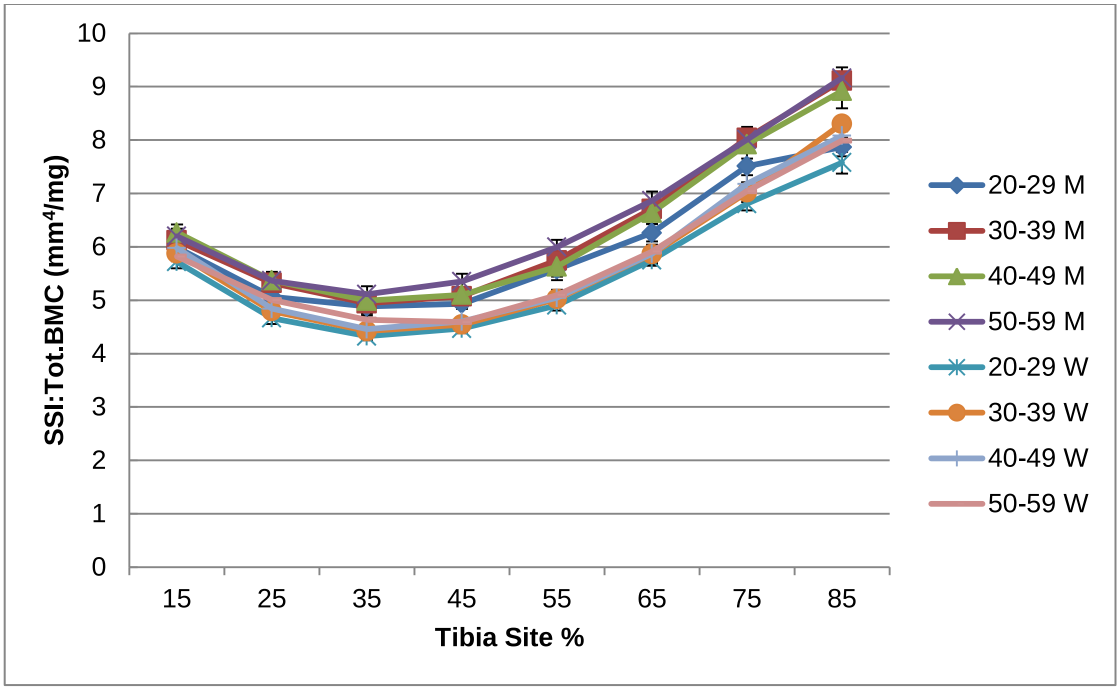

Figure 17. Strength Strain Index to Total BMC Ratio at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. $p < 0.01$; Significant site, site*age, site*gender, age, and gender effects. All sites were significantly different from each other ($p < 0.01$, except 15% vs. 65%, which was $p < 0.05$). * $p < 0.01$ Gender significant at all sites.

Figures 18, 19, and 20 show the Imax, Imin, and Imax/Imin ratios. Imax refers to the maximum cross-sectional moment of inertia, and Imin refers to the minimum cross-sectional moment of inertia. The Imax/Imin ratio is simply being used as an indicator of the symmetry of direction-specific strength. There were significant ($p < 0.01$) site, site*age, site*gender, and gender effects for Imax. The 15% and 25% sites were not significantly different from each other; all other sites were significantly different from the other sites. Imax values were highest in the 40s age group. Imax values lowest in the 20s group, and were 12.2%-14.2% lower than the 40s age group. The 50s group had 6.2% (65)-16.4% (85) lower Imax values than the 40s group. Imax values were 36.5% (15) – 46.7% (65) lower in women, and gender difference were significant at all sites. Correcting for BFLBM made the age*site interaction nonsignificant, and made the age*gender and age*gender*site interactions significant. In this analysis, gender differences were smallest in 20s (<1%) and largest in 40s (33%), followed by 30s (23%). Further, when correcting for BFLBM, Imax was lowest in 20s men and highest in 40s men, but lowest in 40s women and highest in 50s women. Age and gender interactions varied by site. Correcting for FM made the age*site interaction a trend.

Imin had significant ($p < 0.01$) site, site*gender, and gender effects. When correcting for BFLBM, site, gender and site*gender effects were no longer significant. Age*site interaction effects became a trend ($p=0.087$). Using FM as a covariate did not affect the Imin results. Gender effects were significant ($p < 0.01$) at all sites, where men had 38.2% (85 site) -62.9% (25 site) greater values than women. Correcting for BFLBM reduced these differences to 0.3-18.4%.

Imax/Imin ratio had significant ($p < 0.01$) site, site*gender, and gender, which remained significant when using BFLBM as a covariate. The 15% and 25% sites were significantly ($p < 0.01$) different from all other sites, and 45% was different ($p < 0.01$) from 55%, but the other sites were not significantly different from each other. Gender effects were not significant at sites 15-35%, but were significant ($p < 0.01$) at sites 45-85%.

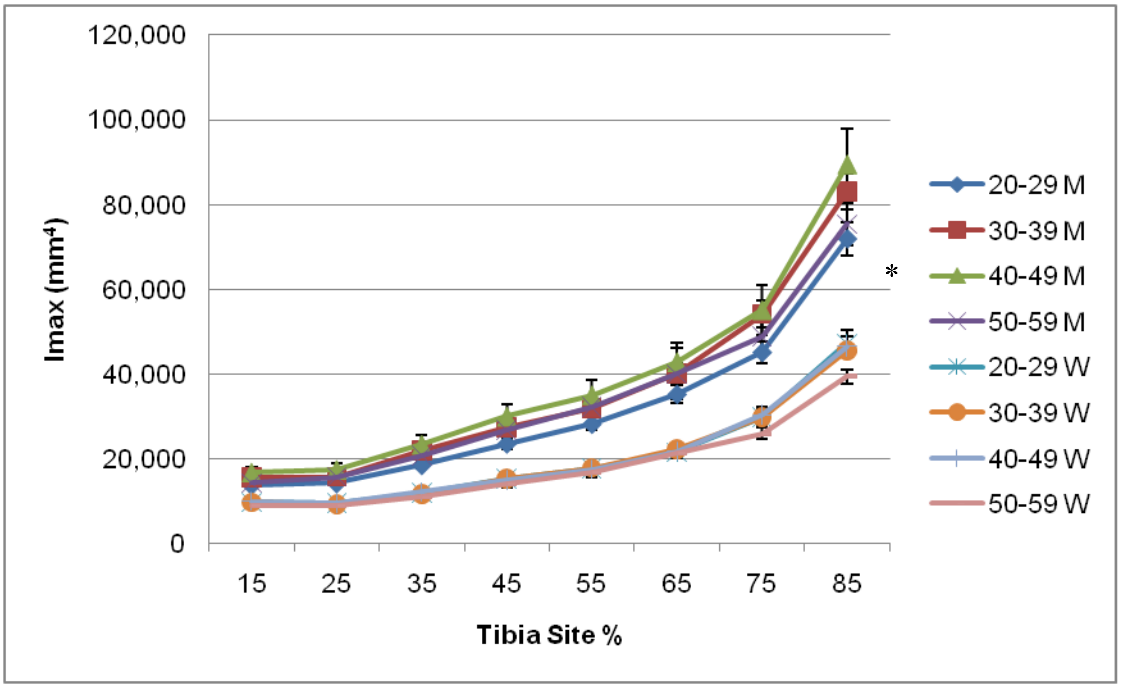

Figure 18. Maximum Moment of Inertia (Imax) at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. $p < 0.01$ Significant site, site*age, site*gender, and gender effects. The 15% and 25% sites were the only not significantly different from each other. All other sites were significantly different from the other sites. *$p < 0.01$: Gender significant at all sites.

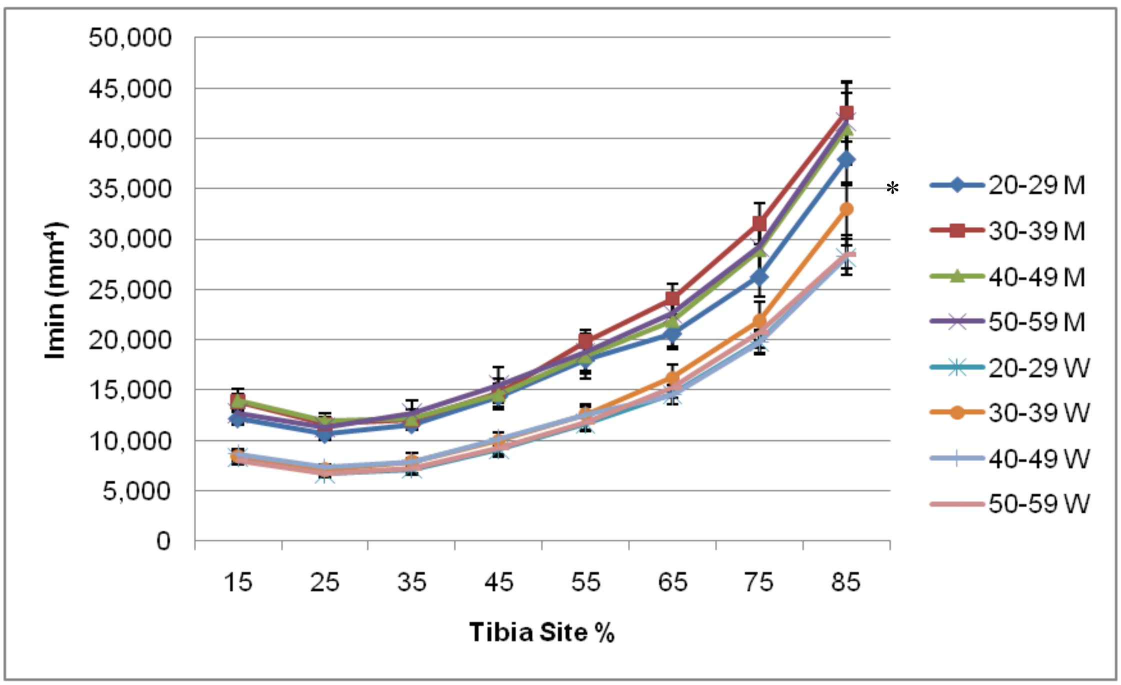

Figure 19. Minimum Moment of Inertia (Imin) at Each Tibia Site from 15% to 85% of the Limb Length. Mean ± SE. $p < 0.01$; Significant site, site*gender, and gender effects. *$p < 0.01$: Gender significant at all sites.

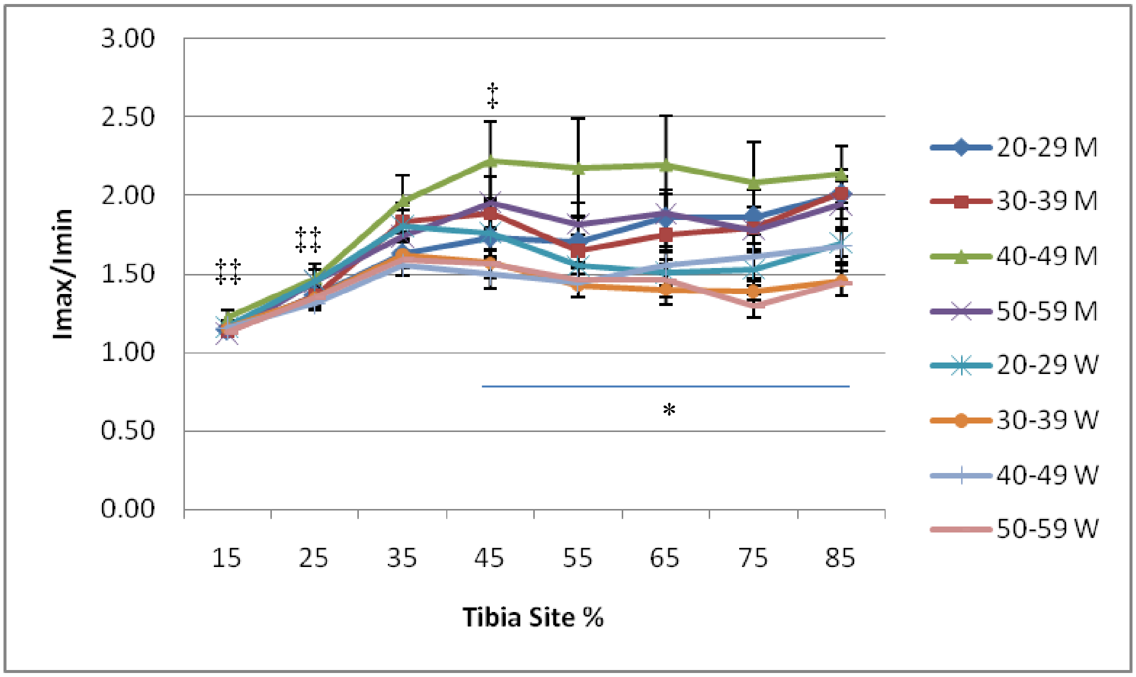

Figure 20. Ratio of Maximum (Imax) and Minimum (Imin) Moments of Inertia at Each Tibia Site from 15% to 85% of Limb Length. *$p < 0.01$ Gender significant at sites 45%-85%. ‡$p < 0.01$ Significantly different from 55%. ‡‡$p < 0.01$ Significantly different from all other sites.

Bone strength index, as a measure of compressive strength, is typically measured at the most distal sites. However, there is discrepancy between manuals and studies in how it has been calculated. Some report the BSI as Total BMD^2 * Total Area, and some report the BSI as $(\text{Total vBMD} * \text{Total Area})^2$ (BSI_2). Thus, for the sake of completeness, BSI is shown for the 5% and 15% sites using both formulas in Table 8. Both formulas had significant ($p < 0.05$) site and gender effects. However, Total $vBMD^2$*Total Area (BSI_1) was also significant ($p < 0.05$) for site*gender and age. Women had 33.2% and 42.1% lower BSI_1 values than men at the 5% and 15% sites, respectively, and had 30.8% and 29.1% lower BSI_2 values.

Table 8. Bone Strength Index (BSI) of the 5% and 15% Tibia Sites Using 2 Formulas. Mean ± SE.

Site	Groups	Men	Women
[abcd]BSI = Tot.vBMD^2 * Tot.Area (mg^2/mm^4)			
5%	20s: M=15; W=15	1.468E8 ± 9.280E6	1.013E8 ± 6.792E6
	30s: M=15; W=14	1.275E8 ± 9.290E6	1.030E8 ± 1.612E7
	40s: M=10; W=15	1.431E8 ± 9.534E6	8.645E7 ± 3.582E6
	50s: M=15; W=15	1.156E8 ± 7.181E6	7.778E8 ± 5.832E6
15%	20s: M=15; W=15	1.976E8 ± 7.228E6	1.474E8 ± 7.422E6
	30s: M=15; W=14	1.869E8 ± 1.010E7	1.372E8 ± 6.850E6
	40s: M=10; W=15	2.008E8 ± 1.102E7	1.281E6 ± 7.952E6
	50s: M=15; W=15	1.715E8 ± 6.735E6	1.236E8 ± 6.658E6
[ad]BSI = (Tot.BMC * Tot.Area)^2			
5%	20s: M=15; W=15	1.493E11 ± 1.211E10	8.426E10 ± 6.370E9
	30s: M=15; W=14	1.455E11 ± 1.317E10	1.575E11 ± 7.907E10
	40s: M=10; W=15	1.583E11 ± 1.510E10	7.485E10 ± 3.701E9
	50s: M=15; W=15	1.231E11 ± 9.915E9	6.839E10 ± 6.489E9
15%	20s: M=15; W=15	9.066E10 ± 4.622E9	5.855E10 ± 3.778E9
	30s: M=15; W=14	9.397E10 ± 6.667E9	5.575E10 ± 4.106E9
	40s: M=10; W=15	1.042E11 ± 7.986E9	5.195E10 ± 4.091E9
	50s: M=15; W=15	8.444E10 ± 5.602E9	4.983E10 ± 2.880E9

[a]$p < 0.05$ Significant gender effect. [b]$p < 0.05$ Significant site*gender effect. [c]$p < 0.05$ Significant age effect. [d]$p < 0.01$ Significant site effect. Tot.BMC: Total BMC; Tot.Area: Total Area; 20s: 20-29 Age Group; 30s: 30-39 Age Group; 40s: 40-49 Age Group; 50s: 50-59 Age Group.

As the number of significant effects at various sites is very large, Table 9 was created to summarize which effects for significant for each variable without correcting for BFLBM or FM. Table 10 summarizes the range of gender differences for each variable, and Table 11 summarizes the range of age group differences for each variable.

Table 9. Summary of Significant (S), Non-Significant (NS), and Trend (T) for Effects for Each Bone Variable.

	Site	Site*Gender	Site*Age	Gender	Age	Age*Gender
Total BMC	S	S	S	S	T	NS
Total vBMD	S	S	S	NS	S	NS
Total Area	S	S	NS	S	S	NS
Trab. BMC	S	T	NS	S	T	NS
Trab. vBMD	S	NS	NS	NS	NS	S
Trab. Area	S	S	NS	S	S	NS
Cort. BMC	S	S	NS	S	T	NS
Cort. vBMD	S	T	S	S	NS	NS
Cort. Area	S	S	NS	S	T	NS
Cort. Thk	S	S	NS	S	S	NS
PeriC	S	S	T	S	NS	NS
EndoC	S	S	S	S	S	NS
SSI	S	S	NS	S	S	NS
Imax	S	S	S	S	NS	NS
Imin	S	S	NS	S	NS	NS
Imax/Imin	S	S	NS	S	NS	NS
SSI:Tot.BMC	S	S	S	S	S	NS
BSI_1	S	S	NS	S	S	NS
BSI_2	S	NS	NS	S	NS	NS

S: Significant, $p < 0.05$; NS: Non-Significant; T: Trend, $0.05<p<0.10$. BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; Trab: Trabecular; Cort: Cortical; PeriC: Periosteal Circumference; EndoC: Endosteal Circumference; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice; Imin: Minimum Moment of Inertia of a Cross-Sectional Slice; BSI_1 = Total Area * Total $vBMD^2$; BSI_2 = (Total Area * Total vBMD)^2

Table 10. Range of Gender Differences and Site(s) of Peak Gender Difference for Each Bone Variable.

Variable	Range M vs. W (M > W is Positive, W > M is negative)	Site(s) (± 0.2%) of Peak Difference
Total BMC	21-28%	5%
Total vBMD	-1.2-10%	5%
Total Area	14-25%	35, 65%
Trabecular BMC	18-25%	5%
Trabecular Area	12-17%	85%
Cortical BMC	21-25%	15, 25, 85%
Cortical vBMD	-1- -2%	65%
Cortical Area	23-26%	15, 25, 85%
Cortical Thickness	12-19%	15%
Periosteal Circ.	10-14%	65%
Endosteal Circ	7-12%	65%
SSI	28-32%	35, 55%
Imax	37-47%	65%
Imin	28-39%	25%
Imax/Imin	1-24%	75%
SSI:Tot.BMC	5-13%	55%
BSI_1	33%, 42%	15%
BSI_2	31%, 29%	5%

BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; Circ: Circumference; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice; Imin: Minimum Moment of Inertia of a Cross-Sectional Slice: BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$; BSI_2=(Total Area * Total vBMD)^2

Table 11. Summary of Decade Differences for Bone Variables with a Significant Age and/or Age*Site Interaction Effect.

Base Decade	**20s vs.**			**30s vs.**		**40s vs.**
Comparison Decade	30s	40s	50s	40s	50s	50s
Total BMC	¯5-6%	¯5-4%	3-14%	¯3-1%	5-8%	4-10%
Total vBMD	1-16%	1-12%	5-17%	¯5-2%	2-5%	3-7%
Total Area	¯3-¯23%	¯3-¯9%	¯2-¯7%	¯1-13%	0-14%	¯3-4%
Trab. Area	-12-¯28%	¯10-¯15%	¯10-¯15%	¯2-14%	¯2-14%	0-1%
Cort. vBMD	¯1-1%	0-1%	¯1-1%	¯1-1%	¯2-2%	0-1%
Cort. Thk	¯1-9%	0-5%	8-10%	¯7-0%	1-9%	5-9%
EndoC	¯4-¯9%	¯4-¯9%	¯2-13%	¯4-5%	¯8-5%	¯7-0%
SSI	¯3-¯8%	¯6-¯9%	¯3-4%	¯3-1%	2-7%	1-9%
Imax	¯5-¯19%	¯14-¯16%	¯7-5%	¯8-4%	2-12%	9-16%
SSI:Tot.BMC	¯2-¯13%	¯2-¯10%	¯3-¯11%	¯1- 2%	¯4-2%	¯4-2%
BSI_1	6-7%	5-8%	15-22%	0-1%	9-16%	10-16%

A negative percent denotes that the 20s group was lower than the comparison decade. Percentages rounded to the nearest whole number. BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; Trab: Trabecular; Cort: Cortical; Thk: Thickness; EndoC: Endosteal Circumference; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice; BSI_1 = Total Area * Total $vBMD^2$.

Prediction of DXA-Based Bone Results

The choice of pQCT variables to predict DXA-based aBMD values were first based on correlation coefficients. All stepwise linear regression models utilized a body composition variable, age, and a pQCT variable. Age was negatively related to bone variables, and generally, was more strongly related to BMD variables than BMC from both DXA and pQCT (Table 12). Age was not related to cortical BMC, and was only related negatively to cortical vBMD at the 15% sites ($r = -0.19$, $p < 0.05$). The total BMC ratios 5%:35% and 5%:65% were inversely correlated with age (r= -0.23 and -0.27, respectively, $p < 0.05$). Age was not related to SSI nor Imax values, but were significantly correlated with SSI:Total BMC ratios at sites 25%-45% and 85% (r = 0.19-

0.29, p < 0.05). There was a trend (p < 0.10) for age to SSI:Total BMC correlations at sites 55-75%.

Total BFLBM was positively related to BMC and BMD, but generally, was more strongly related to BMC than BMD. Correlations between total BFLBM and lumbar spine and hip (total, femoral neck, trochanter) BMC ranged from r = 0.61-0.74 (p < 0.01). The correlation between total BFLBM and lumbar spine aBMD was r = 0.19 (p < 0.05), and the range of correlations between total BFLBM and hip aBMD variables was r = 0.41-0.50 (p < 0.01). Leg BFLBM consistently had stronger correlations with lower limb bone variables (DXA-based BMC correlations: r = 0.64-0.78, p < 0.01; aBMD: r = 0.23-0.52, p < 0.05) than total BFLBM, indirectly providing evidence to support the importance of muscle contractions over gravitational loading. This is further supported by the lack of significant correlations between bone and fat variables. Only leg FM was negatively (p < 0.05) correlated with trochanter aBMD (r = -0.19) and BMC (r = -0.20).

Ranges of correlations between bone-free lean tissue mass values and selected pQCT-based bone variables are shown in Table 13. Correlations between both lean and fat mass and cortical bone variables were similar to the total bone correlations. Total and leg FM were not related to total BMC values; only leg FM was related to 5% total BMC (r = -0.19, p < 0.05). Total vBMD was only inversely related (p < 0.05) to total body FM at the 65% - 85% sites (r = -0.20- -0.28) and leg FM at the 85% site (r = -0.26). SSI was not related to fat mass values. Total and leg FM were not related to PeriC, but FCSA was significantly (p < 0.05) negatively related to PeriC at most sites (r = -0.20 - -0.28). FCSA was also negatively related (r = -0.25 - -0.32, p < 0.05) to Total

BMC and SSI at all sites. For Total vBMD, there was a trend for a negative relationship with FCSA at the 5% and 15% sites (r = -0.18, p = 0.053 and 0.054), and the relationship was significant at the 85% site (-0.25, p < 0.01). Correlations between soft tissue masses and BMC values are also reflected in soft tissue mass to total bone area correlations.

Table 12. Correlations between Age and Bone Mineral Density (BMD) and Bone Mineral Content (BMC) Variables.

Site	Age
Lumbar Spine (DXA)	
aBMD	-0.19
BMC	NS
Total Hip (DXA)	
aBMD	-0.38
BMC	-0.20
Femoral Neck (DXA)	
aBMD	-0.51
BMC	-0.34
Trochanter (DXA)	
aBMD	-0.28
BMC	NS
Total (pQCT sites 5-85%; range)	
vBMD	¯0.29-¯0.41
BMC	-0.20, -0.26 (sig. at 5% and 85% only)

Table 13. Correlations between Total and Leg Bone-Free Lean Body Mass (BFLBM) and Calf Muscle Cross-Sectional Area (MCSA) and pQCT Variables

	Total BFLBM	Leg BFLBM	MCSA
Tot.vBMD			
5%-25%	0.21-0.37	0.25-0.42	0.30 (5%)
35%-75%	NS	NS	NS
85%	NS	0.22	NS
Tot.BMC	0.71-0.82	0.73-0.85	0.63-0.70
SSI	0.73-0.78	0.76-0.80	0.62-0.71
PeriC	0.61-0.77	0.62-0.78	0.55-0.67

Tot: total; vBMD: volumetric bone mineral density; SSI: strength strain index; PeriC: periosteal circumference.

Bone mineral content and bone area values were consistently correlated with bone strength estimators. However, correlations between total vBMD and bone strength were negative but not consistently significant. Cortical vBMD values were often inversely correlated with bone strength, and were stronger than the total vBMD relationships to bone strength. From the 15% to 85% sites, total BMC to SSI correlations ranged from 0.90-0.95, and total BMC to Imax correlations ranged from 0.85-0.93. Cortical vBMD to SSI correlations from the 25% site to the 75% site ranged from -0.28- -0.43, and cortical vBMD to Imax correlations ranged from -0.36 - -0.44. At the 85% site, SSI was not related to cortical vBMD, and the Imax correlation was r = -0.19 ($p < 0.05$).

Correlations between BMC and vBMD from pQCT to DXA aBMD values are shown in Table 14. Relationships followed a curvilinear pattern throughout the tibia, as the strongest correlations were at the 5% and 85% sites, and the weakest correlations were at the 35% site for total BMC and 45% site for total vBMD. For total vBMD, the 5% site was the strongest correlation, and for total BMC, the 85% site was the strongest correlation site. Correlations between aBMD and Imax and SSI followed a similar pattern as total BMC, where the 85% site was the strongest correlation site, and for Imax the 45% and 55% sites had the weakest correlations. SSI:aBMD correlations were weakest at the 25% site. For cortical BMC, correlations with aBMD were lower at the 15% and 85% sites, and highest at the 65% site. Cortical vBMD was only correlated between the 25% and 35% sites and trochanter aBMD, and the relationship was negative (-0.20, $p < 0.05$). Trabecular BMC was correlated at the 5% and 85% sites, but trabecular vBMD was not related to hip aBMD variables. Strength to mass ratios (SSI:Total BMC) were only related to trochanter aBMD at sites 35-75%, and were not related to lumbar spine, total hip, or femoral neck aBMD.

Table 14. Correlation Ranges Between DXA aBMD Values and pQCT BMC, vBMD, Strength, and Mass Ratios

pQCT Variable	L1-L4 Spine	Total Hip	Femoral Neck	Trochanter
Total BMC	0.30-0.47[a]	0.52-0.72[a]	0.45-0.67[a]	0.59-0.76[a]
Total vBMD	0.28-0.35[*b]	0.36-0.74[b]	0.31-0.70[b]	0.32-0.71[b]
Cortical BMC	0.27-0.35	0.53-0.61	0.49-0.55	0.57-0.67
Cortical vBMD	NS	NS	NS	-0.20[#]
Trabecular BMC	0.20, 0.22	0.34, 0.33	0.33, 0.26	0.33, 0.35
Trabecular vBMD	NS	NS	NS	NS
SSI	0.22-0.33	0.41-0.54	0.37-0.49	0.50-0.61
Imax	0.21-0.30	0.39-0.45	0.34-0.40	0.49-0.54
SSI:Total BMC	NS	NS	NS	0.20-0.25
BSI_1	0.37 (15%)	0.22, 0.57	0.20, 0.52	0.21, 0.63
BSI_2	0.39, 0.38	0.61, 0.64	0.56, 0.59	0.62, 0.67
Total BMC 5:15	NS	0.22	0.20	0.24
Total BMC 5:35	0.23	0.33	0.34	0.34
Total BMC 5:65	0.23	0.34	0.33	0.36
Total BMC 5:85	NS	NS	NS	NS

BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice. BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$; BSI_2=(Total Area * Total vBMD)^2 a. Strongest correlation at 85%. b. Strongest correlation at 5%. # Only at 25% and 35% sites.

Correlations between DXA BMC and pQCT total BMC values are shown in Table 15. They were strongest at the ends of the tibia, and weakest at the 35% site, but the correlations did not directly decline from the ends. Correlations increased and decreased along the tibia. DXA BMC values were far more strongly correlated with total vBMD values at the 5% site than any other site. Volumetric BMD and DXA BMC values were not related at tibia sites 45%-65% for any DXA site. Values were correlated ($p < 0.05$) between DXA BMC and 5%-25% and 85% total vBMD for all DXA sites. Total hip and femoral neck BMC were significantly related ($r = 0.21, 0.19$, $p < 0.05$) to total vBMD the 75% site, and total hip BMC was related to the 35% site ($r = 0.20$, $p < 0.05$). For cortical BMC, correlations with DXA BMC were lower at the 15% and 85% tibia sites, and highest at the 65% site. Relationships between cortical vBMD and DXA BMC were significant and negative between tibia sites 25% and 75% for the hip variables, but relationships were not significant between hip variables and the tibia at the 15% and 85% sites, or between the lumbar spine and any tibia site. DXA BMC values and pQCT trabecular vBMD values were not related.

Table 15. Correlation Ranges Between DXA BMC Values and pQCT BMC, vBMD, Strength, and Mass Ratios.

pQCT Variable	L1-L4 Spine	Total Hip	Femoral Neck	Trochanter
Total BMC	0.64-0.74	0.79-0.89	0.72-0.87	0.78-0.86
Total vBMD	0.25-0.47	0.21-0.66	0.19-0.67	0.27-0.56
Cortical BMC	0.57-0.67	0.69-0.84	0.64-0.75	0.66-0.81
Cortical vBMD	NS	-0.24- -0.32*	-0.22- -0.30*	-0.28- -0.39*
Trabecular BMC	0.32, 0.27	0.39, 0.36	0.39, 0.34	0.36, 0.33
Trabecular vBMD	NS	NS	NS	NS
SSI	0.62-0.67	0.75-0.81	0.66-0.76	0.75-0.80
Imax	0.63-0.69	0.74-0.79	0.67-0.74	0.78-0.80
SSI:Total BMC	0.21-0.50	0.22-0.54	0.22-0.46	0.26-0.59
BSI_1	0.57, 0.63	0.69, 0.79	0.67, 0.74	0.64, 0.75
BSI_2	0.27, 0.69	0.27, 0.82	0.26, 0.76	0.25, 0.81
Total BMC 5:15	0.26	0.29	0.26	0.27
Total BMC 5:35	0.37	0.37	0.39	0.34
Total BMC 5:65	0.39	0.44	0.45	0.43
Total BMC 5:85	NS	NS	NS	NS

BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice. BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$; BSI_2=(Total Area * Total vBMD)^2

Tables 16 through 21 show significant predictors of total hip, femoral neck, and trochanter aBMD and BMC. Each model used age, a pQCT bone variable, and either total BFLBM or MCSA. To be concise, tables are limited to the sites near slices most commonly used in previous literature (5%, 15%, 35%, and 65%), and the 85% site because of the divergence in pQCT bone values seen between groups and the stronger correlations with DXA values.

When adding age and a lean mass variable into the stepwise regression, total BMC and vBMD each predicted hip, femoral neck, and trochanter aBMD. With the exception of the 5% tibia site, tibia BMC was generally a stronger predictor of hip aBMD than tibia vBMD. Prediction was strongest by total vBMD and BMC at the 5%

and 85% sites, but up to 40% of the variance in total hip, femoral neck, and trochanter aBMD was still predicted from total BMC and vBMD in the diaphyseal sites. In the diaphyseal sites, however, cortical BMC was sometimes a stronger predictor of hip aBMD than total BMC.

For any given site, total slice BMC was the best pQCT predictor of total hip, femoral neck, and trochanter BMC, and the 5% and 85% sites gave the strongest predictive values. However, cortical BMC predicted femoral neck and trochanter BMC slightly better than total BMC at the 35% site, and cortical BMC predicted trochanter BMC slightly better than total BMC at the 85% site. Total BMC predicted hip BMC values much more strongly than total vBMD. Total and cortical BMC and strength estimates of the diaphyseal sites, along with lean tissue and age, were still able to account for over 60% of the variance in total hip BMC. Within the diaphyseal sites, cortical BMC was a stronger predictor than total vBMD, and SSI was typically a slightly stronger predictor than Imax. Cortical vBMD was not a predictor of hip values.

Lean tissue significantly predicted total hip and femoral neck BMC with age and a pQCT variable more often than it predicted total hip and femoral neck aBMD when the pQCT variable and age were included in the stepwise model. Total bone free lean mass always predicted DXA values better than MCSA, but MCSA was often a significant predictor when total BFLBM was a significant predictor. Fat mass values were not added to stepwise regression procedures as leg fat mass values were only correlated with trochanter values, and correlations between FCSA and hip values were weak.

Table 16. Selected Best Total Hip aBMD Predictors Using a pQCT Variable, a Lean Mass Variable, and Age

Best Predictors using Total BFLBM				**Best Predictors using MCSA**			
	β	SEE	R^2		β	SEE	R^2
Total BFLBM	0.383	0.127	0.289	Age	-0.394	0.128	0.278
Age	-0.355			MCSA	0.367		
5% Tot.vBMD	0.686	0.099	0.563	5% Tot.vBMD	0.640	0.098	0.572
Total BFLBM	0.150			MCSA	0.163		
				Age	-0.137		
85% Tot.BMC	0.815	0.099	0.561	85% Tot.BMC	0.664	0.101	0.546
Age	-0.180			Age	-0.266		
Total BFLBM	-0.199						
85% Tot.vBMD	0.486	0.109	0.468	85% Tot.vBMD	0.494	0.110	0.463
Total BFLBM	0.312			MCSA	0.304		
Age	-0.162			Age	-0.192		
5% Tot.BMC	0.581	0.110	0.459	5% Tot.BMC	0.581	0.110	0.459
Age	-0.268			Age	-0.268		
5% BSI_1	0.549	0.114	0.429	5% BSI_1	0.549	0.114	0.429
Age	-0.255			Age	-0.255		
15% BSI_1	0.582	0.110	0.465	15% BSI_1	0.582	0.110	0.465
Age	-0.144			Age	-0.144		
35% Cort.BMC	0.511	0.117	0.403	35% Cort.BMC	0.511	0.117	0.403
Age	-0.341			Age	-0.341		
35% Tot.BMC	0.497	0.118	0.389	35% Tot.BMC	0.497	0.118	0.389
Age	-0.353			Age	-0.353		
Total BFLBM	0.393	0.120	0.377	35% Tot.vBMD	0.316	0.121	0.350
35% Tot.vBMD	0.313			MCSA	0.380		
Age	-0.254			Age	-0.294		
65% Tot.BMC	0.567	0.111	0.463	65% Tot.BMC	0.567	0.111	0.463
Age	-0.336			Age	-0.336		
Total BFLBM	0.428	0.116	0.416	65% Tot.vBMD	0.366	0.118	0.399
65% Tot.vBMD	0.376			MCSA	0.405		
Age	-0.243			Age	-0.290		
Total BFLBM	0.344	0.125	0.318	Age	-0.347	0.126	0.313
Age	-0.315			MCSA	0.332		
5:35% Tot.BMC	0.180			5:35% Tot.BMC	0.197		

BFLBM: Bone-Free Lean Body Mass; MCSA: Muscle Cross-Sectional Area at the 65% Tibia Site; BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice. BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$

Table 17. Selected Best Total Hip BMC Predictors Using a pQCT Variable, a Lean Mass Variable, and Age

Best Predictors using Total BFLBM				**Best Predictors using MCSA**			
	β	SEE	R^2		β	SEE	R^2
5% Tot.BMC	0.728	3.353	0.781	5% Tot.BMC	0.874	3.460	0.765
Total BFLBM	0.194						
Total BFLBM	0.576	3.749	0.726	5% Tot.vBMD	0.530	4.433	0.617
5% Tot.vBMD	0.450			MCSA	0.442		
Total BFLBM	0.533	3.989	0.690	5% BSI_1	0.538	4.470	0.610
5% BSI_1	0.427			MCSA	0.399		
15% Tot.BMC	0.540	3.801	0.713	15% Tot.BMC	0.679	4.106	0.674
Total BFLBM	0.355			MCSA	0.171		
Age	-0.115			Age	-0.128		
15% BSI_1	0.528	3.804	0.713	15% BSI_1	0.650	4.120	0.669
Total BFLBM	0.407			MCSA	0.263		
35% Tot.BMC	0.521	3.994	0.692	35% Tot.BMC	0.661	4.191	0.661
Total BFLBM	0.338			Age	-0.176		
Age	-0.154			MCSA	0.177		
35% SSI	0.493	4.149	0.658	35% SSI	0.646	4.321	0.629
Total BFLBM	0.344			Age	-0.240		
Age	-0.204			MCSA	0.174		
35% Imax	0.493	4.169	0.664	35% Imax	0.649	4.332	0.637
Total BFLBM	0.339			Age	-0.235		
Age	-0.201			MCSA	0.168		
65% Tot.BMC	0.658	3.573	0.753	65% Tot.BMC	0.834	3.708	0.732
Total BFLBM	0.228			Age	-0.139		
Age	-0.138						
65% SSI	0.507	4.055	0.682	65% SSI	0.645	4.227	0.655
Total BFLBM	0.344			Age	-0.233		
Age	-0.198			MCSA	0.193		
65% Imax	0.494	4.134	0.670	65% Imax	0.632	4.263	0.649
Total BFLBM	0.346			Age	-0.249		
Age	-0.210			MCSA	0.207		
85% Tot.BMC	0.747	3.081	0.815	85% Tot.BMC	0.892	3.220	0.796
Total BFLBM	0.200						
85% SSI	0.572	3.740	0.730	85% SSI	0.688	3.918	0.703
Total BFLBM	0.317			Age	-0.166		
Age	-0.146			MCSA	0.184		
85% Imax	0.557	3.996	0.692	85% Imax	0.678	4.098	0.676
Total BFLBM	0.291			Age	-0.189		
Age	-0.167			MCSA	0.166		

BFLBM: Bone-Free Lean Body Mass; MCSA: Muscle Cross-Sectional Area at the 65% Tibia Site; BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice. BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$

Table 18. Selected Best Femoral Neck aBMD Predictors Using a pQCT Variable, a Lean Mass Variable, and Age.

Best Predictors using Total BFLBM				**Best Predictors using MCSA**			
	β	SEE	R^2		β	SEE	R^2
5% Tot.BMC	0.505	0.112	0.500	5% Tot.BMC	0.505	0.112	0.500
Age	-0.408			Age	-0.408		
5% Tot.vBMD	0.531	0.103	0.582	5% Tot.vBMD	0.542	0.104	0.579
Age	-0.288			Age	-0.300		
Total BFLBM	0.165			MCSA	0.150		
5% BSI_1	0.382	0.115	0.482	5% BSI_1	0.397	0.115	0.485
Age	-0.408			Age	-0.423		
Total BFLBM	0.166			MCSA	0.169		
15% Tot.BMC	0.459	0.117	0.462	15% Tot.BMC	0.459	0.117	0.462
Age	-0.450			Age	-0.450		
15% Tot.vBMD	0.301	0.118	0.450	15% Tot.vBMD	0.327	0.118	0.450
Age	-0.386			Age	-0.405		
MCSA	0.267			MCSA	0.261		
15% BSI_1	0.505	0.113	0.496	15% BSI_1	0.505	0.113	0.496
Age	-0.389			Age	-0.389		
Age	-0.483	0.120	0.434	Age	-0.483	0.120	0.434
35% Tot.BMC	0.424			35% Tot.BMC	0.424		
Age	-0.420	0.123	0.411	Age	-0.455	0.124	0.394
Total BFLBM	0.356			MCSA	0.331		
35% Tot.vBMD	0.197			35% Tot.vBMD	0.199		
Age	-0.473	0.119	0.436	Age	-0.473	0.119	0.436
35% Cort.BMC	0.427			35% Cort.BMC	0.427		
Age	-0.524	0.122	0.410	Age	-0.524	0.122	0.410
35% SSI	0.394			35% SSI	0.394		
65% Tot.BMC	0.501	0.112	0.504	65% Tot.BMC	0.501	0.112	0.504
Age	-0.467			Age	-0.467		
Age	-0.405	0.120	0.439	Age	-0.446	0.122	0.417
Total BFLBM	0.381			MCSA	0.349		
65% Tot.vBMD	0.264			65% Tot.vBMD	0.254		
65% Cort.BMC	0.495	0.113	0.496	65% Cort.BMC	0.495	0.113	0.496
Age	-0.448			Age	-0.448		
Age	-0.519	0.120	0.427	Age	-0.519	0.120	0.427

65% SSI	0.415			65% SSI	0.415		
85% Tot.BMC	0.580	0.104	0.568	85% Tot.BMC	0.580	0.104	0.568
Age	-0.354			Age	-0.354		
85% Tot.vBMD	0.394	0.113	0.503	85% Tot.vBMD	0.402	0.114	0.492
Age	-0.327			Age	-0.353		
Total BFLBM	0.292			MCSA	0.271		
Age	-0.475	0.116	0.468	Age	-0.475	0.116	0.468
85% SSI	0.463			85% SSI	0.463		

BFLBM: Bone-Free Lean Body Mass; MCSA: Muscle Cross-Sectional Area at the 65% Tibia Site; BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice. BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$

Table 19. Selected Best Femoral Neck BMC Predictors Using a pQCT Variable, a Lean Mass Variable, and Age.

Best Predictors using Total BFLBM				Best Predictors using MCSA			
	β	SEE	R^2		β	SEE	R^2
5% Tot.BMC	0.620	0.540	0.734	5% Tot.BMC	0.789	0.558	0.713
Age	-0.204			Age	-0.186		
Total BFLBM	0.220						
Total BFLBM	0.537	0.573	0.701	5% Tot.vBMD	0.472	0.649	0.616
5% Tot.vBMD	0.414			MCSA	0.429		
Age	-0.142			Age	-0.171		
Total BFLBM	0.506	0.599	0.673	5% BSI_1	0.457	0.649	0.616
5% BSI_1	0.367			MCSA	0.403		
Age	-0.222			Age	-0.251		
15% Tot.BMC	0.475	0.585	0.688	15% Tot.BMC	0.594	0.621	0.648
Age	-0.258			Age	-0.273		
Total BFLBM	0.348			MCSA	0.194		
15% Cort.BMC	0.371	0.623	0.646	15% Cort.BMC	0.497	0.665	0.596
Total BFLBM	0.428			Age	-0.266		
Age	-0.248			MCSA	0.275		
15% SSI	0.424	0.614	0.656	15% SSI	0.568	0.650	0.614
Age	-0.298			Age	-0.323		
Total BFLBM	0.365			MCSA	0.183		
15% BSI_1	0.430	0.593	0.679	15% BSI_1	0.535	0.628	0.639
Total BFLBM	0.413			MCSA	0.295		
Age	-0.212			Age	-0.226		
35% Tot.BMC	0.430	0.615	0.654	35% Tot.BMC	0.559	0.640	0.626
Age	-0.292			Age	-0.317		
Total BFLBM	0.356			MCSA	0.212		

35% Cort.BMC	0.433	0.612	0.658	35% Cort.BMC	0.557	0.636	0.630
Age	-0.283			Age	-0.305		
Total BFLBM	0.358			MCSA	0.222		
Total BFLBM	0.341	0.623	0.646	35% SSI	0.567	0.643	0.623
Age	-0.336			Age	-0.372		
35% SSI	0.432			MCSA	0.196		
65% Tot.BMC	0.566	0.567	0.707	65% Tot.BMC	0.756	0.588	0.681
Age	-0.278			Age	-0.279		
Total BFLBM	0.248						
65% Cort.BMC	0.522	0.577	0.696	65% Cort.BMC	0.625	0.596	0.676
Age	-0.258			Age	-0.272		
Total BFLBM	0.296			MCSA	0.181		
65% SSI	0.465	0.606	0.665	65% SSI	0.582	0.624	0.645
Age	-0.332			Age	-0.365		
Total BFLBM	0.325			MCSA	0.203		
85% Tot.BMC	0.697	0.488	0.782	85% Tot.BMC	0.837	0.503	0.767
Age	-0.144			Age	-0.119		
Total BFLBM	0.184						
Total BFLBM	0.504	0.625	0.644	85% Cort.BMC	0.429	0.667	0.594
85% Cort.BMC	0.319			MCSA	0.392		
Age	-0.258			Age	-0.289		
85% SSI	0.528	0.567	0.706	85% SSI	0.625	0.585	0.688
Age	-0.284			Age	-0.304		
Total BFLBM	0.298			MCSA	0.192		
85% Imax	0.501	0.602	0.669	85% Imax	0.606	0.612	0.658
Age	-0.304			Age	-0.326		
Total BFLBM	0.284			MCSA	0.182		

BFLBM: Bone-Free Lean Body Mass; MCSA: Muscle Cross-Sectional Area at the 65% Tibia Site; BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice; BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$

Table 20. Selected Best Trochanter aBMD Predictors Using a pQCT Variable, a Lean Mass Variable, and Age

Best Predictors using Total BFLBM				**Best Predictors using MCSA**			
	β	SEE	R^2		β	SEE	R^2
5% Tot.BMC	0.667	0.100	0.508	5% Tot.BMC	0.667	0.100	0.508
Age	-0.154			Age	-0.154		
5% Tot.vBMD	0.614	0.094	0.571	5% Tot.vBMD	0.651	0.096	0.548
Total BFLBM	0.267			MCSA	0.207		
5% BSI_1	0.448	0.106	0.453	5% BSI_1	0.488	0.107	0.444
Total BFLBM	0.265			MCSA	0.228		
Age	-0.164			Age	-0.182		
15% Tot.BMC	0.597	0.108	0.420	15% Tot.BMC	0.597	0.108	0.420
Age	-0.210			Age	-0.210		
15% BSI_1	0.669	0.106	0.448	15% BSI_1	0.669	0.106	0.448
35% Tot.BMC	0.574	0.110	0.408	35% Tot.BMC	0.574	0.110	0.408
Age	-0.252			Age	-0.252		
35% Cort.BMC	0.584	0.109	0.419	35% Cort.BMC	0.584	0.109	0.419
Age	-0.239			Age	-0.239		
65% Tot.BMC	0.639	0.102	0.485	65% Tot.BMC	0.639	0.102	0.485
Age	-0.234			Age	-0.234		
65% Cort.BMC	0.642	0.102	0.486	65% Cort.BMC	0.642	0.102	0.486
Age	-0.208			Age	-0.208		
85% Tot.BMC	0.760	0.092	0.578	85% Tot.BMC	0.760	0.092	0.578
85% Tot.vBMD	0.510	0.101	0.498	85% Tot.vBMD	0.541	0.106	0.452
Total BFLBM	0.409			MCSA	0.344		
85% SSI	0.591	0.108	0.427	85% SSI	0.591	0.108	0.427
Age	-0.244			Age	-0.244		

BFLBM: Bone-Free Lean Body Mass; MCSA: Muscle Cross-Sectional Area at the 65% Tibia Site; BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice; BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$

Table 21. Selected Best Trochanter BMC Predictors Using a pQCT Variable, a Lean Mass Variable, and Age.

Best Predictors using Total BFLBM				**Best Predictors using MCSA**			
	β	SEE	R^2		β	SEE	R^2
5% Tot.BMC	0.682	0.156	0.755	5% Tot.BMC	0.856	1.724	0.732
Total BFLBM	0.230						
Total BFLBM	0.622	1.984	0.649	MCSA	0.456	2.356	0.504
5% Tot.vBMD	0.331			5% Tot.vBMD	0.423		
Total BFLBM	0.569	1.975	0.652	5% BSI_1	0.486	2.259	0.544
5% BSI_1	0.358			MCSA	0.401		
15% Tot.BMC	0.529	1.849	0.695	15% Tot.BMC	0.791	2.039	0.625
Total BFLBM	0.372						
15% SSI	0.520	1.909	0.675	15% SSI	0.786	2.059	0.618
Total BFLBM	0.357						
15% BSI_1	0.460	1.892	0.680	15% BSI_1	0.608	2.089	0.610
Total BFLBM	0.452			MCSA	0.267		
35% Tot.BMC	0.501	1.948	0.661	35% Tot.BMC	0.777	2.095	0.604
Total BFLBM	0.365						
35% Cort.BMC	0.484	1.960	0.657	35% Cort.BMC	0.670	2.096	0.608
Total BFLBM	0.382			MCSA	0.158		
35% Imax	0.520	1.967	0.654	35% Imax	0.788	2.040	0.628
Total BFLBM	0.332			Age	-0.122		
65% Tot.BMC	0.610	1.812	0.707	65% Tot.BMC	0.822	1.898	0.675
Total BFLBM	0.276						
65% Cort.BMC	0.572	1.832	0.700	65% Cort.BMC	0.809	1.958	0.655
Total BFLBM	0.319						
65% SSI	0.487	1.968	0.654	65% SSI	0.771	2.120	0.595
Total BFLBM	0.374						
85% Tot.BMC	0.626	1.709	0.739	85% Tot.BMC	0.872	1.781	0.717
Total BFLBM	0.289			Age	0.135		
Total BFLBM	0.542	2.002	0.642	85% Cort.BMC	0.506	2.444	0.550
85% Cort.BMC	0.359			MCSA	0.365		
85% SSI	0.541	1.858	0.692	85% SSI	0.703	1.985	0.648
Total BFLBM	0.351			MCSA	0.151		
85% Imax	0.568	1.908	0.675	85% Imax	0.801	1.992	0.642
Total BFLBM	0.295						

BFLBM: Bone-Free Lean Body Mass; MCSA: Muscle Cross-Sectional Area at the 65% Tibia Site; BMC: Bone Mineral Content; vBMD: Volumetric Bone Mineral Density; SSI: Strength Strain Index; Imax: Maximum Moment of Inertia of a Cross-Sectional Slice; BSI: Bone Strength Index; BSI_1 = Total Area * Total $vBMD^2$

DISCUSSION

The basic rationale behind the current study was that previous investigations measuring bone characteristics using pQCT have used a variety of tibia sites and have focused on a variety of different bone variables from the pQCT output (23,47,55,80). This variety limits direct comparisons among studies and has inhibited the development of standardized testing procedures and reference databases, which is a major strength of DXA (24). My study focused on measuring the tibia at 10 sites along the length of the tibia in generally healthy, non-elderly adult Caucasian men and women not taking exogenous hormones or medications known to significantly affect bone health. The primary findings were that most tibia sites have significantly different amounts of volumetric bone mineral density, bone mineral content, area, circumferences, cortical thicknesses, general shape, and estimated strength. Many of the gender differences were accounted for by differences in content, leading to differences in area and, subsequently, strength. In addition, a major proportion of gender differences were explained by differences in muscle mass. There were multiple age effects that led to the 40-49 year old decade having the highest estimated bone strength, with the magnitude of age differences depended on the measurement site. The BSI results suggested that estimated compressive strength also does not peak during the 30s, but with variability in BSI values in the 40s and 50s may suggest the importance of loading modalities on the development of peak strength. Most of the analyses was performed with the Total $vBMD^2$ * Total Area version of BSI, as it is the more common version in literature (48), it exhibited more significant effects, and was more strongly related to hip aBMD and BMC variables.

This study builds on the findings and ideas proposed by Capozza et al. (14), who tested the tibia at 18 sites: every 5% of the limb length from 5-95%, distal to proximal, except for the 50% site. Their study, however, was a small study (n=22) of healthy men and women ages 20-40 years, with no other information about the participants. Physical activity, body size, body composition, nutrition, hormone status and ethnicity of the participants were not reported, so there is no indication of the application of their findings. Ethnicity is important because some authors from Capozza et al. (14) reported their institutional affiliations as being from South American, whereas other authors' affiliations were in Europe, and differences in aBMD and fracture risk between ethnicities are well established (15, 53), but differences in pQCT-related variables are far less established. Further, because this group did not report DXA values, there is no indication of their bone health status (above normal, normal, osteopenic).

Gender and Bone

Women have been shown to have greater fragility fracture risk than men after middle age (15, 55, 59). This is probably mostly due to differences in bone size, as suggested by the pQCT results. A previous study has also reported bone size and strength differences without large differences in vBMD between men and women (23). In fact, data from this study suggests that women had greater cortical vBMD, and at some sites, total vBMD, than men. Differences in content or area translated to larger differences in estimated bone strength as Imax, Imin, or SSI. Gender differences in fracture risk may also be related to different relative contributions of cortical and trabecular bone or with the efficiency of the bone architecture that is not represented by density.

This study utilized recently suggested techniques for bone analysis to assess the relative amounts of cortical and trabecular bone within the tibia and to assess relative bone strength (14). Total BMC ratios were calculated between a trabecular rich site (5%) and a cortical rich site (15%, 35%, 65%, 85%). The reported cortical rich sites were selected because they were on or near sites that Capozza et al. (14) proposed for inclusion in ratios and gave ratio values for (5%, 35%), because they were on or near sites that were commonly measured in previous studies (15%, 35%, 65%), or because the repeated measures ANOVAs from this study suggested that it was a site sensitive for detecting age and gender differences (85%). Men had higher bone content ratio values than women for 5%:35%, 5%:65%, and 5%:85%, suggesting that men either have higher relative amounts of trabecular bone or lower relative amounts of cortical bone. This is somewhat difficult to discern considering men had higher cortical and trabecular BMC values. The 20-29 year old men were the only group that had 5%:35% ratios similar to those reported by Capozza et al., and 5%:15% ratios were much lower than the 1.5:1.0 presented by Capozza et al (14). It is clear that these ratios are not consistent between genders, age groups, or perhaps even ethnic groups, so caution is needed in trying to use or interpret the ratios. Much larger samples are needed to determine healthy ranges of ratio values and the physiological significance, if any, of these ratios.

Men had greater SSI:Total BMC ratios than women at all sites except for the 15% site. Dividing SSI values by total BMC values to assess strength-to-weight ratios is a slight departure from Capozza et al. (14), where they divided cross-sectional moment of inertia by total BMC. SSI is defined by using the equation

$$SSI = (\Sigma(d^2 * A * (cort.vBMD_{meas}/cort.vBMD_{max})))/d_{max},$$

where d is distance, A is area, $cort.vBMD_{meas}$ is the measured cortical vBMD, $cort.vBMD_{max}$ is a theoretical maximum cortical vBMD under physiological conditions (1200 mg/cm^3), and d_{max} is the maximum distance of the outer cortical shell to the center of mass (64). Substituting vBMD for elastic modulus is thought to give a section modulus (cross-sectional moment of inertia divided by the maximum radius) that takes bone material properties into account (i.e. comparing resistance to torsion and bending of a cardboard tube and a bone of the same dimensions) (64). Dividing a cortical density-weighted section modulus by total bone content gives a strength-to-weight ratio, which is indicative of the efficiency of whole-bone tissue arrangement. Thus, it appears from these data that men have a more effective arrangement of bone mass that may be protective from fracture. The method proposed by Capozza et al. (14) may be just as effective of an assessment of whole-bone architecture efficiency, but further studies are needed to determine if either assessment are beneficial for assessing bone health.

In addition to gender differences in bone content, area, estimated strength, and strength-to-weight ratios, the ratio of Imax to Imin was also greater in men at sites 45% to 85%, suggesting differences in whole bone shape, not just difference in content. This may be related to loading patterns from different types of physical activities (56,63,101). While this may not affect hip fracture risk, it may be related to stress fracture risk in the tibia caused by excessive or prolonged unaccustomed loading (23,42,65,81,95). Interestingly, this was the only bone variable for which most sites were not significantly different from each other.

Muscle mass accounted for a much larger proportion of gender differences in BMC and bone strength than of gender differences in vBMD. The majority of loading onto bone is thought to come from muscular contractions (27), and these data support that theory, especially since leg BFLBM was more strongly related to bone characteristics than total body BFLBM. Calf MCSA was a weaker predictor of bone characteristics than total body BFLBM, but this may suggest the importance of the thigh musculature inserting force on the tibia. Leg and total BFLBM are also better indicators of general training and fitness status. Calf MCSA was included in the regression tables to show the ability to predict DXA hip values without using any DXA-based body composition measures.

Total and leg fat mass did not account for gender differences in bone characteristics, and since women had greater fat mass values than men, some gender differences in bone characteristics were slightly amplified when controlling for fat mass values. Total and leg fat mass were not correlated with bone characteristics. The finding that calf FCSA was negatively related to some bone characteristics may be indicative of the negative effects of inactivity on bone health (64,67). Previous studies have reported fat mass as a predictor of aBMD in untrained postmenopausal women (66,84), since fat mass is a source of gravitational loading and also a potential source of estrogen production (50).

The general lack of age*gender interaction effects in this study was surprising, as it does not support previous findings in postmenopausal women not taking hormone replacement therapy having greater bone or body composition differences from men or premenopausal women not taking hormonal contraceptives (28,61,77,80). This may simply be a power issue related to sample size, as correcting for BFLBM caused age*gender interactions to become significant for PeriC and I_{max} and age*gender*site interactions to become a trend for total BMC and I_{max}. The main finding was that gender effects were greatest in 40-49 year olds for these variables. This enhanced gender difference is not likely due to menopausal status, as there were 14 (out of 15) postmenopausal woman in the 50s group, and only 4 postmenopausal women in the 40s group. Two women in this latter group were perimenopausal. Despite these results, secondary analysis comparing only premenopausal women to postmenopausal women found site*menopause interactions for tibia total BMC and vBMD when using age as a covariate. While a trend for this effect also occurred for cortical BMC, there were no menopause effects for any other bone variable when accounting for age.

Aging and Bone

Significant age effects were not seen as consistently as gender effects. The trend for age effects for total and cortical BMC and cortical area likely did not meet significance because of the number of sites that were not different between age groups, but sample size is also a possible issue. Other potential reasons for fewer age group differences are the lack of age group differences in lean tissue values and the significant age group differences in fat mass values. Since BFLBM was a significant predictor of many bone characteristics, and it is thought to be the primary source of bone loading, maintaining lean tissue may have prevented some age-related bone loss. Although fat mass was not related to bone characteristics, correcting for fat mass made some age differences in bone characteristics (total and cortical BMC, cortical area, and the age*site for PeriC) significant when they were previously a trend. Essentially, some age effects were reduced because of increased fat mass in older age groups, but not nearly to the extent that lean mass affected gender effects. Further, decreases in lean mass equivalent to the increases seen in fat mass would have likely caused a greater detrimental effect on bone characteristics between age groups.

Most significant age pairwise comparisons were found between the 20s group and 50s group. The 40s participants, however, had the highest estimate bone strength, suggesting that while the accumulation of bone mass may peak around age 30, there may be additional arrangements of whole bone architecture to strengthen the bone, such that peak bone strength may occur when a person is in their 5th decade, not 4th. This suggestion is supported by significant age and age*site effects in endosteal circumference between 20s and 30s. However, prolonged increases in endosteal circumference without increases in periosteal circumference can decrease cortical thickness to a degree that decreases strength.

Although age group differences were less common than gender differences in this study, age was a more consistent predictor of DXA aBMD values than lean tissue values. Further, while bone variables did not have a linear decrease along age groups, age was always a negative predictor of hip bone variables. Lean tissue predicted aBMD more often when a vBMD variable was used in the prediction model. The fact that MCSA remained in the model when it substituted total BLFBM suggests that over 50% of the variability in hip aBMD can be explained by using age and pQCT measures. When predicting hip BMC values, total BLFBM was a more important contributor to the model than age, but age was a more important contributor than MCSA. Interestingly, cortical vBMD was negatively related to the pQCT bone strength estimates. This finding seems to conflict with long-standing methods of using bone density as a surrogate of bone strength (14, 46), however, cortical and trabecular vBMD were not correlated with hip aBMD or BMC, but hip aBMD and BMC were related to pQCT tibia strength estimates. Bone strength index, SSI, and Imax were not able to predict DXA variables better than total BMC. Bone content ratios and SSI:Total BMC ratios did not predict DXA variables better than single variable predictors. However, there were age and gender differences in bone content ratios, suggesting that they may be indicative of relative cortical or bone losses. The relatively weak correlations between the generated T-scores for ratios and hip T-scores suggest that the ratios could not be used as a substitute for hip T-scores for fracture risk determination.

Physical Activity and Diet as Predictors of Bone Health

Calcium and vitamin D were not significant predictors of bone characteristics, which is interesting considering such a high proportion of the sample was not ingesting recommended amounts according to Institute of Medicine (75). Protein and phosphorous, however, were consistent correlates of bone characteristics. While correlations were weaker and less consistent, the proportion of calories ingested as protein was also related to bone health. Higher protein intakes have previously been associated with increased BMD and IGF-1 levels and with reduced rates of bone resorption (20, 89). Phosphorous is the 2nd most abundant mineral in the body, second to calcium (29). The relationship between phosphorous and protein intake was 0.96, so it is unclear whether protein or phosphorous alone or the combination of both were related to better bone health. It should be noted that a potential limitation of the Block 2005 Food Frequency Questionnaire is an inadequate separation of ‘energy bars’ and ‘protein bars’ and representation of protein supplement usage in the form of powders and shakes. Since many of protein bars and powder also contain calcium, it is possible that calcium and protein intakes are being underestimated in some subjects. Also, since information about sun exposure was not obtained, I cannot state for certain that the participants were vitamin D deficient.

Bone-specific physical activity was not strongly related to bone variables. This may have been partly due to how activities are scored, and due to the fact that the BPAQ is not particularly specific about frequency or intensity of the activities during the years the activity was performed. Also, women had higher past and total bone-specific physical activity levels, which was somewhat unexpected. Again, this was likely due to how activities are scored. Gymnastics is considered the bone loading standard to which other physical activities are compared to when scoring the questionnaire (99). A wide range of physical activity levels were included to adequately reflect the general healthy population. At a minimum, participants only had to report that they engaged in a minimum of 75 minutes per week of moderate or vigorous occupational, home, or leisure physical activity. At a maximum, participants were included if they reported more than 15 hours per week of moderate or vigorous exercise per week. The terms physical activity and exercise are used exclusively intentionally, such that individuals with more physical demanding occupations such as fire fighters or construction worker were not excluded for having either ‘too much’ physical activity or not enough exercise outside of work. Specific sports or physical activities were not excluded, as this would have limited to applicability of the findings. While some physical activities have been positively associated with bone characteristics

(32,56,81,101), some physical activities have been negatively associated with bone health (6,25,78) but the reasons for the negative association are unclear.

Recommendations

In the interest of deciding ideal sites for bone characterization, the 5% and 85% sites were sites with higher amounts of group divergence. Also, the 35% and 65% sites, near already commonly used sites (38% and 66%) were sites at which several group differences peaked. More group differences peaked at the 65% than the 35% site, and the 65% site has the added benefit of being a site for assessing calf MCSA. The 15% site does not appear to add anything to the above four sites. The 'ideal' site(s) also partly depends on the chosen outcome variable.

Limitations

There are several limitations to this study. Because of the cross-sectional design, Rates of bone change in different age groups or between genders cannot be addressed. While certain tibia sites had larger gender and age group differences, longitudinal studies are needed to confirm that the same sites will show the greatest changes with prolonged exercise training, prolonged unloading, aging or menopause. pQCT results were used to predict DXA values, but the design of the study prohibited the prediction for fracture. Large, long-term prospective studies are needed to determine if pQCT values can be used to asses fracture risk.

Cortical bone values, SSI, Imax, Imin, and Imax/Imin were not reported at the 5% site because this site is particularly influenced by partial volume effects (4,30) when performing cortical-based analyses because of the thin cortical shell relative to the resolution of the scan. All participants' cortical shells were less than 2 mm at this site, even when using the 480 threshold. Another issue unique to the 5% site for this study is that the SSI, Imax, and Imin values are calculated based on the cortical bone, assuming a hollow tube shape, and the 5% site strongly violates this assumption (see Figure 1). The Stratec software gives a 'total bone' Imax and Imin value, but they assume a solid, homogenous rod, and all sites strongly violate this assumption. Therefore, it is difficult to have high confidence in the accuracy of the non-BSI estimated strength values at this site. It should be noted that while the 85% site also has a thin cortex in many people, for any given person the thickness is greater at the 85% site than at the 5% site, and therefore, is less prone to partial volume effects. Partial volume effects occur at the border between soft tissue and the cortical shell, and between cortical bone and trabecular bone when a voxel contains both bone and soft tissue, or both cortical and trabecular bone. Cortical shells that are thin relative to the scan resolution are more prone to under or over estimations in cortical values. When reporting cortical bone values (not strength values, all were reported with the 480 threshold) using the 710 threshold, approximately 1/3 had a cortical thickness of 2 mm, but this threshold was set a priori and the resulting values were used for consistency of analysis technique with other sites. It should also be noted that using the 710 threshold did not cause streaking or popping points in the cortical analysis, and for the purposes of characterizing purely cortical bone, is still appropriate. Using a 650 cortical threshold, also commonly used, may be more appropriate for this site to further reduce the chances of partial volume effects. All subjects had a cortical thickness value greater than 2 mm with the 480 threshold, but using the lower threshold would have automatically lowered the cortical density value and raised the cortical area value.

Tibia limb length became a limitation, as some tibias were too long to allow the gantry to move to the 95% site from a scout view. There are likely minute differences in actual measurement site between scout view-based and manual scans. Also, it is expected that the there is some variation in the shape and contour of the tibia condyles, particularly in those with arthritic changes of the knee. In particular, there may be differences in the distance from the tibial plateau that is palpable by the tester to the articular surfaces, as well as differences in the distance from the medial malleolus to the tibia endplate. Other sites, however, were all collected using a scout view. It simply suggests the need to consistently use either a scout view or manual scanning for site determination for the most precise results.

CHAPTER V

CONCLUSIONS

The purpose of this study was to examine the effects of age and gender on tibia morphology, and to relate indicators of tibia mass and shape on hip and spine aBMD and BMC as assessed by DXA. Further purposes of this study were to determine which tibia site or sites are most sensitive for detecting age, gender, or menopause-related morphology changes. The following research questions were investigated: 1. What effects do age and gender have on bone mass, bone shape, and bone strength indicators throughout the adult tibia? 2. What tibia site(s) and characteristics are most sensitive to age-related changes? 3. What tibia site(s) and characteristics are most sensitive to menopause-related changes? 4. What are the relationships between pQCT-assessed bone mass, bone shape, and bone strength indicators at individual tibia sites or as ratios between multiple tibia sites and DXA-assessed bone mass and aBMD?

Research Hypothesis 1.

A. Men will have greater periosteal circumference, cortical thickness, total and cortical area, total vBMD and SSI than women at any tibia site and any age.

Men did, in fact have greater periosteal circumference, total and cortical area, and SSI than women at any tibia site and any age. However, men did not have greater total vBMD at every site. The magnitude of gender difference varied by site, and much of the gender difference was accounted for by differences in bone-free lean body mass.

B. With age, women would develop a greater endosteal circumference than men.

Findings did not support this hypothesis. Men had greater endosteal circumferences than women at all sites for all age groups.

C. Men and premenopausal women would have similar cortical vBMD, trabecular content and vBMD.

Cortical vBMD were similar between men and all women, and in fact, women had slightly, but significantly, greater values than men. Men had greater trabecular BMC than women, but gender differences widely varied between age groups and by site. There was an interaction of age and gender for trabecular vBMD. Gender differences in trabecular content and vBMD were generally large.

D. Trends for increases in bone size would begin at age 40 for both genders, but rates of change would be more rapid for women.

The evidence from this sample does not fully support this hypothesis. Only trabecular vBMD had significant age and gender interaction effects, suggesting that for most bone size-related variables, including total and cortical area and periosteal and endosteal circumferences, changes occurred at a similar rate between genders in this sample. The 20-29 year age group had the smallest total and trabecular area and periosteal and endosteal circumference mean values. Also, cortical area values were highest in 30-somethings and 40-somethings, but this was not significant.

An interesting point to consider is that when correcting for BFLBM, some age*gender interaction effects became significant, as gender differences were largest in 40-49 year olds, and became smaller between 50-59 year olds. In these cases, it was predominantly because while men had higher values in the 40s group (compared to other male age groups), women had lower values in the 40s group. In the 50s group there was a reconvergence of values between gender groups.

Research Hypothesis 2.

A. Sites closest to the bone ends will be most sensitive to age related changes.

This finding somewhat depended on the variable being tested, but this hypothesis is supported for total BMC, vBMD and area, and trabecular area and content.

B. There will be decreases in cortical area and thickness, and decreases in trabecular content.

Cortical thickness did decrease with age, but cortical area did not. There was a trend for decreases in trabecular content with age, but it was not significant. Trabecular loss appeared to decline in 40-49 yr olds at the 5% site, and 50-59 yr olds at the 85% site.

C. There will be increases in total and trabecular bone area. SSI (measure of torsional strength at diaphyseal sites) will not significantly change with decreased cortical content when total bone area increases.

The 20-29 year age group had the smallest total and trabecular area mean values. The hypothesis that SSI would not change significantly with decreased cortical content when total area increases could not be adequately tested because there were no significant decreases in cortical content.

D. The ratio of total bone mass between the 5% site and more proximal sites until 75% would decrease.

The data support this hypothesis, and the ratio continued to decrease until the 85% site.

Research Hypothesis 3.

A. Menopause-related changes will be most evident with trabecular content and vBMD loss in the distal and proximal tibia sites (5%, 15%, and 95%), and cortical area and thickness loss in the diaphyseal sites.

Trabecular vBMD was the only variable to have a significant age*gender interaction effect, and trabecular content was the only variable to have a significant site*age*gender interaction. However, the only bone variables where a direct significant site*menopause group interactions were found were tibia total BMC and total vBMD, and group differences peaked in the diaphyseal shaft.

B. There will be a change in the ratio of cortical content in diaphyseal sites to trabecular content in epiphyseal sites.

There were significant findings in bone mass ratios. The 5:35%, 5:65% and 5:85% total BMC ratios were each significantly greater in men than women, and the 20-29 year age group had the highest ratios. This suggests men had higher relative amounts of trabecular bone or lower relative amounts of cortical bone. Also, the relative amount of trabecular bone was greater in younger adults.

Research Hypothesis 4.

A. Total BMC will be the strongest predictor of hip aBMD and BMC variables at all pQCT sites, but correlations will be strongest at non-diaphyseal sites.

When adding age and a lean mass variable into the stepwise regression, total BMC and vBMD each predicted hip, femoral neck, and trochanter aBMD. With the exception of the 5% tibia site, tibia BMC was generally a stronger predictor of hip aBMD than tibia vBMD. Prediction was strongest by total vBMD and BMC at the 5% and 85% sites, but up to 40% of the variance in total hip, femoral neck, and trochanter aBMD was still predicted from total BMC and vBMD in the diaphyseal sites. In the diaphyseal sites, however, cortical BMC was sometimes a stronger predictor of hip aBMD than total BMC.

For any given site, total slice BMC was the best pQCT predictor of total hip, femoral neck, and trochanter BMC, and the 5% and 85% sites gave the strongest predictive values. However, cortical BMC predicted femoral neck and trochanter BMC slightly better than total BMC at the 35% site, and cortical BMC predicted trochanter BMC slightly better than total BMC at the 85% site. Total BMC predicted hip BMC values much more strongly than total vBMD. Total and cortical BMC and strength estimates of the diaphyseal sites, along with lean tissue and age, were still able to account for over 60% of the variance in total hip BMC.

B. Total area, cortical BMC and area will be strongly related to hip aBMD and BMC.

Yes, total area, cortical BMC and area were strongly related to hip BMC variables. Cortical area was strongly related to hip aBMD variables, and total area and cortical BMC were moderately correlated with hip aBMD variables.

C. Volumetric BMD will only be correlated to hip aBMD and BMC variables at the tibia 5%, 15%, 85%, and 95% sites, and will not be related at sites 25-75%.

Cortical vBMD at the ends of the tibia was not correlated to hip variables, and cortical vBMD throughout the diaphysis was negatively related to hip variables.

Total vBMD was correlated with hip variables throughout the tibia, but correlations were strongest at the 5% and 85% sites. Trabecular vBMD was not related to hip variables.

D. Trabecular bone variables will not be related to hip aBMD or BMC variables at sites 35-75%.

Because this section of bone contains little, if any trabecular bone in this region of the tibia, trabecular bone was not quantified at these sites. It was only quantified at the 5%, 15%, 85%, and 95% sites. Trabecular vBMD was not related to hip variables for any site.

Clinical Significance

Peripheral Quantitative Computed Tomography is a bone assessment technique that can give bone content, density, and area measures of the total, cortical, and trabecular bone tissue. In addition, pQCT is able to provide estimates of bone strength. However, because of the heterogeneity of site selection between studies and a lack of evidence to support current site selections, reference databases and screening recommendations cannot yet be developed. In determining what sites are most sensitive for detecting normal aging and gender differences in bone characteristics, including strength, progress can be made towards developing reference databases at the most sensitive sites and engaging in fracture outcomes research using pQCT. These steps are critical for collecting evidence for effective use of pQCT for fracture risk prediction.

It should be noted that results do not suggest 4%, 14%, 38%, and 66% sites currently used in the literature are inappropriate, per se, but does suggest a need for caution when directly comparing studies that used different sites for measurement.

Results of this study suggest that the 85% site may be a new useful site for pQCT testing. It is a site of appreciable cortical and trabecular bone, and predicts DXA variables well. Additionally, it may be a sensitive site to loading or unloading induced changes, and as a result may be able to predict hip fracture. As a slightly speculative hypothesis, the 85% site may be a useful site for predicting healing time for total knee replacements because a clinician will be able to better assess bone quality near the site of implantation. Based on the results of this study, the 14% site does not appear to be of benefit beyond the 4%, 38%, 66%, or 85% sites. Therefore, for research laboratories looking to limit the number of scans for research protocols, the 14% site is expendable.

Until large, publicly available, reference datasets at pQCT site(s) are developed, it is recommended that laboratories develop reference datasets at each tibia site using their own unique participant scans (as opposed to repeated scans from a single individual) for BMC, vBMD, SSI, BSI, and moments of inertia. Similar to DXA scan comparisons, individual pQCT scans could be compared to a young adult reference database and an age-, body size-, and ethnicity-matched database. Scans that are added to the laboratory reference database should all be analyzed with standardized methods for consistency.

Future Research Directions

Long-term longitudinal studies are needed to confirm which sites are most sensitive for detecting change due to aging, menopause, or other pathological conditions. Further, prospective studies are needed to determine fracture risk probabilities with pQCT. Drastic departures from the most commonly used sites are likely not necessary. Some commonly used sites in the literature are 4%, 14%, 38%, and

66%. In the interest of selecting sites for useful, yet efficient screening, the 5%, 35%, 65%, and 85% were best because of the ability to assess cortical and trabecular bone characteristics and bone strength that differ with age and gender groups, and be able to assess the calf musculature. The 85% site seems to be an under-utilized, but potentially powerful site for assessment. While mass ratios and strength to mass ratios did not predict DXA variables better than a single variable or single-site bone mass value, they may still be beneficial in determining the relative bone losses (i.e. cortical vs. trabecular) or gains due to unloading or an intervention. Strength to mass ratios may reflect the efficiency of whole bone remodeling not captured when using density values. Longitudinal studies are also needed to confirm this.

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Appendix A

Informed Consent and Authorization or Use or Disclose Protected Health Information for Research

University of Oklahoma
Institutional Review Board
Informed Consent to Participate in a Research Study

Project Title: Age and Gender Differences in Tibia Strength and Morphology and Relationships of Tibia Morphology to Bone Health

Principal Investigator: Debra A. Bemben, PhD; Vanessa Sherk, MS (CoPI)

Department: Health and Exercise Science

You are being asked to volunteer for this research study. This study is being conducted at the University of Oklahoma Department of Health and Exercise Science. You were selected as a possible participant because you are a healthy, Caucasian man or woman ages 20-59 years not taking hormone-based birth control, hormone replacement therapy, or androgen replacement therapy.

Please read this form and ask any questions that you may have before agreeing to take part in this study.

Purpose of the Research Study

The purpose of this study is to determine age and gender differences in the shape and strength of the bones in the lower leg. The purpose of this study is also to determine if characteristics of these bones relate to bone mineral density of the hips and lower back as it relates to the risk for osteoporosis.

Number of Participants

About 160 people will take part in this study.

Procedures

If you agree to be in this study, you will be asked to do the following:

1. Sign and date an Informed consent document (this document) indicating that you understand all procedures and your rights as a research subject. This visit will take no longer than 3 hours to complete.

2. Complete a Health Status Questionnaire, Bone-Specific Physical Activity Questionnaire, Dietary Intake Questionnaire, and a Menstrual History. [45 minutes]

3. A urine sample will be obtained in order to determine if you are adequately hydrated and eligible for immediate participation in the study. If you fail the hydration test, you will be assessed again on a different day. [10 minutes]

4. A series of bone scans will be performed by Dual Energy X-Ray Absorptiometry (DXA) at the Bone Density Laboratory in the Department of Health and Exercise Science. The test will include four scans which will take about 25-30 minutes to complete. This test is non-invasive and only requires that you lie still for the test to be completed. Your right and left hip, lower back, and total body will be measured for bone

mineral density. This research study involves exposure to radiation from four DXA scans, which is a type of x-ray procedure. [25-30 minutes]

5. A series of peripheral Quantitative Computed Tomography (pQCT) scans will be performed done in the Bone Density Laboratory. pQCT is a type of x-ray procedure, and you will have 10 pQCT scans done. This will take approximately 45-60 minutes to complete. These scans are non-invasive and only require that you sit still for the test to be completed. This research study involves exposure to radiation from 10 pQCT scans. [45-60 minutes]

Length of Participation

Participation in this study will require a total of 1 visit to the Bone Density Research Laboratory at the University of Oklahoma. This visit will take no longer than 3 hours to complete.

This study has the following risks:

This research study involves exposure to radiation from 4 DEXA scans and 10 pQCT scans, which are types of xray procedures. This radiation is not necessary for medical care and is for research purposes only. You will receive radiation exposure of less than 2 mrem from each DEXA scan and less than 1 mrem from each pQCT scan for a total dose of 18 mrem, which is less than the radiation received in 23 days from natural background radiation (~ 300 mrem/yr), such as naturally occurring radioactivity in soil. Any risk from this amount of radiation is too small to measure directly, and is small when compared to every day risks. Although the amount of radiation you will receive in this study is minimal, it is important for you to be aware that the risk from radiation exposure is cumulative over your life time.

"Pregnant women should not be exposed to radiation. Therefore, I verify that I am not pregnant (if participant is uncertain about pregnancy, then she should not perform this test.) Radiation safety levels for fetuses have not been established and therefore no additional exposure whatsoever can be considered safe."

I verify that I have read and understood the above radiation warning.
INITIALS:_______

Benefits of being in the study are

Information regarding your bone scans and body composition results will be provided at the end of your visit. Participation in this study will contribute to science, because the information obtained will help us gain insight to the ability of lower limb scanning with pQCT to assess bone health.

Injury

In case of injury or illness resulting from this study, emergency medical treatment is available. However, you or your insurance company may be expected to pay the usual charge from this treatment. The University of Oklahoma Norman Campus has set aside no funds to compensate you in the event of injury.

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Confidentiality

In published reports, there will be no information included that will make it possible to identify you without your permission. Research records will be stored securely and only approved researchers will have access to the records.

There are organizations that may inspect and/or copy your research records for quality assurance and data analysis. These organizations include the OU Institutional Review Board.

Compensation

You will not be reimbursed for your time and participation in this study.

Voluntary Nature of the Study

Participation in this study is voluntary. If you withdraw or decline participation, you will not be penalized or lose benefits or services unrelated to the study. If you decide to participate, you may decline to answer any question and may choose to withdraw at any time.

Contacts and Questions

If you have concerns or complaints about the research, the researcher(s) conducting this study can be contacted at 325-5211 or via email: dbemben@ou.edu for Debra Bemben or Vanessa.sherk@ou.edu for Vanessa Sherk.

Contact the researcher(s) if you have questions or if you have experienced a research-related injury.

If you have any questions about your rights as a research participant, concerns, or complaints about the research and wish to talk to someone other than individuals on the research team or if you cannot reach the research team, you may contact the University of Oklahoma – Norman Campus Institutional Review Board (OU-NC IRB) at 405-325-8110 or irb@ou.edu.

You will be given a copy of this information to keep for your records. If you are not given a copy of this consent form, please request one.

Statement of Consent

I have read the above information. I have asked questions and have received satisfactory answers. I consent to participate in the study.

Signature Date

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UNIVERSITY OF OKLAHOMA – NORMAN CAMPUS
INSTITUTIONAL REVIEW BOARD

AUTHORIZATION TO USE or DISCLOSE PROTECTED HEALTH INFORMATION FOR RESEARCH

An additional Informed Consent Document for Research Participation may also be required.

Title of Research Project:	**Age and Gender Differences in Tibia Strength and Morphology and Relationships of Tibia Morphology to Bone Health**
Principal Investigator:	**Debra A. Bemben, PhD; Vanessa Sherk, MS (Co PI)**
IRB Number:	
Address:	**1401 Asp Ave. Norman, OK 73019**
Phone Number:	**405-325-5211**

If you decide to join this research project, University of Oklahoma (OU) researchers may use or share (disclose) information about you that is considered to be protected health information for their research. Protected health information will be called private information in this Authorization.

Private Information To Be Used or Shared. Federal law requires that researchers get your permission (authorization) to use or share your private information. If you give permission, the researchers may use or share with the people identified in this Authorization any private information related to this research from your medical records and from any test results. Information, used or shared, may include all information relating to any tests, procedures, surveys, or interviews as outlined in the consent form, medical records and charts, name, address, telephone number, date of birth, race, and government-issued identification number.

Purposes for Using or Sharing Private Information. If you give permission, the researchers may use your private information to analyze the data from the project and present the information in aggregate form.

Other Use and Sharing of Private Information. If you give permission, the researchers may also use your private information to develop new procedures or commercial products. They may share your private information with the research sponsor, the OU Institutional Review Board, auditors and inspectors who check the research, and government agencies such as the Food and Drug Administration

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(FDA) and the Department of Health and Human Services (HHS). The researchers may also share your private information with none.

Confidentiality. Although the researchers may report their findings in scientific journal or meetings, they will not identify you in their reports. The researchers will try to keep your information confidential, but confidentiality is not guaranteed. Any person or organization receiving the information based on this authorization could re-release the information to others and federal law would no longer protect it.

YOU MUST UNDERSTAND THAT YOUR PROTECTED HEALTH INFORMATION MAY INCLUDE INFORMATION REGARDING ANY CONDITIONS CONSIDERED AS A COMMUNICABLE OF VENEREAL DISEASE WHICH MAY INCLUDE, BUT ARE NOT LIMITED TO, DISEASES SUCH AS HEPATITIS, SYPHILIS, GONORRHEA, AND HUMAN IMMUNODEFICIENCY VIRUS ALSO KNOWN AS ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS).

Voluntary Choice. The choice to give OU researchers permission to use or share your private information for their research is voluntary. It is completely up to you. No one can force you to give permission. However, you must give permission for OU researchers to use or share your private health information if you want to participate in the research and if you revoke your authorization, you can no longer participate in this study.

Refusing to give permission will not affect your ability to get routine treatment or health care from OU.

Revoking Permission. If you give the OU researchers permission to use or share your private information, you have a right to revoke your permission whenever you want. However, revoking your permission will not apply to information that the researchers have already used, relied on, or shared.

End of Permission. Unless you revoke it, permission for OU researchers to use or share your private information for their research will end when all data from the project has been analyzed and all reports have been published. You may revoke your permission at any time by writing to:

Privacy Official
University of Oklahoma
1000 Stanton L. Young Blvd., STE 221, Oklahoma City, OK 73117
If you have questions call: (405) 271-2511

Giving Permission. By signing this form, you give OU and OU's researchers led by Debra A. Bemben, Ph.D. and Vanessa Sherk, M.S., permission to share your private information for the research project called Age and gender differences in tibia morphology and relationships to tibia morphology to bone health.

Subject Name:

Signature of Subject
or Parent if Subject is a child

Date

Or

Signature of Legal Representative**

Date

**If signed by a Legal Representative of the Subject, provide a description of the relationship to the Subject and the Authority to Act as Legal Representative:

OU may ask you to produce evidence of your relationship.

A signed copy of this form must be given to the Subject or the Legal Representative at the time this signed form is provided to the researcher or his representative.

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Appendix B

Health Status, Menstrual History, and Bone-Specific Physical Activity Questionnaires

Bone Density Research Laboratory
OU Department of Health and Exercise Science
Health Status Questionnaire

Instructions Complete each question accurately. All information provided is confidential.
(NOTE: The following codes are for office use only: RF; MC; SLA; SEP)

Part 1. Information about the individual

1.____
Date

2. ____
Legal name Nickname

3.____
Mailing address

____
Home phone Business phone

4.Gender (circle one): Female Male (RF)

5. Year of birth: _______________________ Age ________

6. Number of hours worked per week: Less than 20 20-40 41-60 Over 60
More than 25% of time spent on job (circle all that apply)
Sitting at desk Lifting or carrying loads Standing Walking Driving

Part 2. Medical history

7. (RF) Circle any who died of heart attack before age 50:
Father Mother Brother Sister Grandparent

8.Date of: Last medical physical exam: _____________ (year)
Last physical fitness test: ______________ (year)

9. Circle operations you have had:
Back (SLA) Heart (MC) Kidney (SLA) Eyes (SLA) Joint (SLA) Neck (SLA)
Ears (SLA) Hernia (SLA) Lung (SLA) Other ________________________

10. Please circle any of the following for which you have been diagnosed or treated by a physician or health professional:

Alcoholism (SEP)	Diabetes (SEP)	Kidney problem (MC)
Anemia, sickle cell (SEP)	Emphysema (SEP)	Mental illness (SEP)
Anemia, other (SEP)	Epilepsy (SEP)	Neck strain (SLA)
Asthma (SEP)	Eye problems (SLA)	Obesity (RF)
Back strain (SLA)	Gout (SLA)	Osteoporosis

Bleeding trait (SEP)	Hearing loss (SLA)	Phlebitis (MC)
Bronchitis, chronic (SEP)	Heart problems (SLA)	Rheumatoid arthritis
Cancer (SEP)	High blood pressure (RF)	Stroke (MC)
Cirrhosis, liver (MC)	Hypoglycemia (SEP)	Thyroid problem (SEP)
Concussion (MC)	Hyperlipidemia (RF)	Ulcer (SEP)
Congenital defect (SEP)	Infectious mononucleosis (MC)	Other _____________

11. Circle all medicine taken in last 6 months:

Blood thinner (MC)	Epilepsy medication (SEP)	Nitroglycerin (MC)
Diabetic pill (SEP)	Heart-rhythm medication (MC)	Estrogen
Digitalis (MC)	High-blood-pressure medication (MC)	Thyroid
Diuretic (MC)	Insulin (MC)	Corticosteroids
Asthma	Other ______________________	

12. Any of these health symptoms that occurs frequently is the basis for medical attention. Circle the number indicating how often you have each of the following:
1 = Practically never 2 = Infrequently 3 = Sometimes 4 = Fairly often 5 = Very often

a. Cough up blood (MC) 1 2 3 4 5
b. Abdominal pain (MC) 1 2 3 4 5
c. Low back pain (SLA) 1 2 3 4 5
d. Leg pain (MC) 1 2 3 4 5
e. Arm or shoulder pain (MC) 1 2 3 4 5
f. Chest pain (RF) (MC) 1 2 3 4 5
g. Swollen joints (MC) 1 2 3 4 5
h. Feel faint (MC) 1 2 3 4 5
I. Dizziness (MC) 1 2 3 4 5
j. Breathless with slight exertion (MC) 1 2 3 4 5

Part 3. Health-related behavior

13. (RF) Do you now smoke? Yes No

14. If you are a smoker, indicate number smoked per day:
Cigarettes: 40 or more 20-39 10-19 1-9
Cigars or pipes only: 5 or more or any inhaled Less than 5, none inhaled

15. Weight now: ________lb. One year ago: ________lb.. Age 21: ________lb.

16. Thinking about the things you do at work, how would you rate yourself as to the amount of physical activity you get compared with others of your age and sex?

1. Much more active
2. Somewhat more active
3. About the same
4. Somewhat less active
5. Much less active
6. Not applicable

17. Now, thinking about the things you do outside of work, how would you rate yourself as to the amount of physical activity you get compared with others of your age and sex?

    1. Much more active
    2. Somewhat more active
    3. About the same
    4. Somewhat less active
    5. Much less active
    6. Not applicable

18. Do you regularly engage in strenuous exercise or hard physical labor?
    1. Yes (answer question # 19)   2. No (stop)

19. Do you exercise or labor at least three times a week?   1. Yes   2. No

Bone Density Reserach Laboratory
Department of Health and Exercise Science
University of Oklahoma

MENSTRUAL HISTORY QUESTIONNAIRE

Name: ________________________________ Date: __________________

We are asking you to give us as complete a menstrual history as possible. All information you provide will be strictly confidential.

SECTION A: CURRENT MENSTRUAL STATUS

1. Approximately how many menstrual periods have you had during the past 12 months?

2. Circle the months in which your period occurred. This means from this time last year until the present month.

   JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

3. What is the usual length of your menstrual cycle (first day menses to first day next menses)
   ____ days. Today is day _____ of your present menstrual cycle.

4. What was the date of your last period?

5. When do you expect your next menstrual period?

6. What is the length (number of days) of your menstrual flow on the average?

   How many of these days would you term "heavy"

7. Do you experience cramps during menstruation (dysmenorrhea)? If yes, how many days does this last?

8. Do you experience symptoms of premenstrual syndrome (i.e., weight gain, increased eating, depression, headaches, anxiety, breast tenderness)? If yes, list the symptoms.

9. Do you take oral contraceptives or any other medication that includes estrogen and/or progesterone? If no, skip to question 10.

If yes, how long have you been taking the birth control pill?

What is the brand name and dosage of the oral contraceptive you are taking?

Has the pill affected your menstrual cycle (regularity, length and amount of flow, length of cycle)? If yes, indicate changes.

10. Have you taken oral contraceptives in the past? If no, skip to SECTION B.

If yes, what was the brand name and dosage?

When did you start taking the pill; for how long; and when did you stop taking it?

11. If you answered yes to 9 or 10, did you experience a weight gain and/or a change in appetite as a result of oral contraceptive use? If so, please indicate amount of weight gain.

12. If you are perimenopausal, are you experiencing menopausal symptoms? Please list your symptoms (i.e., hot flushes, mood swings, headaches etc.)

Bone Density Research Laboratory
Department of Health and Exercise Science
University of Oklahoma

MENSTRUAL HISTORY QUESTIONNAIRE

Name: ______________________________ Date: _____________________________

We are asking you to give us as complete a menstrual history as possible. All information you provide will be strictly confidential.

SECTION A: CURRENT MENSTRUAL STATUS

1. At what age did you experience your **final** menstrual period?

2. Have you had a hysterectomy (surgical removal of the uterus)? If yes, at what age did you have this surgery?

3. Have you had your ovaries removed? If yes, at what age did you have this surgery?

4. Are you currently on estrogen and /or progesterone replacement therapy? If no, skip to question 5.

   If yes, how long have you been on hormone replacement therapy?

   What is the brand name, dosage, and type (i.e., pills, cream, patch) of hormone medication you are taking?

5. Have you taken estrogen and/or progesterone replacement in the past? If no, skip to SECTION B

   If yes, what was the type (i.e., pills, cream, patch) and dosage of the medication?

   At what age did you start taking hormone replacement?

   How long did you continue taking the hormone replacement?

At what age and why did you stop taking hormone replacement?

6. If you answered yes to questions 4 or 5, did you experience any side effects (i.e., weight gain, mood swings, headaches) while taking hormone replacement?

   If yes, please list the side effects.

SECTION B: PAST MENSTRUAL HISTORY

1. At what age did you experience your **first** menstrual period?

2. Were your periods regular (occurring monthly) during the first two years after menstruation began? If no, at what age did your periods eventually become regular?

3. Did you perform any form of athletic training prior to your first menstrual period? If yes, indicate type of training (i.e., gymnastics, track, basketball, etc.) and the number of years you trained for each activity.

4. Has there been any time in the past where your periods were irregular or absent? If no, skip to question 5.

   If yes, did these periods coincide with unusual bouts of training, or with a period of stress? How long did this occur?

5. Have you ever consulted a doctor about menstrual problems (specifically, about irregular or missing periods)? If no, skip to question 6.

   If yes, what was the diagnosis (i.e., shortened luteal phase, amenorrhea)?

   Have you ever been tested to determine if you were ovulating normally?

6. Have you ever consulted a physician about any problems relating to your hormonal system? If so, please explain.

Bone-Specific Physical Activity Questionnaire (BPAQ)

SUBJECT ID:	DATE:

1. Please list any sports or other physical activities you have participated in regularly. Please tick the boxes to indicate how old you were for each sport/activity and how many years you participated for.

Age: Activities	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Age: Activities	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50

Bone-Specific Physical Activity Questionnaire (BPAQ)

SUBJECT ID:	DATE:

Age: Activities	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75

2. Please list the sports or other physical activities (be as specific as possible) you participated in regularly during the last 12 months and indicate the average frequency (sessions per week)?

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

Activity: ______________________ Frequency (per week): __________

BONE-SPECIFIC PHYSICAL ACTIVITY QUESTIONNAIRE
Developed by B.K. Weeks and B.R. Beck
Griffith University, QLD, Australia

FOOD QUESTIONNAIRE

RESPONDENT ID #

0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9

TODAY'S DATE

	DAY		YEAR
Jan			
Feb			
Mar	0	0	2005
Apr	1	1	2006
May	2	2	2007
Jun	3	3	2008
Jul		4	2009
Aug		5	2010
Sep		6	2011
Oct		7	2012
Nov		8	2013
Dec		9	2014

ABOUT THIS SURVEY

This form is about the foods you usually eat.
It will take about 30 - 40 minutes to complete.
Please answer each question as best you can.
Estimate if you aren't sure.

- **USE ONLY A NO. 2 PENCIL.**
- **Fill in the circles completely, and erase completely if you make any changes.**

Please write your name in this box.

ABOUT YOU

SEX
- Male
- Female

If female, are you pregnant or breast feeding?
- No
- Yes
- Not female

AGE		WEIGHT pounds			HEIGHT ft.	in.
0	0	0	0	0		0
1	1	1	1	1		1
2	2	2	2	2		2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5		5	5	5	5
6	6		6	6	6	6
7	7		7	7		7
8	8		8	8		8
9	9		9	9		9
						10
						11

INSTRUCTIONS

There are usually two kinds of questions to answer for each food:

1. **HOW OFTEN,** on average, did you eat the food during the past year?
   *Please DO NOT SKIP any foods. Mark "Never" if you didn't eat any of the food in the question.
2. **HOW MUCH** did you usually eat of the food?
   *Sometimes we ask how <u>many</u> you eat, such as 1 egg, 2 eggs, etc., ON THE DAYS YOU EAT IT.
   *Sometimes we ask "how much" as A, B, C or D. **LOOK AT THE ENCLOSED PICTURES.**
   For each food, pick the picture (bowls or plates) that looks the most like the serving size you usually eat. (If you don't have pictures: A=1/4 cup, B=1/2 cup, C=1 cup, D= 2 cups.)
3. **EXAMPLE:** This person drank apple juice twice a week, and had one glass each time.
   Once a week he ate a "C"-sized serving of rice (about 1 cup).

	HOW OFTEN IN THE PAST YEAR									HOW MUCH ON THOSE DAYS (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY					
Apple juice	○	○	○	○	○	●	○	○	○	How many glasses each time	● 1	○ 2	○ 3	○ 4
Rice	○	○	○	○	●	○	○	○	○	How much each time	○ A	○ B	● C	○ D

PLEASE DO NOT WRITE IN THIS AREA

70264

Block 2005.1 Phone 510-704-8514 www.nutritionquest.com

This section is about your usual eating habits in the past year or so. This includes all meals or snacks, at home or in a restaurant or carry-out. We will ask you about different TYPES (low-fat, low-carb) at the end of the survey. Include all types (like low-fat, sugar-free). Later you can tell us which type you usually eat.

	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH ON THOSE DAYS (SEE PORTION SIZE PICTURES FOR A-B-C-D)
Breakfast sandwiches with eggs, like Egg McMuffins	○	○	○	○	○	○	○	○	○	How many sandwiches in a day: ○ 1 ○ 2
Other eggs like scrambled, boiled or omelets (not egg substitutes)	○	○	○	○	○	○	○	○	○	How many eggs a day: ○ 1 ○ 2 ○ 3
Breakfast sausage, including in sausage biscuits, or in breakfast sandwiches	○	○	○	○	○	○	○	○	○	How many pieces: ○ 1 ○ 2 ○ 3
Bacon	○	○	○	○	○	○	○	○	○	How many pieces: ○ 1 ○ 2 ○ 3 ○ 4
Pancakes, waffles, French toast or Pop Tarts	○	○	○	○	○	○	○	○	○	How many pieces: ○ 1 ○ 2 ○ 3
Cooked cereals like oatmeal, grits or cream of wheat	○	○	○	○	○	○	○	○	○	Which bowl: ○ B ○ C ○ D
Cold cereals, ANY KIND, like corn flakes, fiber cereals, or sweetened cereals	○	○	○	○	○	○	○	○	○	Which bowl: ○ B ○ C ○ D
Milk or milk substitutes on cereal	○	○	○	○	○	○	○	○	○	
Yogurt or frozen yogurt	○	○	○	○	○	○	○	○	○	Which bowl: ○ B ○ C
Cheese, sliced cheese or cheese spread, including on sandwiches	○	○	○	○	○	○	○	○	○	How many slices: ○ 1 ○ 2 ○ 3
How often do you eat the following foods all year round? Estimate your average for the whole year.										
Bananas	○	○	○	○	○	○	○	○	○	How many each time: ○ 1/2 ○ 1
Apples or pears	○	○	○	○	○	○	○	○	○	How many each time: ○ 1/2 ○ 1 ○ 2
Oranges or tangerines	○	○	○	○	○	○	○	○	○	How many each time: ○ 1/2 ○ 1 ○ 2
Grapefruit	○	○	○	○	○	○	○	○	○	How much: ○ A little ○ 1/2 ○ 1
Peaches or nectarines, fresh	○	○	○	○	○	○	○	○	○	How many: ○ 1/2 ○ 1 ○ 2
Other fresh fruits like grapes, plums, honeydew, mango	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C
Canned fruit like applesauce, fruit cocktail, canned peaches or canned pineapple	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C
How often do you eat each of the following 3 fruits, just during the summer months when they are in season?										
Cantaloupe, in season	○	○	○	○	○	○	○	○	○	How much: ○ 1/8 ○ 1/4 ○ 1/2
Strawberries or other berries, in season	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C
Watermelon, in season	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C ○ D
How often do you eat each of the following vegetables all year round, including fresh, frozen, canned or in stir-fry, at home or in a restaurant?										
Broccoli	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C
Carrots, or mixed vegetables with carrots	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C
Corn	○	○	○	○	○	○	○	○	○	How much: ○ A ○ B ○ C

	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH ON THOSE DAYS SEE PORTION SIZE PICTURES FOR A-B-C-D				
Green beans or green peas	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	
Spinach (cooked)	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	
Greens like collards, turnip greens, mustard greens	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	
Sweet potatoes, yams	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	
French fries, home fries, hash browns	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Potatoes not fried, including mashed, boiled, baked, or potato salad	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Cole slaw, cabbage, Chinese cabbage	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	
Green salad, lettuce salad	○	○	○	○	○	○	○	○	○	How much		○ B	○ C	○ D
Raw tomatoes	○	○	○	○	○	○	○	○	○	How much	○ 1/4	○ 1/2	○ 1	
Salad dressing, any kind, regular or low-fat	○	○	○	○	○	○	○	○	○	How many tablespoons	○ 1	○ 2	○ 3	○ 4
Any other vegetable, like squash, cauliflower, okra, cooked peppers	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Refried beans or bean burritos	○	○	○	○	○	○	○	○	○	How much of the beans	○ A	○ B	○ C	
Pinto beans, black beans, chili with beans, baked beans	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Vegetable stew (without meat)	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D
Vegetable soup, vegetable-beef soup, or tomato soup	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D
Split pea, bean or lentil soup	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D
Any other soup including chicken noodle, cream soups, Cup-A-Soup, ramen	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D
Pizza	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
Spaghetti, lasagna or other pasta with tomato sauce	○	○	○	○	○	○	○	○	○	How much		○ B	○ C	○ D
Macaroni and cheese	○	○	○	○	○	○	○	○	○	How much		○ B	○ C	○ D
Other noodles like egg noodles, pasta salad, sopa seca	○	○	○	○	○	○	○	○	○	How much		○ B	○ C	○ D
Tofu or tempeh	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	
Meat substitutes like veggie burgers, veggie chicken, vegetarian hot dogs or vegetarian lunch meats	○	○	○	○	○	○	○	○	○	How many patties or dogs	○ 1	○ 2		
Do you ever eat chicken, meat or fish?	○ Yes		○ No	IF NO, SKIP TO BREADS ON NEXT PAGE										
Hamburgers, cheeseburgers, at home or in a restaurant	○	○	○	○	○	○	○	○	○	How much	○ 1 sm	○ 1 lrg	○ 2	
Hot dogs, or sausage like Polish, Italian or chorizo	○	○	○	○	○	○	○	○	○	How many hotdogs	○ 1	○ 2	○ 3	

	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH ON THOSE DAYS SEE PORTION SIZE PICTURES FOR A-B-C-D
Lunch meat like bologna, sliced ham, turkey bologna, or any other lunch meat	○	○	○	○	○	○	○	○	○	How many slices ○ 1 ○ 2 ○ 3 ○ 4
Meat loaf, meat balls	○	○	○	○	○	○	○	○	○	How much ○ B ○ C ○ D
Steak, roast beef, or beef in frozen dinners or sandwiches	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C ○ D
Tacos, burritos, enchiladas, tamales, with meat or chicken	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C ○ D
Ribs, spareribs	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C ○ D
Pork chops, pork roasts, cooked ham (including for breakfast)	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C ○ D
Veal, lamb, deer meat	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
Liver, including chicken livers or liverwurst	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
Pigs feet, neck bones, oxtails, tongue	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
Menudo, pozole, caldo de res, sancocho, ajiaco	○	○	○	○	○	○	○	○	○	Which bowl ○ B ○ C ○ D
Any other beef or pork dish, like beef stew, beef pot pie, corned beef hash, Hamburger Helper	○	○	○	○	○	○	○	○	○	How much ○ B ○ C ○ D
Fried chicken, including chicken nuggets, wings, chicken patty	○	○	○	○	○	○	○	○	○	How many medium pieces ○ 1 ○ 2 pcs/6 nugts ○ 3
Roasted or broiled chicken or turkey	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
Any other chicken dish, like chicken stew, chicken with noodles, chicken salad, Chinese chicken dishes	○	○	○	○	○	○	○	○	○	How much ○ B ○ C ○ D
Oysters	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
Shellfish like shrimp, scallops, crabs	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C ○ D
Tuna, tuna salad, tuna casserole	○	○	○	○	○	○	○	○	○	How much of the tuna ○ A ○ B ○ C
Fried fish or fish sandwich	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
Other fish, not fried	○	○	○	○	○	○	○	○	○	How much ○ A ○ B ○ C
BREADS										
Biscuits, muffins, croissants (not counting breakfast sandwiches with eggs)	○	○	○	○	○	○	○	○	○	How many ○ 1 sm ○ 1 med ○ 2
Hamburger buns, hotdog buns, hoagie buns, submarines	○	○	○	○	○	○	○	○	○	How many ○ 1 ○ 2
Bagels, English muffins, dinner rolls	○	○	○	○	○	○	○	○	○	How many ○ 1/2 ○ 1
Tortillas (not counting those eaten in tacos or burritos)	○	○	○	○	○	○	○	○	○	How many in a day ○ 1 ○ 2 ○ 3 ○ 4
Corn bread, corn muffins, hush puppies	○	○	○	○	○	○	○	○	○	How many pieces in a day ○ 1/2 ○ 1 ○ 2
Any other bread or toast, including white, dark, whole wheat, and what you have in sandwiches	○	○	○	○	○	○	○	○	○	How many slices in a day ○ 1 ○ 2 ○ 3 ○ 4
Rice, or dishes made with rice	○	○	○	○	○	○	○	○	○	How much in a day ○ B ○ C ○ D

	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH ON THOSE DAYS SEE PORTION SIZE PICTURES FOR A-B-C-D
Margarine (not butter) on bread or on vegetables										How many pats (tsp): 1, 2, 3, 4
Butter (not margarine) on bread or on vegetables										How many pats (tsp): 1, 2, 3, 4
Energy bars, like Power Bars, Clif bars, Balance, Luna, Atkins bars										How many: 1, 2
Breakfast bars, cereal bars, granola bars (not energy bars)										How many: 1, 2
Peanuts, sunflower seeds, other nuts or seeds										How much: A, B, C
Peanut butter										How many tablespoons: 1/2, 1, 2, 3
Snack chips like potato chips, tortilla chips, Fritos, Doritos, popcorn (not pretzels)										How much: A, B, C, D
Crackers, like Saltines, Cheez-Its, or any other snack cracker										How much: A, B, C
Jelly, jam										How many tablespoons: 1/2, 1, 2
Mayonnaise, sandwich spreads										How many tablespoons: 1/2, 1, 2
Catsup, salsa or chile peppers										How many tablespoons: 1/2, 1, 2, 3
Mustard, barbecue sauce, soy sauce, gravy, other sauces										How many tablespoons: 1/2, 1, 2, 3
Donuts										How many: 1, 2, 3
Cake, or snack cakes like cupcakes, Ho-Hos, Entenmann's, or any other pastry										How many pieces: 1 sm, 1 med, 2, 3
Cookies										How many: 1-2, 3-4, 5-6, 7+
Ice cream, ice cream bars										How much: B, C, D
Chocolate syrup or sauce (like in milk or on ice cream)										
Pumpkin pie, sweet potato pie										How many pieces: 1/2, 1, 2
Any other pie including fast food pies or snack pies										How many pieces: 1/2, 1, 2
Chocolate candy like candy bars, M&Ms, Reeses										How much: 1 mini, 1 med, 1 lrg, 1 king
Any other candy, not chocolate, like hard candy, Lifesavers, Skittles, Starburst										How much in a day: 1-2 pcs, 1/2 pkg, 1 pkg

	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH on the days you drink it?
Glasses of milk (any kind, including soy), not counting on cereal or coffee										How many GLASSES: 1, 2, 3
Drinks like Slim Fast, Sego, Slender, Ensure or Atkins										How many CANS OR GLASSES: 1, 2
Tomato juice or V-8 juice										How many GLASSES: 1/2, 1, 2
Real 100% orange juice or grapefruit juice. Don't count orange soda or Sunny Delight										How many GLASSES: 1/2, 1, 2
Apple juice, grape juice, pineapple juice or fruit smoothies										How many GLASSES: 1/2, 1, 2

	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	2 TIMES per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH on the days you drink it?				
Hi-C, Cranberry Juice Cocktail, Hawaiian Punch, Tang	○	○	○	○	○	○	○	○	○	How many GLASSES	○ 1/2	○ 1	○ 2	○ 3
Drinks with some juice, like Sunny Delight, Knudsen	○	○	○	○	○	○	○	○	○	How many GLASSES	○ 1/2	○ 1	○ 2	○ 3
Iced tea, homemade, instant, or bottled like Nestea, Lipton, Snapple, Tazo	○	○	○	○	○	○	○	○	○	How many GLASSES OR BOTTLES	○ 1	○ 2	○ 3	○ 4
Kool-Aid, lemonade, sports drinks like Gatorade, or fruit flavored drinks (not including iced teas)	○	○	○	○	○	○	○	○	○	How much IN A DAY	○ 1 glass	○ 1 20-ounce bottle	○ 2 glasses	○ 2 20-ounce bottles
Any kind of soft drink, like cola, Sprite, orange soda, regular or diet	○	○	○	○	○	○	○	○	○	How much IN A DAY	○ 1 can	○ 1 20-ounce bottle	○ 2 cans	○ Big Gulp or 3 cans
Beer or non-alcoholic beer	○	○	○	○	○	○	○	○	○	How much IN A DAY	○ 1 can	○ 2 cans	○ 3-4 cans or small pitcher	○ 5+ cans or large pitcher
Wine or wine coolers	○	○	○	○	○	○	○	○	○	How many GLASSES in a day	○ 1/2 glass	○ 1 glass	○ 2 glasses or half bottle	○ 3 glasses
Liquor or mixed drinks	○	○	○	○	○	○	○	○	○	How many DRINKS	○ 1	○ 2	○ 3	○ 4
Glasses of water, tap or bottled	○	○	○	○	○	○	○	○	○	How many GLASSES	○ 1	○ 2	○ 3-4	○ 5+
Coffee, regular or decaf	○	○	○	○	○	○	○	○	○	How many CUPS	○ 1	○ 2	○ 3	○ 4+
Hot tea (not including herbal teas)	○	○	○	○	○	○	○	○	○	How many CUPS	○ 1	○ 2	○ 3	○ 4+

What do you usually add to **coffee? MARK ONLY ONE:**
○ Cream or half & half ○ Nondairy creamer ○ Milk ○ None of these ○ Don't drink it

What do you usually add to **tea? MARK ONLY ONE:**
○ Cream or half & half ○ Nondairy creamer ○ Milk ○ None of these ○ Don't drink it

Do you usually add sugar (or honey) to **coffee?** ○ No ○ Yes IF YES, how many teaspoons each cup? ○ 1 ○ 2 ○ 3 ○ 4

Do you usually add sugar (or honey) to **tea?** ○ No ○ Yes IF YES, how many teaspoons each cup? ○ 1 ○ 2 ○ 3 ○ 4

	RARELY	1-2 PER WEEK	3-4 PER WEEK	5-6 PER WEEK	1 PER DAY	1 1/2 PER DAY	2 PER DAY	3 PER DAY	4+ PER DAY
About how many servings of vegetables do you eat, per day or per week, not counting salad or potatoes?	○	○	○	○	○	○	○	○	○
About how many servings of fruit do you eat, not counting juices?	○	○	○	○	○	○	○	○	
How often do you use fat or oil in cooking?	○	○	○	○	○	○	○	○	

If you eat the following foods, what type do you usually eat? MARK ONLY ONE ANSWER FOR EACH QUESTION

Milk	○ Whole milk ○ Reduced-fat 2% milk	○ Low-fat 1% milk ○ Non-fat milk		○ Soy milk ○ Rice milk	○ Don't drink
Slim Fast, Sego, Slender or Ensure		○ Low-Carb like Atkins		○ Regular	○ Don't drink
Orange juice	○ Calcium-fortified	○ Not calcium-fortified		○ I don't know	○ Don't drink
Soda or pop	○ Diet soda, low-calorie	○ Regular		○ Don't drink	
Iced tea	○ Homemade, no sugar	○ Homemade, w/sugar	○ Bottled, no sugar	○ Bottled, regular	○ Don't drink
Beer	○ Regular beer	○ Light beer	○ Low-Carb beer	○ Non-alcoholic beer	○ Don't drink
Hamburgers or cheeseburgers		○ Hamburgers		○ Cheeseburgers	○ Don't eat
Hot dogs	○ Low fat or turkey dogs	○ Regular hot dogs		○ Don't eat	
Lunch meats	○ Low-fat or turkey lunch meats	○ Regular lunch meats		○ Don't eat	
Spaghetti or lasagna	○ Meatless	○ With meat sauce or meatballs			○ Don't eat
Cheese	○ Low Fat	○ Not Low Fat		○ Don't eat	
Salad dressing	○ Low-Carb	○ Low-fat		○ Regular	○ Don't use
Energy bars like Power Bar, Clif, Atkins	○ Low-Carb, low sugar	○ Low-fat		○ Regular	○ Don't eat
Breakfast bars, cereal bars, or granola bars	○ Low-Carb, low sugar	○ Low-fat		○ Regular	○ Don't eat
Bread	○ 100% whole wheat	○ Low-Carb		○ Regular	○ Don't eat
Tortillas	○ Corn	○ Flour		○ Don't know or don't eat	
Chocolate candy or chocolate candy bars	○ Low-Carb, low sugar	○ Low-fat		○ Regular	○ Don't eat
Cookies	○ Low-Carb, low sugar	○ Low-fat		○ Regular	○ Don't eat
Cake, snack cakes, and other pastries	○ Low-Carb, low sugar	○ Low-fat		○ Regular	○ Don't eat
Ice cream	○ Low-Carb, low sugar	○ Low-fat or ice milk		○ Regular	○ Don't eat
Jelly or jam	○ Low-Carb, low sugar	○ Regular		○ Don't use	
Beef or pork	○ Avoid eating the fat	○ Sometimes eat the fat		○ Often eat the fat	○ Don't eat
Chicken or Turkey	○ Avoid eating the skin	○ Sometimes eat the skin		○ Often eat the skin	○ Don't eat

What kinds of **fat or oil** do you usually use in cooking? **MARK ONLY ONE OR TWO**

- ○ Don't know, or Pam
- ○ Butter
- ○ Butter/margarine blend
- ○ Stick margarine
- ○ Soft tub margarine
- ○ Low-fat margarine
- ○ Corn oil, vegetable oil
- ○ Olive oil or canola oil
- ○ Lard, fatback, bacon fat
- ○ Crisco

If you eat **cold cereals**, what do you eat? Choose one or two that you eat most often. (If you usually just eat one kind, just choose one.)

- ○ Low-carb cereals like Atkins, Low-Carb Special K
- ○ Cheerios, Grape Nuts, Shredded Wheat, Wheaties, Wheat Chex
- ○ Total
- ○ Fiber One
- ○ Product 19, Complete
- ○ All Bran, Bran Buds
- ○ Other fiber cereals like Raisin Bran, Fruit-n-Fiber
- ○ Sweetened cereals like Frosted Flakes, Froot Loops
- ○ Other cold cereals, like Corn Flakes, Rice Krispies, Special K

What vitamin supplements do you take fairly regularly?

Multiple Vitamins. Did you take...	HOW OFTEN: DIDN'T TAKE	A FEW DAYS per MONTH	1-3 DAYS per WEEK	4-6 DAYS per WEEK	EVERY DAY	FOR HOW MANY YEARS?: LESS THAN 1 YEAR	1 YEAR	2 YEARS	3-4 YEARS	5-9 YEARS	10+ YEARS
Prenatal vitamins	○	○	○	○	○	○	○	○	○	○	○
Regular Once-A-Day, Centrum, Theragran, "senior" vitamins or house brands of multiple vitamins	○	○	○	○	○	○	○	○	○	○	○
Stress-tabs or B-Complex type	○	○	○	○	○	○	○	○	○	○	○
Single Vitamins, not part of multiple vitamins											
Vitamin A (not beta-carotene)	○	○	○	○	○	○	○	○	○	○	○
Beta-carotene	○	○	○	○	○	○	○	○	○	○	○
Vitamin C	○	○	○	○	○	○	○	○	○	○	○
Vitamin E	○	○	○	○	○	○	○	○	○	○	○
Folic Acid, Folate	○	○	○	○	○	○	○	○	○	○	○
Calcium or Tums	○	○	○	○	○	○	○	○	○	○	○
Vitamin D, alone or combined with calcium	○	○	○	○	○	○	○	○	○	○	○
Zinc	○	○	○	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○	○	○	○
Selenium	○	○	○	○	○	○	○	○	○	○	○
Omega-3, fish oil, flax seed oil	○	○	○	○	○	○	○	○	○	○	○

If you took Once-a-day, Centrum or Thera-type multiple vitamins, did you usually take types that
○ contain minerals, iron, zinc, etc. ○ do not contain minerals ○ Don't know

If you took vitamin C, how many milligrams of **vitamin C** did you usually take, on the days you took it?
○ 100 ○ 250 ○ 500 ○ 750 ○ 1000 ○ 1500 ○ 2000 ○ 3000+ ○ Don't know

If you took vitamin E, how many IUs of **vitamin E** did you usually take, on the days you took it?
○ 100 ○ 200 ○ 300 ○ 400 ○ 600 ○ 800 ○ 1000 ○ 2000+ ○ Don't know

Did you take any of these supplements at least once a week?
○ Ginkgo ○ St. John's Wort ○ Echinacea ○ DHEA ○ Didn't take these
○ Ginseng ○ Kava Kava ○ Melatonin ○ Glucosamine/Chondroitin

SOME LAST QUESTIONS ABOUT YOU

Would you say your health is ○ Excellent ○ Very good ○ Good ○ Fair ○ Poor

Are you currently trying to lose weight? ○ Yes ○ No

Was there ever a time in your life when you often drank more beer, wine or liquor than you do now? ○ Yes ○ No

Do you smoke cigarettes now? ○ Yes ○ No
IF YES, On average about how many cigarettes a day do you smoke now? ○ 1-5 ○ 6-14 ○ 15-24 ○ 25-34 ○ 35+

Are you ○ Hispanic or Latino ○ Not Hispanic or Latino

What race do you consider yourself to be? (MARK ALL THAT APPLY)
○ White ○ Asian ○ Native Hawaiian or Other Pacific Islander
○ Black or African American ○ American Indian or Alaska Native ○ Do not wish to provide this information

Thank you very much for filling out this questionnaire.
Please take a minute to go back and fill in anything you may have skipped.

Appendix C

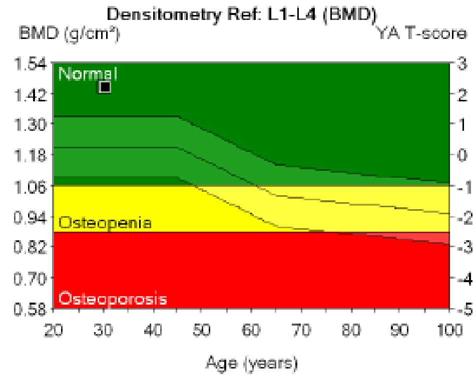
Sample DXA Scans

OU Bone Density Research Laboratory

1401 Asp Ave
Norman, OK 73019

Patient ID:	####		**Facility ID:**			
Birth Date:	####	####	**Referring Physician:**			
Height / Weight:	####	####	**Measured:**	####	####	(13.31)
Sex / Ethnic:	####	####	**Analyzed:**	####	####	(13.31)

AP Spine Bone Density



Region	BMD[1] (g/cm²)	Young-Adult[2] (%)	Young-Adult T-score	Age-Matched[3] (%)	Age-Matched Z-score
L1-L4	1.440	122	2.2	119	1.9

COMMENTS:

Image not for diagnosis

Printed: 6/16/2011 12:31:37 PM (13.31)76:3.00:50.00:12.0 0.00:7.38
0.60x1.05 19.1:%Fat=7.6%
0.00:0.00 0.00:0.00
Filename: ####
Scan Mode: Standard 37.0 µGy

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)
2 - USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) AP Spine Reference Population (v112)
3 - Matched for Age, Weight (females 25-100 kg), Ethnic
11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-score at or above -1.0 SD; Osteopenia = T-score between -1.0 and -2.5 SD; Osteoporosis = T-score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-scores.)

OU Bone Density Research Laboratory

1401 Asp Ave
Norman, OK 73019

Patient ID:	####		**Facility ID:**			
Birth Date:	####	####	**Referring Physician:**			
Height / Weight:	####	####	**Measured:**	####	####	(13.31)
Sex / Ethnic:	####	####	**Analyzed:**	####	####	(13.31)

ANCILLARY RESULTS [AP Spine]

Region	BMD[1] (g/cm²)	Young-Adult[2] (%)	T-score	Age-Matched[3] (%)	Z-score	BMC (g)	Area (cm²)	Width (cm)	Height (cm)
T12	1.192	-	-	-	-	14.64	12.28	3.9	3.18
L1	1.271	112	1.2	110	0.9	16.83	13.24	3.9	3.40
L2	1.408	117	1.7	115	1.5	20.01	14.21	4.0	3.57
L3	1.506	125	2.5	122	2.3	23.06	15.31	4.2	3.64
L4	1.541	128	2.8	125	2.6	25.62	16.62	4.5	3.68
L1-L2	1.342	115	1.5	112	1.2	36.84	27.45	3.9	6.97
L1-L3	1.401	120	1.9	117	1.7	59.90	42.76	4.0	10.61
L1-L4	1.440	122	2.2	119	1.9	85.51	59.38	4.2	14.28
L2-L3	1.459	122	2.2	119	1.9	43.07	29.52	4.1	7.21
L2-L4	1.489	124	2.4	121	2.2	68.68	46.14	4.2	10.88
L3-L4	1.524	127	2.7	124	2.5	48.67	31.93	4.4	7.31

1 -Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for AP Spine L1-L4)
2 -USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) AP Spine Reference Population (v112)
3 -Matched for Age, Weight (females 25-100 kg), Ethnic
Filename: s8bzglb93.dfx

GE Healthcare

Lunar Prodigy
DF+14583

OU Bone Density Research Laboratory

1401 Asp Ave
Norman, OK 73019

Patient ID:	####		**Facility ID:**			
Birth Date:	####	####	**Referring Physician:**			
Height / Weight:	####	####	**Measured:**	####	####	(13.31)
Sex / Ethnic:	####	####	**Analyzed:**	####	####	(13.31)

DualFemur Bone Density

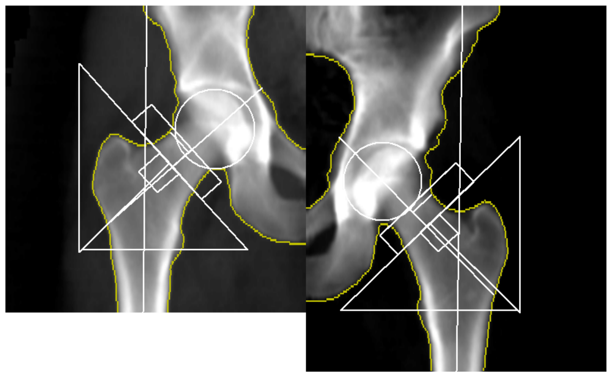
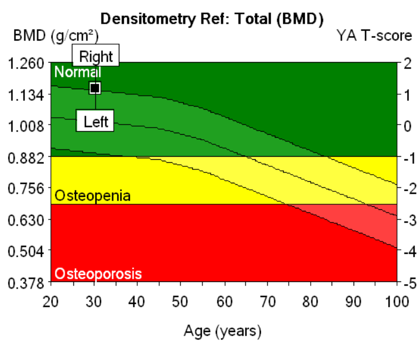
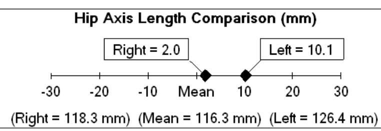


Image not for diagnosis



Region	BMD[1] (g/cm²)	Young-Adult[2,7] (%)	Young-Adult T-score	Age-Matched[3] (%)	Age-Matched Z-score
Total					
Left	1.153	114	1.2	113	1.1
Right	1.156	115	1.2	113	1.1
Mean	1.155	115	1.2	113	1.1
Difference	0.004	0	0.0	0	0.0



COMMENTS:

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for DualFemur Total)
2 - USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) Femur Reference Population (v112)
3 - Matched for Age, Weight (females 25-100 kg), Ethnic
7 - DualFemur Total T-score difference is 0.0. Asymmetry is None.
11 - World Health Organization - Definition of Osteoporosis and Osteopenia for Caucasian Women: Normal = T-score at or above -1.0 SD; Osteopenia = T-score between -1.0 and -2.5 SD; Osteoporosis = T-score at or below -2.5 SD; (WHO definitions only apply when a young healthy Caucasian Women reference database is used to determine T-scores.)

Printed: 6/16/2011 12:31:46 PM (13.31); Filename: ####; Right Femur; 17.0:%Fat=21.8%; Neck Angle (deg)= 48; Scan Mode: Detail 83.0 µGy; Left Femur; 16.7:%Fat=21.7%; Neck Angle (deg)= 44; Scan Mode: Detail 83.0 µGy

GE Healthcare

Lunar Prodigy
DF+14583

OU Bone Density Research Laboratory
1401 Asp Ave
Norman, OK 73019

Patient ID:	####		**Facility ID:**			
Birth Date:	####	####	**Referring Physician:**			
Height / Weight:	####	####	**Measured:**	####	####	(13.31)
Sex / Ethnic:	####	####	**Analyzed:**	####	####	(13.31)

ANCILLARY RESULTS [DualFemur]

Region	BMD[1] (g/cm²)	Young-Adult[2,7] (%)	T-score	Age-Matched[3] (%)	Z-score	BMC (g)	Area (cm²)
Neck Left	1.347	130	2.2	130	2.2	6.14	4.56
Neck Right	1.323	127	2.1	127	2.0	6.49	4.90
Neck Mean	1.335	129	2.1	129	2.1	6.32	4.73
Neck Diff.	0.024	2	0.2	2	0.2	0.35	0.34
Upper Neck Left	1.260	153	3.7	150	3.5	2.84	2.26
Upper Neck Right	1.297	158	4.0	154	3.8	3.14	2.42
Upper Neck Mean	1.279	156	3.8	152	3.6	2.99	2.34
Upper Neck Diff.	0.037	5	0.3	4	0.3	0.29	0.16
Lower Neck Left	1.432	-	-	-	-	3.30	2.30
Lower Neck Right	1.349	-	-	-	-	3.35	2.49
Lower Neck Mean	1.390	-	-	-	-	3.32	2.39
Lower Neck Diff.	0.083	-	-	-	-	0.05	0.18
Wards Left	1.074	118	1.3	115	1.1	2.48	2.31
Wards Right	1.055	116	1.1	113	1.0	2.82	2.67
Wards Mean	1.065	117	1.2	114	1.0	2.65	2.49
Wards Diff.	0.018	2	0.1	2	0.1	0.34	0.36
Troch Left	0.931	109	0.7	108	0.6	11.21	12.04
Troch Right	0.929	109	0.7	108	0.6	11.79	12.69
Troch Mean	0.930	109	0.7	108	0.6	11.50	12.36
Troch Diff.	0.002	0	0.0	0	0.0	0.57	0.65
Shaft Left	1.265	-	-	-	-	20.03	15.83
Shaft Right	1.290	-	-	-	-	19.95	15.47
Shaft Mean	1.278	-	-	-	-	19.99	15.65
Shaft Diff.	0.025	-	-	-	-	0.07	0.36
Total Left	1.153	114	1.2	113	1.1	37.38	32.43
Total Right	1.156	115	1.2	113	1.1	38.23	33.06
Total Mean	1.155	115	1.2	113	1.1	37.80	32.74
Total Diff.	0.004	0	0.0	0	0.0	0.85	0.63

Hip Strength Results[4]

Side	Strength Index	Buckling Ratio	Section Modulus (mm3)	CSMI (mm4)	CSA (mm2)	d1 (mm)	d2 (mm)	d3 (mm)	y (mm)	alpha (deg)	theta (deg)
Right	1.7	1.6	976.9	14,772	211	20.1	53.7	32.7	15.1	-1	132
Left	1.2	3.8	795.0	11,481	194	24.5	61.9	30.4	14.4	1	135

1 - Statistically 68% of repeat scans fall within 1SD (± 0.010 g/cm² for DualFemur Total)
2 - USA (Combined NHANES (ages 20-30) / Lunar (ages 20-40)) Femur Reference Population (v112)
3 - Matched for Age, Weight (females 25-100 kg), Ethnic
4 - See J Bone Miner Res, 1994;9:1053
7 - DualFemur Total T-score difference is 0.0. Asymmetry is None.
Filename: s8bzglb93.dfx

GE Healthcare

Lunar Prodigy
DF+14583

Appendix D

Descriptive Statistics

Gender = men, Decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	337.01	479.26	399.599	9.354	36.229
t5tod	15	332.80	448.90	387.000	9.129	35.355
t5toa	15	307.80	1238.40	984.488	56.188	217.614
t5trc	15	195.63	694.40	296.888	29.864	115.664
t5trd	15	210.50	380.30	298.693	10.612	41.102
t5tra	15	624.64	1076.96	865.344	29.981	116.117
t15toc	15	223.81	340.57	299.627	8.030	31.100
t15tod	15	545.00	746.30	659.200	15.380	59.567
t15toa	15	354.12	570.88	457.859	16.197	62.730
t15trc	15	17.37	71.39	37.787	3.700	14.328
t15trd	15	102.80	232.40	171.000	8.855	34.295
t15tra	15	164.00	327.36	217.077	14.168	54.872
t15coc	15	197.70	282.71	248.615	6.102	23.635
t15cod	15	1095.40	1168.70	1138.047	5.652	21.890
t15coa	15	171.36	250.72	218.549	5.472	21.193
t15cth	15	2.67	4.11	3.377	.102	.394
t15peri	15	66.77	84.70	75.689	1.343	5.202
t15endo	15	47.18	67.16	54.471	1.705	6.603
t25toc	15	311.36	398.01	348.470	6.396	24.773
t25tod	15	727.30	968.00	876.427	18.122	70.185
t25toa	15	343.68	484.96	399.904	10.777	41.739
t25coc	15	297.09	373.47	329.251	5.933	22.978
t25cod	15	1135.00	1202.70	1170.547	4.231	16.388
t25coa	15	251.84	319.84	281.333	5.185	20.083
t25cth	15	4.26	6.09	5.197	.140	.543
t25peri	15	39.03	78.07	68.801	2.325	9.004
t25endo	15	29.88	51.30	37.715	1.533	5.936
t35toc	15	311.33	464.01	392.501	8.812	34.129
t35tod	15	859.60	1016.30	944.267	11.463	44.396
t35toa	15	331.52	506.88	416.171	11.655	45.139
t35coc	15	299.02	436.04	376.611	8.083	31.304
t35cod	15	1132.30	1207.30	1166.813	5.932	22.975
t35coa	15	247.68	376.64	323.051	7.415	28.718
t35cth	15	5.11	6.84	6.100	.123	.476
t35peri	15	64.55	79.81	72.218	1.012	3.918
t35endo	15	25.48	41.90	33.892	1.240	4.802
Valid N (listwise)	15					

a. gender = men, decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	15	390.66	516.82	438.701	8.826	34.183
t45tod	15	823.20	1002.30	928.800	12.584	48.737
t45toa	15	390.08	575.52	474.037	12.798	49.566
t45coc	15	379.69	477.10	419.369	7.303	28.286
t45cod	15	1116.00	1190.90	1156.253	5.307	20.555
t45coa	15	324.80	413.44	362.763	6.360	24.633
t45cth	15	5.59	6.78	6.368	.082	.319
t45peri	15	70.01	85.04	77.083	1.039	4.026
t45endo	15	28.64	45.13	37.073	1.307	5.061
t55toc	15	354.00	548.49	449.133	12.045	46.651
t55tod	15	746.00	937.20	871.153	13.696	53.044
t55toa	15	422.08	666.72	517.621	16.930	65.570
t55coc	15	337.56	509.85	427.397	10.961	42.453
t55cod	15	1110.10	1184.60	1148.627	5.462	21.156
t55coa	15	284.96	447.20	372.309	9.887	38.293
t55cth	15	4.98	6.69	6.070	.131	.507
t55peri	15	72.83	91.53	80.504	1.304	5.052
t55endo	15	34.33	52.52	42.640	1.504	5.825
t65toc	15	394.73	540.38	460.047	10.236	39.645
t65tod	15	613.40	841.00	768.620	16.293	63.103
t65toa	15	475.52	784.16	603.168	20.452	79.210
t65coc	15	364.38	486.90	424.989	9.177	35.542
t65cod	15	1071.30	1166.60	1129.653	6.476	25.081
t65coa	15	323.52	434.24	376.203	7.908	30.628
t65cth	15	4.29	6.01	5.403	.116	.449
t65peri	15	77.30	99.27	86.890	1.459	5.650
t65endo	15	43.71	66.31	52.946	1.869	7.240
t75toc	15	340.40	533.34	446.866	12.565	48.663
t75tod	15	455.70	702.40	606.845	17.879	69.245
t75toa	15	570.08	955.52	743.595	27.155	105.171
t75coc	15	281.88	438.28	371.719	11.551	44.737
t75cod	15	1054.30	1130.90	1097.920	4.919	19.052
t75coa	15	252.16	400.48	338.613	10.565	40.916
t75cth	15	2.75	4.84	4.077	.149	.577
t75peri	15	84.64	109.58	96.446	1.742	6.746
t75endo	15	53.03	89.62	68.830	2.382	9.226
Valid N (listwise)	15					

a. gender = men, decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	15	433.28	614.99	533.147	12.787	49.524
t85tod	15	314.80	530.40	453.487	16.392	63.487
t85toa	15	826.24	1587.68	1197.184	51.307	198.711
t85trc	15	98.05	267.14	174.669	10.750	41.637
t85trd	15	166.70	277.10	219.600	7.949	30.787
t85tra	15	485.12	1299.84	806.251	54.625	211.560
t85coc	15	154.93	361.05	301.476	13.149	50.925
t85cod	15	976.10	1064.20	1022.827	6.025	23.336
t85coa	15	158.72	361.60	294.475	12.632	48.925
t85cth	15	1.66	3.26	2.668	.115	.444
t85peri	15	100.79	134.21	119.062	2.594	10.047
t85endo	15	82.07	119.38	102.289	2.725	10.553
t15imax	15	10053.36	17244.26	13807.877	578.267	2239.618
t15imin	15	8727.70	16663.83	12207.506	593.041	2296.838
t15irat	15	1.00	1.45	1.143	.036	.140
t15ssi	15	1495.71	2118.02	1782.273	50.758	196.585
t15ssitoc	15	5.37	8.35	5.987	.200	.774
t25imax	15	10032.99	16873.23	14207.997	598.692	2318.724
t25imin	15	7788.27	16042.06	10668.482	617.636	2392.095
t25irat	15	1.03	1.81	1.362	.061	.235
t25ssi	15	1421.62	2264.05	1768.328	58.935	228.256
t25ssitoc	15	4.41	5.80	5.066	.115	.446
t35imax	15	11984.09	25191.31	18494.226	958.874	3713.702
t35imin	15	8584.78	16390.71	11619.836	624.378	2418.205
t35irat	15	1.08	2.32	1.628	.093	.360
t35ssi	15	1576.73	2488.56	1911.526	67.496	261.412
t35ssitoc	15	4.24	6.82	4.882	.167	.648
t45imax	15	16367.71	33848.19	23557.139	1209.746	4685.327
t45imin	15	9002.50	19584.86	14409.925	1019.248	3947.530
t45irat	15	1.02	2.71	1.735	.135	.525
t45ssi	15	1680.86	2825.90	2173.440	80.086	310.171
t45ssitoc	15	4.30	5.47	4.935	.098	.380
Valid N (listwise)	15					

a. gender = men, decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	15	18506.92	41977.78	28205.893	1522.860	5898.012
t55imin	15	9355.46	25355.16	18068.968	1400.051	5422.375
t55irat	15	1.06	3.06	1.703	.167	.648
t55ssi	15	1837.68	3505.40	2503.933	109.377	423.616
t55ssitoc	15	4.61	7.79	5.579	.204	.792
t65imax	15	23341.51	56629.11	35210.039	2137.491	8278.465
t65imin	15	10933.78	29327.92	20646.498	1589.869	6157.536
t65irat	15	1.10	3.43	1.856	.181	.701
t65ssi	15	2123.73	4028.36	2893.269	123.307	477.565
t65ssitoc	15	5.38	7.47	6.262	.160	.621
t75imax	15	30005.42	67459.31	45101.439	2509.716	9720.089
t75imin	15	13162.76	36977.80	26271.495	2023.132	7835.555
t75irat	15	1.03	3.15	1.864	.171	.662
t75ssi	15	2414.99	4513.25	3341.465	132.548	513.356
t75ssitoc	15	6.28	11.00	7.511	.299	1.1567
t85imax	15	46650.99	94549.74	71839.292	3929.395	15218.480
t85imin	15	21216.69	55513.29	37960.109	2661.088	10306.351
t85irat	15	1.10	3.44	2.008	.158	.612
t85ssi	15	3223.76	5642.90	4210.721	170.120	658.870
t85ssitoc	15	6.48	9.18	7.869	.174	.674
toc515r	15	1.14	1.84	1.344	.042	.163
toc535r	15	.86	1.32	1.024	.0314	.122
toc585r	15	.69	.94	.752	.0176	.068
toc565r	15	.77	1.03	.871	.019	.074
tcsa65	15	8926.40	13955.52	11111.691	360.787	1397.321
fcsa65	15	360.80	2632.48	1314.891	163.210	632.111
mcsa65	15	7199.04	11780.96	9101.419	360.601	1396.602
Valid N (listwise)	15					

a. gender = men, decade = 20s

Gender = Men, Decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	295.67	536.81	376.949	15.806	61.218
t5tod	15	262.30	428.90	334.247	11.577	44.836
t5toa	15	917.12	1488.96	1134.357	41.023	158.881
t5trc	15	190.29	407.31	259.566	13.008	50.381
t5trd	15	227.00	343.40	266.713	7.900	30.595
t5tra	15	778.24	1357.12	976.245	42.502	164.609
t15toc	15	227.16	394.50	303.981	10.592	41.023
t15tod	15	501.40	734.60	610.707	17.506	67.800
t15toa	15	404.00	628.32	500.192	16.406	63.539
t15trc	15	18.83	235.39	49.634	13.766	53.317
t15trd	15	92.60	1063.80	204.707	62.110	240.551
t15tra	15	172.32	360.96	254.069	13.999	54.219
t15coc	15	190.05	318.61	250.941	8.220	31.836
t15cod	15	1120.00	1159.60	1141.133	3.206	12.415
t15coa	15	164.32	277.92	219.989	7.333	28.400
t15cth	15	2.46	4.28	3.203	.125	.482
t15peri	15	71.25	88.86	79.134	1.292	5.004
t15endo	15	48.09	70.10	59.012	1.663	6.440
t25toc	15	277.47	438.25	357.069	10.359	40.120
t25tod	15	754.40	957.70	848.793	16.579	64.212
t25toa	15	357.28	522.08	421.355	11.165	43.243
t25coc	15	260.35	408.16	336.938	9.718	37.639
t25cod	15	1153.60	1201.10	1180.220	3.972	15.384
t25coa	15	218.88	345.60	285.653	8.579	33.225
t25cth	15	3.94	6.35	5.037	.157	.606
t25peri	15	67.01	81.00	72.678	.957	3.707
t25endo	15	32.40	48.15	40.318	1.223	4.737
t35toc	15	356.86	507.16	419.781	11.530	44.656
t35tod	15	834.70	1034.00	936.640	12.182	47.180
t35toa	15	397.60	534.08	448.128	10.546	40.843
t35coc	15	343.02	488.68	404.475	11.031	42.721
t35cod	15	1145.30	1214.00	1176.100	5.432	21.039
t35coa	15	287.36	420.48	344.373	10.459	40.509
t35cth	15	5.10	7.30	6.212	.172	.664
t35peri	15	70.69	81.92	74.971	.874	3.386
t35endo	15	27.93	43.50	35.938	.937	3.631
Valid N (listwise)	15					

a. gender = men, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	15	401.72	556.83	455.687	11.762	45.554
t45tod	15	843.40	994.60	920.547	10.796	41.814
t45toa	15	437.92	580.48	495.019	11.157	43.210
t45coc	15	380.06	522.37	435.481	11.047	42.784
t45cod	15	1135.20	1201.50	1165.680	5.423	21.004
t45coa	15	323.04	458.88	374.048	10.601	41.057
t45cth	15	5.55	7.37	6.357	.157	.607
t45peri	15	74.18	85.41	78.802	.882	3.414
t45endo	15	33.32	44.82	38.863	.840	3.252
t55toc	15	406.32	573.13	469.339	12.971	50.238
t55tod	15	758.70	899.70	840.473	10.268	39.770
t55toa	15	481.12	641.92	558.187	12.699	49.181
t55coc	15	387.29	555.02	446.518	12.521	48.493
t55cod	15	1115.40	1186.60	1153.447	5.426	21.013
t55coa	15	329.76	489.44	387.595	11.960	46.320
t55cth	15	5.15	7.33	5.965	.159	.615
t55peri	15	77.76	89.81	83.676	.956	3.689
t55endo	15	40.31	52.81	46.198	.822	3.184
t65toc	15	392.09	596.32	471.819	14.626	56.645
t65tod	15	646.70	811.10	725.833	13.168	51.000
t65toa	15	546.24	740.48	650.453	16.542	64.069
t65coc	15	360.59	548.17	433.906	13.400	51.898
t65cod	15	1107.10	1157.50	1131.493	4.504	17.442
t65coa	15	311.52	487.20	383.861	12.619	48.872
t65cth	15	4.52	6.58	5.189	.156	.602
t65peri	15	82.85	96.46	90.305	1.163	4.503
t65endo	15	49.75	64.33	57.704	1.206	4.670
t75toc	15	409.68	628.84	463.746	16.001	61.973
t75tod	15	455.00	659.80	546.867	15.518	60.101
t75toa	15	671.84	953.12	850.507	21.630	83.771
t75coc	15	339.34	516.32	389.980	13.749	53.250
t75cod	15	1065.60	1126.30	1093.793	4.838	18.737
t75coa	15	308.64	477.28	356.715	12.925	50.057
t75cth	15	3.23	5.11	3.931	.140	.540
t75peri	15	91.88	109.44	103.259	1.346	5.212
t75endo	15	65.95	87.95	78.362	1.560	6.042
Valid N (listwise)	15					

a. gender = men, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	15	403.76	695.07	496.298	22.601	87.534
t85tod	15	248.50	446.60	354.893	13.830	53.563
t85toa	15	1056.96	1625.12	1405.835	43.709	169.284
t85trc	15	117.21	308.85	170.014	14.148	54.796
t85trd	15	101.30	918.10	208.000	51.473	199.354
t85tra	15	732.32	1335.52	1034.635	40.504	156.872
t85coc	15	211.50	437.54	283.725	14.112	54.655
t85cod	15	918.10	1041.40	1005.253	7.919	30.672
t85coa	15	208.48	420.16	282.219	13.581	52.597
t85cth	15	1.68	3.28	2.299	.106	.409
t85peri	15	114.65	141.66	130.197	2.029	7.858
t85endo	15	99.17	131.08	115.753	2.120	8.211
t15imax	15	10951.22	23501.35	15587.448	785.076	3040.585
t15imin	15	8774.28	19781.43	13838.322	726.703	2814.510
t15irat	15	1.01	1.33	1.134	.027	.103
t15ssi	15	1482.78	2599.30	1860.613	76.576	296.576
t15ssitoc	15	5.35	6.78	6.121	.121	.469
t25imax	15	10982.90	23248.08	15715.268	872.571	3379.455
t25imin	15	8441.35	17555.36	11658.973	648.572	2511.909
t25irat	15	1.01	1.85	1.364	.055	.213
t25ssi	15	1487.32	2622.51	1905.035	74.867	289.957
t25ssitoc	15	4.68	5.98	5.325	.100	.389
t35imax	15	16172.70	31254.24	21856.252	1120.244	4338.688
t35imin	15	8652.26	17341.07	12043.560	648.415	2511.301
t35irat	15	1.45	2.33	1.836	.067	.258
t35ssi	15	1708.34	2679.51	2077.643	70.897	274.584
t35ssitoc	15	4.52	5.48	4.944	.077	.297
t45imax	15	18749.86	37486.99	27321.229	1408.202	5453.944
t45imin	15	11332.27	21204.90	14798.270	812.907	3148.375
t45irat	15	1.33	2.66	1.884	.097	.370
t45ssi	15	1927.74	2943.17	2314.608	74.725	289.408
t45ssitoc	15	4.71	5.67	5.07	.077	.299
Valid N (listwise)	15					

a. gender = men, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	15	20686.87	45033.76	31873.772	1757.103	6805.229
t55imin	15	14067.53	30578.71	19827.988	1153.324	4466.804
t55irat	15	1.16	2.66	1.649	.104	.401
t55ssi	15	2188.88	3383.93	2700.845	89.948	348.366
t55ssitoc	15	5.27	6.25	5.747	.078	.304
t65imax	15	24807.09	54851.57	40096.465	2056.650	######
t65imin	15	16026.59	37697.96	24077.359	1515.495	#####
t65irat	15	1.11	2.89	1.7510	.114	.442
t65ssi	15	2444.11	4042.50	3172.868	119.010	460.915
t65ssitoc	15	6.14	7.36	6.713	.104	.402
t75imax	15	36626.99	71844.81	54149.617	3037.970	11766.007
t75imin	15	22748.97	49557.28	31521.603	2077.406	8045.760
t75irat	15	1.01	2.67	1.794	.134	.518
t75ssi	15	2416.89	4973.14	3734.407	166.358	644.300
t75ssitoc	15	5.77	8.90	8.039	.206	.799
t85imax	15	60706.46	125153.25	83057.482	4293.844	16629.988
t85imin	15	24087.57	64587.17	42575.600	2950.693	11427.986
t85irat	15	1.60	2.95	2.016	.104	.402
t85ssi	15	3453.00	6686.97	4524.957	222.922	863.372
t85ssitoc	15	8.09	10.25	9.117	.171	.662
toc515r	15	1.14	1.36	1.239	.019	.073
toc535r	15	.79	1.06	.895	.019	.073
toc585r	15	.67	.97	.764	.019	.073
toc565r	15	.69	.90	.797	.015	.057
tcsa65	15	8726.72	15114.08	11937.045	557.301	2158.418
fcsa65	15	828.96	4315.20	2196.107	291.428	1128.693
mcsa65	15	6789.76	10727.04	8985.216	311.296	1205.642
Valid N (listwise)	15					

a. gender = men, decade = 30s

Gender = men, Decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	10	323.67	509.99	394.339	17.910	56.637
t5tod	10	315.50	413.00	360.580	10.020	31.685
t5toa	10	933.60	1312.16	1094.736	41.026	129.735
t5trc	10	83.16	374.58	234.204	26.117	82.569
t5trd	10	256.30	754.30	377.970	59.888	189.382
t5tra	10	745.44	1168.48	923.456	39.687	125.500
t15toc	10	251.92	393.71	320.811	12.2516	38.740
t15tod	10	486.90	709.30	623.630	21.453	67.841
t15toa	10	428.32	635.68	517.728	20.905	66.109
t15trc	10	30.59	275.74	88.301	30.764	97.286
t15trd	10	108.10	1112.90	352.700	124.987	395.244
t15tra	10	169.28	333.44	260.256	19.354	61.201
t15coc	10	201.90	312.03	264.762	9.323	29.482
t15cod	10	1065.50	1179.30	1140.390	10.623	33.594
t15coa	10	171.20	274.40	232.320	8.206	25.951
t15cth	10	2.34	3.72	3.336	.137	.4337
t15peri	10	73.37	89.38	80.512	1.627	5.144
t15endo	10	50.17	67.38	59.550	2.117	6.694
t25toc	10	265.21	451.47	367.339	15.217	48.119
t25tod	10	695.30	921.20	847.520	20.556	65.002
t25toa	10	375.04	537.76	433.312	15.022	47.502
t25coc	10	245.44	428.29	345.861	14.821	46.867
t25cod	10	1102.70	1215.50	1170.580	11.527	36.451
t25coa	10	201.92	365.28	297.856	14.117	44.641
t25cth	10	3.46	5.82	5.186	.229	.725
t25peri	10	68.65	82.21	73.785	1.283	4.056
t25endo	10	35.19	47.50	41.199	1.443	4.562
t35toc	10	348.43	529.65	426.950	16.005	50.613
t35tod	10	888.80	1017.70	944.040	14.351	45.383
t35toa	10	363.84	558.40	450.103	17.724	56.047
t35coc	10	336.72	503.79	408.363	15.369	48.601
t35cod	10	1098.20	1232.20	1172.320	11.157	35.282
t35coa	10	273.28	429.12	348.624	13.393	42.351
t35cth	10	5.39	7.37	6.274	.203	.642
t35peri	10	67.62	83.77	75.320	1.453	4.594
t35endo	10	27.75	42.56	35.898	1.580	4.995
Valid N (listwise)	10					

a. gender = men, decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	10	393.41	577.90	463.571	17.568	55.554
t45tod	10	829.30	1032.00	928.970	21.020	66.472
t45toa	10	394.56	619.52	500.896	20.724	65.535
t45coc	10	371.00	480.42	433.025	12.954	40.964
t45cod	10	1103.70	1216.40	1166.840	10.325	32.649
t45coa	10	314.40	471.52	377.952	14.383	45.483
t45cth	10	5.40	7.57	6.425	.221	.700
t45peri	10	70.41	88.23	79.185	1.638	5.179
t45endo	10	28.43	48.42	38.816	2.063	6.524
t55toc	10	395.49	584.41	474.102	18.375	58.106
t55tod	10	761.00	974.70	856.630	22.534	71.258
t55toa	10	437.76	699.52	556.480	25.010	79.089
t55coc	10	366.32	558.98	448.863	18.793	59.430
t55cod	10	1079.40	1204.50	1156.320	10.965	34.675
t55coa	10	313.92	481.12	388.048	15.462	48.895
t55cth	10	5.18	7.00	6.032	.207	.654
t55peri	10	74.17	93.76	83.435	1.869	5.912
t55endo	10	34.30	54.46	45.534	2.192	6.930
t65toc	10	368.88	586.31	476.782	19.882	62.873
t65tod	10	649.20	887.30	743.420	21.831	69.037
t65toa	10	532.96	839.52	644.080	28.693	90.734
t65coc	10	331.35	546.54	438.549	20.343	64.328
t65cod	10	1041.40	1191.60	1135.180	11.921	37.698
t65coa	10	278.08	477.76	386.320	17.275	54.628
t65cth	10	4.02	6.33	5.291	.219	.691
t65peri	10	81.84	102.71	89.772	1.964	6.210
t65endo	10	42.49	67.42	56.530	2.196	6.945
t75toc	10	381.81	573.40	474.984	18.990	60.053
t75tod	10	491.10	731.20	584.260	22.246	70.349
t75toa	10	645.60	1086.24	819.280	37.007	117.027
t75coc	10	294.93	493.55	399.237	19.898	62.924
t75cod	10	1021.90	1154.20	1104.520	10.905	34.485
t75coa	10	255.52	447.36	361.408	17.458	55.207
t75cth	10	2.92	5.12	4.110	.209	.662
t75peri	10	90.07	116.83	101.244	2.237	7.074
t75endo	10	57.89	89.60	75.420	2.700	8.537
Valid N (listwise)	10					

a. gender = men, decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	10	436.31	661.13	536.755	25.424	80.396
t85tod	10	320.80	517.90	403.690	16.931	53.542
t85toa	10	992.16	1559.36	1337.888	55.977	177.014
t85trc	10	111.63	369.24	208.352	28.901	91.392
t85trd	10	132.90	935.40	328.420	99.431	314.427
t85tra	10	585.60	1100.00	922.928	49.212	155.621
t85coc	10	192.96	458.89	318.412	23.830	75.356
t85cod	10	947.30	1063.70	1029.360	10.516	33.254
t85coa	10	203.68	436.64	308.240	21.445	67.816
t85cth	10	1.77	3.45	2.631	.174	.550
t85peri	10	110.41	137.43	125.451	3.032	9.586
t85endo	10	89.99	122.43	108.918	3.054	9.657
t15imax	10	12910.29	25363.50	16835.977	1173.365	3710.504
t15imin	10	9800.46	20222.11	14002.965	1056.606	3341.282
t15irat	10	1.01	1.52	1.220	.054	.169
t15ssi	10	1622.20	2662.60	2015.251	103.159	326.217
t15ssitoc	10	5.49	6.76	6.268	.152	.479
t25imax	10	10337.97	29428.87	17472.245	1535.475	4855.599
t25imin	10	8010.17	15883.78	11929.051	772.672	2443.404
t25irat	10	1.11	2.10	1.474	.096	.302
t25ssi	10	1539.55	2633.74	1976.084	106.733	337.518
t25ssitoc	10	4.50	5.83	5.371	.137	.432
t35imax	10	11524.64	38732.16	23381.534	2107.104	6663.248
t35imin	10	8009.74	15727.17	12154.654	873.286	2761.573
t35irat	10	1.13	2.72	1.966	.166	.526
t35ssi	10	1637.79	2934.20	2140.774	117.989	373.115
t35ssitoc	10	4.56	5.54	4.990	.108	.343
t45imax	10	15902.79	49848.26	29995.201	2778.344	8785.895
t45imin	10	8971.16	22997.69	14566.379	1514.411	4788.988
t45irat	10	1.10	3.43	2.221	.254	.804
t45ssi	10	1785.60	3340.59	2378.775	142.261	449.868
t45ssitoc	10	4.42	5.78	5.103	.136	.430
Valid N (listwise)	10					

a. gender = men, decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	10	19692.48	59352.15	35031.980	3474.576	10987.575
t55imin	10	10182.21	28331.48	18389.669	2265.674	7164.690
t55irat	10	1.04	3.72	2.172	.313	.991
t55ssi	10	1969.02	3921.03	2689.296	181.897	575.208
t55ssitoc	10	4.72	6.71	5.630	.188	.594
t65imax	10	20279.79	74365.59	42869.511	4502.625	14238.552
t65imin	10	11894.23	35325.56	21912.098	2537.354	8023.817
t65irat	10	1.00	3.70	2.194	.315	.997
t65ssi	10	2258.41	4680.82	3186.757	214.810	679.290
t65ssitoc	10	5.50	7.98	6.638	.208	.658
t75imax	10	29857.98	99201.93	55097.875	5916.792	18710.538
t75imin	10	17263.65	39881.90	28924.545	2999.577	9485.494
t75irat	10	1.04	3.32	2.078	.267	.846
t75ssi	10	2843.22	5662.99	3784.535	252.931	799.838
t75ssitoc	10	6.45	9.88	7.921	.268	.845
t85imax	10	45304.05	144779.68	89404.685	8503.699	26891.058
t85imin	10	25972.17	58672.88	40957.319	3545.051	11210.435
t85irat	10	1.34	3.00	2.135	.183	.578
t85ssi	10	3080.58	6893.57	4820.431	340.040	1075.300
t85ssitoc	10	7.06	10.51	8.922	.325	1.029
toc515r	10	1.06	1.37	1.230	.030	.093
toc535r	10	.75	1.00	.924	.024	.076
toc585r	10	.65	.79	.737	.014	.045
toc565r	10	.69	.94	.830	.024	.076
tcsa65	10	9372.80	14679.52	11945.184	496.259	1569.307
fcsa65	10	851.68	3397.60	1741.712	275.991	872.760
mcsa65	10	7666.72	10943.84	9462.240	329.386	1041.611
Valid N (listwise)	10					

a. gender = men, decade = 40s

Gender = men, Decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	259.70	459.32	347.125	13.746	53.238
t5tod	15	264.90	417.40	330.060	11.446	44.332
t5toa	15	823.04	1279.04	1059.104	38.040	147.328
t5trc	15	78.50	327.45	204.431	16.971	65.727
t5trd	15	217.20	801.20	345.127	53.025	205.366
t5tra	15	639.36	1259.84	919.367	43.145	167.101
t15toc	15	232.18	368.42	288.440	9.419	36.478
t15tod	15	514.30	757.20	595.267	15.866	61.447
t15toa	15	352.48	600.96	489.504	20.254	78.442
t15trc	15	13.45	267.91	79.153	22.685	87.859
t15trd	15	84.60	1110.90	330.880	102.349	396.396
t15tra	15	134.56	342.56	257.813	15.651	60.617
t15coc	15	206.27	290.45	237.371	6.515	25.231
t15cod	15	1047.40	1159.90	1137.913	7.509	29.082
t15coa	15	178.56	261.76	208.725	5.898	22.845
t15cth	15	2.51	3.62	3.054	.074	.287
t15peri	15	66.55	86.90	78.185	1.656	6.415
t15endo	15	43.84	68.17	58.998	1.843	7.137
t25toc	15	270.45	441.27	343.335	11.919	46.164
t25tod	15	713.50	958.20	825.500	19.488	75.478
t25toa	15	309.76	515.36	419.787	18.212	70.536
t25coc	15	260.59	412.49	319.455	11.169	43.257
t25cod	15	1110.30	1205.90	1173.153	6.073	23.519
t25coa	15	218.40	354.24	272.523	9.807	37.984
t25cth	15	3.95	5.65	4.760	.139	.537
t25peri	15	62.39	80.48	72.386	1.592	6.167
t25endo	15	31.52	55.21	42.478	1.816	7.035
t35toc	15	297.32	513.20	398.634	15.033	58.224
t35tod	15	727.50	999.60	898.920	19.788	76.639
t35toa	15	342.24	553.28	446.955	19.833	76.811
t35coc	15	284.37	492.88	375.427	14.294	55.361
t35cod	15	1109.00	1212.80	1172.147	7.253	28.091
t35coa	15	240.80	420.64	320.608	12.627	48.905
t35cth	15	4.37	7.01	5.647	.180	.695
t35peri	15	65.58	83.38	74.682	1.674	6.485
t35endo	15	28.68	55.59	39.202	1.908	7.389
Valid N (listwise)	15					

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	259.70	459.32	347.125	13.746	53.238
t5tod	15	264.90	417.40	330.060	11.446	44.332
t5toa	15	823.04	1279.04	1059.104	38.040	147.328
t5trc	15	78.50	327.45	204.431	16.971	65.727
t5trd	15	217.20	801.20	345.127	53.025	205.366
t5tra	15	639.36	1259.84	919.367	43.145	167.101
t15toc	15	232.18	368.42	288.440	9.419	36.478
t15tod	15	514.30	757.20	595.267	15.866	61.447
t15toa	15	352.48	600.96	489.504	20.254	78.442
t15trc	15	13.45	267.91	79.153	22.685	87.859
t15trd	15	84.60	1110.90	330.880	102.349	396.396
t15tra	15	134.56	342.56	257.813	15.651	60.617
t15coc	15	206.27	290.45	237.371	6.515	25.231
t15cod	15	1047.40	1159.90	1137.913	7.509	29.082
t15coa	15	178.56	261.76	208.725	5.898	22.845
t15cth	15	2.51	3.62	3.054	.074	.287
t15peri	15	66.55	86.90	78.185	1.656	6.415
t15endo	15	43.84	68.17	58.998	1.843	7.137
t25toc	15	270.45	441.27	343.335	11.919	46.164
t25tod	15	713.50	958.20	825.500	19.488	75.478
t25toa	15	309.76	515.36	419.787	18.212	70.536
t25coc	15	260.59	412.49	319.455	11.169	43.257
t25cod	15	1110.30	1205.90	1173.153	6.073	23.519
t25coa	15	218.40	354.24	272.523	9.807	37.984
t25cth	15	3.95	5.65	4.760	.139	.537
t25peri	15	62.39	80.48	72.386	1.592	6.167
t25endo	15	31.52	55.21	42.478	1.816	7.035
t35toc	15	297.32	513.20	398.634	15.033	58.224
t35tod	15	727.50	999.60	898.920	19.788	76.639
t35toa	15	342.24	553.28	446.955	19.833	76.811
t35coc	15	284.37	492.88	375.427	14.294	55.361
t35cod	15	1109.00	1212.80	1172.147	7.253	28.091
t35coa	15	240.80	420.64	320.608	12.627	48.905
t35cth	15	4.37	7.01	5.647	.180	.695
t35peri	15	65.58	83.38	74.682	1.674	6.485
t35endo	15	28.68	55.59	39.202	1.908	7.389
Valid N (listwise)	15					

a. gender = men, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	15	331.78	555.14	432.378	15.601	60.422
t45tod	15	715.20	955.80	866.353	18.017	69.779
t45toa	15	392.16	615.68	502.336	20.788	80.513
t45coc	15	315.37	521.79	405.519	14.706	56.958
t45cod	15	1084.30	1205.20	1158.700	7.433	28.787
t45coa	15	271.36	450.40	350.144	12.792	49.542
t45cth	15	4.48	7.15	5.733	.166	.644
t45peri	15	70.20	87.96	79.208	1.660	6.431
t45endo	15	34.62	59.79	43.189	1.837	7.114
t55toc	15	342.65	560.85	448.244	16.088	62.309
t55tod	15	680.70	875.60	805.053	15.594	60.397
t55toa	15	255.20	667.36	531.477	28.945	112.105
t55coc	15	325.80	527.59	416.399	15.474	59.932
t55cod	15	1066.20	1183.30	1149.227	7.023	27.199
t55coa	15	279.68	458.40	362.432	13.454	52.108
t55cth	15	4.22	6.64	5.457	.159	.615
t55peri	15	73.21	92.72	83.641	1.737	6.729
t55endo	15	41.22	65.09	49.354	1.849	7.160
t65toc	15	347.67	550.26	448.818	15.098	58.475
t65tod	15	580.70	775.60	694.900	14.061	54.459
t65toa	15	469.28	825.28	651.403	28.181	109.143
t65coc	15	326.93	505.10	405.248	13.607	52.699
t65cod	15	1059.70	1160.30	1127.080	6.279	24.319
t65coa	15	284.80	450.88	359.819	12.411	48.069
t65cth	15	3.88	5.80	4.795	.117	.454
t65peri	15	76.79	101.84	90.173	1.977	7.656
t65endo	15	48.15	74.79	60.049	2.041	7.905
t75toc	15	346.73	537.03	432.175	14.037	54.365
t75tod	15	431.60	637.50	538.160	14.084	54.545
t75toa	15	570.88	1086.72	814.048	38.770	150.155
t75coc	15	292.74	452.82	359.709	10.682	41.369
t75cod	15	1031.90	1125.10	1096.927	6.233	24.139
t75coa	15	263.20	417.28	328.117	10.057	38.951
t75cth	15	3.26	4.39	3.729	.082	.319
t75peri	15	84.70	116.86	100.811	2.439	9.447
t75endo	15	60.11	94.46	77.379	2.526	9.782
Valid N (listwise)	15					

a. gender = men, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	15	351.77	575.00	464.904	17.731	68.671
t85tod	15	263.20	452.20	360.747	12.383	47.959
t85toa	15	983.68	1928.00	1314.955	72.953	282.547
t85trc	15	76.82	354.54	179.036	25.776	99.831
t85trd	15	100.20	934.10	293.567	84.232	326.231
t85tra	15	620.64	1537.44	957.259	69.083	267.558
t85coc	15	229.50	354.00	280.542	8.935	34.605
t85cod	15	985.80	1062.40	1029.093	6.012	23.284
t85coa	15	216.32	344.64	272.608	8.429	32.644
t85cth	15	1.87	2.82	2.351	.089	.345
t85peri	15	108.66	150.38	124.427	3.191	12.360
t85endo	15	92.44	138.02	109.667	3.534	13.685
t15imax	15	8721.40	21420.25	14258.125	986.723	3821.563
t15imin	15	7370.14	18625.43	12735.761	878.205	3401.275
t15irat	15	1.02	1.25	1.124	.020	.079
t15ssi	15	1284.13	2501.29	1799.058	90.482	350.434
t15ssitoc	15	4.81	7.03	6.198	.146	.566
t25imax	15	9888.28	25724.03	15699.348	1164.101	4508.544
t25imin	15	5495.97	19292.58	11300.194	1028.002	3981.433
t25irat	15	1.02	1.88	1.452	.079	.304
t25ssi	15	1205.96	2566.56	1859.877	108.227	419.161
t25ssitoc	15	4.45	6.21	5.366	.165	.640
t35imax	15	13628.48	34131.00	20682.889	1491.283	5775.714
t35imin	15	5941.24	23938.24	12715.937	1287.586	4986.798
t35irat	15	1.08	2.50	1.741	.109	.423
t35ssi	15	1377.74	2780.18	2056.456	121.948	472.304
t35ssitoc	15	4.26	5.99	5.111	.154	.597
t45imax	15	18977.33	42573.47	26820.110	1782.487	6903.543
t45imin	15	7113.59	27990.56	15475.545	1759.563	6814.757
t45irat	15	1.04	2.70	1.957	.159	.616
t45ssi	15	1612.15	2973.22	2332.002	128.153	496.334
t45ssitoc	15	4.61	6.32	5.350	.145	.561
Valid N (listwise)	15					

a. gender = men, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	15	17406.03	49600.64	32023.119	2286.458	8855.413
t55imin	15	10478.52	32433.64	18706.152	1730.123	6700.739
t55irat	15	1.02	2.62	1.818	.131	.508
t55ssi	15	1832.95	3517.98	2706.631	141.029	546.202
t55ssitoc	15	5.16	7.04	5.995	.137	.532
t65imax	15	23411.28	57883.88	39940.232	2691.033	10422.325
t65imin	15	11838.51	38356.26	22567.580	2147.190	8316.033
t65irat	15	1.15	2.56	1.884	.123	.475
t65ssi	15	2071.37	4097.60	3106.765	166.826	646.113
t65ssitoc	15	5.96	8.29	6.863	.176	.683
t75imax	15	24584.00	78244.83	48514.652	3742.649	14495.217
t75imin	15	16032.25	58173.61	29034.347	2774.050	10743.851
t75irat	15	1.06	2.59	1.779	.144	.556
t75ssi	15	2352.37	4957.00	3494.009	194.013	751.409
t75ssitoc	15	6.78	9.64	8.009	.210	.812
t85imax	15	41350.55	111762.61	75359.590	5058.9270	19593.138
t85imin	15	19878.82	82926.56	41639.405	4074.205	15779.330
t85irat	15	1.21	3.22	1.944	.148	.571
t85ssi	15	2464.90	5656.34	4285.824	219.289	849.303
t85ssitoc	15	7.01	10.40	9.163	.199	.769
toc515r	15	1.08	1.35	1.203	.024	.093
toc535r	15	.71	1.05	.875	.026	.099
toc585r	15	.58	.87	.750	.020	.077
toc565r	15	.66	.95	.775	.021	.082
tcsa65	15	7880.00	14082.72	11441.653	489.955	1897.588
fcsa65	15	728.80	3273.76	1534.347	169.735	657.379
mcsa65	15	6305.76	12051.04	9154.347	388.258	1503.718
Valid N (listwise)	14					

a. gender = men, decade = 50s

Gender = women, Decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	200.88	364.75	287.249	11.194	43.355
t5tod	15	257.80	422.40	347.420	11.839	45.852
t5toa	15	719.20	908.96	827.179	17.083	66.162
t5trc	15	105.78	258.87	175.374	11.916	46.151
t5trd	15	169.10	880.00	417.080	69.085	267.567
t5tra	15	113.60	783.36	654.517	42.441	164.374
t15toc	15	187.52	278.22	240.163	7.895	30.577
t15tod	15	469.90	747.20	609.807	17.007	65.869
t15toa	15	309.92	451.20	395.179	10.831	41.948
t15trc	15	14.49	239.29	82.179	23.093	89.439
t15trd	15	65.00	1128.90	403.860	113.997	441.508
t15tra	15	114.56	245.28	204.576	8.998	34.849
t15coc	15	162.57	229.46	200.446	5.803	22.471
t15cod	15	1125.90	1185.40	1156.220	4.348	16.838
t15coa	15	141.28	202.24	173.344	4.952	19.179
t15cth	15	2.21	3.33	2.823	.078	.300
t15peri	15	62.41	75.30	70.374	.981	3.801
t15endo	15	41.46	56.91	52.635	1.110	4.297
t25toc	15	223.64	324.25	271.919	8.394	32.507
t25tod	15	724.20	947.80	848.753	17.828	69.048
t25toa	15	269.60	379.84	321.205	9.594	37.158
t25coc	15	212.20	306.76	257.261	7.938	30.743
t25cod	15	1166.80	1215.60	1194.307	4.218	16.335
t25coa	15	174.56	262.72	216.544	6.786	26.282
t25cth	15	3.42	5.06	4.405	.139	.542
t25peri	15	58.21	69.09	63.434	.945	3.662
t25endo	15	26.41	42.99	35.740	1.3023	5.046
t35toc	15	260.83	390.73	316.031	10.346	40.070
t35tod	15	853.90	1027.90	952.127	14.773	57.217
t35toa	15	6.91	399.84	312.151	24.090	93.301
t35coc	15	251.90	380.58	304.557	9.930	38.460
t35cod	15	1164.80	1217.00	1195.407	3.911	15.147
t35coa	15	208.48	326.24	254.944	8.685	33.637
t35cth	15	4.31	6.44	5.345	.153	.5914
t35peri	15	58.81	70.88	64.504	1.002	3.880
t35endo	15	24.93	37.30	30.920	1.037	4.0175
Valid N (listwise)	15					

a. gender = women, decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	15	274.22	433.87	350.057	11.339	43.914
t45tod	15	843.40	1017.40	939.620	14.287	55.335
t45toa	15	304.16	459.20	373.568	11.955	46.302
t45coc	15	257.84	432.99	337.153	11.782	45.634
t45cod	15	1153.50	1205.60	1184.287	4.110	15.919
t45coa	15	217.44	375.36	284.992	10.585	40.997
t45cth	15	4.54	6.92	5.611	.174	.673
t45peri	15	61.82	75.96	68.396	1.085	4.201
t45endo	15	26.49	39.12	32.989	.985	3.815
t55toc	15	298.33	450.44	365.105	11.660	45.160
t55tod	15	772.70	963.10	874.747	14.285	55.325
t55toa	15	355.52	516.80	417.803	12.790	49.536
t55coc	15	278.37	434.04	349.260	11.481	44.467
t55cod	15	1135.50	1197.30	1175.180	4.416	17.102
t55coa	15	235.04	382.24	297.525	10.486	40.611
t55cth	15	4.32	6.28	5.359	.158	.611
t55peri	15	66.84	80.59	72.344	1.089	4.217
t55endo	15	30.58	44.59	38.675	1.058	4.099
t65toc	15	300.11	430.45	365.647	11.507	44.566
t65tod	15	668.00	840.70	759.720	16.081	62.280
t65toa	15	375.02	599.84	470.292	14.812	57.368
t65coc	15	268.22	402.92	338.833	10.628	41.161
t65cod	15	1124.40	1180.90	1160.647	4.164	16.127
t65coa	15	231.20	355.84	292.160	9.659	37.410
t65cth	15	3.65	5.34	4.626	.135	.524
t65peri	15	71.83	86.82	77.732	1.117	4.326
t65endo	15	40.21	56.11	48.667	1.192	4.618
t75toc	15	298.88	438.79	370.693	11.790	45.663
t75tod	15	477.70	687.80	587.527	17.002	65.850
t75toa	15	528.80	797.28	633.621	18.030	69.828
t75coc	15	244.02	379.41	310.077	9.447	36.589
t75cod	15	1080.20	1142.20	1118.907	4.160	16.113
t75coa	15	218.08	345.92	277.365	8.979	34.776
t75cth	15	2.78	4.32	3.567	.113	.438
t75peri	15	81.52	100.10	89.110	1.247	4.831
t75endo	15	56.81	77.90	66.699	1.415	5.482
Valid N (listwise)	15					

a. gender = women, decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	15	312.94	514.13	416.265	16.793	65.038
t85tod	15	299.20	492.10	398.667	14.329	55.495
t85toa	15	908.64	1285.60	1045.621	25.311	98.028
t85trc	15	82.33	368.96	183.602	22.356	86.584
t85trd	15	107.00	936.20	380.053	87.448	338.685
t85tra	15	279.52	932.96	708.699	36.443	141.142
t85coc	15	151.63	308.30	235.755	10.094	39.095
t85cod	15	968.00	1060.20	1033.627	6.584	25.500
t85coa	15	156.64	295.68	227.787	9.321	36.102
t85cth	15	1.42	2.65	2.123	.083	.321
t85peri	15	106.30	126.60	113.968	1.364	5.282
t85endo	15	92.15	112.84	100.626	1.380	5.344
t15imax	15	6631.74	12608.47	9701.024	542.583	2101.413
t15imin	15	6268.81	11520.77	8331.675	411.348	1593.145
t15irat	15	1.01	1.41	1.165	.036	.138
t15ssi	15	1090.73	1653.76	1371.950	50.941	197.294
t15bsi	15	3.52E10	7.74E10	5.855E10	3.778E9	1.463E10
t15bsitoatod2	15	88110430.23	1.79E8	1.474E8	7.422E6	2.875E7
t15ssitoc	15	4.71	6.49	5.720	.124	.481
t25imax	15	5887.02	15221.84	9528.402	672.930	2606.247
t25imin	15	3912.05	10230.35	6714.798	401.995	1556.921
t25irat	15	1.01	2.26	1.458	.103	.401
t25ssi	15	966.16	1641.35	1272.689	56.734	219.728
t25ssitoc	15	3.76	5.39	4.665	.110	.427
t35imax	15	7683.47	19769.17	12010.856	846.637	3279.011
t35imin	15	4009.09	12332.12	7165.312	555.134	2150.026
t35irat	15	1.03	3.24	1.804	.152	.590
t35ssi	15	1062.92	1770.99	1372.528	61.343	237.580
t35ssitoc	15	3.84	4.85	4.325	.074	.286
t45imax	15	9487.45	23566.75	15219.099	1005.871	3895.722
t45imin	15	4784.17	14469.80	9081.812	682.022	2641.461
t45irat	15	1.08	3.56	1.763	.151	.586
t45ssi	15	1126.80	2152.98	1571.827	72.400	280.404
t45ssitoc	15	3.92	4.99	4.471	.088	.341
Valid N (listwise)	15					

a. gender = women, decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	15	11657.16	27418.01	17686.172	1268.448	4912.676
t55imin	15	6541.04	16434.30	11680.639	701.089	2715.308
t55irat	15	1.07	2.92	1.551	.117	.454
t55ssi	15	1364.09	2471.08	1799.108	84.116	325.780
t55ssitoc	15	4.30	5.52	4.904	.094	.366
t65imax	15	14917.31	32037.84	21525.483	1341.699	5196.377
t65imin	15	8847.70	21612.28	14552.304	896.152	3470.782
t65irat	15	1.12	2.35	1.510	.087	.337
t65ssi	15	1747.32	2715.33	2109.493	89.975	348.473
t65ssitoc	15	5.05	6.58	5.753	.106	.409
t75imax	15	20337.19	46943.78	29707.012	2058.480	7972.457
t75imin	15	12354.40	30377.65	19770.402	1051.043	4070.670
t75irat	15	1.01	2.26	1.532	.105	.405
t75ssi	15	1999.84	3255.22	2529.265	105.714	409.427
t75ssitoc	15	5.89	7.70	6.808	.128	.496
t85imax	15	31963.56	69898.09	47229.940	3072.061	11898.0425
t85imin	15	20745.61	44878.13	28188.023	1768.563	6849.617
t85irat	15	1.11	2.23	1.697	.082	.317
t85ssi	15	2328.62	4480.10	3163.260	172.296	667.298
t85ssitoc	15	6.25	8.91	7.577	.206	.796
toc515r	15	1.06	1.31	1.195	.023	.090
toc535r	15	.73	1.14	.911	.027	.106
toc585r	15	.54	.88	.696	.023	.089
toc565r	15	.65	.97	.787	.023	.087
tcsa65	15	7377.28	14818.40	10302.197	562.211	2177.433
fcsa65	15	929.12	4817.28	2788.043	282.179	1092.876
mcsa65	15	4917.60	9708.32	6988.608	327.531	1268.522
Valid N (listwise)	15					

a. gender = women, decade = 20s

gender = women, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	14	212.80	375.60	272.991	12.330	46.134
t5tod	14	272.00	387.60	311.036	8.528	31.910
t5toa	14	684.48	3956.00	1103.017	221.075	827.187
t5trc	14	72.61	762.92	215.278	44.272	165.649
t5trd	14	211.40	756.80	356.336	56.447	211.207
t5tra	14	567.52	3608.48	965.703	204.740	766.065
t15toc	14	203.33	294.73	234.221	8.314	31.110
t15tod	14	498.10	650.00	583.579	13.476	50.424
t15toa	14	316.80	481.60	402.674	13.583	50.821
t15trc	14	23.62	187.65	53.555	15.284	57.187
t15trd	14	99.30	1162.40	282.764	98.768	369.557
t15tra	14	153.92	289.28	219.726	10.345	38.708
t15coc	14	172.77	247.28	195.784	6.642	24.852
t15cod	14	1136.10	1196.60	1167.207	4.931	18.449
t15coa	14	147.36	215.36	167.749	5.669	21.213
t15cth	14	2.31	3.23	2.683	.0768	.287
t15peri	14	63.10	77.79	71.002	1.204	4.506
t15endo	14	45.26	62.00	54.145	1.254	4.690
t25toc	14	228.73	360.50	275.128	10.316	38.560
t25tod	14	745.50	965.80	851.621	18.586	69.541
t25toa	14	263.20	382.24	323.337	10.163	38.028
t25coc	14	216.79	349.56	261.071	10.280	38.466
t25cod	14	1173.10	1236.40	1208.479	5.293	19.806
t25coa	14	177.28	282.72	216.057	8.448	31.608
t25cth	14	3.52	5.53	4.315	.149	.558
t25peri	14	57.51	69.31	63.641	1.002	3.747
t25endo	14	29.57	41.82	36.259	.995	3.724
t35toc	14	265.12	438.98	323.279	12.442	46.554
t35tod	14	859.10	1078.30	950.986	16.625	62.206
t35toa	14	277.44	437.44	340.091	11.718	43.846
t35coc	14	250.45	426.52	310.061	12.633	47.270
t35cod	14	1176.30	1232.60	1203.379	5.489	20.538
t35coa	14	204.00	348.32	257.669	10.372	38.809
t35cth	14	4.31	6.47	5.300	.176	.658
t35peri	14	59.05	74.14	65.251	1.111	4.156
t35endo	14	23.77	36.68	31.957	1.072	4.010
Valid N (listwise)	14					

a. gender = women, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	14	293.57	484.16	359.689	13.541	50.666
t45tod	14	872.20	1079.20	936.793	14.853	55.574
t45toa	14	324.48	511.84	384.194	13.662	51.118
t45coc	14	275.26	468.99	341.501	13.733	51.389
t45cod	14	1150.80	1223.70	1185.107	6.156	23.032
t45coa	14	227.20	387.04	288.171	11.399	42.650
t45cth	14	4.55	6.69	5.545	.175	.655
t45peri	14	63.86	80.20	69.347	1.204	4.507
t45endo	14	24.60	68.99	36.822	2.704	10.11819
t55toc	14	316.50	501.71	370.334	14.243	53.291
t55tod	14	797.20	983.30	866.900	12.832	48.011
t55toa	14	351.84	569.76	427.497	15.677	58.657
t55coc	14	295.58	485.52	351.131	14.385	53.825
t55cod	14	1142.00	1213.90	1175.600	6.283	23.506
t55coa	14	245.76	400.96	298.526	11.673	43.676
t55cth	14	4.51	6.14	5.261	.142	.535
t55peri	14	66.49	84.62	73.141	1.314	4.917
t55endo	14	33.04	46.06	40.084	1.036	3.878
t65toc	14	301.42	479.68	373.374	14.163	52.991
t65tod	14	668.40	859.20	747.679	16.803	62.872
t65toa	14	406.24	712.16	502.423	22.361	83.669
t65coc	14	274.07	448.01	343.171	13.685	51.204
t65cod	14	1126.60	1195.60	1157.914	5.832	21.821
t65coa	14	231.20	379.20	296.269	11.449	42.837
t65cth	14	3.78	5.46	4.567	.132	.493
t65peri	14	71.45	94.60	79.219	1.709	6.393
t65endo	14	41.56	64.69	50.522	1.704	6.377
t75toc	14	310.07	445.65	364.806	12.558	46.989
t75tod	14	465.10	640.90	565.014	16.467	61.613
t75toa	14	500.80	936.16	654.983	34.072	127.487
t75coc	14	258.02	375.98	305.739	10.238	38.306
t75cod	14	1078.00	1159.50	1119.864	6.434	24.074
t75coa	14	223.68	335.52	272.971	8.842	33.083
t75cth	14	2.84	4.11	3.447	.098	.368
t75peri	14	79.33	108.46	90.351	2.278	8.525
t75endo	14	56.24	87.63	68.691	2.513	9.402
Valid N (listwise)	14					

a. gender = women, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	14	317.54	489.45	393.892	15.238	57.016
t85tod	14	297.30	446.80	361.714	11.831	44.266
t85toa	14	839.20	1429.60	1098.937	48.381	181.025
t85trc	14	73.19	264.90	150.827	17.017	63.673
t85trd	14	96.30	986.30	316.129	86.470	323.543
t85tra	14	593.44	1130.40	804.063	45.658	170.836
t85coc	14	183.09	311.45	230.992	10.015	37.473
t85cod	14	965.50	1081.80	1031.764	9.518	35.615
t85coa	14	177.28	296.48	223.520	8.757	32.765
t85cth	14	1.64	2.74	2.071	.090	.337
t85peri	14	101.56	129.10	114.981	1.917	7.177
t85endo	14	87.83	117.19	101.972	2.172	8.127
t15imax	14	6565.02	13593.37	9707.443	596.708	2232.676
t15imin	14	5819.77	12160.20	8441.939	527.430	1973.461
t15irat	14	1.01	1.33	1.155	.027	.102
t15ssi	14	1062.82	1726.81	1378.835	58.265	218.007
t15bsi	14	4.13E10	8.69E10	5.576E10	4.106E9	1.536E10
t15bsitoatod2	14	1.03E8	1.89E8	1.372E8	6.850E6	2.563E7
t15ssitoc	14	5.14	6.67	5.877	.105	.393
t25imax	14	6536.18	13191.02	9297.870	535.776	2004.692
t25imin	14	4282.03	10448.11	7117.377	544.112	2035.880
t25irat	14	1.03	1.77	1.349	.068	.256
t25ssi	14	997.99	1738.25	1322.049	61.214	229.042
t25ssitoc	14	4.06	5.26	4.796	.101	.380
t35imax	14	8149.29	18939.10	11718.633	706.678	2644.145
t35imin	14	4226.74	13464.30	7897.258	812.311	3039.390
t35irat	14	1.00	2.46	1.625	.135	.506
t35ssi	14	1080.30	2127.39	1434.547	72.232	270.269
t35ssitoc	14	3.77	4.85	4.422	.086	.323
t45imax	14	9820.15	25684.02	15179.587	1018.625	3811.346
t45imin	14	6353.86	17503.88	9973.924	866.673	3242.794
t45irat	14	1.18	1.96	1.572	.076	.285
t45ssi	14	1280.20	2626.39	1643.748	92.375	345.636
t45ssitoc	14	3.96	5.42	4.544	.104	.388
Valid N (listwise)	14					

a. gender = women, decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	14	11380.30	31579.58	17815.924	1407.339	5265.780
t55imin	14	8445.41	20561.71	12613.265	924.102	3457.670
t55irat	14	1.09	2.23	1.429	.075	.282
t55ssi	14	1408.03	2964.87	1873.156	105.426	394.468
t55ssitoc	14	4.39	5.91	5.024	.098	.368
t65imax	14	14400.95	41914.92	22248.204	1976.192	7394.232
t65imin	14	10305.46	26272.24	16233.000	1308.285	4895.153
t65irat	14	1.02	2.24	1.403	.097	.364
t65ssi	14	1629.44	3684.13	2207.998	142.976	534.967
t65ssitoc	14	4.89	7.68	5.862	.182	.680
t75imax	14	19528.55	51428.13	29713.006	2364.854	8848.475
t75imin	14	14534.34	36456.53	21877.959	1944.736	7276.534
t75irat	14	1.04	1.79	1.390	.060	.225
t75ssi	14	1902.57	3694.85	2581.529	145.145	543.084
t75ssitoc	14	5.93	8.29	7.021	.180	.674
t85imax	14	32211.41	57226.90	45604.141	2385.494	8925.701
t85imin	14	19043.37	51937.27	32966.147	2587.574	9681.813
t85irat	14	1.02	2.23	1.456	.099	.369
t85ssi	14	2498.22	4137.63	3273.479	140.619	526.148
t85ssitoc	14	7.35	9.34	8.305	.133	.499
toc515r	14	1.05	1.27	1.162	.018	.067
toc535r	14	.70	1.00	.845	.021	.080
toc585r	14	.63	.77	.692	.011	.040
toc565r	14	.61	.84	.731	.018	.067
tcsa65	14	7878.08	15632.16	10669.909	562.356	2104.143
fcsa65	14	1075.04	5936.64	3095.223	344.788	1290.080
mcsa65	14	5667.04	9036.32	6996.743	282.130	1055.632
Valid N (listwise)	14					

a. gender = women, decade = 30s

Gender = women, Decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	227.57	328.00	272.445	6.692	25.919
t5tod	15	273.00	363.20	316.087	7.028	27.218
t5toa	15	753.92	1015.84	864.768	20.885	80.887
t5trc	15	76.58	205.15	176.174	8.314	32.199
t5trd	15	221.20	699.80	279.787	30.714	118.956
t5tra	15	671.68	889.12	747.008	18.870	73.083
t15toc	15	119.61	288.89	224.921	9.899	38.340
t15tod	15	404.30	655.00	561.647	15.087	58.430
t15toa	15	295.84	464.64	398.453	11.381	44.079
t15trc	15	16.03	199.30	42.195	11.477	44.448
t15trd	15	80.80	1088.80	203.533	64.022	247.955
t15tra	15	177.44	257.28	222.069	6.229	24.125
t15coc	15	59.57	242.16	183.213	10.453	40.483
t15cod	15	917.00	1194.20	1141.727	17.094	66.205
t15coa	15	64.96	204.16	159.243	8.339	32.297
t15cth	15	1.13	3.11	2.531	.123	.476
t15peri	15	60.98	76.41	70.656	1.034	4.003
t15endo	15	49.47	58.86	54.751	.778	3.015
t25toc	15	218.98	323.27	273.946	7.526	29.150
t25tod	15	739.80	932.60	821.220	12.789	49.532
t25toa	15	279.52	384.00	334.005	8.795	34.064
t25coc	15	205.12	303.19	255.532	7.183	27.821
t25cod	15	1140.60	1235.50	1193.873	7.113	27.547
t25coa	15	173.28	259.36	214.240	6.408	24.817
t25cth	15	3.62	4.76	4.143	.103	.398
t25peri	15	59.27	69.47	64.707	.857	3.317
t25endo	15	32.49	45.55	38.678	.805	3.117
t35toc	15	249.49	365.89	320.151	8.415	32.592
t35tod	15	840.20	1019.80	932.007	12.824	49.666
t35toa	15	280.00	404.80	343.915	9.024	34.951
t35coc	15	236.09	352.73	306.827	8.461	32.768
t35cod	15	1142.50	1240.10	1193.053	7.274	28.172
t35coa	15	202.56	299.84	257.419	7.607	29.460
t35cth	15	4.24	5.91	5.222	.122	.471
t35peri	15	59.32	71.32	65.660	.867	3.356
t35endo	15	26.49	37.70	32.848	.753	2.916
Valid N (listwise)	15					

a. gender = women, decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	15	272.31	405.69	352.337	10.175	39.406
t45tod	15	803.00	977.70	922.247	12.485	48.352
t45toa	15	313.92	445.76	382.283	10.556	40.884
t45coc	15	257.87	390.91	336.057	10.107	39.146
t45cod	15	1131.10	1231.50	1183.653	7.309	28.308
t45coa	15	220.48	345.60	284.352	9.443	36.573
t45cth	15	4.37	6.27	5.450	.142	.551
t45peri	15	62.81	74.84	69.217	.959	3.715
t45endo	15	30.90	41.39	34.973	.733	2.838
t55toc	15	274.43	426.57	362.899	10.967	42.477
t55tod	15	746.00	946.60	855.720	14.058	54.447
t55toa	15	344.48	494.72	424.245	11.387	44.103
t55coc	15	251.87	408.94	343.795	10.949	42.404
t55cod	15	1125.90	1233.80	1171.927	7.547	29.229
t55coa	15	218.08	347.68	293.707	9.942	38.504
t55cth	15	4.04	5.80	5.177	.144	.558
t55peri	15	65.79	78.85	72.922	.987	3.822
t55endo	15	34.56	45.75	40.462	.789	3.054
t65toc	15	293.43	421.99	363.054	9.398	36.399
t65tod	15	619.40	928.50	748.787	22.246	86.160
t65toa	15	135.04	581.28	466.933	27.195	105.324
t65coc	15	261.38	381.81	334.560	9.256	35.848
t65cod	15	1101.20	1201.10	1155.813	7.665	29.688
t65coa	15	232.64	346.72	289.611	8.245	31.933
t65cth	15	3.59	6.10	4.564	.1698	.658
t65peri	15	72.30	85.47	78.209	1.083	4.196
t65endo	15	34.09	60.33	49.530	1.701	6.590
t75toc	15	301.63	410.96	359.537	8.668	33.572
t75tod	15	459.50	721.90	558.760	21.692	84.013
t75toa	15	517.12	840.48	652.501	22.496	87.126
t75coc	15	247.72	360.26	300.927	8.587	33.256
t75cod	15	1057.00	1160.20	1114.927	7.930	30.712
t75coa	15	215.68	327.20	270.091	7.940	30.752
t75cth	15	2.74	4.81	3.430	.153	.593
t75peri	15	80.61	102.77	90.365	1.552	6.012
t75endo	15	52.89	83.82	68.813	2.242	8.683
Valid N (listwise)	15					

a. gender = women, decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	15	302.76	446.73	377.359	10.938	42.364
t85tod	15	270.40	470.00	343.707	14.556	56.376
t85toa	15	812.00	1629.28	1119.861	51.635	199.980
t85trc	15	81.16	203.22	119.722	9.413	36.458
t85trd	15	107.20	183.30	145.520	6.683	25.884
t85tra	15	502.40	1117.12	818.165	41.983	162.600
t85coc	15	111.76	277.71	216.069	11.938	46.235
t85cod	15	898.70	1157.80	1030.967	16.434	63.647
t85coa	15	120.80	257.12	208.096	9.626	37.281
t85cth	15	1.43	2.89	2.028	.113	.438
t85peri	15	83.70	124.26	110.175	3.182	12.324
t85endo	15	65.53	113.26	97.435	3.503	13.567
t15imax	15	7074.95	13299.84	9960.475	490.032	1897.885
t15imin	15	6299.50	13006.81	8670.790	491.508	1903.603
t15irat	15	1.02	1.32	1.158	.027	.106
t15ssi	15	1118.55	1888.55	1321.522	50.682	196.290
t15bsi	15	1.43E10	8.34E10	5.196E10	4.091E9	1.584E10
t15bsitoatod2	15	48357559.68	1.80E8	1.281E8	7.953E6	3.080E7
t15ssitoc	15	5.35	9.35	5.978	.254	.985
t25imax	15	5988.95	12918.46	9525.097	505.461	1957.641
t25imin	15	5363.71	9817.63	7301.765	365.021	1413.720
t25irat	15	1.08	1.59	1.312	.045	.175
t25ssi	15	1007.23	1670.13	1331.198	50.905	197.155
t25ssitoc	15	4.46	5.34	4.842	.071	.275
t35imax	15	7594.70	17755.34	12139.957	741.135	2870.404
t35imin	15	5399.22	10096.35	7832.132	380.468	1473.548
t35irat	15	1.14	1.99	1.558	.071	.273
t35ssi	15	1104.28	1719.11	1431.042	49.829	192.988
t35ssitoc	15	4.11	4.78	4.459	.054	.209
t45imax	15	8409.89	22967.42	14974.589	1017.457	3940.593
t45imin	15	6559.44	14260.04	10175.442	610.128	2363.017
t45irat	15	1.02	2.26	1.501	.093	.360
t45ssi	15	1149.96	2071.00	1627.368	65.649	254.258
t45ssitoc	15	4.15	5.10	4.601	.072	.281
Valid N (listwise)	15					

a. gender = women, decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	15	9972.83	23568.81	17512.671	973.843	3771.678
t55imin	15	7856.40	17610.33	12523.006	826.946	3202.748
t55irat	15	1.08	2.49	1.448	.099	.385
t55ssi	15	1267.84	2389.71	1838.111	75.951	294.156
t55ssitoc	15	4.55	5.60	5.050	.079	.306
t65imax	15	15029.08	29121.72	21722.264	1108.741	4294.134
t65imin	15	9599.38	22013.99	14504.053	944.081	3656.410
t65irat	15	1.08	2.29	1.553	.095	.366
t65ssi	15	1702.48	2708.90	2131.692	77.933	301.833
t65ssitoc	15	4.68	6.84	5.871	.141	.545
t75imax	15	20634.44	42991.67	30320.136	1807.312	6999.688
t75imin	15	11363.82	25988.75	19748.777	1168.827	4526.848
t75irat	15	1.05	2.84	1.613	.138	.534
t75ssi	15	2038.00	3119.37	2581.371	86.428	334.736
t75ssitoc	15	5.94	8.08	7.178	.155	.602
t85imax	15	28163.37	62681.32	46479.991	2396.694	9282.354
t85imin	15	19356.21	34690.06	28265.798	1136.992	4403.550
t85irat	15	1.03	2.58	1.677	.104	.404
t85ssi	15	2431.33	3561.90	3041.365	91.634	354.897
t85ssitoc	15	6.50	8.83	8.080	.164	.637
toc515r	15	.94	2.45	1.257	.089	.345
toc535r	15	.72	1.01	.855	.021	.081
toc585r	15	.63	.81	.725	.014	.053
toc565r	15	.63	.86	.753	.016	.061
tcsa65	15	7601.28	19048.16	12353.771	809.790	3136.302
fcsa65	15	1097.60	9609.12	4172.597	585.053	2265.901
mcsa65	15	6013.28	9718.40	7609.707	291.796	1130.120
Valid N (listwise)	15					

a. gender = women, decade = 40s

Gender = women, Decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t5toc	15	202.56	332.09	262.357	10.793	41.803
t5tod	15	233.40	376.50	298.107	10.095	39.098
t5toa	15	556.00	1089.92	865.195	34.479	133.537
t5trc	15	27.68	262.86	182.423	15.473	59.928
t5trd	15	94.20	294.10	234.853	12.971	50.237
t5tra	15	293.91	1009.76	753.525	43.906	170.048
t15toc	15	169.11	254.62	221.823	6.700	25.949
t15tod	15	446.40	675.30	551.953	16.954	65.662
t15toa	15	354.72	469.28	403.285	9.096	35.227
t15trc	15	17.37	49.04	31.942	2.955	11.444
t15trd	15	89.10	212.00	138.187	9.267	35.891
t15tra	15	166.08	282.56	227.307	9.636	37.319
t15coc	15	127.50	217.09	179.007	6.530	25.291
t15cod	15	1063.90	1199.60	1133.087	9.351	36.218
t15coa	15	114.16	185.76	155.621	5.682	22.004
t15cth	15	1.92	3.16	2.505	.099	.382
t15peri	15	66.77	76.79	71.126	.800	3.099
t15endo	15	48.00	61.40	55.384	1.187	4.598
t25toc	15	200.96	290.92	256.064	7.281	28.198
t25tod	15	672.00	984.40	786.700	20.479	79.316
t25toa	15	288.32	375.68	326.347	7.914	30.653
t25coc	15	183.10	276.23	237.463	7.294	28.248
t25cod	15	1126.30	1244.60	1179.727	8.390	32.493
t25coa	15	155.20	229.60	201.141	5.688	22.030
t25cth	15	2.99	5.01	3.903	.127	.490
t25peri	15	60.19	68.71	63.974	.772	2.991
t25endo	15	29.03	47.20	39.247	1.130	4.375
t35toc	15	231.37	346.44	292.517	9.055	35.070
t35tod	15	806.10	986.50	896.253	14.213	55.046
t35toa	15	284.16	393.12	333.653	9.329	36.130
t35coc	15	225.16	326.83	283.627	7.971	30.871
t35cod	15	1120.40	1243.10	1181.540	8.680	33.619
t35coa	15	200.96	280.64	239.925	6.287	24.348
t35cth	15	4.19	5.37	4.860	.104	.405
t35peri	15	59.76	70.29	64.665	.899	3.483
t35endo	15	28.32	43.13	34.131	.959	3.716
Valid N (listwise)	15					

a. gender = women, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t45toc	15	263.72	382.71	336.045	8.584	33.245
t45tod	15	795.80	992.30	901.767	16.571	64.179
t45toa	15	317.12	444.00	373.835	10.573	40.950
t45coc	15	246.93	371.55	319.019	8.671	33.584
t45cod	15	1099.20	1228.90	1172.333	9.213	35.680
t45coa	15	220.96	313.12	271.925	6.610	25.602
t45cth	15	4.39	5.97	5.241	.115	.447
t45peri	15	39.38	74.70	66.444	2.161	8.370
t45endo	15	27.82	44.25	35.515	1.175	4.551
t55toc	15	270.80	390.70	346.219	9.410	36.445
t55tod	15	715.90	911.10	825.733	15.079	58.401
t55toa	15	349.60	498.88	420.256	11.619	45.002
t55coc	15	251.15	372.62	325.471	9.340	36.175
t55cod	15	1093.10	1210.40	1158.993	9.173	35.528
t55coa	15	229.76	318.24	280.512	7.001	27.113
t55cth	15	4.12	5.69	4.914	.106	.409
t55peri	15	66.28	79.18	72.574	1.007	3.899
t55endo	15	36.15	50.47	41.701	1.106	4.282
t65toc	15	275.69	427.35	354.943	10.625	41.150
t65tod	15	608.60	816.30	720.393	13.985	54.164
t65toa	15	401.28	574.72	493.589	13.718	53.130
t65coc	15	243.43	397.65	323.332	10.156	39.335
t65cod	15	1071.50	1197.30	1141.653	8.771	33.972
t65coa	15	227.20	340.16	282.987	8.138	31.518
t65cth	15	3.53	5.27	4.359	.110	.425
t65peri	15	71.01	84.98	78.649	1.104	4.274
t65endo	15	43.40	60.24	51.262	1.157	4.481
t75toc	15	261.93	395.67	340.715	11.211	43.420
t75tod	15	445.90	641.20	533.100	11.979	46.393
t75toa	15	520.16	764.16	640.309	19.429	75.249
t75coc	15	210.30	336.48	280.900	9.559	37.023
t75cod	15	1042.30	1160.80	1108.413	8.609	33.342
t75coa	15	194.08	293.76	253.163	7.807	30.236
t75cth	15	2.58	3.93	3.184	.089	.343
t75peri	15	80.85	97.99	89.558	1.355	5.249
t75endo	15	62.73	77.54	69.757	1.327	5.138
Valid N (listwise)	15					

a. gender = women, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t85toc	15	271.60	426.89	355.958	12.642	48.962
t85tod	15	272.50	459.80	344.900	12.617	48.864
t85toa	15	897.92	1201.76	1037.056	30.167	116.831
t85trc	15	75.45	148.00	107.212	6.808	26.367
t85trd	15	111.00	198.60	138.847	6.875	26.628
t85tra	15	623.04	911.52	770.827	28.154	109.040
t85coc	15	146.57	290.05	210.999	11.846	45.879
t85cod	15	976.60	1082.90	1039.193	7.640	29.591
t85coa	15	150.08	267.84	202.325	10.259	39.733
t85cth	15	1.43	2.72	1.961	.095	.369
t85peri	15	96.83	121.17	109.327	1.744	6.753
t85endo	15	86.11	109.17	97.006	1.734	6.716
t15imax	15	6400.69	11488.08	8979.191	360.446	1396.002
t15imin	15	5577.83	10493.21	7989.473	320.387	1240.853
t15irat	15	1.01	1.33	1.127	.023	.091
t15ssi	15	954.17	1533.83	1289.679	41.872	162.168
t15bsi	15	2.86E10	6.48E10	4.983E10	2.880E9	1.115E10
t15bsitoatod2	15	76635206.35	1.68E8	1.236E8	6.658E6	2.5786E7
t15ssitoc	15	5.13	6.48	5.817	.083	.321
t25imax	15	6382.94	11681.99	8871.374	385.175	1491.777
t25imin	15	4388.35	9217.47	6728.978	391.478	1516.187
t25irat	15	1.00	1.85	1.354	.064	.246
t25ssi	15	992.03	1544.09	1280.263	43.684	169.187
t25ssitoc	15	4.13	5.50	5.002	.098	.378
t35imax	15	7754.34	13912.47	10880.868	482.694	1869.466
t35imin	15	4252.04	11315.12	7270.563	580.262	2247.345
t35irat	15	1.03	2.19	1.596	.107	.414
t35ssi	15	1061.07	1640.83	1354.413	50.708	196.390
t35ssitoc	15	4.15	5.96	4.635	.117	.451
t45imax	15	9065.61	18486.49	13984.372	715.842	2772.445
t45imin	15	5393.02	13574.00	9296.122	605.399	2344.701
t45irat	15	1.10	2.16	1.561	.093	.359
t45ssi	15	1174.19	1797.79	1546.852	58.098	225.014
t45ssitoc	15	4.05	5.14	4.589	.085	.330
Valid N (listwise)	15					

a. gender = women, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
t55imax	15	10049.35	23850.48	16648.720	1014.971	3930.966
t55imin	15	6537.24	16671.86	11793.023	712.918	2761.121
t55irat	15	1.03	2.29	1.465	.109	.421
t55ssi	15	1274.60	2084.40	1771.119	70.490	273.005
t55ssitoc	15	4.32	5.75	5.097	.102	.392
t65imax	15	13107.47	27718.32	21203.217	1169.928	4531.113
t65imin	15	8306.73	21431.84	15243.628	1050.245	4067.599
t65irat	15	1.07	2.42	1.459	.109	.422
t65ssi	15	1581.27	2521.44	2105.020	84.672	327.934
t65ssitoc	15	5.08	6.60	5.911	.103	.398
t75imax	15	15578.51	35834.47	25923.957	1385.655	5366.620
t75imin	15	11688.38	30237.95	20676.431	1442.642	5587.327
t75irat	15	1.03	1.98	1.299	.076	.293
t75ssi	15	1721.89	3054.51	2408.285	104.377	404.249
t75ssitoc	15	6.41	7.77	7.042	.116	.448
t85imax	15	24864.92	48157.96	39413.477	1612.822	6246.435
t85imin	15	17557.96	46089.88	28456.121	1975.240	7650.071
t85irat	15	1.04	2.05	1.440	.075	.292
t85ssi	15	1991.57	3962.37	2857.820	140.563	544.396
t85ssitoc	15	7.06	9.70	7.989	.176	.681
toc515r	15	.95	1.33	1.183	.030	.116
toc535r	15	.68	1.42	.906	.044	.172
toc585r	15	.61	.87	.739	.020	.077
toc565r	15	.61	.89	.740	.021	.081
tcsa65	15	7737.76	14365.92	10628.725	548.903	2125.893
fcsa65	15	1296.48	5571.68	3080.181	305.706	1183.992
mcsa65	15	5201.44	9924.32	7011.157	341.366	1322.106
Valid N (listwise)	15					

a. gender = women, decade = 50s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
total abmd g/cm2	30	1.030	1.511	1.253	.017	.095
total bmc kg	30	2.03	4.34	3.080	.093	.509
l1-l4 spine abmd	30	1.078	1.435	1.269	.017	.096
l1-l4 spine bmc g	30	49.08	102.85	75.089	2.222	12.171
left total hip abmd g/cm2	30	.825	1.623	1.165	.030	.165
left total hip bmc g	30	22.90	56.72	38.131	1.401	7.673
lnekabmd	30	.86	1.71	1.171	.031	.172
lnekbmc	30	3.59	9.24	5.841	.209	1.142
ltroabmd	30	.62	1.34	.942	.029	.156
ltrobmc	30	6.01	18.55	12.133	.602	3.298
Valid N (listwise)	30					

a. decade = 20s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
total abmd g/cm2	29	1.084	1.474	1.239	.018	.097
total bmc kg	29	1.91	4.35	3.075	.104	.558
l1-l4 spine abmd	29	.997	1.528	1.254	.028	.151
l1-l4 spine bmc g	29	53.99	99.97	70.850	2.020	10.875
left total hip abmd g/cm2	29	.834	1.465	1.067	.02669	.1434
left total hip bmc g	29	24.86	53.27	35.662	1.287	6.932
lnekabmd	29	.80	1.43	1.056	.028	.151
lnekbmc	29	3.69	7.93	5.357	.189	1.019
ltroabmd	29	.64	1.26	.854	.024	.132
ltrobmc	29	6.47	19.70	11.356	.604	3.252
Valid N (listwise)	29					

a. decade = 30s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
total abmd g/cm2	25	1.096	1.510	1.245	.021	.106
total bmc kg	25	2.14	4.59	3.025	.115	.575
l1-l4 spine abmd	25	1.025	1.569	1.257	.029	.147
l1-l4 spine bmc g	25	44.22	113.40	71.685	2.924	14.619
left total hip abmd g/cm2	25	.890	1.301	1.070	.025	.127
left total hip bmc g	25	25.02	54.46	36.196	1.459	7.294
lnekabmd	25	.81	1.23	1.026	.023	.117
lnekbmc	25	3.77	7.85	5.253	.196	.978
ltroabmd	25	.65	1.18	.878	.028	.139
ltrobmc	25	6.51	22.03	11.838	.739	3.695
Valid N (listwise)	25					

a. decade = 40s

Descriptive Statistics[a]

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
total abmd g/cm2	30	1.004	1.363	1.1982	.0165	.091
total bmc kg	30	1.82	4.14	2.932	.106	.579
l1-l4 spine abmd	30	.917	1.504	1.200	.026	.142
l1-l4 spine bmc g	30	48.44	103.26	71.220	2.497	13.674
left total hip abmd g/cm2	30	.789	1.212	.998	.020	.111
left total hip bmc g	30	23.16	46.52	33.622	1.101	6.031
lnekabmd	30	.78	1.16	.957	.018	.097
lnekbmc	30	3.78	6.23	4.869	.137	.748
ltroabmd	30	.63	1.06	.818	.021	.112
ltrobmc	30	6.80	19.06	10.969	.567	3.106
Valid N (listwise)	30					

a. decade = 50s

Appendix E

Raw Data Set

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	id	agegroup	gender	menostat	yrspomen	ocinpast	yrsoffoc	hrtpast	yrsoffhrt	hystever	hyswovx	age	ht
2	vm201	2	0									29.1	173
3	vm202	2	0									27.7	177.5
4	vm203	2	0									24.5	188
5	vm204	2	0									28.8	175
6	vm205	2	0									26.2	185.5
7	vm206	2	0									25.6	185.5
8	vm207	2	0									23.5	175
9	vm208	2	0									24	181.5
10	vm209	2	0									20.1	170.5
11	vm210	2	0									23.8	183
12	vm211	2	0									22.9	172
13	vm212	2	0									21	172
14	vm213	2	0									20.6	176
15	vm214	2	0									20.6	172.5
16	vm215	2	0									26.8	166.5
17	vm301	3	0									35.1	182
18	vm302	3	0									36	174
19	vm303	3	0									33	180.5
20	vm304	3	0									30.5	182.5
21	vm305	3	0									31.9	173.5
22	vm306	3	0									39.1	182.5
23	vm307	3	0									37.8	174
24	vm308	3	0									30.1	177.5
25	vm309	3	0									33.8	178
26	vm310	3	0									34.5	189.5
27	vm311	3	0									39.2	182.5
28	vm312	3	0									31.2	180
29	vm313	3	0									33.8	186.5
30	vm314	3	0									35.9	188.5
31	vm315	3	0									37.1	174.5
32	vm401	4	0									43.8	176.5
33	vm402	4	0									48.3	175
34	vm403	4	0									47.4	184.5
35	vm404	4	0									46.4	171.5
36	vm405	4	0									49.4	192
37	vm406	4	0									46.9	173
38	vm407	4	0									43.4	173.5
39	vm408	4	0									40	176.5
40	vm409	4	0									45.8	175.8
41	vm410	4	0									49.6	174.5
42	vm501	5	0									54.6	172
43	vm502	5	0									50.2	184
44	vm503	5	0									56.5	182
45	vm504	5	0									53.7	182.5
46	vm505	5	0									59	168
47	vm506	5	0									58.6	164
48	vm507	5	0									59.9	174
49	vm508	5	0									56.4	173.5
50	vm509	5	0									52.6	180
51	vm510	5	0									51.8	179
52	vm511	5	0									54.1	169.5
53	vm512	5	0									58.1	190.5
54	vm513	5	0									51.6	185
55	vm514	5	0									51	192.5
56	vm515	5	0									54.2	187.5
57	vf201	2	1	0		1	1					20.2	174.5
58	vf202	2	1	0		0						23.1	160.5
59	vf203	2	1	0		1	5					20.1	169.5
60	vf204	2	1	0		0						20.9	168
61	vf205	2	1	0		0						20.7	163.5

	A	B	C	D	E	F	G	H	I	J	K	L	M
62	id	agegroup	gender	menostat	yrspomen	ocinpast	yrsoffoc	hrtpast	yrsoffhrt	hystever	hyswovx	age	ht
63	vf206	2	1	0		0						21.2	157
64	vf207	2	1	0		0						21.7	166
65	vf208	2	1	0		1	2					20.2	167.5
66	vf209	2	1	0		0						20.2	158
67	vf210	2	1	0		1	1.75					20.5	162
68	vf211	2	1	0		0						20.4	165.5
69	vf212	2	1	0		1	5					23.6	165
70	vf213	2	1	0		0						20	159.5
71	vf214	2	1	0		1	2.5					22.7	172
72	vf215	2	1	0		0						22.9	168.8
73	vf301	3	1	0		1	5					30.1	187.5
74	vf302	3	1	0		1	1.5					31.7	164.5
75	vf303	3	1	0		1	1					38.7	171.5
76	vf304	3	1	0		1	2.5					36.5	147.5
77	vf305	3	1	0		1	10					32.3	158
78	vf306	3	1	0		1	16					39.3	151.5
79	vf307	3	1	0		0						36.6	164
80	vf308	3	1	0		1	5					33.8	161.5
81	vf309	3	1	0		1	2.9					32.9	163.5
82	vf310	3	1	1	1.3			0		0		39.3	164.5
83	vf311	3	1	0		1	4					38.1	164.5
84	vf312	3	1	0		1	5.5					31.4	167
85	vf313	3	1	0		1	1.5					34.6	163
86	vf314	3	1	0		1	2					39.3	162
87	vf401	4	1	0		1						49.5	170.5
88	vf402	4	1	1	20			1	1	1	1	46.8	173
89	vf403	4	1	1	0.7			0		1	1	43.7	169
90	vf404	4	1	0		1	4					46.1	158
91	vf405	4	1	2		1	14					46.8	159.5
92	vf406	4	1	2		1	15					48.6	168
93	vf407	4	1	0		0						48	171
94	vf408	4	1	0		0						43.9	164.5
95	vf409	4	1	0		1	17.8					49.8	161.5
96	vf410	4	1	0		1	16					45.7	161
97	vf411	4	1	1	11			0		1	0	48.3	167
98	vf412	4	1	0		1	23					48.2	168
99	vf413	4	1	0		1	5					43.3	154.5
100	vf414	4	1	0		1	31					48.5	160
101	vf415	4	1	1	17.5			0		1	0	47.5	160.5
102	vf501	5	1	1	2.9			0		0		52.9	162
103	vf502	5	1	1	9			1	3	0		52.8	158.5
104	vf503	5	1	1	4.5			1	8	0		56.5	154.5
105	vf504	5	1	1	9			0		0		59	163
106	vf505	5	1	0		0				0		50.6	173.5
107	vf506	5	1	1	2.6			0		0		57.6	166
108	vf507	5	1	1	2			0		0		55.1	166.5
109	vf508	5	1	1	6			0		1	0	53.1	159.3
110	vf509	5	1	1	1			0		0		51	177
111	vf510	5	1	1	2			0		0		54.2	163.5
112	vf511	5	1	1	11			0		1	0	55.2	172.5
113	vf512	5	1	1	8			1	7	0		56.6	166
114	vf513	5	1	1	7.5			0		0		58.5	171
115	vf514	5	1	1	14.5			0		0		57.6	158
116	vf515	5	1	1	5.9			0		0		57.9	167.5

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	wt	bflbm	fm	bfper	legbflbm	legfm	totabmd	totbmc	tottscr	l1l4abmd	l1l4bmc	l1l4tscr	l1l4ostcla
2	75.2	65.99	6.84	9	21.307	2.5	1.313	3.4	1.2	1.394	90.67	1.5	0
3	96.9	71.74	22.39	22.9	22.234	6.25	1.305	3.59	1.1	1.4	88.5	1.5	0
4	94.2	77.64	13.1	13.8	26.388	4.41	1.511	4.34	3.6	1.435	102.85	1.8	0
5	67.6	56.21	8.11	12	18.753	2.39	1.351	3.42	1.6	1.324	84.94	0.9	0
6	106.1	86.18	17.4	16.2	31.718	6.34	1.395	4	2.2	1.351	92.71	1.1	0
7	98.1	65.86	28.78	29.3	22.498	8.49	1.275	3.51	0.7	1.166	73.76	-0.4	0
8	81	57.27	20.14	24.9	20.187	7.72	1.293	3.44	0.9	1.218	76.2	0	0
9	75.5	59.48	13.12	17.3	20.132	3.52	1.275	3.35	0.7	1.177	79.46	-0.4	0
10	67.8	60.7	4.36	6.4	21.403	1.46	1.328	3.36	1.3	1.277	85.23	0.5	0
11	81.3	56.5	21.26	26.3	19.172	5.98	1.24	3.2	0.2	1.144	77.75	-0.6	0
12	84.7	58.81	22.77	26.9	18.773	7.8	1.274	3.2	0.7	1.371	83.52	1.3	0
13	65.3	50.9	11.19	17.2	16.605	3.72	1.293	3.17	0.9	1.268	74.99	0.4	0
14	20.6	67.22	4.65	6.2	22.104	1.47	1.305	3.28	1.1	1.307	81.58	0.7	0
15	86.1	55	27.22	31.7	20.773	9.41	1.309	3.55	2.3	1.355	80.48	1.5	0
16	88.4	63.34	21.78	24.6	24.716	6.71	1.318	3.47	1.2	1.213	63.24	-0.1	0
17	110.4	63.28	43.18	39.3	22.91	13.77	1.238	3.46	0.2	1.074	67.87	-1.2	1
18	66.1	56.9	6.57	9.9	18.637	2.37	1.197	2.8	-0.3	1.083	65.75	-1.1	1
19	84.8	51.52	29.73	35.3	17.475	8.08	1.152	3.06	-0.9	1.264	78.5	0.4	0
20	77	59.74	14.26	18.4	18.955	4.83	1.218	3.34	-1.4	1.051	65.44	-1.4	1
21	97.3	68.21	25.49	26.1	24.865	6.93	1.408	3.85	2.3	1.244	72.01	0.2	0
22	75.6	60.55	12.16	16	19.709	5.11	1.224	3.17	0.1	1.181	73.68	-0.3	0
23	80.6	60.94	16.71	20.7	21.445	5.76	1.172	2.94	-0.6	1.127	68.09	-0.8	0
24	85	57.85	23.15	27.2	20.49	6.65	1.473	4.03	3.2	1.528	99.97	2.6	0
25	90	60.5	25.82	28.7	22.308	7.06	1.278	3.67	0.7	1.387	79.32	1.4	0
26	97.5	69.72	24.27	25	24.26	10.92	1.151	3.16	-0.9	0.997	69.06	-1.9	1
27	103.7	57.14	43.03	41.6	19.326	14.41	1.244	3.26	0.3	1.076	71.72	-1.2	1
28	109.7	65.42	39.75	36.3	24.525	14.34	1.474	4.35	3.2	1.518	94.33	2.5	0
29	86.9	56.64	26.81	30.9	19.91	8.75	1.212	3.26	-0.1	1.104	72.25	-1	1
30	107.4	61.79	41.41	38.8	20.989	12.87	1.281	3.51	0.8	1.163	73.65	-0.5	0
31	103.3	65.52	34.06	33	21.669	10.78	1.348	3.75	1.6	1.293	61.27	0.6	0
32	75.2	61.66	10.72	14.2	21.194	3.5	1.307	3.35	1.1	1.266	78.74	0.4	0
33	87	56.38	26.88	30.9	20.702	6.15	1.375	3.76	1.9	1.451	91.86	1.9	0
34	83.5	62.32	17.84	21.3	21.356	4.82	1.233	3.46	0.2	1.257	83.67	0.3	0
35	79	51.99	23.34	29.8	18.195	7.39	1.195	3	-0.3	1.042	62.84	-1.5	1
36	120.5	74.18	41.36	34.4	27.841	12.64	1.51	4.59	3.6	1.569	113.4	2.9	0
37	108.8	66.35	40.13	36.8	21.689	12.24	1.255	2.65	0.4	1.025	64.59	-1.6	1
38	75	55.71	15.94	21.3	18.746	3.97	1.258	3.2	0.5	1.048	60.75	-1.2	1
39	71.1	45.42	22.19	31.4	14.208	4.7	1.203	3.17	-0.2	1.271	75.65	0.4	0
40	118.7	67.93	46.66	39.4	22.716	12.87	1.418	3.76	2.5	1.387	82.99	1.4	0
41	81.1	59.83	17.52	21.5	19.813	3.97	1.465	4.18	3.1	1.53	95.31	2.6	0
42	87.6	59.26	25.24	28.9	19.338	6.55	1.114	2.91	-1.3	1.026	60.46	-1.6	1
43	76.4	58.14	15.1	19.8	19.51	3.98	1.215	3.16	-0.1	1.191	77.52	-0.2	0
44	107.1	74.45	29.29	27.2	26.054	9.11	1.334	4.04	1.4	1.269	88.73	0.4	0
45	100.5	60.05	36.55	36.5	22.469	11.42	1.248	3.63	0.4	1.244	88.15	0.2	0
46	84.3	53.34	27.72	33	16.959	7.02	1.186	2.93	-0.4	1.263	77.77	0.4	0
47	62.9	46.9	13.31	21.2	16.743	3.64	1.22	2.58	0	1.212	61.22	-0.1	0
48	75.4	51.51	20.4	27.2	18.259	4.77	1.232	3.21	0.1	1.09	71.21	-1.1	1
49	76.4	56.62	16.35	21.4	19.176	3.32	1.297	3.34	1	1.26	74.27	0.3	0
50	83	60.82	18.82	22.6	20.802	5.19	1.292	3.73	0.9	1.445	95.5	1.9	0
51	69.9	52.04	15.16	21.8	17.945	5.09	1.075	2.34	-1.8	0.992	57.81	-1.9	1
52	75.4	52.12	20.51	27.3	16.494	4.89	1.111	2.61	-1.4	1.048	61.77	-1.4	1
53	87.9	63.86	20.4	23.3	20.723	7.27	1.211	3.44	-0.1	1.132	80.57	-0.7	0
54	96.9	68.46	25.24	26.9	23.686	6.39	1.248	3.42	0.4	1.173	83.17	-0.4	0
55	131.8	67.9	58.05	44.6	21.994	15.27	1.363	4.14	1.8	1.504	103.26	2.4	0
56	106.5	73.32	29.48	27.7	26.274	6.19	1.34	3.71	1.5	1.379	87.61	1.3	0
57	69.3	42.52	23.4	34.1	15.06	10.18	1.148	2.72	0.3	1.236	77.61	0.5	0
58	61.8	36.73	22.03	36	13.078	9.1	1.148	2.41	0.3	1.173	59.1	-0.1	0
59	63.1	39.45	20.29	32.5	13.308	7.74	1.237	2.77	1.4	1.309	66.85	1.1	0
60	55.9	37.89	14.67	26.7	11.691	5.66	1.128	2.44	0	1.222	65.12	0.4	0
61	62.4	42.87	15.96	25.9	14.478	5.89	1.276	2.84	1.9	1.417	87.1	2	0

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
62	wt	bflbm	fm	bfper	legbflbm	legfm	totabmd	totbmc	tottscr	l1l4abmd	l1l4bmc	l1l4tscr	l1l4ostcla
63	70.1	36.04	30.38	43.8	12.282	10.77	1.252	2.89	1.6	1.383	73.5	1.7	0
64	62.5	42.55	16.77	27	13.102	6.66	1.224	2.78	1.2	1.247	66.05	0.6	0
65	66	38.49	24.15	37.1	13.484	9.21	1.098	2.52	-0.3	1.078	60.08	-0.9	0
66	49.5	34.68	11.9	24.4	11.838	3.7	1.125	2.25	0	1.153	54.11	-0.2	0
67	53	31.84	18.43	35.2	11.074	6.47	1.03	2.03	-1.2	1.105	49.08	-0.6	0
68	102.3	49.71	48.5	47.9	19.221	17.62	1.226	3.12	1.3	1.314	70.95	1.1	0
69	64.8	39.66	21.86	34	14.663	10.57	1.183	2.76	0.7	1.186	64.4	0.1	0
70	61.2	38.66	19.39	31.9	13.237	7.61	1.213	2.63	1.1	1.296	70.91	1	0
71	72	41.83	26.49	37.2	14.88	11.49	1.223	2.97	1.3	1.263	84.04	0.7	0
72	61.2	43.75	13.96	23	14.842	6.59	1.288	3	2	1.293	67.89	0.9	0
73	71.7	49.47	18.5	25.9	16.36	8.33	1.313	3.4	2.4	1.455	86.37	2.3	0
74	72.1	47.35	21.46	29.9	16.479	9.14	1.308	3.08	2.3	1.429	83.01	2.1	0
75	61.2	49.15	9.41	15.3	16.255	3.87	1.279	2.85	1.9	1.502	81.2	2.8	0
76	48.8	34.4	11.94	24.7	11.624	4.92	1.087	1.91	-0.5	1.201	55.27	0.2	0
77	73.2	37.21	31.46	44.1	12.523	12.01	1.189	2.69	0.8	1.372	68.03	1.6	0
78	56.8	34.29	19.7	35.1	11.047	7.94	1.134	2.12	0.1	1.277	55.46	0.8	0
79	102.5	55.38	43.62	42.9	20.071	19.98	1.253	2.74	1.6	1.165	53.99	-0.1	0
80	56.6	33.08	20.07	36.1	10.759	8.57	1.161	2.39	0.4	1.269	68.76	0.7	0
81	65.9	36	26.64	40.9	13.368	10.3	1.084	2.55	-0.5	1.096	60.35	-0.7	0
82	82.9	42.87	36.39	44.4	15.006	15.71	1.188	2.78	0.8	1.254	68.66	0.6	0
83	72.3	37.03	30.93	43.5	12.887	10.59	1.254	3.09	1.6	1.228	60.36	0.4	0
84	66.7	38.89	23.96	36.6	12.998	9.58	1.174	2.54	0.6	1.317	62.18	1.1	0
85	82.2	44.92	33.6	41.2	15.489	13.25	1.237	2.97	1.4	1.448	71.95	2.2	0
86	55.8	33.09	19.47	35.4	10.773	7.27	1.186	2.51	0.8	1.256	66.16	0.6	0
87	70.1	51.55	15.82	22.5	16.787	6.96	1.184	2.85	0.7	1.111	72.49	-0.6	0
88	65	37.8	23.71	36.9	12.863	8.53	1.124	2.8	0	1.183	68.65	0	0
89	88	48.13	36.21	41.4	16.648	12.43	1.289	3.13	2.1	1.186	70.82	0	0
90	47.4	34.15	10.67	22.7	10.701	3.1	1.13	2.14	0.1	1.409	44.22	1.9	0
91	46.8	37.51	23.34	36.9	12.996	10.48	1.165	2.41	0.5	1.118	51.59	-0.5	0
92	70.6	36.59	30.42	43.7	12.419	13.16	1.136	2.66	0.1	1.279	74	0.8	0
93	63.3	50.97	10.04	15.8	16.195	3.99	1.096	2.44	-0.4	1.123	63.97	-0.5	0
94	123.2	61.33	57.97	47.5	19.526	20.57	1.288	2.8	2	1.255	70.13	0.6	0
95	107.9	51.55	52.4	49	19.527	20.43	1.234	2.93	1.4	1.389	56.58	1.7	0
96	81.2	46.58	31.02	38.4	16.505	11.46	1.267	3.09	1.8	1.401	80.54	1.8	0
97	78	40.38	33.67	43.8	13.4	12.44	1.189	2.74	0.8	1.203	69.02	0.2	0
98	68.9	46.28	19.15	28.1	15.632	7.87	1.236	2.8	1.4	1.194	70.95	0.1	0
99	107.8	49.15	54.91	51.5	18.902	23.85	1.244	2.47	1.5	1.23	63.95	0.4	0
100	66.9	35.94	27.36	41.6	12.238	11.42	1.162	2.47	0.5	1.166	56.91	-0.1	0
101	95	42.84	48.27	51.4	14.415	17.44	1.159	2.79	0.4	1.32	68.51	1.1	0
102	77.9	40.57	33.84	44	14.219	13.17	1.128	2.59	0	1.217	62.9	0.3	0
103	56.3	33.07	20.11	36.3	10.872	6.24	1.128	2.27	0	1.243	65.86	0.5	0
104	51.6	31.98	17.05	33.5	9.893	6.24	1.004	1.82	-1.5	0.988	48.44	-1.6	1
105	60	35.72	20.91	35.4	11.532	8.03	1.156	2.4	0.4	1.151	58.9	-0.2	0
106	57.6	44.13	10.49	18.3	13.976	4.6	1.221	2.65	1.2	1.279	69.04	0.8	0
107	67.7	41.55	22.28	33.5	14.082	8.15	1.13	2.61	0.1	1.202	72.25	0.2	0
108	64.1	38.34	22.39	35.2	12.606	7.43	1.241	2.82	1.5	1.126	63.28	-0.5	0
109	84.7	39.37	41.27	49.5	13.881	16	1.225	2.81	1.3	1.396	70.78	1.8	0
110	91.8	42.39	44.72	49.4	18.581	22.8	1.234	3.39	1.4	1.349	85.35	1.4	0
111	95	45.39	45.55	48.7	15.753	14.58	1.212	2.67	1.1	1.173	64.42	-0.1	0
112	79	42.67	32.85	42.1	14.406	10.7	1.159	2.44	0.4	1.18	57.84	0	0
113	77	1.24	35.95	47.4	11.34	12.72	1.24	2.99	1.4	1.211	64.25	0.3	0
114	106.1	51.51	50.77	48.2	17.706	17.56	1.29	2.95	2.1	1.343	80.36	1.4	0
115	56.6	33.5	20.35	36.4	10.515	8.6	1.037	2.05	-1.1	0.917	52.37	-2.2	1
116	70.6	41.34	26.25	37.5	14.107	11.52	1.055	2.33	-0.9	0.99	51.53	-1.6	1

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
1	lthipabmd	lthipbmc	lthiptscr	lthipostcl	rthipabmd	rthipbmc	rthiptscr	rthipostcl	lnekabmd	lnekbmc	lnektscr
2	1.182	41.36	0.6	0	1.173	42.69	0.5	0	1.15	6.26	0.6
3	1.146	42.68	0.3	0	1.156	43.55	0.4	0	1.11	6.2	0.3
4	1.623	56.72	3.6	0	1.658	57.68	3.9	0	1.71	9.24	4.9
5	1.326	46.66	1.6	0	1.311	44.43	1.5	0	1.33	6.98	2
6	1.208	49.37	0.7	0	1.221	49.03	0.8	0	1.24	7.03	1.3
7	1.068	37.71	-0.2	0	1.109	38.64	0.1	0	1.09	5.98	0.2
8	1.143	40.99	0.3	0	1.107	39.4	0	0	1.19	6.61	1
9	1.373	47.79	1.9	0	1.321	46.09	1.5	0	1.33	6.64	2
10	1.281	45.46	1.3	0	1.294	45.38	1.3	0	1.36	7.14	2.2
11	0.997	36.67	-0.7	0	1.049	38.02	-0.4	0	0.92	5.16	-1.2
12	1.254	42.89	1.1	0	1.267	43.78	1.2	0	1.19	5.95	0.9
13	1.161	38.82	0.4	0	1.196	39.44	0.7	0	1.16	6.09	0.7
14	1.339	48.67	1.7	0	1.336	47.44	1.6	0	1.28	7.13	1.6
15	1.244	41.44	1.9	0	1.303	45.98	2.3	0	1.31	6.71	1.9
16	1.314	40.6	1.5	0	1.337	41.97	1.6	0	1.24	6	1.3
17	0.994	39.03	-0.7	0	0.94	37.5	-1.1	1	1.06	5.74	-0.1
18	1.02	35.7	-0.6	0	1.017	35.36	-0.6	0	1.05	5.53	-0.2
19	1.001	36.63	-0.7	0	0.97	35.68	-0.9	0	0.96	5.41	-0.8
20	1.038	37.73	-0.4	0	1.011	37.08	-0.6	0	1	5.46	-0.5
21	1.29	48.37	1.3	0	1.28	47.62	1.2	0	1.26	6.86	1.4
22	1.004	39.85	-0.7	0	1.008	38.31	-0.6	0	1.01	5.99	-0.4
23	0.984	34.85	-0.8	0	0.972	34.82	-0.9	0	0.9	4.69	-1.3
24	1.465	53.27	2.5	0	1.296	45.42	1.4	0	1.35	7.39	2.1
25	1.104	39.89	0	0	1.08	39.83	-0.1	0	1.12	6.44	0.4
26	0.834	31.54	-1.9	1	0.833	31.68	-1.9	1	0.87	4.94	-1.5
27	0.872	33.72	-1.6	1	0.876	34.11	-1.6	1	0.88	4.89	-1.4
28	1.34	51.68	1.7	0	1.375	52.93	1.9	0	1.43	7.93	2.8
29	1.023	35.83	-0.5	0	1.076	38.27	-0.2	0	0.91	4.76	-1.3
30	1.006	35.34	-0.7	0	0.974	34	-0.9	0	1.06	5.64	-0.1
31	1.166	37.97	0.5	0	1.099	35.19	0	0	1.1	5.74	0.2
32	1.27	43.54	1.2	0	1.288	42.33	1.3	0	1.19	6.34	0.9
33	1.301	45.25	1.4	0	1.2	42.86	0.7	0	1.19	6.59	0.9
34	0.984	39.66	-0.8	0	1.003	43.44	-0.7	0	0.93	5.75	-1.1
35	0.925	30.8	-1.2	1	0.896	30.99	-1.4	1	0.84	4.34	-1.8
36	1.245	54.46	1	0	1.245	53.04	1	0	1.2	7.85	1
37	1.07	42.19	-0.2	0	1.035	40.78	-0.5	0	1.12	6.02	0.3
38	1.042	36	-0.4	0	1.021	36.41	-0.6	0	1.04	4.99	-0.2
39	1.049	34.88	-0.4	0	1.054	33.81	-0.3	0	0.94	5.05	-1
40	1.245	46.95	1	0	1.205	44.74	0.5	0	1.23	6.55	1.2
41	1.297	49.32	1.4	0	1.302	49.94	1.4	0	1.15	6.9	0.6
42	0.878	30.97	-1.6	1	0.873	29.7	-1.6	1	0.86	4.7	-1.6
43	0.946	32.82	-1.1	1	0.934	32.85	-1.2	1	0.9	4.87	-1.3
44	1.064	44.77	-0.3	0	1.02	42.16	-0.6	0	1.03	6.02	-0.3
45	0.937	37.48	-1.1	1	0.886	35.78	-1.5	1	0.99	5.45	-1.1
46	0.96	31.62	-1	1	0.992	31.95	-0.8	0	0.85	3.93	-1.7
47	1.094	35.39	-0.1	0	1.027	34.3	-0.5	0	0.98	4.66	-0.7
48	1.08	37.88	-0.1	0	1.008	34.72	-0.6	0	0.97	4.98	-0.8
49	1.173	42.55	0.5	0	1.118	41.15	0.1	0	1.04	6.12	-0.3
50	1.212	46.52	0.8	0	1.212	46.68	0.8	0	1.16	6.23	0.7
51	0.827	28.44	-1.9	1	0.84	30.2	-1.8	1	0.78	3.95	-2.2
52	0.973	32.95	-0.9	0	0.937	31.82	-1.1	1	0.98	4.99	-0.7
53	1.094	41.96	0	0	1.075	41.48	-0.2	0	0.99	5.7	-0.6
54	1.093	40.23	-0.1	0	1.031	37.3	-0.5	0	0.94	5.77	-1
55	1.095	42.24	0	0	1.046	40.39	-0.4	0	1.07	6.13	0
56	1.004	35.09	-0.7	0	1.007	35.41	-0.7	0	1	5.5	-0.5
57	1.023	30.72	0.1	0	1.023	29.41	0.1	0	1.12	4.88	0.6
58	1.061	29.71	0.4	0	1.03	28.89	0.2	0	1.03	4.77	0
59	1.128	34.27	1	0	1.193	34.97	1.5	0	1.12	5.18	0.6
60	0.874	27.28	-1.1	1	0.886	27.31	-1	1	0.9	4.2	-1
61	1.163	35.93	1.2	0	1.196	37.03	1.5	0	1.22	5.84	1.3

	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK
62	lthipabmd	lthipbmc	lthiptscr	lthipostcl	rthipabmd	rthipbmc	rthiptscr	rthipostcl	lnekabmd	lnekbmc	lnektscr
63	1.127	31.79	0.9	0	1.161	33.59	1.2	0	1.13	5.13	0.7
64	1.292	37.62	2.3	0	1.325	39.09	2.5	0	1.36	6.13	2.3
65	0.825	25.41	-1.5	1	0.789	24.08	-1.7	1	0.86	4.02	-1.3
66	0.986	28.44	-0.2	0	0.962	27.9	-0.4	0	0.98	4.57	-0.4
67	0.868	22.9	-1.1	1	0.895	23.34	-0.9	0	0.94	3.59	-0.7
68	1.216	38.27	1.7	0	1.22	38.85	1.7	0	1.2	6.26	1.2
69	1.22	36.5	1.7	0	1.222	37.56	1.7	0	1.28	5.71	1.8
70	1.2	34.77	1.5	0	1.19	34.47	1.4	0	1.17	5.15	0.9
71	1.07	33.97	0.5	0	1.075	34.34	0.5	0	0.99	4.9	-0.3
72	1.233	38.53	1.8	0	1.264	40.02	2	0	1.24	5.78	1.4
73	1.147	37.86	1.1	0	1.151	38.14	1.1	0	1.34	6.25	2.2
74	1.238	39.13	1.8	0	1.164	36.06	1.2	0	1.25	6.09	1.5
75	1.239	37.47	1.8	0	1.186	35.99	1.4	0	1.17	5.35	0.9
76	1.139	29.2	1	0	1.098	28.38	0.7	0	1.08	4.43	0.3
77	0.989	25.41	-0.1	0	1.016	25.97	0.1	0	0.96	3.84	-0.6
78	0.988	25.99	-0.2	1	1.021	26.7	0.1	0	1	3.69	-0.3
79	1.01	33.28	0	0	0.969	32.75	-0.3	1	1.01	5.94	-0.2
80	1.017	29.06	0.1	0	1.018	29.33	0.1	0	0.93	4.22	-0.8
81	0.836	24.86	-1.4	1	0.909	28.4	-0.8	0	0.8	4.1	-1.7
82	0.999	30.34	-0.1	0	0.994	30.95	-0.1	0	1.03	4.58	-0.1
83	1.078	33.21	0.6	0	1.074	33.13	0.5	0	0.97	4.4	-0.5
84	0.985	31.27	-0.2	0	0.979	29.75	-0.2	0	1.03	5.03	-0.1
85	1.132	37.49	1	0	1.083	35.39	0.6	0	1.11	5.51	0.5
86	1.006	28.24	0	0	0.99	27.17	-0.1	0	0.99	4.5	-0.3
87	1.022	33.67	0.1	0	1.02	33.11	0.1	0	0.96	4.64	-0.6
88	0.969	30.77	-0.3	0	0.992	30.86	-0.1	0	1.01	4.47	-0.2
89	1.207	37.28	1.6	0	1.197	36.1	1.5	0	1.13	5.07	0.7
90	0.89	25.02	-0.9	0	0.875	24.5	-1	1	0.81	3.77	-1.6
91	0.987	29.27	-0.2	0	0.94	27.76	-0.5	0	0.95	4.34	-0.6
92	0.989	33.29	-0.2	0	1.006	32.81	0	0	0.99	5.02	-0.4
93	0.89	29.38	-0.9	1	0.875	28.82	-1.1	1	0.85	4.14	-1.4
94	1.123	35.91	0.9	0	1.049	33.75	0.3	0	1.06	5.34	0.1
95	1.091	37	0.7	0	1.109	37.54	0.8	0	1	5.19	-0.3
96	1.227	36.4	1.7	0	1.216	35.37	1.7	0	1.13	5.03	0.7
97	1.052	32.01	0.4	0	1.013	30.38	0	0	0.94	4.57	-0.7
98	1.063	34.42	0.4	0	1.061	34.37	0.4	0	1	4.99	-0.3
99	1.051	30.96	0.3	0	1.106	33.19	0.8	0	1.07	4.72	0.2
100	1.004	27.8	0	0	0.974	28.68	-0.3	0	0.96	4.33	-0.6
101	0.977	28.68	-0.2	0	0.932	27.63	-0.6	0	1	5.33	-0.3
102	0.919	27.02	-0.7	0	0.982	30.02	-0.2	0	0.89	4.35	-1.1
103	0.984	28.34	-0.2	0	1.01	29.91	0	0	1	4.54	-0.2
104	0.834	24.95	-1.4	1	0.86	24.99	-1.2	1	0.84	3.78	-1.4
105	0.841	26.48	-1.3	1	0.837	26.02	-1.4	1	0.85	3.99	-1.4
106	1.075	33.47	0.5	0	1.054	33.31	0.4	0	1.06	4.98	0.2
107	0.922	28.61	-0.7	0	0.958	30.18	-0.4	0	0.85	4.33	-1.3
108	0.941	28.79	-0.7	0	0.956	29.9	-0.4	0	0.91	4.31	-0.9
109	1.154	34.38	1.2	0	1.093	32.45	0.7	0	1.11	4.72	0.5
110	1.108	33.36	0.8	0	1.068	33.01	0.5	0	1.05	5.06	0
111	0.968	31.55	-0.3	0	1	30.73	-0.1	0	0.88	4.18	-1.2
112	1.101	35.93	0.7	0	1.075	33.53	0.5	0	1.09	5.11	0.4
113	1.023	31.65	0.1	0	1.031	31.91	0.2	0	0.96	4.4	-0.6
114	0.992	33.49	-0.1	0	1.078	36.88	0.6	0	1.03	5.45	-0.1
115	0.789	23.16	-1.7	1	0.729	21.38	-2.2	1	0.82	3.98	-1.6
116	0.869	26.56	-1.1	1	0.874	27.57	-1.1	1	0.85	3.9	-1.3

	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW
1	lnekostcl	rnekabmd	rnekbmc	rnektscr	rnekostcl	ltroabmd	ltrobmc	ltrotscr	ltroostcl	rtroabmd	rtrobmc	rtrotscr
2	0	1.14	6.05	0.6	0	0.99	13.3	0.5	0	1	15.43	0.7
3	0	1.11	6.22	0.3	0	0.9	14.33	-0.3	0	0.91	14.89	-0.2
4	0	1.78	10.02	5.5	0	1.34	17.7	3.7	0	1.32	16.08	3.5
5	0	1.32	6.76	1.9	0	1.15	16.53	2	0	1.12	14.89	1.7
6	0	1.21	6.83	1.1	0	1.05	18.55	1.1	0	1.04	18.55	1
7	0	1.16	6.35	0.7	0	0.86	11.45	-0.6	0	0.88	11.94	-0.4
8	0	1.19	6.44	0.9	0	0.93	13.72	0	0	0.89	13.16	-0.4
9	0	1.3	6.44	1.8	0	1.1	16.26	1.5	0	1.03	15.51	0.9
10	0	1.39	7.17	2.4	0	1.08	15.51	1.4	0	1.09	15.88	1.4
11	1	0.96	5.26	-0.9	0	0.82	12.82	-1	1	0.87	13.57	-0.6
12	0	1.2	6.01	1	0	1.07	14.92	1.3	0	1.08	15.12	1.4
13	0	1.19	6.07	0.9	0	0.94	11.48	0.1	0	1.01	12.31	0.8
14	0	1.29	7.04	1.7	0	1.15	17.82	2	0	1.16	16.88	2.1
15	0	1.35	7.22	2.2	0	0.96	12.12	1	0	1.03	14.89	1.5
16	0	1.28	6.05	1.6	0	1.07	12.75	1.3	0	1.08	14.34	1.4
17	0	0.99	5.39	-0.6	0	0.8	13.19	-1.2	1	0.77	13.51	-1.4
18	0	0.98	5.23	-0.7	0	0.8	10.73	-1.2	1	0.81	10.72	-1.1
19	0	0.89	4.93	-1.4	1	0.79	12.37	-1.3	1	0.78	12.22	-1.3
20	0	1.02	5.69	-0.4	0	0.89	13.28	-1.4	1	0.84	12.81	-0.8
21	0	1.24	6.48	1.3	0	1.03	18.25	0.9	0	1.03	18.24	0.9
22	0	0.99	5.73	-0.6	0	0.81	13.43	-1.1	1	0.8	13.05	-1.2
23	1	0.91	4.62	-1.2	1	0.82	11.83	-1	1	0.79	11.37	-1.3
24	0	1.26	6.45	1.4	0	1.26	19.7	3	0	1.11	16.7	1.7
25	0	1.06	6	0	0	0.87	12.2	-0.6	0	0.86	13	-0.6
26	1	0.82	4.82	-1.9	1	0.69	10.45	-2.2	1	0.7	10.6	-2.1
27	1	0.85	4.84	-1.7	1	0.72	11.6	-2	1	0.72	12.08	-2
28	0	1.46	7.98	3	0	1.1	18.15	1.6	0	1.1	18.94	1.6
29	1	0.96	5.06	-0.8	0	0.88	13.45	-0.4	0	0.94	14.81	0.1
30	0	1.01	5.38	-0.5	0	0.76	10.14	-1.6	1	0.72	9.41	-1.9
31	0	1.04	5.59	-0.2	0	0.94	10.17	0	0	0.87	9.11	-0.5
32	0	1.22	6.17	1.1	0	1.1	14.34	1.5	0	1.07	14.23	1.3
33	0	1.14	6.23	0.5	0	1.18	15.53	2.2	0	1.12	15.54	1.7
34	1	0.93	6.05	-1.1	1	0.83	14.97	-0.9	0	0.87	18.37	-0.6
35	1	0.85	4.41	-1.7	1	0.76	9.55	-1.6	1	0.75	10.45	-1.7
36	0	1.13	7.26	0.4	0	1.12	22.03	1.7	0	1.14	22.21	1.9
37	0	1.1	5.89	0.2	0	0.89	16.12	-0.4	0	0.88	16.82	-0.4
38	0	1.01	5.12	-0.5	0	0.87	11.96	-0.6	0	0.86	12.21	-0.7
39	1	0.99	5.26	-0.6	0	0.82	9.6	-1	1	0.83	8.99	-0.9
40	0	1.17	6.28	0.8	0	0.98	16.45	0.4	0	0.93	15.82	0
41	0	1.13	6.7	0.5	0	1.1	17.88	1.5	0	1.11	19.28	1.6
42	1	0.83	4.58	-1.9	1	0.69	9.94	-2.2	1	0.66	9.14	-2.4
43	1	0.96	4.94	-0.9	0	0.8	10.81	-1.2	1	0.77	11.09	-1.4
44	0	0.97	5.88	-0.8	0	0.88	16.33	-0.4	0	0.87	15.07	-0.6
45	1	0.92	5.29	-1.2	1	0.79	14.28	-1.3	1	0.75	13.59	-1.7
46	1	0.95	4.37	-1	1	0.76	10.74	-1.5	1	0.76	10.36	-1.6
47	0	0.98	4.9	-0.7	0	0.91	11.31	-0.2	0	0.86	11.23	-0.7
48	0	0.92	4.75	-1.1	1	0.98	14.37	0.5	0	0.91	12.69	-0.2
49	0	0.98	5.93	-0.7	0	1.01	15.63	0.7	0	0.94	14.39	0.1
50	0	1.12	5.79	0.4	0	1.06	19.06	1.2	0	1.08	20.45	1.3
51	1	0.79	4.25	-2.2	1	0.63	8.63	-2.7	2	0.65	9.56	-2.5
52	0	0.96	5.01	-0.8	0	0.8	10.61	-1.2	1	0.74	9.74	-1.7
53	0	0.99	5.46	-0.6	0	0.92	15.18	-0.1	0	0.9	16	-0.3
54	1	0.94	5.28	-1	1	0.94	13.68	0.1	0	0.86	12.66	-0.7
55	0	1.04	5.87	-0.2	0	0.89	14.2	-0.4	0	0.86	14.07	-0.6
56	0	1.02	5.43	-0.4	0	0.79	9.84	-1.2	1	0.8	10.3	-1.2
57	0	1.18	5.02	0.6	0	0.79	8.89	-0.5	0	0.78	7.67	-0.6
58	0	0.99	4.46	-0.4	0	0.81	8.12	-0.3	0	0.79	7.94	-0.5
59	0	1.1	5.08	0.5	0	0.93	10.64	0.7	0	0.99	10.45	1.2
60	1	0.92	4.43	-0.9	0	0.7	8.76	-1.3	1	0.72	8.59	-1.2
61	0	1.26	6	1.6	0	0.99	12.07	1.2	0	1.01	12.33	1.4

	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW
62	lnekostcl	rnekabmd	rnekbmc	rnektscr	rnekostcl	ltroabmd	ltrobmc	ltrotscr	ltroostcl	rtroabmd	rtrobmc	rtrotscr
63	0	1.21	5.45	1.2	0	0.87	8.64	0.2	0	0.92	9.69	0.6
64	0	1.38	6.47	2.4	0	1	11.66	1.3	0	1.04	12.2	1.6
65	1	0.85	3.92	-1.4	1	0.62	6.99	-2	1	0.6	6.44	-2.2
66	0	0.97	4.56	-0.5	0	0.76	7.76	-0.8	0	0.76	7.85	-0.8
67	0	0.93	3.74	-0.8	0	0.67	6.01	-1.6	1	0.67	6.12	-1.6
68	0	1.24	6.21	1.4	0	0.97	11.46	1	0	0.98	12.1	1.1
69	0	1.32	5.95	2	0	0.93	10.74	0.7	0	0.95	11.59	0.9
70	0	1.16	5.33	0.9	0	0.98	11.17	1.2	0	0.96	10.77	0.9
71	0	1.03	5.65	0	0	0.8	9.7	-0.4	1	0.82	9.7	-0.3
72	0	1.28	5.9	1.8	0	1.01	12.13	1.4	0	1.06	13.25	1.8
73	0	1.28	6.32	1.8	0	0.93	11.94	0.7	0	0.92	11.62	0.6
74	0	1.15	5.89	0.8	0	1.01	12.02	1.4	0	0.92	9.77	0.6
75	0	1.14	5.1	0.7	0	1	11.5	1.3	0	0.95	11.43	0.9
76	0	1.06	4.41	0.1	0	0.88	8.18	0.2	0	0.88	8.11	0.3
77	0	0.99	3.86	-0.3	0	0.78	6.47	-0.7	0	0.79	6.71	-0.5
78	0	0.97	3.62	-0.5	0	0.77	7.59	-0.7	0	0.8	8.01	-0.5
79	0	1.01	5.84	-0.2	0	0.85	10.33	0	0	0.8	9.93	-0.5
80	0	0.94	4.28	-0.7	0	0.74	7.36	-0.9	0	0.75	7.7	-0.9
81	1	0.87	4.34	-1.2	1	0.64	6.89	-1.9	1	0.71	8.88	-1.2
82	0	0.99	4.71	-0.3	0	0.79	9.09	-0.5	0	0.79	9.93	-0.5
83	0	1.02	4.67	-0.1	0	0.82	10.1	-0.2	0	0.85	10.49	0
84	0	1.02	4.78	-0.1	0	0.76	9.41	-0.8	0	0.76	8.7	-0.8
85	0	1.08	5.28	0.3	0	0.91	11.93	0.5	0	0.89	11.27	0.4
86	0	0.95	4.36	-0.7	0	0.76	7.58	-0.7	0	0.8	7.54	-0.5
87	0	0.97	4.61	-0.5	0	0.82	10.35	-0.3	0	0.82	9.66	-0.3
88	0	1.03	4.52	-0.1	0	0.79	10.93	-0.5	0	0.82	10.7	-0.3
89	0	1.1	5	0.5	0	0.96	11.3	0.9	0	0.94	10.61	0.8
90	1	0.81	3.76	-1.6	1	0.65	6.51	-1.7	1	0.66	6.45	-1.7
91	0	0.88	4.11	-1.1	1	0.69	7.78	-1.4	1	0.69	7.72	-1.4
92	0	1	4.89	-0.3	0	0.77	9.92	-1	0	0.77	9.87	-0.9
93	1	0.82	3.9	-1.6	1	0.75	9.84	-0.9	0	0.75	9.88	-0.9
94	0	1.06	5.39	0.1	0	0.86	10.56	0.1	0	0.78	9.69	-0.7
95	0	1.04	5.36	0	0	0.93	13.2	0.7	0	0.97	13.68	1
96	0	1.19	5.25	1.1	0	1.03	11.52	1.6	0	0.95	10.43	0.9
97	0	0.94	4.9	-0.7	0	0.85	10.11	0	0	0.81	9.33	-0.4
98	0	1.07	5.2	0.2	0	0.86	11.41	0	0	0.84	11.81	-0.1
99	0	1.13	5.14	0.7	0	0.82	9.07	-0.3	0	0.87	10.34	0.1
100	0	0.98	4.44	-0.4	0	0.78	7.36	-0.6	0	0.74	8.5	-0.9
101	0	0.97	4.79	-0.5	0	0.76	7.67	-0.8	0	0.74	7.15	-1
102	1	0.97	4.84	-0.5	0	0.71	7.31	-1.2	1	0.8	9	-0.4
103	0	1.01	4.63	-0.2	0	0.72	7.38	-1.1	1	0.76	8.35	-0.8
104	1	0.88	3.91	-1.1	1	0.7	7.44	-1.3	1	0.7	7.07	-1.3
105	1	0.83	4.05	-1.5	1	0.66	7.73	-1.7	1	0.65	6.97	-1.7
106	0	1.05	5.03	0.1	0	0.92	10.37	0.6	0	0.91	10.81	0.5
107	1	0.93	4.8	-0.8	0	0.72	8.23	-1.2	1	0.77	8.76	-0.7
108	0	0.91	4.68	-0.9	0	0.76	8.78	-0.8	0	0.79	9.44	-0.5
109	0	1.05	4.66	0.1	0	0.93	10.47	0.7	0	0.85	9.46	0
110	0	1.03	4.89	0	0	0.87	9.2	0.2	0	0.86	10.12	0.1
111	1	0.92	3.87	-0.9	0	0.79	9.73	-0.5	0	0.79	9.44	-0.5
112	0	1.04	4.9	0	0	0.92	12.71	0.6	0	0.89	11.42	0.4
113	0	1	4.77	-0.3	0	0.77	9.28	-0.7	0	0.78	9.46	-0.6
114	0	1.08	5.59	0.3	0	0.83	10.82	-0.2	0	0.93	12.96	0.6
115	1	0.73	3.82	-2.2	1	0.7	6.8	-1.3	1	0.65	6.1	-1.7
116	1	0.89	4	-1	1	0.7	8.2	-1.3	1	0.71	8.78	-1.2

	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI
1	rtroostcl	bpaqpast	bpaqcurr	bpaqtot	t5toc	t5tod	t5toa	t5trc	t5trd	t5tra	t5peri	t5bsi
2	0	54.97	12.17	33.57	364.82	362.1	1007.52	218.16	264.4	825.12	112.52	1.33096E+11
3	0	83.98	0.69	42.34	393.6	352.7	1116	293.61	300.6	976.8	118.42	1.54931E+11
4	0	111.71	0.9	56.3	424.14	383.6	1105.76	269.73	294.8	915.04	117.88	1.7992E+11
5	0	32.3	4.88	18.59	479.26	448.9	1067.68	334.28	380.3	879.04	115.83	2.29711E+11
6	0	15.12	0.9	8.01	412.09	332.8	1238.4	295.54	274.4	1076.96	124.75	1.69859E+11
7	0	0.36	1.01	0.68	337.01	417.6	807.04	195.63	309.5	632	100.71	1.13582E+11
8	0	137.53	5.74	71.63	406.77	378.6	1074.4	248.52	283.6	876.16	116.2	1.6546E+11
9	0	65.77	3.1	34.43	429.44	436.4	984.16	302.13	367.2	822.72	111.21	1.84459E+11
10	0	24.49	3.45	13.97	433.42	386	307.8	307.8	321.7	956.8	118.78	14116006197
11	0	47.77	3.62	25.7	362.2	342.2	1058.4	242.12	268.3	902.4	115.33	1.31178E+11
12	0	123.03	6.61	64.82	406.63	383.2	1061.12	282	315.5	893.92	115.48	1.65341E+11
13	0	53.25	4.24	28.75	383.9	369.5	1039.04	251.7	289.4	869.6	114.27	1.47399E+11
14	0	74.75	8.49	41.62	411.93	374.4	1100.16	254.66	283.3	899.04	117.58	1.69662E+11
15	0	92.89	3.56	48.22	395.66	396.1	998.88	263.04	316.9	829.92	112.04	1.56544E+11
16	0	54.95	0.9	27.92	353.12	440.9	800.96	694.4	210.5	624.64	100.33	1.2471E+11
17	1	49.54	13.62	31.58	371.61	304	1222.56	270.05	250.8	1076.8	123.95	1.3813E+11
18	1	15.74	4.76	10.25	295.67	322.4	917.12	190.29	244.5	778.24	107.12	87426359624
19	1	36.11	0.43	18.27	304.73	308.3	988.32	210.47	245.6	856.96	111.44	92841514727
20	0	21.68	2.45	12.07	376.33	385.6	975.84	229.3	289.4	792.32	110.74	1.4159E+11
21	0	65.58	1.55	33.56	418.43	348.5	1200.64	287.99	280	1028.64	122.83	1.75078E+11
22	1	48.92	0.44	24.68	370.38	316	1172	240.59	240.7	999.36	121.36	1.37161E+11
23	1	123.2	2.87	63.04	355.9	289.8	1228.16	274.68	248.3	1106.4	124.23	1.2668E+11
24	0	80.68	10.18	45.43	536.81	393.2	1365.28	407.31	343.4	1186.08	130.98	2.88184E+11
25	0	67.81	2.14	34.97	354.2	372.9	949.92	227.27	287.9	789.28	109.26	1.25475E+11
26	1	76.03	0.52	38.27	390.51	262.3	1488.96	308.09	227	1357.12	136.79	1.52533E+11
27	1	16.96	0.45	8.71	363.12	300.1	1210.08	254.64	240.6	1058.56	123.31	1.31874E+11
28	0	32.61	20.98	26.79	472.59	428.9	1101.76	254.32	302	842.08	117.67	2.23299E+11
29	0	259.39	0	129.7	349.3	340.2	1026.88	250.85	281.2	892	113.6	1.22042E+11
30	1	10.52	0.56	5.54	335.19	303.5	1104.48	248.99	254.1	979.84	117.81	1.12366E+11
31	0	131.05	5.97	68.51	359.47	338	1063.36	238.65	265.2	900	115.6	1.2918E+11
32	0	28.73	3.72	16.22	382.48	352.7	1084.32	273.95	292.4	936.8	116.73	1.4626E+11
33	0	78.59	7.81	43.2	397.54	376.7	1055.36	238.6	278.1	858.08	115.16	1.58049E+11
34	0	58.45	4.36	31.41	388.84	315.5	1232.32	133.72	754.3	1055.04	124.44	1.51163E+11
35	1	89.41	1.88	45.65	323.67	332.8	972.64	83.16	713.9	856.16	110.56	1.04778E+11
36	0	62.12	13.62	37.87	509.99	413	1234.72	311.33	313.9	991.84	124.56	2.60038E+11
37	0	18.17	0	9.09	357.86	383.3	933.6	251.16	318.3	789.12	108.31	1.28056E+11
38	0	47.02	1.7	24.36	378.75	397.9	952	205.03	275	745.44	109.38	1.4349E+11
39	0	119.28	0.64	59.96	346.27	330.1	1049.12	230.06	256.9	895.36	114.82	1.19934E+11
40	0	26	0.56	13.28	384.09	342.6	1121.12	240.45	256.3	938.24	118.7	1.4753E+11
41	0	229.73	8.36	119.04	473.9	361.2	1312.16	374.58	320.6	1168.48	128.41	2.24631E+11
42	1	105.81	2.91	54.36	301.85	268.1	1125.76	223.74	222.1	1007.63	118.94	91093052386
43	1	7.6	17.75	12.67	313.9	306.7	1023.52	210.62	238.9	881.76	113.41	98541738220
44	0	23.14	2.55	12.84	459.32	364.6	1259.84	327.45	303.4	1259.84	125.82	2.10991E+11
45	1	22.33	3.24	12.79	381.17	298	1279.04	243.38	222.9	1091.68	126.78	1.45278E+11
46	1	109.75	0.57	55.16	302.82	292.3	1035.84	230.51	248.2	928.8	114.09	91673325554
47	0	126.45	3.41	64.93	343.5	417.4	823.04	110.92	756	676.32	101.7	1.18018E+11
48	0	70.36	0	35.18	358.54	364.2	984.32	137.93	801.2	812.16	111.22	1.28515E+11
49	0	25.37	0.92	13.14	379.33	309.9	1224.16	78.5	646.4	1102.72	124.6	1.43919E+11
50	0	3.16	2.74	2.95	392.15	335.7	1168.16	258.98	261.3	991.2	121.16	1.53783E+11
51	2	35.26	0.64	17.95	259.7	264.9	980.32	190.86	217.2	878.72	110.99	67437217474
52	1	34.39	3.62	19	299.25	343.8	870.4	201.69	272.5	740.16	104.58	89546684262
53	0	121.74	2.74	62.24	322.69	288.9	1116.96	225.17	229.7	980.32	118.47	1.04129E+11
54	0	15.67	1.96	8.81	312.42	377.4	827.84	143.18	223.9	639.36	102	97610515356
55	0	66.8	0.08	33.44	357.14	350.9	1017.92	199.49	240.6	829.12	113.1	1.27583E+11
56	1	95.18	3.3	49.24	423.1	368.1	1149.44	284.05	292.6	970.72	120.18	1.79021E+11
57	0	94	0.64	47.32	271.99	317.3	857.28	189.57	254.9	113.6	103.79	73992129759
58	0	137.04	4.28	70.66	279.43	327.8	852.48	215.36	283.9	758.56	103.5	78088358951
59	0	249.55	0	124.78	286.5	352.6	812.64	208.29	296	703.68	101.05	82103374431
60	1	274.27	0	137.14	273.86	308.7	887.04	197.66	253.1	780.8	105.58	74982457060
61	0	196.39	9.07	102.73	346.85	384.4	902.24	258.87	330.5	783.36	106.48	1.20285E+11

	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI
62	rtroostcl	bpaqpast	bpaqcurr	bpaqtot	t5toc	t5tod	t5toa	t5trc	t5trd	t5tra	t5peri	t5bsi
63	0	493.12	4.02	248.57	294.99	340.9	865.28	179.62	249	721.44	104.28	87009632359
64	0	222.94	5.82	114.38	364.75	401.3	908.96	249.34	325.8	765.28	106.88	1.33054E+11
65	1	285.91	2.65	144.28	221.04	257.8	857.28	123.11	169.1	728	103.79	48843998574
66	0	285.91	2.65	144.28	250.9	340.4	737.12	163.78	263.3	622.08	96.24	62958662411
67	1	219.46	2.4	110.93	200.88	272.2	737.92	125.39	196.9	636.96	96.3	40345472341
68	0	42.18	9.35	25.77	313.21	370.1	846.24	189.9	275.3	689.92	103.12	98090120837
69	0	7.01	97.16	52.09	317.29	422.4	751.2	134.06	854.1	594.24	97.16	1.00684E+11
70	0	60.96	14.23	37.59	282.29	392.5	719.2	105.78	785.2	584.48	95.07	79685385796
71	0	32.47	14.98	23.73	324.73	362.2	896.48	145.13	839.1	723.52	106.14	1.05433E+11
72	0	96.39	6.77	51.58	280.02	360.7	776.32	144.75	880	611.84	98.77	78410429787
73	0	80.3	13.09	46.69	334.28	322.2	1037.6	241.92	265.6	910.72	114.19	1.11766E+11
74	0	172.79	14.91	93.85	375.6	387.6	969.12	232.1	294.7	787.52	110.36	1.41099E+11
75	0	12.35	3.72	8.04	286.53	319.6	896.64	180.59	238.7	756.48	106.15	82120154887
76	0	579.3	4.58	291.94	239.13	314.8	759.68	168.98	256	660.16	97.71	57191413879
77	0	170.86	4.57	87.71	254.9	336.2	758.24	169.27	262.9	643.84	97.61	64984353234
78	0	479.56	4.08	241.82	212.8	310.9	684.48	88.36	755.4	567.52	92.74	45285896523
79	0	11.54	3.5	7.52	295.53	295.3	1000.8	112.74	756.8	851.84	112.15	87341669153
80	0	41.8	4.15	22.97	231.44	281.4	822.4	72.61	716.9	721.12	101.66	53556771554
81	1	29.27	2.94	16.1	260.28	272	956.8	184.55	217.5	848.64	109.65	67729854300
82	0	37.47	0.56	19.01	260.06	277.2	938.24	174.7	212.3	822.72	108.58	67641672981
83	0	64.09	4.91	34.5	286.58	324.5	883.04	194.59	255.5	761.6	105.34	82108885200
84	0	34.66	4.06	19.36	254.24	295.4	860.8	202.04	259.1	779.84	104.01	64658481139
85	0	9.8	5.25	7.53	314.67	342.6	918.4	228.52	285.9	799.36	107.43	99000746050
86	0	27.59	2.75	15.17	215.84	274.8	3956	762.92	211.4	3608.48	99.35	1.18181E+12
87	0	41.26	2.47	21.87	293.38	288.8	1015.84	194.64	221.2	880	112.89	86068651231
88	0	395.39	3.57	199.48	248.44	311.6	797.44	152.76	225.9	676.16	100.11	61743455401
89	0	26.12	0.43	13.28	300.81	354.1	849.44	204.21	282.6	722.56	103.32	90472641303
90	1	338.67	27.3	182.98	227.57	273	833.6	168.44	225.7	746.24	102.35	51789379300
91	1	45.29	0	22.64	286.56	351	816.48	195.94	281.6	695.84	101.29	82130664177
92	0	12.53	0.88	6.7	243.7	314.2	775.52	165.91	247	671.68	98.72	59374281361
93	0	0.5	0.32	0.41	283.98	284.4	998.56	76.58	699.8	889.12	112.02	80650583643
94	0	100.37	0.96	50.67	328	363.2	903.2	205.15	273.9	748.96	106.54	1.07612E+11
95	0	151.86	0.34	76.1	278.43	297.6	935.68	181.9	226.4	803.52	108.44	77539062709
96	0	137.63	9.58	73.6	268.34	287.5	933.28	197.04	237.1	831.2	108.3	71994549124
97	0	305.83	2.93	154.38	251.58	315.2	798.24	163.46	240.3	680.16	100.16	63305200821
98	0	90.7	2.79	46.76	271.17	310.2	874.08	167.93	226.9	740.16	104.81	73516691365
99	0	5.14	2.11	3.63	290.6	323.8	897.44	177.41	235.8	752.48	106.2	84443171126
100	0	13.57	3.45	8.51	261.21	331.2	788.8	189.71	274.8	690.24	99.56	68251855100
101	1	19.08	0.32	9.7	252.9	335.5	753.92	201.53	297.8	676.8	97.34	63978724541
102	0	54.21	0	27.11	240.74	295.2	556	27.68	94.2	293.91	101.23	26939050813
103	0	16.03	9.76	12.89	211.83	277.5	763.36	136.65	206.8	660.8	97.94	44872965690
104	1	23.98	3.26	13.62	218.4	259.2	842.72	178.88	230.4	776.32	102.91	47712985974
105	1	65.06	5.34	35.2	230.79	262.2	880.16	175.51	221.1	793.92	105.17	53258463129
106	0	63.24	3.23	33.23	243.28	310.2	784.32	158.69	237	669.44	99.28	59192974758
107	0	16.93	1.54	9.23	317.76	307.8	1032.32	262.86	278.6	943.52	113.9	1.00964E+11
108	0	96	0.56	48.28	254.74	293.2	868.8	157.4	213.7	736.48	104.49	64888473338
109	0	1.92	0.56	1.24	243.67	313.2	778.08	152.6	231.3	659.68	98.88	59387085363
110	0	39.87	0	19.94	329.04	376.5	873.92	207.38	286.4	724	104.8	1.08261E+11
111	0	34.55	0.39	17.47	290.13	314.3	923.2	243.7	287.5	847.52	107.71	84193846966
112	0	25.95	0.64	13.29	266.04	345.5	770.08	160.78	251.1	640.32	98.37	70789328404
113	0	4.01	0	2.01	293.99	330.8	888.64	236.27	294.1	803.36	105.67	86413723292
114	0	0.38	0.88	0.63	332.09	313.8	1058.4	258.91	272.8	948.96	115.33	1.10308E+11
115	1	53.58	0.42	27	202.56	233.4	868	158.43	199.3	794.88	104.44	41043194317
116	1	43.88	2.86	23.37	260.3	238.8	1089.92	220.6	218.5	1009.76	117.03	67741980392

	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV
1	t5bsitoatod2	t15toc	t15tod	t15toa	t15trc	t15trd	t15tra	t15coc	t15cod	t15coa	t15cth	t15peri	t15endo
2	132102405.4	320.31	695.6	460.48	27.64	139.8	197.76	279.79	1160.4	241.12	3.75	76.07	52.5
3	138827375.6	308.43	600.9	513.28	45.72	175.1	261.12	242.24	1113.2	217.6	3.08	80.31	60.96
4	162711434	340.57	628.1	542.24	51.66	183.3	281.76	277.86	1150.8	241.44	3.35	82.55	61.48
5	215149488.7	321.15	694	462.72	44.94	219.1	205.12	262.61	1120.4	234.4	3.61	76.25	53.56
6	137160032.3	223.81	630.9	354.12	17.37	102.8	168.96	197.7	1153.7	171.36	2.99	66.77	48
7	140739511.9	277.02	719.6	384.96	26.18	159.6	164	242.91	1168.7	207.84	3.56	69.55	47.18
8	154002304.2	311.22	685.2	454.24	29.84	149.4	199.68	269.41	1150.9	234.08	3.65	75.55	52.6
9	187428311.8	333.72	678.7	491.68	51.47	232.4	221.44	258.44	1122.5	230.24	3.39	78.6	57.32
10	45860968.8	322.04	564.1	570.88	71.39	218.1	327.36	232.23	1095.4	212	2.79	84.7	67.16
11	123939529.1	273.27	545	501.44	42.39	144.7	292.96	219.79	1158.3	189.76	2.67	79.38	62.58
12	155817237.7	282.3	698.5	404.16	27.66	165.6	167.04	244.33	1109.8	220.16	3.69	71.27	48.09
13	141860391	303.61	606.1	500.96	47.23	177.9	265.44	242.78	1140.9	212.8	3.05	79.34	60.18
14	154215324.1	324.3	746.3	434.56	29.93	182.1	164.32	282.71	1127.6	250.72	4.11	73.9	48.07
15	156719487.4	284.45	709.7	400.8	29.2	173.7	168.16	244.21	1140.7	214.08	3.59	70.97	48.44
16	155700865.1	268.2	685.3	391.36	24.18	141.4	171.04	232.21	1157.4	200.64	3.37	70.13	48.96
17	112984105	301.28	563.1	535.04	35.17	120.5	291.84	250.73	1154	217.28	2.99	82	63.19
18	95327066.93	227.16	513.5	442.4	27.73	105.7	262.24	190.05	1156.6	164.32	2.46	74.56	59.11
19	93938718.96	263.03	551.1	477.28	33.67	125.8	267.68	219.1	1140.2	192.16	2.8	77.45	59.86
20	145095073.4	287.86	591.6	486.56	26.13	103.6	252.16	252.85	1151.8	219.52	3.23	78.19	57.93
21	145820429.4	351.35	642.7	546.72	47.89	182.2	262.88	281.1	1136.4	247.36	3.43	82.89	61.33
22	117031232	295.86	647.7	456.8	37.82	174.9	216.16	243.34	1127.4	215.84	3.3	75.77	55.03
23	103145838.6	311.85	659.4	472.96	18.83	92.6	203.2	278.63	1135.2	245.44	3.76	77.09	53.47
24	211080807.4	394.5	627.9	628.32	75.2	240.4	312.8	281.32	1120.6	251.04	3.18	88.86	68.86
25	132090565.2	282.25	698.6	404	22.22	129	172.32	253.12	1150.6	220	3.69	71.25	48.09
26	102442368.8	300.31	501.4	598.88	49.56	137.3	360.96	232.78	1120	207.84	2.65	86.75	70.1
27	108979816.9	312.49	639.9	488.32	33	141.8	232.8	265.58	1145.5	231.84	3.43	78.34	56.77
28	202674492.2	359.66	734.6	489.6	24.05	131	183.68	318.61	1146.4	277.92	4.28	78.44	51.58
29	118847024.8	269.88	661.5	408	30.59	159.8	191.36	227.28	1159.6	196	3.18	71.6	51.62
30	101736137.9	288.63	543.7	530.88	235.39	1063.8	309.6	217.5	1135.7	191.52	2.61	81.68	65.3
31	121482499.8	313.61	583.9	537.12	47.26	162.2	291.36	252.13	1137	221.76	3.06	82.16	62.95
32	134886469.5	305.74	709.3	431.04	31.72	179.6	176.64	259.6	1127.5	230.24	3.72	73.6	50.23
33	149758634	317.59	589.9	538.4	30.59	108.1	283.04	275.47	1168.8	235.68	3.28	82.25	61.68
34	122665440.9	308.28	561.7	548.8	266.57	1112.9	309.28	255.86	1156.3	221.28	3.01	83.05	64.15
35	107725560.2	304.85	653.8	466.24	275.74	1085.2	212.16	264.69	1123.9	235.52	3.61	76.54	53.85
36	210604955.7	393.71	619.4	635.68	58.7	182.1	322.4	312.03	1137.1	274.4	3.5	89.38	67.38
37	137163475.7	294.84	688.4	428.32	33.25	196.4	169.28	242.93	1065.5	228	3.69	73.37	50.17
38	150724838.3	338.26	695.2	486.56	36.87	170.6	216.16	287.27	1165.9	246.4	3.7	78.19	54.94
39	114318420.4	251.92	486.9	517.44	42.58	127.7	333.44	201.9	1179.3	171.2	2.34	80.64	65.96
40	131591190.9	330.6	611	541.12	35.19	126.3	278.56	285.43	1160.7	245.92	3.43	82.46	60.91
41	171191531.8	362.32	620.7	583.68	71.8	238.1	301.6	262.44	1118.9	234.56	3.09	85.64	66.24
42	80916938.23	272.17	531.6	512	41.75	148.6	280.96	214.51	1047.4	204.8	2.88	80.21	62.13
43	96277296.21	244.77	526.1	465.28	30.89	112.8	273.92	206.27	1155.2	178.56	2.62	76.47	60.03
44	167474512.3	368.42	616.7	597.44	51.05	175.8	290.4	290.45	1109.6	261.76	3.45	86.65	64.95
45	113583868.2	321.57	535.1	600.96	44.89	131.1	342.56	260.86	1128.3	231.2	2.98	86.9	68.17
46	88501434.15	248.76	601.4	413.6	25.18	121.3	207.68	209.61	1145.2	183.04	2.91	72.09	53.83
47	143392300.4	266.91	757.2	352.48	242.08	1110.9	134.56	231.18	1158.7	199.52	3.62	66.55	43.84
48	130561819.1	305.83	587.6	520.48	267.91	1110.4	279.2	255	1159.9	219.84	3.09	80.87	61.47
49	117565890.3	283.13	514.3	550.56	231.12	1062.9	333.12	214.37	1132.6	189.28	2.51	83.18	67.38
50	131645195.4	291.4	619.5	470.4	40.41	169.9	237.92	239.45	1125.3	212.8	3.18	76.88	56.9
51	68791024.84	232.18	652.2	356	13.45	84.6	159.04	209.44	1155.4	181.28	3.19	66.89	46.86
52	102879922.2	263.05	614.4	428.16	21.21	101.9	208.16	229.03	1151.6	198.88	3.13	73.35	53.68
53	93225067.04	287.7	562.8	511.2	47.8	163.7	292	228.44	1143.1	199.84	2.8	80.15	62.55
54	117909880.4	289.51	626.1	462.4	33.27	143.4	232	245.1	1158.7	211.52	3.2	76.23	56.15
55	125337314.1	328.04	571.4	574.08	46.01	144.1	319.2	268.6	1156.2	232.32	3.09	84.94	65.53
56	155746372.8	323.16	612.6	527.52	50.27	181.8	276.48	258.25	1141.5	226.24	3.17	81.42	61.53
57	86310341.73	228.88	622.2	367.84	20.51	113.4	180.8	199.03	1160.4	171.52	2.92	67.99	49.67
58	91601397.04	215.73	647	333.44	20.95	131.2	159.68	185.95	1171.5	158.72	2.85	64.73	46.86
59	101032898.3	234.91	663.4	354.08	31.37	185.7	168.96	193.69	1150.7	168.32	2.93	66.71	48.32
60	84531088.86	208.45	545.6	382.08	30.86	142.1	217.12	168.43	1125.9	149.6	2.43	69.29	54.05
61	133318013.9	278.22	638.1	436	49.34	219.8	224.48	213.55	1152.6	185.28	2.85	74.02	56.13

	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV
62	t5bsitoatod2	t15toc	t15tod	t15toa	t15trc	t15trd	t15tra	t15coc	t15cod	t15coa	t15cth	t15peri	t15endo
63	100556620.2	271.47	644.6	421.12	39.57	186.2	212.48	220.66	1163.8	189.6	2.99	72.75	53.94
64	146380454.5	277.78	645.2	430.56	46.49	207.6	224	221.24	1167.9	189.44	2.95	73.56	55.05
65	56975548.92	209.01	534.1	391.36	14.49	65	223.04	189.47	1185.4	159.84	2.58	70.13	53.94
66	85411686.58	208.33	554.8	375.52	30.59	143.5	213.12	167.79	1151.1	145.76	2.38	68.69	53.73
67	54674588.49	187.52	469.9	399.04	17.74	72.3	245.28	162.57	1150.7	141.28	2.21	70.81	56.91
68	115912886.2	277.79	637.1	436	33.64	161	208.96	229.46	1134.6	202.24	3.16	74.02	54.2
69	134030426.1	245.54	616.6	398.24	218.91	1128.9	204.32	209.59	1177	178.08	2.89	70.74	52.6
70	110797255	231.57	747.2	309.92	208.74	1068.5	114.56	195.66	1130.2	173.12	3.33	62.41	41.46
71	117608171.3	271.17	601	451.2	239.29	1107	235.04	227.79	1156.5	196.96	2.99	75.3	56.52
72	101002717.7	256.08	580.3	441.28	230.19	1125.7	236.8	221.81	1165	190.4	2.92	74.47	56.15
73	107716202.8	290.07	650	446.24	33.51	149.9	223.52	247.28	1195.3	206.88	3.19	74.88	54.84
74	145594541.5	294.73	628.5	468.96	35.17	151.9	231.52	246.42	1144.2	215.36	3.23	76.77	56.45
75	91586539.62	237.39	609.8	389.28	32.48	157	206.88	194.45	1179.9	164.8	2.68	69.94	53.11
76	75283558.71	212.24	576.7	368	24.81	125	198.56	179.48	1150.5	156	2.61	68	51.62
77	85704200.83	213.27	634.1	336.32	25.03	149.2	167.68	179.7	1165	154.24	2.73	65.01	47.83
78	66161022.27	203.33	641.8	316.8	186.21	1143.2	153.92	180.92	1176.6	153.76	2.84	63.1	45.26
79	87271851.67	247.65	514.2	481.6	38.24	132.2	289.28	199.59	1136.1	175.68	2.51	77.79	62
80	65122533.5	207.41	562.6	368.64	187.65	1162.4	207.2	181.88	1196.6	152	2.53	68.06	52.18
81	70787891.2	206.99	498.1	415.52	25.07	99.3	252.48	174.27	1162.4	149.92	2.31	72.26	57.77
82	72094211.48	223.96	515.8	434.24	31.93	122.4	260.8	183.46	1154.7	158.88	2.4	73.87	58.82
83	92984332.76	253.94	616.8	411.68	23.62	113	208.96	220.68	1185.9	186.08	2.97	71.93	53.24
84	75114406.53	220.64	602.5	366.24	24.33	128.2	189.76	186.28	1167.7	159.52	2.69	67.84	50.97
85	107796979.6	261.98	569.1	460.32	57.08	209	273.12	193.8	1153.6	168	2.46	76.06	60.61
86	298737498.2	205.5	550.1	373.6	24.64	116	212.48	172.77	1172.4	147.36	2.42	68.52	53.32
87	84726582.17	119.61	404.3	295.84	47.06	223.2	210.88	59.57	917	64.96	1.13	60.98	53.86
88	77427085.93	234.71	565.9	414.72	47.01	192.7	244	177.06	1162.4	152.32	2.35	72.19	57.42
89	106508571.9	246.61	655	376.48	21.31	120.1	177.44	214.1	1186.3	180.48	3.05	68.78	49.63
90	62127374.4	198.61	530	374.72	27.83	123.9	224.64	162.41	1194.2	136	2.2	68.62	54.77
91	100591152.5	213.83	539.1	396.64	17.99	80.8	222.72	188.55	1166.8	161.6	2.59	70.6	54.35
92	76560606.25	209.65	598.6	350.24	22.65	123.3	183.68	180.63	1160.3	155.68	2.69	66.34	49.47
93	80766887.96	237.85	544.5	436.8	199.3	1088.8	253.76	186.63	1158.3	161.12	2.42	74.09	58.86
94	119144941.6	267.29	628	425.6	33.42	157.3	212.48	224.43	1137.6	197.28	3.11	73.13	53.56
95	82869210.32	250.82	559.1	448.64	31.75	133.4	238.08	203.65	1102	184.8	2.79	75.09	57.58
96	77141425	223.93	521.4	429.44	34.68	134.8	257.28	178.88	1158.5	154.4	2.34	73.46	58.79
97	79305974.17	229.86	558.6	411.52	32.19	137.8	233.6	189.75	1152.5	164.64	2.58	71.91	55.7
98	84107508.88	288.89	621.7	464.64	36.44	149.6	243.52	242.16	1187.6	204.16	3.06	76.41	57.21
99	94093389.11	236.87	562.9	420.8	26.44	117	225.92	198.44	1135.7	174.72	2.72	72.72	55.61
100	86526185.47	221.5	594.4	372.64	38.82	189.4	204.96	170.63	1157.9	147.36	2.42	68.43	53.21
101	84861423.68	193.79	541.2	358.08	16.03	80.9	198.08	171.3	1148.8	149.12	2.52	67.08	51.24
102	48451530.24	203.62	561.1	362.88	18.8	96.7	194.4	176.72	1141	154.88	2.61	67.53	51.13
103	58783491	223.81	630.9	354.72	17.37	102.8	168.96	197.7	1153.7	171.36	2.99	66.77	48
104	56617839.82	169.11	453.2	373.12	31.29	132.7	235.68	127.5	1063.9	119.84	1.92	68.48	56.42
105	60509979.01	178.07	446.4	398.88	25.25	101.8	248	137.97	1095.7	125.92	1.95	70.8	58.57
106	75470439.05	222.25	607.9	365.6	27.13	146.7	184.96	185.49	1129.9	164.16	2.78	67.78	50.31
107	97802863.95	247.06	590.3	418.56	33.84	157.6	214.72	202.62	1090.8	185.76	2.93	72.52	54.09
108	74687469.31	233.98	563.7	415.04	20.62	89.1	231.52	206.52	1199.6	172.16	2.7	72.22	55.25
109	76325166.26	221.3	585.8	377.76	23.08	113.1	204.16	192.72	1174	164.16	2.72	68.9	51.81
110	123880126.3	248.28	675.3	367.68	20.39	122.8	166.08	217.09	1184	183.36	3.16	67.97	48.13
111	91197841.17	250.4	553.8	452.16	48.89	186.4	262.24	184.54	1143.1	161.44	2.38	75.38	60.44
112	91924642.12	217.65	518.8	419.52	41.65	165	252.48	164.21	1116.8	147.04	2.24	72.61	58.52
113	97242666.65	244.23	585.1	417.44	49.04	212	231.36	180.45	1124.5	160.48	2.48	72.43	56.83
114	104221113.7	254.62	542.6	469.28	48.25	173.2	278.56	193.61	1143.7	169.28	2.45	76.79	61.4
115	47284786.08	202.55	486.3	416.48	31.77	125.1	253.92	159.76	1108.2	114.16	2.2	72.34	58.5
116	62153167.56	210.42	478.1	440.16	41.76	147.8	282.56	158.2	1127.4	140.32	2.07	74.37	61.38

	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG
1	t15imax	t15imin	t15irat	t15ssi	t15bsi	t15bsitoatod2	t15ssitoc	t25toc	t25tod	t25toa	t25coc
2	14040.15	13667.95	1.03	1778.5	1.02598E+11	222807558.1	5.55	358.66	857.5	418.24	341.37
3	14823.21	14680.33	1.01	1940.35	95129035291	185335558.2	6.29	334.62	801.6	417.44	313.28
4	16723.04	16663.83	1	2118.02	1.15995E+11	213918890.9	6.22	398.01	853.1	466.56	373.47
5	13173.66	11571.6	1.14	1755.67	1.03123E+11	222862609.9	5.47	345.62	888.9	388.8	317.79
6	16570.38	11436.49	1.45	1869.45	49913953019	140952086.9	8.35	380.05	897.4	423.52	359.17
7	10584.34	8944.09	1.18	1507.37	76738537960	199341588.6	5.44	322.46	938.3	343.68	311.12
8	13034.77	12983.29	1	1786.93	96873604403	213265243.9	5.74	371.89	949.1	391.84	357.21
9	15974.22	12768.8	1.25	2006.91	1.11358E+11	226484372.7	6.01	363.06	857.3	423.52	331.49
10	17244.26	14832.49	1.16	1935.29	1.03706E+11	181659045.5	6.01	352.69	727.3	484.96	312.71
11	13471.76	12416.41	1.08	1802.66	74684581911	148940216	6.6	314.22	789.7	397.92	297.09
12	12301.13	8727.7	1.41	1516.36	79696542129	197190573.4	5.37	336.47	954.2	352.64	326.89
13	14050.8	13341.93	1.05	1943.97	92192303978	184031267.9	6.4	336.02	822	408.8	319.36
14	14171.13	11649.3	1.22	1749.74	1.05178E+11	242034141.1	5.4	367.07	968	379.2	353.93
15	10901.94	9947.93	1.1	1527.15	80910528169	201872575.3	5.37	334.85	946.1	353.92	323.63
16	10053.36	9480.45	1.06	1495.71	71930707892	183796780.2	5.58	311.36	895.9	347.52	300.26
17	16467.42	14601.2	1.13	2043.28	90770255422	169651344.6	6.78	369.84	840.5	440	352.83
18	14823.21	14680.33	1.01	1510.16	51607299322	116653027.4	6.65	277.47	755.3	367.36	260.35
19	13167.94	11288.83	1.17	1624.26	69184259049	144955286.3	6.18	323.96	754.4	429.44	302.35
20	15111.3	12016.6	1.26	1852	82856986928	170291406.9	6.43	328.74	814.4	403.68	313.93
21	17804.65	17182.26	1.04	2264.44	1.23466E+11	225829961.9	6.44	392.49	897.2	437.44	373.66
22	13458.69	11693.89	1.15	1607.6	87538678187	191634584.5	5.43	327.25	882.7	370.72	307.95
23	14201.24	13873.93	1.02	1902.54	97262787122	205646962	6.1	369.69	877.9	421.12	356.6
24	23501.35	19781.43	1.19	2599.3	1.55648E+11	247720444.2	6.59	438.25	839.4	522.08	392.57
25	10951.22	10704.63	1.02	1570.09	79656256543	197168951.8	5.56	343.96	915.6	375.68	332.07
26	18161.78	16336.05	1.11	1924.16	90167136724	150559605.8	6.41	363.7	781.7	465.28	338.02
27	16417.88	12635.96	1.3	1843.14	97641230578	199953371.9	5.9	346.79	827.6	419.04	327.25
28	16731.34	15989.48	1.05	1922.76	1.29355E+11	264206353.5	5.35	419.53	953.1	440.16	408.16
29	11711.73	8774.28	1.33	1482.78	72841691664	178533558	5.49	342.15	957.7	357.28	328.02
30	14458.33	13354.22	1.08	1815.99	83312735560	156933272.2	6.29	336.16	806.2	416.96	308.29
31	16843.62	14661.74	1.15	1946.71	98360244203	183125268.5	6.21	376.05	828.2	454.08	352.02
32	13827.56	10490.44	1.32	1677.14	93474912606	216859021.5	5.49	345.49	921.2	375.04	326.05
33	17927.55	15741.33	1.14	2047.51	1.00871E+11	187353514.2	6.45	373.13	899.7	414.72	360.1
34	20057.8	13188.51	1.52	2051.15	95024819460	173150181.2	6.65	341.38	794.4	429.76	321.06
35	15666.7	11320.53	1.38	1855.59	92919934003	199296358.1	6.09	379.7	888.5	427.36	360.76
36	25363.5	20222.11	1.25	2662.6	1.55031E+11	243882674.9	6.76	451.47	839.5	537.76	428.29
37	12910.29	9800.46	1.32	1622.2	86939758804	202978517.9	5.5	349.18	871.6	400.64	326.39
38	15246.03	14641.93	1.04	2035.13	1.14417E+11	235155927.1	6.02	389.95	883	441.6	370.12
39	13492.58	11388.46	1.18	1676.26	63474537562	122670333.9	6.65	265.21	695.3	381.44	245.44
40	17115.61	16620.49	1.03	2214.88	1.09312E+11	202011459.5	6.7	378.48	830.6	455.68	353.94
41	16752.16	16615.39	1.01	2310.06	1.31254E+11	224873512.2	6.38	399.4	851.4	469.12	366.46
42	13327.1	12952.57	1.03	1679.63	74081516913	144690462.7	6.17	338.07	736.2	459.2	305.72
43	11479.38	11124.88	1.03	1567.32	59919112659	128780761.4	6.4	289.98	799.8	362.56	270
44	21420.25	18625.43	1.15	2501.29	1.35749E+11	227217717.6	6.79	441.27	856.2	515.36	412.49
45	20366.72	17168.18	1.19	2113.11	1.0341E+11	172074084.7	6.57	363.7	713.5	509.76	305.16
46	10413.24	9257.81	1.12	1381.05	61871110020	149591658.7	5.55	293.72	852.6	344.48	279.03
47	8925.34	7845.26	1.14	1284.13	71234465537	202095056.6	4.81	311.54	958.2	325.12	296.76
48	15360.86	14859.9	1.03	1987.52	93534464916	179708086.6	6.5	358.34	760.7	471.04	337.18
49	15689.1	13563.46	1.16	1910.67	80175625939	145625592	6.75	329.09	729.4	451.2	294.92
50	12794.33	12507.9	1.02	1727.37	84921420004	180530229.6	5.93	337.96	938.8	360	323.32
51	8721.4	7370.14	1.18	1291.67	53909038362	151429883	5.56	270.45	873.1	309.76	260.59
52	11848.71	9988.55	1.19	1633.47	69201354887	161624988.1	6.21	312.76	859.2	364	291.77
53	15302.81	12330.5	1.24	1817.35	82773223355	161919451	6.32	349.15	750.9	464.96	326.2
54	13902.92	11166.91	1.25	1832.31	83815252635	181261359.5	6.33	360.54	881.6	408.96	339.45
55	18594.27	17036.67	1.09	2305.35	1.07603E+11	187435948.9	7.03	416.05	817.7	508.8	395.34
56	15725.48	15238.25	1.03	1953.64	1.04432E+11	197967051.5	6.05	377.41	854.6	441.6	353.89
57	9471.71	6722.11	1.41	1264.53	52381498872	142402943.9	5.52	252.35	874.8	288.48	240.43
58	7332.74	6268.81	1.17	1156.17	46541883625	139580985	5.36	250.46	929	269.6	240.38
59	7552.29	7483.3	1.01	1243.33	55176446517	155830452.2	5.29	284.13	913	311.2	268.79
60	7802.45	7333.72	1.06	1153.59	43456758996	113737329.9	5.53	227.56	816.4	278.72	213.12
61	12608.47	9080.1	1.39	1549.18	77401694375	177526822	5.57	296.03	792.7	373.44	270.55

	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG
62	t15imax	t15imin	t15irat	t15ssi	t15bsi	t15bsitoatod2	t15ssitoc	t25toc	t25tod	t25toa	t25coc
63	11205.31	9753.04	1.15	1541.06	73687248056	174979217.5	5.68	296.88	908.7	326.72	284.14
64	11637.64	9530.31	1.22	1496.8	77171346554	179234825.7	5.39	284.74	902	315.68	271.6
65	9048.37	7741	1.17	1336.71	43691607812	111640453.3	6.4	223.64	736	303.84	212.2
66	7626.32	7288.14	1.05	1193.5	43404928916	115586197.6	5.73	245.42	789.4	310.88	230.82
67	7953.6	7518.31	1.06	1217.09	35159586079	88110430.23	6.49	231.64	724.2	319.84	217.43
68	12180.16	10220.01	1.19	1624.05	77159283955	176970834.8	5.85	324.25	871.7	372	306.76
69	10887.61	7835.86	1.39	1433.67	60297151945	151409079.8	5.84	290.86	872.3	333.44	279.19
70	6631.74	6486.02	1.02	1090.73	53625694928	173030765.8	4.71	256.73	947.8	270.88	244.74
71	11781.16	11520.77	1.02	1625.1	73533819709	162973891.2	5.99	309.63	851.8	363.52	291.63
72	11795.79	10193.62	1.16	1653.76	65574295001	148600197.2	6.46	304.46	801.5	379.84	287.13
73	13112.21	11063.16	1.19	1726.81	84132483136	188536400	5.95	360.5	965.8	373.28	349.56
74	13593.37	12160.2	1.12	1713.41	86872469295	185244944.8	5.81	325.85	876.3	371.84	313.09
75	9242.4	8177.36	1.13	1377.15	56350662102	144756119.3	5.8	284.08	934	304.16	272.11
76	7991.58	7026.59	1.14	1264.94	45039705295	122390503.5	5.96	256.3	823.6	311.2	243.89
77	7732.62	5819.77	1.33	1096.94	45480045979	135228490.7	5.14	243.24	885.9	274.56	231.16
78	6565.02	5851.36	1.12	1062.82	41339933279	130492213.6	5.23	245.72	933.6	263.2	235.22
79	11871.65	10906.83	1.09	1651.48	61324935643	127335829.8	6.67	309.84	810.6	382.24	293.55
80	7788.37	7343.84	1.06	1214.67	43013459197	116681475.7	5.86	228.73	800	285.92	216.79
81	8707.38	8336.74	1.04	1330.92	42836792838	103092012	6.43	242.49	745.5	325.28	224.43
82	10820.28	8160.43	1.33	1326.32	50167484777	115529395.7	5.92	269.92	798	338.24	248.97
83	11202.84	9165.18	1.22	1523.57	64477511534	156620461.4	6	296.61	906.5	327.2	283.47
84	8678.98	6767.18	1.28	1243.72	48690659072	132947409	5.64	260.76	878.6	296.8	251.68
85	11161.78	10014.87	1.11	1538.59	68627291705	149086052.5	5.87	294.02	812.8	361.76	269.43
86	7435.73	7393.62	1.01	1232.36	42237385261	113055099.7	6	233.73	751.5	311.04	221.65
87	13299.84	13006.81	1.02	1118.55	14306100456	48357559.68	9.35	299.72	836.3	358.4	279.16
88	9539.34	8043.37	1.19	1267.87	55079418630	132811098.2	5.4	260.34	782.7	332.64	235.86
89	9582.83	7993.28	1.2	1426.36	60808798111	161519332	5.78	288.73	932.6	309.6	275.82
90	8293.88	6299.5	1.32	1143.46	39442595523	105258848	5.76	237.12	834.5	284.16	222.4
91	9277.04	7850.27	1.18	1314.53	45722680442	115275011.2	6.15	257.41	828.4	310.72	246.72
92	7485.49	6501.42	1.15	1147.33	43954658829	125498683.3	5.47	248.8	815.4	305.12	233.03
93	11166.85	8431.78	1.32	1352.18	56566723974	129502573.2	5.68	267.42	827.8	323.04	251.88
94	11630.99	9519.47	1.22	1440.17	71436887818	167849830.4	5.39	321.47	837.2	384	303.19
95	12159.02	9376.28	1.3	1485.79	62918008597	140241638.3	5.92	298.46	793.5	376.16	282.31
96	9349.83	9129.56	1.02	1319.96	50135695265	116746682.3	5.89	276.16	739.8	373.28	243.9
97	9678.38	8317.77	1.16	1293.38	52842548727	128408215.2	5.63	277.98	764	363.84	255.49
98	12847.69	12172.76	1.06	1888.55	83443963436	179588419.9	6.54	323.27	900.8	358.88	298.98
99	9901.24	9431.12	1.05	1316.38	56106601020	133333177.3	5.56	273.09	796.1	343.04	258.5
100	8119.76	7024.01	1.16	1184.84	49061016696	131657945.2	5.35	260.24	845.8	307.68	240.62
101	7074.95	6964.44	1.02	1123.47	37555686540	104880715.3	5.8	218.98	783.4	279.52	205.12
102	7584.2	7294.31	1.04	1170.41	41457833513	114246675.2	5.75	225.55	782.3	288.32	214.16
103	7693.85	7463.22	1.03	1274.47	50083238816	141190907.8	5.69	253.52	856.5	296	238.1
104	6400.69	5577.83	1.15	954.17	28594128193	76635206.35	5.64	208.47	703.1	296.48	189.34
105	7143.4	7020.77	1.02	1079.51	31705374996	79485998.28	6.06	200.96	672	299.04	183.1
106	8856.64	6634.34	1.33	1214.39	49394280183	135104705.1	5.46	260.12	846.7	307.2	241.8
107	10495.61	8701.75	1.21	1443.78	61046533963	145848943.9	5.84	278.37	762.1	365.28	258.6
108	9734.92	9606.07	1.01	1515.46	54736368224	131882151.7	6.48	285.14	858.8	332	272.43
109	8347.74	7866.43	1.06	1312.38	48970064288	129632741.1	5.93	259.53	793.6	327.04	243.19
110	9254.55	8160.48	1.13	1272.83	61650061399	167673143.5	5.13	286.98	984.4	291.52	276.23
111	10857.05	9324.29	1.16	1533.83	62703269005	138674958	6.13	290.92	797.8	364.64	266.82
112	9124.18	7820.15	1.17	1262.96	47370206162	112915251.2	5.8	264.65	704.5	375.68	229.78
113	9657.69	8599.13	1.12	1360.78	59655201878	142907248.7	5.57	257.4	808	318.56	236.97
114	11488.08	10493.21	1.09	1480.36	64837113199	138162958.6	5.81	283.64	775.8	365.6	265.26
115	9021.08	7224.77	1.25	1171.47	41020111891	98492393.13	5.78	233.76	731.2	319.68	219.51
116	9028.19	8055.35	1.12	1298.39	44285202357	100611601.1	6.17	251.95	723.7	348.16	226.66

	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT
1	t25cod	t25coa	t25cth	t25peri	t25endo	t25imax	t25imin	t25irat	t25ssi	t25ssitoc	t35toc	t35tod	t35toa
2	1202.7	283.84	5	72.5	38.02	15503.61	11537.91	1.34	1960.56	5.47	426.25	921.5	462.56
3	1147.7	272.96	4.75	72.43	42.61	16606.3	10051.9	1.65	1806.52	5.4	387.46	859.6	439.36
4	1167.7	319.84	5.35	76.57	42.94	16873.23	16042.06	1.05	2264.05	5.69	464.01	915.4	506.88
5	1169	271.84	5.02	69.9	38.34	13607.8	10092.75	1.35	1693.59	4.9	390.36	975.9	400
6	1159.5	309.76	5.59	72.95	37.81	16570.38	11436.49	1.45	1886.17	4.96	311.33	939.1	331.52
7	1183.5	262.88	5.39	65.72	31.87	11225.22	8358.06	1.34	1421.62	4.41	370.31	944.7	392
8	1174.4	304.16	5.89	70.17	33.19	14058.02	10446.77	1.35	1778.89	4.78	415.99	968.7	429.44
9	1171.8	282.88	4.92	72.95	42.04	16439.11	10587.69	1.55	1948.87	5.37	417.04	944.7	441.44
10	1135	275.52	4.26	78.07	51.3	16288.11	15305.15	1.06	2046.86	5.8	412.4	865.2	476.64
11	1179.7	251.84	4.44	70.71	39.47	11968.55	11658.26	1.03	1666.67	5.3	389.83	937.8	415.68
12	1160.8	281.6	5.84	66.57	29.88	10032.99	9557.7	1.05	1560.53	4.64	370.9	1016.3	364.96
13	1188.1	268.8	4.73	71.67	41.94	14604.47	10611.73	1.38	1804.84	5.37	376.59	917.3	410.56
14	1164.2	304	6.09	39.03	30.74	15668.1	8680.36	1.81	1635.64	4.46	402.48	985.7	408.32
15	1174.6	275.52	5.62	66.69	31.39	12381.88	7872.13	1.57	1572.39	4.7	380.8	990	384.64
16	1179.5	254.56	5.08	66.08	34.18	11292.18	7788.27	1.45	1477.73	4.75	371.77	982.1	378.56
17	1201.1	293.76	5.01	74.36	42.87	17149.07	12144.05	1.41	2096.65	5.67	426.27	925.4	460.64
18	1189.5	218.88	3.94	67.94	40.08	10982.9	8441.35	1.3	1487.32	5.36	356.86	897.2	397.76
19	1173	257.76	4.3	73.46	46.45	12727.47	12544.09	1.01	1799.25	5.55	379.27	834.7	454.4
20	1165.8	269.28	4.8	71.22	41.1	14336.69	10080.23	1.42	1738.4	5.29	382.74	917.2	417.28
21	1173.6	318.4	5.64	74.14	38.68	17247.99	13662.6	1.26	2029.38	5.17	446.12	976.3	456.96
22	1186.6	259.52	4.91	68.25	37.38	13289.65	8871.85	1.5	1606.75	4.91	382.36	960.9	397.92
23	1153.6	309.12	5.61	72.75	37.52	17064.37	10420.66	1.64	1871.51	5.06	448.13	966.8	463.52
24	1162.8	337.6	5.23	81	48.15	23248.08	17555.36	1.32	2622.51	5.98	507.16	949.6	534.08
25	1198.3	277.12	5.33	68.71	35.19	14155.68	9233.63	1.53	1654.54	4.81	396.87	944.9	420
26	1158.9	291.68	4.74	76.47	46.71	17066.9	14288.31	1.19	2130.3	5.86	437.73	948.3	461.6
27	1181.6	276.96	4.82	72.57	38.16	14466.77	12295.59	1.18	1845.72	5.32	393.88	879.8	447.68
28	1181	345.6	6.35	74.37	34.47	21223.69	11451.1	1.85	2097.3	5	505.5	979	516.32
29	1198.2	273.76	5.51	67.01	32.4	12128.08	8566.46	1.42	1601.2	4.68	411.14	1034	397.6
30	1198.3	257.28	4.39	72.39	44.8	13262.26	11782.21	1.13	1850.33	5.5	385.96	912.7	422.88
31	1181	298.08	4.98	75.54	40.83	17379.4	13547.09	1.28	2144.37	5.7	436.73	922.8	473.28
32	1179.3	276.48	5.33	68.65	35.19	14005.15	9671.5	1.45	1554.45	4.5	400.41	1017.7	393.44
33	1180.8	304.96	5.58	72.19	37.14	17105.11	10515.56	1.63	1858.14	4.98	441.8	1012.2	436.48
34	1201.6	267.2	4.5	73.49	45.2	16356.2	12708.44	1.29	1865.57	5.46	393.67	890.8	441.92
35	1148.6	314.08	5.66	73.28	37.73	16491.95	12682.6	1.3	2022.89	5.33	432.63	955.8	424.07
36	1172.5	365.28	5.67	82.21	46.56	29428.87	15883.78	1.85	2633.74	5.83	529.65	948.5	558.4
37	1102.7	296	5.52	70.96	36.26	16784.42	8010.17	2.1	1731.22	4.96	384.21	905.5	424.32
38	1188.1	311.52	5.42	74.49	40.43	17062.82	13427.87	1.27	2213.88	5.68	426.18	888.8	479.52
39	1215.5	201.92	3.46	69.23	47.5	10337.97	9300.84	1.11	1539.55	5.81	348.43	957.7	363.84
40	1197.7	295.52	4.9	75.67	44.86	17904.95	13755.78	1.3	2126.85	5.62	437.12	916.8	476.8
41	1119	345.6	5.82	77.68	41.12	19245.01	13333.98	1.44	2214.55	5.54	475.4	946.6	502.24
42	1110.3	275.36	4.44	75.96	48.07	14489.87	14197.64	1.02	2059.22	6.09	396	791.5	500.32
43	1190.9	226.72	4.17	67.5	41.32	13051.26	7170.28	1.82	1419.69	4.9	336.94	935.1	360.32
44	1164.4	354.24	5.65	80.48	45	25724.03	14992.95	1.72	2566.56	5.82	513.2	958.3	535.52
45	1142	267.2	3.95	80.04	55.21	21209.23	14410.73	1.47	2186.96	6.01	399.01	727.5	548.48
46	1182.3	236	4.6	65.79	36.92	9888.28	8516.47	1.16	1447.8	4.93	336.78	935.1	360.16
47	1205.9	246.08	5.16	63.92	31.52	10632.23	6896.4	1.54	1385.76	4.45	362.54	995.1	364.32
48	1163.7	289.76	4.65	76.94	47.73	16959.27	15005.42	1.13	2225.79	6.21	422.96	863.6	489.76
49	1185.4	248.8	3.96	75.3	50.43	17287.99	10178.51	1.7	1867.57	5.67	401.12	856.2	468.48
50	1176.2	274.88	5.5	67.26	32.71	12843.38	8379.98	1.53	1530.39	4.53	374.24	999.6	374.4
51	1193.2	218.4	4.54	62.39	33.88	10090.3	5495.97	1.84	1205.96	4.46	297.32	868.8	342.24
52	1186.4	245.92	4.63	67.63	38.52	12665.05	8180.78	1.55	1511.36	4.83	368.79	975.9	377.92
53	1161	280.96	4.51	76.44	48.09	16882.71	13594.55	1.24	2101.93	6.02	426.49	831.4	512.96
54	1179.3	287.84	5.2	71.69	39.01	17620.05	9385.26	1.88	1872.48	5.19	411.95	932.5	441.76
55	1188.5	332.64	5.24	79.96	47.05	20946.29	19292.58	1.09	2427.73	5.84	504.77	912.3	553.28
56	1167.8	303.04	5.22	74.49	41.73	15200.3	13805.38	1.1	2088.96	5.53	427.4	900.9	474.4
57	1195.4	201.12	4.82	60.21	33.13	8780.85	4653.38	1.89	1090.23	4.32	291.34	977.4	298.08
58	1209.6	214.08	5.06	58.21	26.41	6957.28	4912.18	1.42	1017.8	4.06	285.06	1008.8	282.56
59	1197.4	224.48	4.7	62.54	29.09	8708.12	6738.49	1.29	1307.72	4.6	348.89	1000.3	348.8
60	1186.1	179.68	3.8	59.18	35.73	5887.02	5842.73	1.01	986.29	4.33	265.92	966.3	275.2
61	1195	226.4	4.06	68.5	42.99	13508.21	7660.37	1.76	1515.14	5.12	352.25	910.9	386.72

	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT
62	t25cod	t25coa	t25cth	t25peri	t25endo	t25imax	t25imin	t25irat	t25ssi	t25ssitoc	t35toc	t35tod	t35toa
63	1214.7	233.92	4.76	64.08	34.15	10151.75	7183.46	1.41	1380.16	4.65	343.4	1027.9	334.08
64	1210.8	224.32	4.63	62.98	33.88	8069.53	7743.62	1.04	1279.92	4.5	318.83	993.3	320.96
65	1215.6	174.56	3.42	61.79	40.31	7427.9	6143.2	1.21	1080.48	4.83	260.83	853.9	305.44
66	1185.4	194.72	3.87	62.5	38.21	8316.59	6008.83	1.38	1190.48	4.85	271.62	881.9	6.91
67	1197.3	181.6	3.46	63.4	41.68	7398.73	7078.75	1.05	1195.87	5.16	275.15	861.6	319.36
68	1167.6	262.72	4.98	68.37	37.06	15221.84	7104.63	2.14	1540.38	4.75	390.73	977.2	399.84
69	1210.1	230.72	4.58	64.73	35.93	10105.66	7665.84	1.32	1376.35	4.73	331.31	956.4	346.4
70	1173	208.64	4.84	58.34	27.97	8847.11	3912.05	2.26	966.16	3.76	301.99	1008.2	299.52
71	1189.8	245.12	4.62	67.59	38.57	12756.31	7844.1	1.63	1521.99	4.92	348.21	965.5	360.64
72	1166.8	246.08	4.47	69.09	41	10789.13	10230.35	1.05	1641.35	5.39	354.93	892.3	397.76
73	1236.4	282.72	5.53	68.49	33.73	13191.02	10130.07	1.3	1738.25	4.82	438.98	1003.5	437.44
74	1194.6	262.08	4.97	68.36	37.14	10850.38	10448.11	1.04	1593.17	4.89	374.78	986.7	379.84
75	1232.4	220.8	4.69	61.82	32.37	8814.94	6322.7	1.39	1275	4.49	337.47	1078.3	312.96
76	1189	205.12	4.14	62.54	36.51	7496.23	7262.06	1.03	1265.51	4.94	312.18	918.6	339.84
77	1212	190.72	4.18	58.74	32.46	6802.79	5109.23	1.33	1056.86	4.34	279.93	964.5	290.24
78	1215	193.6	4.45	57.51	29.57	7322.2	4282.03	1.71	997.99	4.06	286.92	1034.2	277.44
79	1173.1	250.24	4.55	69.31	40.73	12211.96	9644.46	1.27	1629.81	5.26	350.26	892.8	392.32
80	1222.8	177.28	3.66	59.94	36.95	6536.18	5555.9	1.18	1092.98	4.78	265.12	898.6	295.04
81	1206.1	186.08	3.52	63.93	41.82	9644.92	5677.76	1.7	1256.8	5.18	281.64	859.1	327.84
82	1191.5	208.96	3.96	65.2	36.57	10570.08	6500.41	1.63	1397.91	5.18	293.8	874.4	336
83	1234.6	229.6	4.63	64.12	35.02	9811.17	7835.12	1.25	1355	4.57	339.88	962.9	352.96
84	1213.7	207.36	4.38	61.07	33.53	9168.78	5173.36	1.77	1133.85	4.35	303.65	967.3	313.92
85	1183.4	227.68	4.2	67.42	41.05	10009.12	9324.08	1.07	1528.42	5.2	354.39	954.3	371.36
86	1214.1	182.56	3.56	62.52	40.18	7740.4	6377.99	1.21	1187.13	5.08	306.9	918.6	334.08
87	1165.5	239.52	4.53	67.11	38.65	10771.33	7596.96	1.42	1442.66	4.81	342.36	956.1	358.08
88	1185.9	198.88	3.77	64.65	41	8527.08	7429.71	1.15	1286.17	4.94	309.54	914.7	338.4
89	1222.6	225.6	4.76	62.37	32.49	8129.85	7522.74	1.08	1316.13	4.56	327.79	993.5	329.92
90	1235.5	180	3.75	59.76	36.18	6766.79	5440.13	1.24	1058	4.46	285.54	1019.8	280
91	1212.3	203.52	4.1	62.49	36.7	8304.21	6447.81	1.29	1175.1	4.57	301.67	934.3	322.88
92	1180.3	197.44	4	61.92	36.79	8076.46	5921.25	1.36	1146.28	4.61	284.02	850.2	334.08
93	1211.9	207.84	4.09	63.71	38.05	9765.61	6357.8	1.54	1274.67	4.77	309.11	966	320
94	1169	259.36	4.76	69.47	39.58	12918.46	9528.48	1.36	1670.13	5.2	362.36	895.1	404.8
95	1140.6	247.52	4.54	68.75	40.21	10633.1	9817.63	1.08	1565.92	5.25	347.28	918.9	377.92
96	1171.7	208.16	3.65	68.49	45.55	10170.79	8621.98	1.18	1373.53	4.97	339.57	895.5	379.2
97	1184.6	215.68	3.89	67.62	43.15	10609.97	8393.84	1.26	1483.95	5.34	349.91	924.7	378.4
98	1230.1	243.04	4.62	67.16	38.15	12723.24	7994.68	1.59	1608.41	4.98	365.89	975.6	375.04
99	1190.6	217.12	4.12	65.66	39.78	10351.95	7329.38	1.41	1353.87	4.96	326.03	930.9	350.24
100	1223.7	196.64	3.95	62.18	37.36	9138.66	5760.36	1.59	1205.93	4.63	301.71	964.6	312.8
101	1183.8	173.28	3.62	59.27	36.54	5988.95	5363.71	1.12	1007.23	4.6	249.49	840.2	296.96
102	1169	183.2	3.8	60.19	36.35	8099.63	4388.35	1.85	1208.3	5.36	252.4	888.2	284.16
103	1210.8	196.64	4.08	60.99	35.34	7817.05	5659.4	1.38	1156.96	4.56	311.33	939.1	331.52
104	1131.3	167.36	3.3	61.04	40.28	7088.73	4689.35	1.51	992.03	4.76	239.52	806.1	297.12
105	1179.7	155.2	2.99	61.3	42.52	6382.94	5252.56	1.22	1032.97	5.14	254.7	886.8	287.2
106	1193.7	202.56	4.12	62.13	36.26	8955.67	6256.63	1.43	1214.23	4.67	298.34	924.4	322.72
107	1126.3	229.6	4.21	67.75	41.29	10633.6	8170.55	1.3	1486.6	5.34	325.75	828.6	393.12
108	1244.6	218.88	4.28	64.59	37.7	8813.95	8500.49	1.04	1442.87	5.06	323.88	954.4	339.36
109	1196.8	203.2	3.92	64.11	36.45	8312.12	7105.73	1.17	1241.44	4.78	306.36	939.5	326.08
110	1230.6	224.48	5.01	60.53	29.03	7074.62	7068.16	1	1185.17	4.13	231.37	986.5	325.76
111	1167.8	228.48	4.19	67.69	41.37	10127.41	9217.47	1.1	1544.09	5.31	346.44	892.2	388.32
112	1158.2	198.4	3.42	68.71	47.2	9866.63	8770.52	1.12	1455.32	5.5	314.63	815.6	385.76
113	1158.9	204.48	4.04	63.27	37.86	9230.03	5801.59	1.59	1219.87	4.74	295.19	963.4	306.4
114	1185	223.84	4.07	67.78	42.21	11681.99	7893.93	1.48	1491.96	5.26	323.71	887	364.96
115	1168.6	187.84	3.61	63.38	40.7	8480.23	5851.27	1.45	1226.75	5.25	268.49	883.2	304
116	1174.6	192.96	3.5	66.15	44.16	10506.02	6308.67	1.67	1305.39	5.18	295.64	848.8	348.32

	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG
1	t35coc	t35cod	t35coa	t35cth	t35peri	t35endo	t35imax	t35imin	t35irat	t35ssi	t35ssitoc	t45toc	t45tod
2	414.76	1200.7	345.44	6.03	76.24	38.36	22851.98	12926.38	1.77	2208.71	5.18	476.29	901
3	358.21	1132.4	316.32	5.57	74.31	39.32	21773.14	9641.75	2.26	1841.95	4.75	403.7	823.2
4	436.04	1157.7	376.64	6.26	79.81	40.46	25191.31	16390.71	1.54	2488.56	5.36	516.82	898
5	369.25	1166.7	316.48	6.13	70.9	32.4	15417.57	11880.65	1.3	1757.41	4.5	451.45	1002.3
6	299.02	1207.3	247.68	5.11	64.55	32.46	22338.31	12677.18	1.76	2123.13	6.82	455.48	868.4
7	357.1	1160.8	308.16	6	70.19	32.46	15709.55	10566.13	1.49	1728.07	4.67	402.64	928.3
8	404.18	1156.1	349.6	6.65	73.46	31.68	19243.94	10841.44	1.78	1965.06	4.72	456.54	940.5
9	393.9	1171.8	336.16	6.07	74.48	36.37	20689.67	12003.61	1.72	2018.26	4.84	451.63	919.4
10	381.53	1132.3	336.96	5.65	77.39	41.9	18835.9	16141.33	1.17	2229.7	5.41	468.51	905.4
11	379.78	1167	325.44	6.14	72.27	33.68	14873.83	13775.39	1.08	1856.12	4.76	425.61	907.9
12	363.05	1158.9	313.28	6.72	67.72	25.48	11984.09	10002.58	1.2	1591.4	4.29	390.66	1001.5
13	366.26	1205.5	303.84	5.6	71.83	36.62	16974.23	10596.49	1.6	1844.78	4.9	432.22	950.5
14	393.54	1147.2	343.04	6.84	71.63	28.64	20638.79	8890.07	2.32	1817.93	4.52	433.39	940.5
15	371.47	1166.1	318.56	6.48	69.52	28.82	15501.2	9379.05	1.65	1625.08	4.27	412.2	958.4
16	361.08	1171.7	308.16	6.24	68.97	29.74	15389.88	8584.78	1.79	1576.73	4.24	403.38	986.7
17	413.46	1196.9	345.44	6.05	76.08	38.05	21266.57	13077.52	1.63	2271.31	5.33	459.63	891.9
18	343.02	1193.7	287.36	5.32	70.7	37.25	16172.7	9550.13	1.69	1708.34	4.79	407.75	931.1
19	362.51	1193.1	303.84	5.1	75.57	43.5	18982.44	13082.64	1.45	2076.73	5.48	426.02	843.4
20	364	1154.2	315.36	5.83	72.41	35.79	20275.62	8989.68	2.26	1801.7	4.71	434.85	927.9
21	429.14	1168.7	367.2	6.72	75.78	33.59	23475.95	13273.42	1.77	2068.89	4.64	493.29	953.3
22	366	1180.4	310.08	5.97	70.71	33.22	18442.4	8652.26	2.13	1781.93	4.66	401.72	906.4
23	436.55	1145.9	380.96	7.02	76.32	32.21	26323.15	11297.85	2.33	2098.36	4.68	459.96	927.3
24	480.1	1145.3	419.2	6.99	81.92	38	29390.07	17341.07	1.69	2679.51	5.28	556.83	959.3
25	385.65	1179.8	326.88	6.12	72.65	34.21	19661.57	10180.07	1.93	1866.85	4.7	404.31	906.4
26	422.09	1167.8	361.44	6.48	76.16	35.48	23031.98	12709.87	1.81	2147.06	4.9	494.89	994.6
27	379.96	1182.7	321.28	5.59	75.01	39.86	21418.07	11796.78	1.82	2050.46	5.21	430.15	843.6
28	488.68	1162.2	420.48	7.3	80.55	34.7	31254.24	15798.67	1.98	2551.8	5.05	529.47	925.6
29	402.82	1200.6	335.52	6.81	70.69	27.93	18212.03	9472.41	1.92	1860.41	4.52	437.4	971.5
30	374.5	1214	308.48	5.57	72.9	37.92	17320.76	11416.43	1.52	1973.68	5.11	440.37	926.7
31	418.64	1156.2	362.08	6.32	77.12	37.38	22616.21	14014.6	1.61	2227.63	5.1	458.66	899.2
32	388.19	1180.6	328.8	6.66	70.31	28.5	21751.9	8009.74	2.72	1827.83	4.56	443.96	998.5
33	434.71	1158.6	375.2	7.37	74.06	27.75	21798.3	11912.12	1.83	2033.85	4.6	474.54	1032
34	381.91	1191.1	320.64	5.65	74.52	39.04	22313.16	12357.06	1.81	2032.82	5.16	426.25	881.5
35	416.56	1147.4	363.04	6.66	75.42	33.56	24647.98	11196.76	2.2	2133.01	4.93	462.45	946.1
36	503.79	1174	429.12	6.92	83.77	40.31	38732.16	15727.17	2.46	2934.2	5.54	577.9	932.8
37	355.8	1098.2	324	5.97	73.02	35.51	21955.7	8381.12	2.62	1797.12	4.68	400.72	847.8
38	389.74	1162.1	335.36	5.58	77.63	42.56	22399.02	14180.93	1.58	2268.59	5.32	447.56	829.3
39	336.72	1232.2	273.28	5.39	67.62	33.73	11524.64	10173.42	1.13	1637.79	4.7	393.41	997.1
40	426.43	1199.4	355.52	6.11	77.41	39.04	22044.63	15630.58	1.41	2305.51	5.27	491.56	908.1
41	449.78	1179.6	381.28	6.44	79.44	38.99	26647.86	13977.65	1.91	2437.01	5.13	517.36	916.5
42	352.22	1109	317.6	4.99	79.29	47.92	18580.1	17253.03	1.08	2306.88	5.83	419.6	747.4
43	324.77	1202.5	270.08	5.35	67.29	33.68	16624.43	6648.41	2.5	1541.82	4.58	383.37	933.4
44	492.88	1171.7	420.64	7.01	82.03	38	34131	15027.12	2.27	2780.18	5.42	555.14	955.8
45	339.56	1122.3	302.56	4.37	83.02	55.59	27273.85	15567.62	1.75	2389.54	5.99	440.36	715.2
46	319.55	1184.6	269.76	5.34	67.28	33.71	13628.48	8614.88	1.58	1494.22	4.44	366.6	897.5
47	352	1212.8	290.24	5.91	67.66	30.51	15859.87	7912.7	2	1615.13	4.46	393.74	938.5
48	398.11	1172.6	339.52	5.57	78.45	43.45	22411.79	16324.57	1.37	2281.93	5.4	466.38	857.1
49	381.82	1202.2	317.6	5.28	76.73	43.54	23176.83	12617.63	1.84	2241.36	5.59	439.52	837
50	363.09	1175.2	308.96	6.35	68.59	28.68	15596.48	8394.09	1.86	1696.39	4.53	395.01	938
51	284.37	1180.9	240.8	4.76	65.58	35.7	13682.77	5941.24	2.3	1377.74	4.63	331.78	846
52	356.32	1187.7	300	5.99	68.91	31.29	15931.34	9445.12	1.69	1570.42	4.26	373.55	886.4
53	405.1	1177.1	344.16	5.45	80.29	46.06	22563.4	17221.02	1.31	2521.44	5.91	468.25	799.6
54	387.51	1172.9	330.4	5.9	74.51	37.41	22146.06	11740.03	1.89	2007.94	4.87	460.41	896.4
55	476.2	1151.8	413.44	6.6	83.38	41.92	26559.13	23938.24	1.11	2741.83	5.43	520.93	881.9
56	397.9	1158.9	343.36	5.83	77.21	40.58	22077.81	14093.35	1.57	2280.02	5.33	471.03	865.1
57	283	1195.1	236.8	5.32	61.2	27.75	11107.21	4859.48	2.29	1187.45	4.08	315.26	947.7
58	278.48	1210.3	230.08	5.4	59.59	25.68	8672.88	5076.14	1.71	1094.65	3.84	320.94	995.5
59	334.89	1193.3	280.64	5.88	66.21	29.27	12283.68	7741.2	1.59	1489.26	4.27	379.46	994.4
60	255.26	1193.2	213.92	4.94	58.81	27.75	7683.47	5106.95	1.5	1062.92	4	274.22	901.6
61	330.32	1196.8	276	5.16	69.71	37.3	15491.45	10456.07	1.48	1685.62	4.79	384.21	909.2

	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG
62	t35coc	t35cod	t35coa	t35cth	t35peri	t35endo	t35imax	t35imin	t35irat	t35ssi	t35ssitoc	t45toc	t45tod
63	333.96	1217	274.4	5.95	64.79	27.39	12294.74	7058.34	1.74	1460.79	4.25	373.05	987.1
64	306.59	1211.2	253.12	5.46	63.51	29.2	11519.48	6408.46	1.8	1372.75	4.31	367.88	1017.4
65	251.9	1208.3	208.48	4.31	61.95	34.91	8237.62	7631.91	1.08	1133.54	4.35	298.33	849.5
66	261.76	1197.6	218.56	4.57	62.21	33.53	10260.01	6367.82	2.11	1162.84	4.28	319.19	937.9
67	263.58	1200.7	219.52	4.45	63.35	35.42	8252.13	7918.64	1.04	1255.4	4.56	303.77	843.4
68	380.58	1166.6	326.24	6.44	70.88	30.41	19769.17	8147.39	2.43	1770.99	4.53	433.87	966.6
69	322.91	1200.6	268.96	5.54	65.98	31.2	13367.82	7251.47	1.84	1426.95	4.31	365.93	931.6
70	291.29	1164.8	250.08	5.8	61.35	24.93	12990.57	4009.09	3.24	1201.1	3.98	338.23	1002.4
71	334.66	1196.6	279.68	5.64	67.32	31.9	15537.86	7114.59	2.18	1562.87	4.49	378.12	932.3
72	339.18	1179	287.68	5.33	70.7	37.19	12694.76	12332.12	1.03	1720.8	4.85	398.39	877.7
73	426.52	1224.5	348.32	6.47	74.14	33.47	18939.1	13464.3	1.41	2127.39	4.85	484.16	945.9
74	364.87	1190.8	306.4	6.16	69.09	30.38	12108.33	12006.04	1.01	1672.03	4.46	413.26	995
75	329.94	1231.1	268	6.2	62.71	23.77	10996.54	6321.39	1.74	1300.67	3.85	381.62	1079.2
76	297.41	1180.2	252	5.11	65.35	33.22	9373.33	9350.4	1	1406.25	4.5	339.38	896.1
77	269.39	1206.1	223.36	5	60.39	28.99	8688.7	5184.34	1.68	1174.5	4.2	305.9	942.7
78	277.2	1213.2	228.48	5.45	59.05	24.8	9881.78	4226.74	2.34	1080.3	3.77	325.46	994.7
79	338.42	1179	287.04	5.39	70.21	36.37	13139.11	11484.51	1.14	1677.91	4.79	395.37	908.1
80	250.45	1227.7	204	4.31	60.89	33.82	8149.29	5634.28	1.45	1194.65	4.51	293.57	894.2
81	266.52	1200.1	222.08	4.41	64.19	36.46	11787.32	5604.52	2.1	1350.19	4.79	329.46	880.3
82	269.67	1177.8	228.96	4.51	64.98	36.68	13051.28	5660.01	2.31	1313.66	4.47	322.38	872.2
83	330.52	1232.6	268.16	5.4	66.6	32.64	13099.08	8200.52	1.6	1584.76	4.66	376.02	932.2
84	294.54	1207.9	243.84	5.27	62.81	29.77	12395.44	5039.49	2.46	1304.17	4.29	339.6	948.4
85	330.5	1176.3	280.96	5.51	68.31	33.71	11790.61	11053.36	1.07	1555.49	4.39	390.99	919
86	294.91	1200	245.76	5.01	64.79	33.32	10660.96	7331.7	1.45	1341.69	4.37	338.47	907.1
87	331.6	1174.9	282.24	5.76	67.08	30.87	13999.65	7979.48	1.75	1516.42	4.43	390.43	926.1
88	293.72	1188.2	247.2	4.99	65.21	33.85	10362.23	8522.02	1.22	1366.85	4.42	336.44	925.1
89	315.62	1204.3	262.08	5.6	64.39	29.2	10185.05	8953.05	1.14	1353.27	4.13	348.48	953.6
90	277.98	1240.1	224.16	5.23	59.32	26.49	8059.76	5399.22	1.49	1188.88	4.16	304.95	971.4
91	290.23	1219.8	237.92	4.94	63.7	32.68	10729.86	6583.6	1.63	1340.88	4.44	326.7	892.8
92	267.54	1178.4	227.04	4.48	64.79	36.68	11235.28	6914.27	1.62	1274.23	4.49	302.68	803
93	294.7	1220.6	241.44	5.09	63.41	31.42	11876.43	5958.88	1.99	1350.54	4.37	350.85	957.6
94	344.3	1148.3	299.84	5.57	71.32	36.32	17755.34	9501.54	1.87	1711.06	4.72	388.52	876
95	339.82	1142.5	297.44	5.91	68.91	31.8	14634.98	8717.9	1.68	1594.29	4.59	405.69	910.1
96	319.27	1199.9	266.08	4.99	69.03	37.7	13387.65	9805.28	1.37	1622.56	4.78	357.46	944.7
97	338.38	1184.8	285.6	5.54	68.96	34.15	13738.37	10096.35	1.36	1624.76	4.64	397.09	950.5
98	352.73	1226.1	287.68	5.65	68.65	33.13	16066.81	8157.35	1.97	1719.11	4.7	393.63	926.3
99	316.48	1195.2	264.8	5.34	66.34	32.77	12940.06	7681.76	1.68	1458.18	4.47	368.01	964
100	283.94	1207.2	235.2	5.01	62.7	31.23	9533.17	7342.78	1.3	1240.34	4.11	341.81	977.7
101	236.09	1165.5	202.56	4.24	61.09	34.44	7594.7	5868.49	1.29	1104.28	4.43	272.31	854.8
102	238.38	1157.6	205.92	4.52	59.76	31.36	8940.24	4252.04	2.1	1061.69	4.21	294.78	929.6
103	299.02	1207.3	247.68	5.11	64.55	32.46	11130.9	6848.24	1.63	1403.94	4.51	354.35	925.1
104	225.16	1120.4	200.96	4.19	61.1	34.76	8676.67	4582.83	1.89	1061.07	4.43	263.72	806
105	241.72	1182.1	204.48	4.43	60.08	32.24	7754.34	5260.07	1.47	1119.27	4.39	294.36	924
106	283.25	1204.3	235.2	4.86	63.68	33.16	12476.47	5687.72	2.19	1278.79	4.29	350.19	966.3
107	308.34	1125.7	273.92	5.03	70.29	38.7	13314.3	10066.31	1.32	1617.43	4.97	353.34	795.8
108	315.45	1243.1	253.76	5.17	65.3	32.8	10002.06	9570.39	1.05	1459.49	4.51	370.74	952.4
109	296.74	1206.7	245.92	5.14	64.01	31.74	9570.13	7843.48	1.22	1362.44	4.45	346.35	985.7
110	308.28	1220.2	252.64	5.36	63.98	30.31	9093.39	8796.46	1.03	1378.26	5.96	348.2	903.7
111	326.83	1164.6	280.64	5.26	69.86	36.79	12467.31	11315.12	1.1	1640.83	4.74	369.72	863.8
112	274.61	1155	237.76	4.22	69.63	43.13	12612.42	9659.45	1.31	1574.86	5.01	341.07	808.4
113	284.95	1174.8	242.56	5.37	62.05	28.32	10928.88	5006.22	2.18	1223.61	4.15	337.23	992.3
114	313.17	1192	262.72	5.07	67.72	35.84	13912.47	8013.01	1.74	1543.59	4.77	382.71	932.2
115	258.19	1192.7	216.48	4.56	61.81	33.16	10317.58	5272.6	1.96	1166.18	4.34	302.08	885.6
116	280.32	1176.6	238.24	4.61	66.16	37.19	12015.85	6884.49	1.75	1424.76	4.82	331.84	855.6

	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT
1	t45toa	t45coc	t45cod	t45coa	t45cth	t45peri	t45endo	t45imax	t45imin	t45irat	t45ssi	t45ssitoc	t55toc
2	528.64	457.46	1186.4	385.6	6.22	81.51	42.4	27958.23	18225.83	1.53	2578.55	5.41	485.07
3	490.4	380.35	1116	340.8	5.59	78.5	43.36	27414.48	11838.27	2.32	2101.75	5.21	417.54
4	575.52	477.1	1154	413.44	6.35	85.04	45.13	33848.19	19001.43	1.78	2825.9	5.47	548.49
5	450.4	426.17	1165.7	365.6	6.78	75.23	32.64	24263.11	10735.72	2.26	2026.07	4.49	470.6
6	524.48	428.85	1148.9	373.28	5.98	81.18	43.59	24233.64	19584.86	1.24	2408.34	5.29	354
7	433.76	384.56	1159.4	331.68	6.05	73.83	35.82	23120.08	9002.5	2.57	1947.72	4.84	404.13
8	485.44	437.05	1146.8	381.12	6.67	78.1	36.21	25112.67	14097.16	1.78	2277.18	4.99	475.25
9	491.2	436.55	1155.6	377.76	6.5	78.57	37.76	22684.89	18621.79	1.22	2324.86	5.15	480.14
10	517.44	434.46	1127.2	385.44	6.35	80.64	40.73	23902.07	18641.11	1.28	2396.28	5.11	486.33
11	468.8	409.96	1150.5	356.32	6.23	76.75	37.6	18943.89	18657.13	1.02	2078.71	4.88	444.14
12	390.08	379.69	1169	324.8	6.59	70.01	28.64	16367.71	9375.26	1.75	1680.86	4.3	398.28
13	454.72	422.06	1190.9	354.4	6.38	75.59	35.51	22818.98	12204.31	1.87	2248.04	5.2	460.12
14	460.8	422.31	1136.7	371.52	6.78	76.1	33.5	27559.24	10172.59	2.71	2096.21	4.84	454.8
15	430.08	400.89	1157.8	346.24	6.53	73.52	32.46	18397.79	13462.98	1.37	1864.51	4.52	438.35
16	408.8	393.08	1178.9	333.44	6.51	71.67	30.77	16732.13	12527.93	1.34	1746.63	4.33	419.75
17	515.36	441.89	1172.3	376.96	6.17	80.48	41.7	26952.21	16118.11	1.67	2525.35	5.49	499.14
18	437.92	386.41	1186.8	325.6	5.83	74.18	37.57	18749.86	14076.83	1.33	1944.62	4.77	406.32
19	505.12	409.19	1185.1	345.28	5.55	79.67	44.82	24443.49	16078.66	1.52	2300.02	5.4	437.73
20	468.64	410.29	1135.2	361.44	6.37	76.74	36.7	26281.43	11764	2.23	2103.27	4.84	451.57
21	517.44	465.57	1149.2	405.12	6.85	80.64	37.57	34846.02	13101.68	2.66	2417.78	4.9	512.07
22	443.2	380.06	1176.5	323.04	5.69	74.63	38.86	22370.87	11332.27	1.97	1958.96	4.88	412.97
23	496	443.9	1135.2	391.04	6.79	78.95	36.32	29261.6	14394.02	2.03	2291.2	4.98	445.44
24	580.48	522.37	1138.4	458.88	7.37	85.41	39.09	35621.92	21204.9	1.68	2943.17	5.29	562.48
25	446.08	391.44	1176.8	332.64	5.91	74.87	37.76	22741.95	11343.58	2	1927.74	4.77	417.32
26	497.6	475.98	1163	409.28	7.28	79.08	33.32	26063	17875.67	1.46	2328.75	4.71	492.71
27	509.92	412.59	1171.1	352.32	5.66	80.05	44.5	29219.14	13172.84	2.22	2441	5.67	460.33
28	572	511.85	1152	444.32	7.12	84.78	40.06	37486.99	20604.12	1.82	2771.4	5.23	573.13
29	450.24	423.6	1188.8	356.32	6.5	75.22	34.36	24498.42	11544.8	2.12	2119.16	4.84	447.96
30	475.2	422.16	1201.5	351.36	6.02	77.28	39.45	21365.19	15454.44	1.38	2303.39	5.23	450.74
31	510.08	434.92	1153.3	377.12	6.24	80.06	40.88	29916.35	13908.13	2.15	2343.32	5.11	470.18
32	444.64	430.08	1168.7	368	6.96	74.75	31.03	30732.87	8971.16	3.43	2139.21	4.82	466.69
33	459.84	464.6	1174.7	395.52	7.57	76.02	28.43	23383.61	17012.54	1.37	2099.42	4.42	475.02
34	483.52	409.93	1194.4	343.2	5.72	77.95	41.99	31267.57	11395.28	2.74	2245.04	5.27	441.47
35	488.8	441.59	1154.8	382.4	6.65	78.37	36.57	32901.13	10874.65	3.03	2289.45	4.95	459.45
36	619.52	471.52	1169.9	471.52	7.18	88.23	43.13	49848.26	19184.81	2.6	3340.59	5.78	584.41
37	472.64	371	1103.7	336.16	5.68	77.07	41.41	28058.25	9944.94	2.82	2027.42	5.06	405.12
38	539.68	398.85	1129.5	353.12	5.4	82.35	48.42	28090.22	17915.57	1.57	2383.24	5.32	459.87
39	394.56	382.45	1216.4	314.4	6.16	70.41	31.74	15902.79	10610.75	1.5	1785.6	4.54	395.49
40	541.28	479.81	1194.3	401.76	6.46	82.47	41.87	25396.95	22997.69	1.1	2725.86	5.55	516.77
41	564.48	480.42	1162	413.44	6.47	84.22	43.57	34370.39	16756.39	2.05	2751.93	5.32	536.73
42	561.44	369.53	1084.3	340.8	4.99	84	52.66	22179.59	21400.17	1.04	2533.02	6.04	422.13
43	410.72	366.84	1174.6	312.32	5.84	71.84	35.16	21782.48	8061.41	2.7	1767.92	4.61	396.26
44	580.8	521.79	1158.5	450.4	7.15	85.43	40.48	42573.47	16790.5	2.54	2968.2	5.35	553.84
45	615.68	368.76	1113.4	331.2	4.48	87.96	59.79	36735.55	17173.87	2.14	2695.47	6.12	454.27
46	408.48	350.12	1160.9	301.6	5.57	71.65	36.65	19971.67	8776.24	2.28	1716.55	4.68	368.15
47	419.52	372.75	1205.2	309.28	5.63	72.61	37.22	22249.57	9433.03	2.36	1896.11	4.82	419.31
48	544.16	443.59	1158.1	383.04	6	82.69	45	25268.93	24382.87	1.04	2612.82	5.6	485.01
49	525.12	418.82	1182.8	354.08	5.55	81.23	46.36	30644.13	13923.52	2.2	2475.98	5.63	466.05
50	421.12	383.4	1176.9	325.76	6.07	72.75	34.62	19339.95	10094.35	1.92	1935.8	4.9	419.17
51	392.16	315.37	1162.2	271.36	4.97	70.2	38.96	18977.33	7113.59	2.67	1612.15	4.86	342.65
52	421.44	360.59	1179.9	305.6	5.51	72.77	38.15	22638.98	8942.55	2.53	1772.12	4.74	397.37
53	585.6	444.46	1161.8	382.56	5.61	85.78	50.51	26765.22	24814.66	1.08	2959.87	6.32	500.04
54	513.6	431.54	1155.6	373.44	6.11	80.34	41.97	30961.83	15146.14	2.04	2452	5.33	465.45
55	590.72	494.52	1161.5	425.76	6.47	86.16	45.53	31390.57	27990.56	1.12	2973.22	5.71	560.85
56	544.48	440.71	1144.8	384.96	6.04	82.72	44.77	30822.36	18089.71	1.7	2608.8	5.54	473.11
57	332.64	302.49	1194.3	253.28	5.26	64.65	31.58	13875.64	6514.79	2.13	1369.75	4.34	330.38
58	322.4	311.96	1193.3	261.44	5.73	63.65	27.68	10918.82	7378.44	1.48	1256.66	3.92	341.32
59	381.6	365.11	1189.1	307.04	6.15	69.25	30.61	14688.33	9567.72	1.54	1691.64	4.46	377.25
60	304.16	257.84	1185.8	217.44	4.59	61.82	33.01	9487.45	6021.54	1.58	1126.8	4.11	298.33
61	422.56	361.76	1188.8	304.32	5.46	72.87	36.29	19024.65	12557.93	1.51	1801.46	4.69	405.82

	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT
62	t45toa	t45coc	t45cod	t45coa	t45cth	t45peri	t45endo	t45imax	t45imin	t45irat	t45ssi	t45ssitoc	t55toc
63	377.92	357.41	1199	298.08	5.93	68.91	31.68	14907.3	9084.69	1.64	1620.49	4.34	392.77
64	361.6	354.93	1205.6	294.4	6.1	67.41	29.06	15229.86	7714.42	1.97	1501.2	4.08	372.31
65	351.2	284.69	1201.4	236.96	4.54	66.43	37.89	10725.8	9956.87	1.08	1429.97	4.79	315.14
66	340.32	307.42	1192.6	257.76	5.28	65.4	32.21	13006.34	7276.09	1.79	1352.76	4.24	321.81
67	360.16	286.09	1184.2	241.6	4.56	67.28	38.6	11222.2	9400.04	1.19	1441.02	4.74	307.85
68	459.2	432.99	1153.5	375.36	6.92	75.96	32.46	23566.75	12654.6	1.86	2152.98	4.96	450.44
69	392.8	357.26	1172.7	304.64	5.88	70.26	33.28	16783.42	9347.58	1.8	1648.72	4.51	384.23
70	337.44	327.86	1164.3	281.6	6.15	65.12	26.49	17044.64	4784.17	3.56	1391.98	4.12	357.79
71	405.6	365.56	1183.8	308.8	5.81	71.39	34.88	19535.67	9498.5	2.06	1804.51	4.77	400.2
72	453.92	383.93	1155.9	332.16	5.8	75.53	39.12	18269.63	14469.8	1.26	1987.46	4.99	420.94
73	511.84	468.99	1211.7	387.04	6.46	80.2	39.6	25684.02	17503.88	1.47	2626.39	5.42	501.71
74	415.36	390.78	1160.8	336.64	6.49	72.25	31.45	16203.16	13676.91	1.18	1739.1	4.21	419.13
75	353.6	373.76	1223.7	305.44	6.69	66.66	24.6	13833.42	8731.28	1.58	1516.3	3.97	401.19
76	378.72	316.98	1164.7	272.16	5.16	68.99	68.99	14335.81	8759.71	1.64	1515.81	4.47	347.71
77	324.48	291.73	1190.2	245.12	5.14	63.86	31.58	9964.38	7453.81	1.34	1280.2	4.19	321.03
78	327.2	308.23	1186.2	259.84	5.58	64.12	29.09	12390.35	6353.86	1.95	1287.36	3.96	323.59
79	435.36	383.47	1165.1	329.12	5.96	73.97	36.54	17880.21	13234.25	1.35	1943.44	4.92	397.74
80	328.32	275.26	1211.6	227.2	4.55	64.23	35.65	9820.15	7708.39	1.27	1356.24	4.62	316.5
81	374.24	311.49	1193.6	260.96	4.91	68.58	37.73	15155.74	7732.48	1.96	1541.44	4.68	333.87
82	369.6	295.3	1160.1	254.56	4.8	68.15	38.02	15090.18	7748.82	1.95	1491.76	4.63	329.61
83	403.36	358.48	1209.8	296.32	5.49	71.2	36.68	15671.54	11903.16	1.32	1791.32	4.76	404.76
84	358.08	322.25	1186.8	271.52	5.43	67.08	32.98	14357.91	8117.41	1.77	1582.3	4.66	337.75
85	425.44	359.06	1150.8	312	5.63	73.12	37.76	16913.25	12659.85	1.34	1834.05	4.69	408.74
86	373.12	325.24	1176.4	276.48	5.35	68.48	34.85	15214.11	8051.11	1.89	1506.8	4.45	341.35
87	421.6	373.42	1135.7	328.8	6.15	72.79	34.15	14957.19	14260.04	1.05	1834.7	4.7	400.82
88	363.68	319.39	1188.2	268.8	5.26	67.6	34.53	13440.36	9560.52	1.41	1554.11	4.62	338.07
89	365.44	332.17	1191.8	278.72	5.53	67.77	33.01	13117.6	10143.04	1.29	1507	4.32	371.43
90	313.92	293	1231.5	237.92	5.08	62.81	30.9	8409.89	7954.76	1.06	1306.21	4.28	306.92
91	365.92	312.82	1199.5	260.8	5.01	67.81	36.35	13031.51	8561.58	1.52	1545.52	4.73	340.38
92	376.96	284.1	1180.6	240.64	4.37	68.83	41.39	15941.22	7043.57	2.26	1423.71	4.7	314.03
93	366.4	328.2	1205.2	272.32	5.33	67.86	34.38	15318.6	7818.66	1.96	1628.9	4.64	358.83
94	443.52	367.29	1144.9	320.8	5.63	74.66	39.27	20890.27	12666.88	1.65	1914.09	4.93	418.23
95	445.76	390.91	1131.1	345.6	6.27	74.84	35.48	22967.42	12421.82	1.85	2071	5.1	377.8
96	378.4	343.07	1191.2	288	5.61	68.96	33.71	13660.38	10293.35	1.33	1675.78	4.69	367.44
97	417.76	381.01	1184.7	321.6	6	72.46	34.76	16255.95	13613.24	1.19	1806.31	4.55	401.08
98	424.96	378.82	1217.9	311.04	5.61	73.08	37.84	19422.54	11395.3	1.7	1953.16	4.96	426.57
99	381.76	356.59	1189.9	299.68	5.91	69.26	32.12	16184.05	9639.49	1.68	1621.08	4.4	383.97
100	349.6	322.2	1193	270.08	5.52	66.28	31.61	10913.7	10699.94	1.02	1419.01	4.15	363.48
101	318.56	257.87	1169.6	220.48	4.48	63.27	35.11	10108.17	6559.44	1.54	1149.96	4.22	274.43
102	317.12	276.55	1143.9	241.76	5.15	63.13	30.77	10099.57	6809.79	1.48	1208.3	4.1	295.12
103	383.04	338.45	1197.1	282.72	5.39	39.38	35.51	14486.18	9528.37	1.52	1656.85	4.68	354
104	327.2	246.93	1117.5	220.96	4.39	64.12	36.54	11625.86	5393.02	2.16	1174.19	4.45	270.8
105	318.56	281.99	1180.4	238.88	5.03	63.27	31.64	9065.61	7560.01	1.2	1271.24	4.32	297.39
106	362.4	333.57	1192.7	279.68	5.61	67.48	32.24	13969.85	9750.39	1.43	1495.18	4.27	386
107	444	329.76	1099.2	300	5.12	74.7	42.54	15759.55	13574	1.16	1797.21	5.09	357.15
108	389.28	359.82	1228.9	292.8	5.59	69.94	34.82	16060.98	10184.27	1.58	1797.79	4.85	390.62
109	351.36	333.69	1216.1	274.4	5.63	66.45	31.1	11467.72	9568.05	1.2	1522.57	4.4	356.48
110	385.28	333.23	1206	276.32	5.19	69.58	37	13933.75	10296.9	1.35	1630.08	4.68	371.22
111	428	345.44	1158.9	298.08	5.24	73.34	40.41	18486.49	10779.29	1.72	1790.9	4.84	390.7
112	421.92	304.24	1143.4	266.08	4.55	72.82	44.25	18305.78	9897.93	1.85	1751.82	5.14	358.72
113	339.84	326.18	1172.3	278.24	5.97	65.35	27.82	13390.46	6299.14	2.13	1364.7	4.05	343.51
114	410.56	371.55	1186.6	313.12	5.86	71.83	34.99	16797.91	11682.95	1.44	1787.89	4.67	362.78
115	341.12	289.26	1177.8	245.6	4.91	65.47	34.65	13414.56	6342.38	2.12	1356.91	4.49	314.15
116	387.84	314.62	1164.2	270.24	4.99	69.81	38.44	12901.29	11775.32	1.1	1597.13	4.81	344.65

	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG
1	t55tod	t55toa	t55coc	t55cod	t55coa	t55cth	t55peri	t55endo	t55imax	t55imin	t55irat	t55ssi	t55ssitoc
2	811.3	597.92	463.17	1181.6	392	5.7	86.68	50.87	31311.9	23916.01	1.31	3110.75	6.41
3	746	559.68	383.11	1110.1	345.12	5.08	83.86	51.93	29430.23	19055.15	1.54	2418.47	5.79
4	822.7	666.72	509.85	1140.1	447.2	6.21	91.53	52.52	41977.78	25355.16	1.66	3505.4	6.39
5	929.3	506.4	444.43	1156.9	384.16	6.46	79.77	39.19	29486.99	13728.35	2.15	2501.72	5.32
6	838.7	422.08	337.56	1184.6	284.96	4.98	72.83	45.51	29264.01	25015.75	1.17	2758.48	7.79
7	854.8	472.8	384.39	1139.7	337.28	5.7	77.08	41.27	28623.63	9355.46	3.06	2093.98	5.18
8	904.8	525.28	455.81	1130.9	403.04	6.69	81.25	39.19	30746.23	15211.86	2.02	2480.2	5.22
9	895.8	536	460.45	1150.2	400.32	6.49	82.07	41.29	26073.78	23453.24	1.11	2563.45	5.34
10	835.5	582.08	449.82	1125.9	399.52	5.99	85.53	47.99	29879.09	22325.82	1.34	2787.6	5.73
11	862.3	515.04	424.48	1135.7	373.76	6.1	80.45	42.14	25248.64	20377.75	1.24	2323.53	5.23
12	937.2	424.96	384.41	1160.7	331.2	6.17	73.08	34.33	19742.49	9998.33	1.97	1837.68	4.61
13	900.6	510.88	441.12	1175.7	375.2	6.18	80.12	41.29	28093.49	15388.74	1.83	2549.5	5.54
14	899	505.92	439.3	1136	386.72	6.53	79.73	38.7	34190.81	11395.38	3	2416.06	5.31
15	904.2	484.8	425.36	1142.5	372.32	6.44	78.05	37.6	20512.4	19421.55	1.06	2188.5	4.99
16	925.1	453.76	407.7	1158.8	351.84	6.32	75.51	35.79	18506.92	17035.96	1.09	2023.67	4.82
17	826	604.32	474.06	1160.5	408.48	5.97	87.14	49.61	34333.68	23611.97	1.45	3071.11	6.15
18	844.5	481.12	387.57	1175.3	329.76	5.43	77.76	43.61	20686.87	17296.36	1.2	2188.88	5.39
19	758.7	576.96	416.05	1171.9	355.04	5.15	85.15	52.81	30910.96	18835.19	1.64	2734.13	6.25
20	841.2	536.8	429.14	1129.8	379.84	6	82.13	44.41	31564.32	16337.4	1.93	2595.39	5.75
21	879.5	582.24	482.39	1139.4	423.36	6.5	85.54	44.68	42720.66	16036.84	2.66	2885.27	5.63
22	826.7	499.52	387.29	1164.3	332.64	5.32	79.23	45.79	25200.4	15423.7	1.63	2341.07	5.67
23	797.3	558.72	426.7	1115.4	382.56	5.85	83.79	47.05	31288.24	21538.94	1.45	2609.71	5.86
24	882	637.76	531.06	1125.1	472	6.98	89.52	45.64	37867.11	30578.71	1.24	3383.93	6.02
25	827.2	504.48	398.5	1157.4	344.32	5.53	79.62	44.86	22601.25	19549.3	1.16	2200.6	5.27
26	876.1	562.4	469.06	1153.7	406.56	6.34	84.07	44.25	30725.82	22540.8	1.36	2707	5.49
27	800.5	575.04	437.67	1170	374.08	5.53	85.01	50.25	35030.86	17441.25	2.01	2851.07	6.19
28	892.8	641.92	555.02	1134	489.44	7.33	89.81	43.77	45033.76	26501.05	1.7	3238.76	5.65
29	899.7	497.92	432.22	1172.5	368.64	6.17	79.1	40.31	28863.45	14067.53	2.05	2416.89	5.4
30	839.7	536.8	433.07	1186.6	364.96	5.68	82.13	46.47	26448.83	18428.73	1.44	2640.77	5.86
31	815.2	576.8	437.97	1145.8	382.24	5.68	85.14	49.45	34830.37	19232.03	1.81	2648.08	5.63
32	953.5	489.44	447.62	1161.3	385.44	6.73	78.43	36.15	37901.07	10182.21	3.72	2392.23	5.13
33	974.7	487.36	463.1	1176.1	393.76	7	78.26	34.3	24385.38	20987.34	1.16	2241.89	4.72
34	815.4	541.44	422.85	1179.8	358.4	5.5	82.49	47.96	39243.51	12137.21	3.23	2556.29	5.79
35	862.8	532.48	436.77	1141.7	382.56	6.11	81.8	43.4	37512.72	12030.62	3.12	2498.24	5.44
36	835.4	699.52	558.98	1161.8	481.12	6.58	93.76	52.39	59352.15	23462.27	2.53	3921.03	6.71
37	761	532.32	366.32	1079.4	339.36	5.18	81.79	49.24	32770.4	12689.64	2.58	2245.77	5.54
38	764	601.92	412.39	1127	365.92	5.18	86.97	54.46	28218.13	27238.83	1.04	2818.31	6.13
39	903.4	437.76	378.13	1204.5	313.92	5.53	74.17	39.45	19692.48	12377.7	1.59	1969.02	4.98
40	856	603.68	502.21	1178.7	426.08	6.34	87.1	47.24	30051.6	28331.48	1.06	3070.24	5.94
41	840.1	638.88	500.26	1152.9	433.92	6.18	89.6	50.75	41192.35	24459.39	1.68	3179.94	5.92
42	710.2	594.4	364.21	1066.2	341.6	4.79	86.43	56.36	29540.04	19691.9	1.5	2645.2	6.27
43	854.6	463.68	381.23	1160.6	328.48	5.59	76.33	41.22	22814.96	14502.49	1.57	2443.76	6.17
44	867.8	638.24	522.69	1146.3	456	6.64	89.56	47.86	49600.64	18991.29	2.61	3375.35	6.09
45	680.7	667.36	372.41	1127.7	330.24	4.22	91.58	65.09	43806.79	19172.78	2.28	2962.31	6.52
46	826.5	445.44	350.32	1160.3	301.92	5.15	74.82	42.47	23431.99	10478.52	2.24	1900.89	5.16
47	875.6	478.88	397.4	1183.3	335.84	5.6	77.57	42.4	26961.21	12058.97	2.24	2279.12	5.44
48	780.5	621.44	454.09	1139.3	398.56	5.64	88.37	52.92	32720.94	26860.1	1.22	3107.9	6.41
49	788.7	590.88	440.86	1176.5	374.72	5.42	86.17	52.12	37899.12	17140.39	2.21	2915.12	6.25
50	865.8	484.16	397.26	1157	343.36	5.72	78	42.06	24207.99	13460.52	1.8	2277.97	5.43
51	803.3	426.56	325.8	1164.9	279.68	4.82	73.21	42.96	17406.03	12903.68	1.35	1832.95	5.35
52	835.9	475.36	371.24	1162.5	319.36	5.25	77.29	44.28	28275.48	10802.65	2.62	2119.31	5.33
53	730.9	255.2	466.37	1153.5	404.32	5.32	92.72	59.3	33163.24	32433.64	1.02	3517.98	7.04
54	826.9	562.88	437.98	1154.5	379.36	5.74	84.1	48.02	32737.43	21724.65	1.51	2843.36	6.11
55	853.7	656.96	527.59	1150.9	458.4	6.51	90.86	49.95	43346.94	28625.82	1.51	3434.29	6.12
56	774.7	610.72	436.54	1134.9	384.64	5.46	87.6	53.3	34433.9759	21744.8801	1.58354	2943.94	6.22
57	866.9	381.12	317.07	1180.3	268.64	5.03	69.21	37.6	15344.8	9835.55	1.56	1614.13	4.89
58	919.9	371.04	328.98	1176.3	279.68	5.48	68.28	33.88	12170.13	10638.49	1.14	1481.7	4.34
59	913.9	412.8	363.15	1185.8	306.24	5.64	72.02	36.59	15744.83	12424.51	1.27	1839.92	4.88
60	839.1	355.52	278.37	1184.3	235.04	4.45	66.84	38.91	11657.16	8853.29	1.32	1364.09	4.57
61	851.1	476.8	377.13	1183.9	318.56	5.22	77.41	44.59	24778.31	13912.03	1.78	2094.83	5.16

	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG
62	t55tod	t55toa	t55coc	t55cod	t55coa	t55cth	t55peri	t55endo	t55imax	t55imin	t55irat	t55ssi	t55ssitoc
63	924.3	424.96	376.8	1193.6	315.68	5.73	73.08	37.06	15322.1	14293.99	1.07	1944.39	4.95
64	954.1	390.24	354.2	1197.3	295.84	5.66	70.03	34.44	16114.07	10515.88	1.53	1665.94	4.47
65	796.5	395.68	299.21	1186.6	252.16	4.46	70.51	42.47	15255.22	10385.11	1.47	1601.52	5.08
66	832.1	386.72	311.77	1176.7	264.96	4.87	69.71	39.12	14391.21	10032.45	1.43	1572.35	4.89
67	772.7	398.4	290.39	1175.5	247.04	4.32	70.76	43.61	13601.36	10657.65	1.28	1533.05	4.98
68	871.6	516.8	434.04	1135.5	382.24	6.28	80.59	41.12	27418.01	16364.09	1.68	2471.08	5.49
69	910.3	422.08	373.17	1155.8	322.88	5.97	72.83	35.31	17094.99	12450.23	1.37	1874.91	4.88
70	963.1	371.52	345.36	1162.4	297.12	6.01	68.33	30.58	19072.61	6541.04	2.92	1538.64	4.3
71	863.7	463.36	384.91	1183.9	325.12	5.51	76.31	41.68	24557.67	11870.98	2.07	2065.02	5.16
72	841.9	500	404.35	1149.8	351.68	5.75	79.27	43.17	22770.09	16434.3	1.39	2325.04	5.52
73	880.6	569.76	485.52	1210.9	400.96	6.14	84.62	46.06	31579.58	20561.71	1.54	2964.87	5.91
74	898.6	466.4	397.14	1159.3	342.56	5.91	76.56	39.45	21886.57	14613.99	1.5	2046.08	4.88
75	983.3	408	389.81	1213.9	321.12	6.14	71.6	33.04	15832.32	13020	1.22	1913.48	4.77
76	845.6	411.2	325.52	1153.3	282.24	5.03	71.88	40.26	16644.45	10780.31	1.54	1722.14	4.95
77	912.4	351.84	305.59	1176.8	259.68	5.17	66.49	34.03	11380.3	9328.78	1.22	1408.03	4.39
78	904.9	357.6	308.35	1177.3	261.92	5.15	67.04	34.68	12069.9	10058.1	1.2	1452.78	4.49
79	838.4	474.4	382.98	1159.7	330.24	5.51	77.21	42.56	20041.71	16537.52	1.21	2065.6	5.19
80	853.4	370.88	295.58	1202.7	245.76	4.55	68.27	39.65	12793.94	9438.8	1.36	1550.53	4.9
81	810.7	411.84	318.62	1179	270.24	4.74	71.94	42.18	15879.56	10635.14	1.49	1682.6	5.04
82	797.2	413.44	302.55	1158	261.28	4.51	72.08	43.73	16608.53	10100.73	1.64	1712.13	5.19
83	883.9	457.92	381.84	1203.5	317.28	5.38	75.86	42.04	20214.09	14686.48	1.38	2116.16	5.23
84	853.2	395.84	319.46	1155.5	276.48	5.06	70.53	38.73	13793.3	12599.03	1.09	1750.33	5.18
85	838.7	487.36	382.79	1142	335.2	5.5	78.26	43.73	21860.85	15779.7	1.39	2145.33	5.25
86	835.7	408.48	320.09	1166.5	274.4	4.87	71.65	41.05	18837.84	8445.41	2.23	1694.12	4.96
87	852.1	470.4	381.74	1130.7	337.6	5.74	76.88	41.85	18683.96	16995.64	1.1	2150.15	5.36
88	816.4	414.08	319.62	1177.9	271.36	4.74	72.14	42.35	16781.74	11776.71	1.42	1731.61	5.12
89	912.2	407.2	353.01	1189.4	296.8	5.46	71.53	37.25	17782.74	10850.11	1.64	1791.23	4.82
90	891	344.48	292.57	1233.8	237.12	4.63	65.79	36.73	9972.83	9264.03	1.08	1468.16	4.78
91	827.8	411.2	323	1188.9	271.68	4.78	71.88	41.87	13647.87	12507.61	1.09	1750.09	5.14
92	746	420.96	293.8	1154.9	254.4	4.29	72.73	45.75	19599.15	7856.4	2.49	1614.25	5.14
93	879.5	408	337.84	1192.9	283.2	5.09	71.6	39.6	18399.78	9031.1	2.04	1804.04	5.03
94	845.4	494.72	393.58	1132	347.68	5.71	78.85	42.99	23169.85	17610.33	1.32	2279.68	5.45
95	805.3	469.12	360.46	1125.9	320.16	5.33	76.78	43.27	20134.84	14528.58	1.39	1995.98	5.28
96	864.7	424.96	350.01	1174.9	297.92	5.27	73.08	39.96	17062.95	13005	1.31	1878.07	5.11
97	871.6	460.16	381.16	1174.1	324.64	5.54	76.04	41.27	19215.46	16520.75	1.16	1977.55	4.93
98	889.3	479.68	408.94	1202.2	340.16	5.69	77.64	41.87	23568.81	15482.28	1.52	2389.71	5.6
99	912.8	420.64	367.91	1164.9	315.84	5.8	72.7	36.29	17518.92	13565.18	1.29	1819.06	4.74
100	946.6	384	341.41	1181.5	288.96	5.56	69.47	34.56	15876.99	9929.1	1.6	1654.24	4.55
101	775.1	354.08	251.87	1154.9	218.08	4.04	66.71	41.34	11274.17	8922.25	1.26	1267.84	4.62
102	844.2	349.6	276.8	1130	244.96	4.78	66.28	36.26	10606.15	9231.75	1.15	1274.6	4.32
103	838.7	422.08	337.56	1184.6	284.96	4.98	72.83	41.51	15195.92	13180.89	1.15	1838.47	5.19
104	719.9	376.16	251.15	1093.1	229.76	4.12	68.75	42.89	14944.54	6537.24	2.29	1362.78	5.03
105	838.4	354.72	275.9	1158.1	238.24	4.54	66.77	38.26	10049.35	9712.91	1.03	1420.31	4.78
106	911.1	423.68	368.63	1176.7	313.28	5.69	72.97	37.25	16433.83	14605.78	1.13	1901.16	4.93
107	715.9	498.88	323.95	1093.8	296.16	4.57	79.18	50.47	18809.73	16671.86	1.13	2030.74	5.69
108	882.9	442.4	372.62	1210.4	307.84	5.32	74.56	41.12	20515.42	12624.75	1.63	2030.43	5.2
109	879.9	405.12	343.36	1198.9	286.4	5.21	71.35	38.63	14605.99	11806.78	1.24	1740.09	4.88
110	860.9	431.2	351.2	1189.1	295.36	5.14	73.61	41.32	16407.65	13520.59	1.21	1918.48	5.17
111	817.5	477.92	363.6	1142.5	318.24	5.21	77.5	44.8	23850.48	11824.38	2.02	2054.22	5.26
112	770.4	465.6	321.42	1132.4	283.84	4.57	76.49	47.79	23161.84	11084.43	2.09	2004.11	5.59
113	886.8	387.36	330.14	1165.1	283.36	5.35	69.77	36.15	14908.74	9381.98	1.59	1586.58	4.62
114	780.5	464.8	344.84	1188.8	290.08	4.71	76.43	46.86	19325.19	14243.34	1.36	2084.4	5.75
115	826.7	380	295.69	1171.1	252.48	4.63	69.1	40.03	15607.04	8237.59	1.89	1524	4.85
116	812.2	424.32	325.21	1150.3	282.72	4.91	73.02	42.18	15308.9	14231.09	1.08	1796.42	5.21

	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET
1	t65toc	t65tod	t65toa	t65coc	t65cod	t65coa	t65cth	t65peri	t65endo	t65imax	t65imin	t65irat	t65ssi
2	473	694.9	680.64	434.55	1166.6	372.48	4.82	92.48	62.23	36590.11	28013.36	1.31	3534.52
3	421.3	613.4	686.88	365.09	1071.3	340.8	4.29	92.91	65.95	41131.56	20762.25	1.98	2873.35
4	540.38	689.1	784.16	486.9	1121.3	434.24	5.25	99.27	66.31	56629.11	27176.31	2.08	4028.36
5	473.13	811.3	583.2	431.05	1138.2	378.72	5.56	85.61	50.69	38594.92	15652.32	2.47	2893.36
6	494.17	745.3	663.04	454.2	1121.1	405.12	5.47	91.28	56.93	35227.42	29327.92	1.2	3105.35
7	394.97	754.7	523.36	364.38	1100.2	331.2	5.09	81.1	49.14	33398.31	11324.67	2.95	2398.51
8	472.21	813.5	580.48	445.54	1113.9	400	6.01	85.41	47.62	35697.79	17692.06	2.02	2688.38
9	500.55	816.4	613.12	469.83	1142.1	411.36	5.96	87.78	50.35	33362.14	27397.65	1.22	3157.73
10	493.96	756.5	652.96	438.84	1116.7	392.8	5.32	90.58	57.18	37436.42	23853.9	1.57	3201.95
11	449.43	767	585.92	420.83	1127.4	373.28	5.43	85.81	51.69	30066.69	23820.01	1.26	2727.26
12	394.73	830.1	475.52	374.74	1158.3	323.52	5.35	77.3	43.71	24643.61	10933.78	2.25	2123.73
13	450.03	771.2	583.52	424.41	1162.9	364.96	5.29	85.63	52.41	33388.85	18272.14	1.83	2928.48
14	461.88	815.9	566.08	435.65	1120.5	388.8	5.91	84.34	47.2	43167.09	12599.55	3.43	2774.49
15	448.38	809	554.24	421.66	1136.9	370.88	5.64	83.46	48	25475.06	23174.52	1.1	2587.16
16	432.59	841	514.4	407.17	1147.4	354.88	5.67	80.4	44.77	23341.51	19697.01	1.19	2376.41
17	514.99	710.1	725.28	471.41	1140.2	413.44	5.23	95.47	62.6	44196.51	31898.37	1.39	3722.28
18	392.09	717.8	546.24	360.59	1157.5	311.52	4.54	82.85	54.31	24807.09	22414.25	1.11	2444.11
19	442.37	646.7	684	408.31	1151.1	354.72	4.52	92.71	64.33	39954.5	21682.95	1.84	3229.97
20	451.62	706.4	639.36	424.68	1114.3	381.12	5.2	89.64	56.97	37558.56	24707.63	1.52	3097.86
21	515.74	748.6	688.96	473.1	1117.1	423.52	5.62	93.05	57.76	54851.57	18948.15	2.89	3386.02
22	431.47	766.8	562.72	398.77	1147	347.68	5.11	84.09	51.98	29551.26	20734.57	1.43	2751.19
23	448.06	735.2	609.44	424.37	1109.8	382.4	5.43	87.51	53.41	40881.9	19627.51	2.08	2910.72
24	596.32	805.3	740.48	534.15	1113.2	479.84	6.24	96.46	57.23	47743.29	37697.96	1.27	4042.5
25	415.84	717.6	579.52	386.33	1137.3	339.68	4.84	85.34	54.9	32488.33	19657.38	1.65	2554.2
26	460.2	675.5	681.28	430.14	1141.1	376.96	4.88	92.53	61.84	41914.06	25733	1.63	3230.24
27	461.14	671	687.2	411.77	1116	368.96	4.73	92.93	63.24	45281.52	21809.97	2.08	3394.87
28	578.93	811.1	713.76	548.17	1125.1	487.2	6.58	94.71	53.36	49467.41	32845.94	1.94	3851.16
29	446.4	797.6	559.68	414.7	1143.3	362.72	5.43	83.86	49.75	33995.87	16026.59	2.12	2749.32
30	455.16	696.2	653.76	406.72	1152.3	352.96	4.64	90.64	61.48	35564.36	23592.22	1.51	3149.48
31	466.96	681.6	685.12	415.38	1107.1	375.2	4.84	92.79	62.41	43190.73	23783.89	1.82	3079.11
32	477.58	887.3	538.24	453.1	1148.4	394.56	6.33	82.24	42.49	43968.28	11894.23	3.7	2627.55
33	477.22	805.9	592.16	451.67	1144.7	394.56	5.8	86.26	49.83	33499.68	24641.62	1.36	2927.63
34	449.65	704.5	638.24	419.87	1145.4	366.56	4.95	89.56	58.43	49596.84	14581.5	3.4	3146.6
35	465.74	769.5	605.28	434.39	1131.7	383.84	5.49	87.21	52.75	44495.51	14424.34	3.08	3081.47
36	586.31	698.4	839.52	546.54	1144	477.76	5.62	102.71	67.42	74365.59	30635.19	2.43	4680.82
37	405.39	649.2	624.48	350.59	1041.4	336.64	4.53	88.59	60.14	40608.88	15542.87	2.61	2644.9
38	474.19	708.2	669.6	420.86	1124.1	374.4	4.91	91.73	60.91	35418.65	28082.44	1.26	3275.52
39	368.88	692.1	532.96	331.35	1191.6	278.08	4.02	81.84	56.59	20279.79	18311.86	1.11	2258.41
40	530.34	779.5	680.32	500.54	1149.7	435.36	5.89	92.46	55.48	35339.82	35325.56	1	3576.45
41	532.52	739.6	720	476.58	1130.8	421.44	5.39	95.12	61.25	51122.08	25681.38	1.99	3648.22
42	429.02	656.7	653.28	369.64	1059.7	348.8	4.58	90.61	61.86	30433.73	26353.39	1.15	3012.42
43	383.5	698.4	549.12	354.95	1141.2	311.04	4.52	83.07	54.7	30767.32	15185.84	2.03	2443.76
44	550.26	751.4	732.32	505.1	1120.3	450.88	5.8	95.93	59.47	57883.88	23738.81	2.44	3811.65
45	459.78	588	781.92	373.87	1107.4	337.6	3.88	99.13	74.72	52730.37	22781.94	2.31	3511.63
46	372.58	719.4	517.92	345.92	1140.3	303.36	4.58	80.67	51.93	25994.5	15660.01	1.66	2274.07
47	425.13	775.6	548.16	390.22	1160.3	336.32	5	83	51.6	33693.46	14599.7	2.31	2611.7
48	483.66	691.1	699.84	448.84	1121.7	400.16	5.16	93.78	61.37	40632.75	29207.95	1.39	3450.87
49	468.59	671.9	697.44	423.67	1149.8	368.48	4.67	93.62	64.3	42731.6	25961.55	1.65	3404.16
50	411.22	730.6	562.88	377.07	1133	332.8	4.83	84.1	53.77	33199.66	14360.53	2.31	2607.07
51	347.67	740.9	469.28	326.93	1147.9	284.8	4.56	76.79	48.15	23411.28	11838.51	1.98	2071.37
52	411.62	730.4	563.52	371.85	1144.3	324.96	4.68	84.15	54.75	35698.79	13948.92	2.56	2522.56
53	479.21	580.7	825.28	424.74	1117.3	380.16	4.31	101.84	74.79	44380.38	36831.36	1.2	3974.86
54	474	701.3	675.84	431.37	1112.2	387.84	5.09	92.16	60.16	50126.06	22469.8	2.23	3317.41
55	536.19	689.3	777.92	493.18	1135.3	434.4	5.28	98.87	65.7	50288.35	38356.26	1.31	4097.6
56	499.84	697.8	716.32	441.37	1115.5	395.68	5	94.88	63.48	47131.33	27219.14	1.73	3490.36
57	338.51	743.4	455.36	312.12	1159.1	269.28	4.34	75.65	48.36	19741.81	13383.11	1.48	1861.75
58	346.39	816.3	424.32	323.4	1171.7	276	4.75	73.02	43.17	14917.31	13261.61	1.12	1747.58
59	363.69	786.3	462.56	343.84	1174.3	292.8	4.78	76.24	46.19	20364.45	12872.44	1.58	2061.26
60	300.11	675	444.64	268.22	1160.1	231.2	3.65	74.75	51.79	14976.36	12209.97	1.23	1747.32
61	427.97	783.5	546.24	387.25	1170.9	330.72	4.9	82.85	52.04	28851.44	18617.43	1.55	2548.12

	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET
62	t65toc	t65tod	t65toa	t65coc	t65cod	t65coa	t65cth	t65peri	t65endo	t65imax	t65imin	t65irat	t65ssi
63	403.77	832	485.28	372.94	1176	317.12	5.11	78.09	45.97	23650.34	13357.33	1.77	2253.89
64	375.6	832.4	451.2	351.99	1180.9	298.08	5	75.3	43.87	22340.5	11202.24	1.99	2025.5
65	308.88	669.1	461.6	289.11	1174.9	246.08	3.84	76.16	52.04	18966.14	12674.37	1.5	1841.56
66	332.53	728.7	456.32	311.71	1164.5	267.68	4.3	75.73	48.69	16499.47	13898.5	1.19	1975.39
67	310.51	668	464.8	285.82	1161.5	246.08	3.82	76.43	52.43	17190.58	13431.36	1.28	1779.86
68	430.45	717.6	599.84	392.74	1124.4	349.28	4.89	86.82	56.11	32037.84	19971.92	1.6	2715.33
69	378.43	816.7	463.36	352.16	1150	306.24	5.07	76.31	44.44	18831.21	15095.38	1.25	2106.63
70	345.17	840.7	410.56	324.01	1149.3	281.92	5.03	71.83	40.21	20824.54	8847.7	2.35	1779.88
71	393.4	710.2	375.02	364.26	1159.8	314.08	4.54	83.43	54.9	27993	17848.9	1.57	2588
72	429.3	775.9	553.28	402.92	1132.3	355.84	5.34	83.38	49.81	25697.27	21612.28	1.19	2610.32
73	479.68	673.6	712.16	448.01	1181.5	379.2	4.76	94.6	64.69	41914.92	26272.24	1.6	3684.13
74	449.48	807	556.96	417.84	1150.9	363.04	5.46	83.66	49.37	25861.85	22045.62	1.17	2610.46
75	414.19	859.2	482.08	386.98	1195.6	323.28	5.29	77.83	44.62	20489.63	17042.75	1.2	2225.88
76	341.4	735.5	464.16	314.68	1131	278.24	4.46	76.37	48.34	21971.08	10526.31	2.09	1901.77
77	321.77	792.1	406.24	293.21	1156.2	253.6	4.4	71.45	43.8	14589.11	11195.24	1.3	1629.44
78	338.44	822.7	411.36	317.31	1158.4	273.92	4.83	71.9	41.56	14400.95	13445.75	1.07	1655.2
79	377.22	668.4	564.32	348.77	1136.5	306.88	4.35	84.21	56.88	25620.93	20484.71	1.25	2413.41
80	301.42	710.9	424	274.07	1185.4	231.2	3.78	72.99	49.22	14565.79	12213.05	1.19	1749.09
81	323.14	675.5	478.4	297.94	1173.4	253.92	3.89	77.54	53.11	16267.95	15938.31	1.02	1943.1
82	341.52	706.6	483.36	301.11	1139.2	264.32	4.05	77.94	52.47	18329.46	15237.24	1.2	2089.45
83	418.75	795.7	526.24	390.26	1179.5	330.88	5.06	81.32	49.55	24571.54	19369.16	1.27	2445.38
84	353.38	780.7	452.64	329.37	1147.5	287.04	4.74	75.42	45.62	20137.73	12718.53	1.58	2040.8
85	410.34	683	600.8	359.61	1126.6	319.2	4.36	86.89	59.49	29698.24	20467.61	1.45	2592.08
86	356.5	756.6	471.2	325.24	1149.1	283.04	4.51	76.95	48.63	23055.67	10305.46	2.24	1931.78
87	387.58	928.5	417.44	372.36	1145.9	324.96	6.1	72.43	34.09	15029.08	13916.21	1.08	1812.15
88	343.79	684.3	502.4	313.07	1149.6	272.32	4.09	79.46	53.77	21358.22	15159.48	1.41	2137.04
89	377.95	836.5	135.04	356.35	1174.1	303.52	5.12	75.35	43.17	22968.67	10726.56	2.14	2125.98
90	313.71	754.1	416	291.71	1201.1	242.88	4.08	72.3	46.64	15641.29	10074.09	1.55	1824.93
91	336.5	713.7	471.52	313.47	1175.3	266.72	4.18	76.98	50.73	16879.83	14737.37	1.15	1994.87
92	322.72	671	480.96	295.41	1142.5	258.56	3.96	77.74	52.87	23378.78	10212.74	2.29	1857.05
93	370	755.5	489.76	346	1183.6	292.32	4.56	78.45	49.81	23343.31	13405.02	1.74	2238.76
94	421.99	751.8	561.28	381.81	1101.2	346.72	5.1	83.98	51.93	27626.3	22013.99	1.25	2616.85
95	360.03	619.4	581.28	321.62	1102.6	291.68	4	85.47	60.33	26064.08	17515	1.49	2460.88
96	351.15	706.8	496.8	316.4	1157.8	273.28	4.14	79.01	53	20509.65	15180.93	1.35	2135.97
97	399.46	748.8	533.44	369.44	1153.3	320.32	4.79	81.87	51.75	26003.13	17585.56	1.48	2344.16
98	407.42	726.1	561.12	373.72	1189.3	314.24	4.5	83.97	55.7	29121.72	18406.85	1.58	2708.9
99	389.94	823.9	473.28	362.26	1159.3	312.48	5.12	77.12	44.95	19481.99	17523.56	1.11	2142.81
100	370.14	873.3	423.84	343.4	1178	291.52	5.13	72.98	40.78	19288.08	11504.08	1.68	1872.56
101	293.43	638.1	459.84	261.38	1123.6	232.64	3.59	76.02	53.43	19139.82	9599.38	1.99	1702.48
102	311.3	765.4	406.72	288.58	1123.8	256.8	4.47	71.49	43.4	13107.47	12073.92	1.09	1581.27
103	349.29	707.6	493.6	323.28	1166.6	277.12	4.23	78.76	52.16	18938.37	15788.73	1.2	2105.64
104	275.69	608.6	452.96	243.43	1071.5	227.2	3.53	75.45	53.26	20108.12	8306.73	2.42	1630.34
105	299.3	745.9	401.28	275.04	1164.6	236.16	4.05	71.01	45.55	13727.65	10940.56	1.25	1619.55
106	373.08	754.9	494.24	340.6	1152.6	295.52	4.59	78.81	49.97	25223.21	13280.1	1.9	2168.73
107	358.81	624.3	574.72	309.39	1082.1	285.92	3.94	84.98	60.24	22925.03	19679.45	1.16	2360.51
108	377.2	716.8	526.24	344.26	1197.3	287.52	4.23	81.32	54.77	21634.04	20233.48	1.07	2346.93
109	351.25	738.4	475.68	323.99	1153.8	280.8	4.43	77.32	49.49	16857.76	15662.49	1.08	2084.63
110	427.35	816.3	523.52	397.65	1169	340.16	5.27	81.11	48	26369.22	21431.84	1.23	2519.34
111	410.76	743.3	552.64	374.46	1131.2	331.04	4.86	83.34	52.77	27718.32	17250.71	1.61	2459.71
112	377.88	707.7	533.92	324.1	1109.3	292.16	4.26	81.91	55.12	26938.02	13759.27	1.96	2329.25
113	360.64	766.4	470.56	336.87	1156.2	291.36	4.69	76.9	47.45	20028.18	13604.11	1.47	2030.91
114	382.23	676	565.44	353.29	1160.3	304.48	4.3	84.29	57.27	24930.91	20398.96	1.22	2521.44
115	311.69	695	448.48	284.2	1157.2	245.6	3.91	75.07	50.49	19564.65	9712.16	2.01	1770.49
116	357.68	739.3	483.84	330.84	1129.3	292.96	4.62	77.98	48.98	19977.32	16531.9	1.21	2046.56

	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG
1	t65ssitoc	t75toc	t75tod	t75toa	t75coc	t75cod	t75coa	t75cth	t75peri	t75endo	t75imax	t75imin	t75irat
2	7.47	462.87	521.87	887.2	376.56	1112.3	338.56	3.59	105.59	53.03	54032.22	31458.72	1.72
3	6.82	414.62	455.7	909.76	285.26	1054.3	270.56	2.75	106.92	89.62	49115.18	29546.68	1.66
4	7.45	533.34	558.2	955.52	438.28	1094.4	400.48	4.15	109.58	83.52	67459.31	34950.57	1.93
5	6.12	471.4	654.9	719.84	388.05	1090.5	355.84	4.37	95.11	67.63	53033.66	17740.61	2.99
6	6.28	340.4	507.1	671.2	281.88	1117.9	252.16	3.07	91.84	72.57	49443.55	34729.83	1.42
7	6.07	410.23	605.4	677.6	340.76	1088.8	312.96	3.91	92.28	67.69	46213.74	14666.47	3.15
8	5.69	457.02	654.2	698.56	397.64	1097.2	362.4	4.57	93.69	65	41199.23	21968.89	1.88
9	6.31	494.52	664.8	743.84	416.47	1102	377.92	4.6	96.68	67.81	41736.9	34312.09	1.22
10	6.48	486.51	615.2	790.88	385.76	1074.4	359.04	4.14	99.69	73.67	38070.01	36977.8	1.03
11	6.07	432.44	591.7	730.88	369.55	1100.9	335.68	4.04	95.84	70.47	36567.52	31080.01	1.18
12	5.38	371.22	651.2	570.08	332.24	1122.4	296	4.13	84.64	58.69	30005.42	13162.76	2.28
13	6.51	459.79	611.7	751.68	381.06	1130.9	336.96	3.98	97.19	72.19	47224.68	21972.34	2.15
14	6.01	476.39	675.8	704.96	416.1	1089	382.08	4.84	94.12	63.7	52291	19823.85	2.64
15	5.77	455.71	632.5	720.48	387.8	1090.8	355.52	4.37	95.15	67.72	37253.9	28525.23	1.31
16	5.49	436.53	702.4	621.44	378.37	1103	343.04	4.65	88.37	59.15	32875.26	23156.56	1.42
17	7.23	463.14	507.2	913.12	395.22	1091.5	362.08	3.81	107.12	83.21	57061.33	35276	1.62
18	6.23	443.14	582.8	760.32	384.4	1126.3	341.28	4.01	97.75	72.57	36815.28	36325.21	1.01
19	7.3	409.68	483.5	847.36	351.74	1121	313.76	3.39	103.19	81.89	50730.43	25282.96	2.01
20	6.86	422.45	501.6	842.24	370.52	1092.8	339.04	3.72	102.88	79.52	54226.36	27641.43	1.96
21	6.57	533.58	587.4	908.32	437.66	1065.6	410.72	4.42	106.84	79.08	71844.81	28347.43	2.53
22	6.38	421.86	598.1	705.28	363.18	1111.6	326.72	4.01	94.14	68.97	38721.07	26849.17	1.44
23	6.5	442.48	535.8	825.76	371.86	1068.6	348	3.88	101.87	74.47	60812.64	23578.58	2.58
24	6.78	628.84	659.8	953.12	516.32	1081.8	477.28	5.11	109.44	77.33	68882.78	49557.28	1.39
25	6.14	422.66	517.1	817.44	341.42	1077.2	316.96	3.51	101.35	79.31	40408.76	36326.09	1.11
26	7.02	433.11	455	951.84	371.39	1104.3	336.32	3.41	109.37	87.95	62786.91	31372	2
27	7.36	475.32	547.9	867.52	398.84	1085.7	367.36	4	104.41	79.28	64549.12	24158.14	2.67
28	6.65	556.09	610.6	910.72	494.52	1106.6	446.88	4.88	106.98	76.35	63488.44	46635.73	1.36
29	6.16	418.77	623.3	671.84	359.76	1102.8	325.76	4.13	91.88	65.95	36626.99	22748.97	1.61
30	6.92	433.45	486.9	890.24	339.34	1099.5	308.64	3.23	105.77	85.49	48490.16	30546.54	1.59
31	6.59	451.62	506	892.48	353.53	1071.6	329.92	3.47	105.9	84.08	56799.19	28178.53	2.02
32	5.5	472.08	731.2	645.6	427.21	1127.6	378.88	5.12	90.07	57.89	50806.47	17263.65	2.94
33	6.13	491.28	595.5	824.96	427.85	1124	380.64	4.31	101.82	74.72	43642.61	39239.53	1.11
34	7	435.18	543.9	800.16	372.41	1112.1	334.88	3.79	100.28	76.47	62334.73	18772.97	3.32
35	6.62	442.5	600.8	736.48	390.77	1097.2	356.16	4.31	96.2	69.13	54089.41	18096.81	2.99
36	7.98	573.4	527.9	1086.24	493.55	1103.2	447.36	4.33	116.83	89.6	99201.93	39881.9	2.49
37	6.52	412.23	491.1	839.36	310.48	1021.9	303.84	3.29	102.7	82.03	51289.63	22975.64	2.23
38	6.91	471.43	595.7	791.36	387.34	1096.4	353.28	4.06	99.72	74.2	39784.76	38390.35	1.04
39	6.12	381.81	514.4	742.24	294.93	1154.2	255.52	2.92	96.58	78.21	29857.98	24403.13	1.22
40	6.74	531.05	647	820.8	470.89	1116.9	421.6	4.89	101.56	70.83	54123.19	36702.29	1.47
41	6.85	538.88	595.1	905.6	416.94	1091.7	381.92	4.07	106.68	81.12	65848.03	33519.18	1.96
42	7.02	397.49	523.5	759.36	309.41	1031.9	299.84	3.45	97.69	75.99	33869.81	29199.64	1.16
43	6.37	381.53	526.4	724.8	328.87	1106.9	297.12	3.52	95.44	73.31	36075.36	29638.91	1.22
44	6.93	537.03	569.3	943.36	452.82	1085.2	417.28	4.39	108.88	81.31	78244.83	30241.79	2.59
45	7.64	457.4	474.9	963.2	351.37	1081.8	324.8	3.26	110.02	89.57	66448.01	26949.32	2.47
46	6.1	346.73	541.1	640.8	292.74	1112.2	263.2	3.32	89.74	68.88	33275.57	16032.25	2.08
47	6.14	411.69	637.5	645.76	359.65	1123.9	320	4.15	90.08	63.98	39525.63	18126.16	2.18
48	7.13	441.24	526.7	837.76	375.95	1114.7	337.28	3.71	102.6	79.31	41603.35	37770.59	1.1
49	7.26	433.9	503.7	861.44	344.92	1093.2	315.52	3.38	104.04	82.83	52395.22	28393.13	1.85
50	6.34	397.7	561.1	708.8	341.37	1106.6	308.48	3.73	94.38	70.93	43086.23	20074.29	2.15
51	5.96	355.5	622.7	570.88	318.82	1125.1	283.36	3.91	84.7	60.11	24584	21343.97	1.15
52	6.13	413.52	577	716.64	360.91	1120	322.24	3.9	94.9	70.4	47062.99	18915.12	2.49
53	8.29	443.4	431.6	1027.36	364.03	1088.1	334.56	3.79	114.71	90.89	55287.16	41401.83	1.34
54	7	467.82	552.4	846.88	390.93	1099.1	355.68	3.91	103.16	78.57	59633.8	30113.39	1.98
55	7.64	514.21	473.2	1086.72	412.05	1094	376.64	3.57	116.86	94.46	61863.6	58173.61	1.06
56	6.98	483.47	551.3	876.96	391.8	1071.2	365.76	3.95	104.98	80.15	54764.22	29141.2	1.88
57	5.5	364.52	574.6	634.4	315.59	1115.6	282.88	3.63	89.29	66.46	34365.67	18924.01	1.82
58	5.05	348.64	634.2	549.76	299.89	1139.4	263.2	3.68	83.12	60.01	20337.19	18003.33	1.13
59	5.67	353.58	585.4	604	295.09	1124.6	262.4	3.44	87.12	65.52	23830.05	19525.29	1.22
60	5.82	298.88	495.4	603.36	244.02	1119	218.08	2.78	87.08	69.58	20691.2	16914.27	1.22
61	5.95	426.66	639.5	667.2	344.22	1129.9	304.64	3.83	91.57	67.5	37804.83	19625.29	1.93

	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG
62	t65ssitoc	t75toc	t75tod	t75toa	t75coc	t75cod	t75coa	t75cth	t75peri	t75endo	t75imax	t75imin	t75irat
63	5.58	418.99	657.3	637.44	346.17	1119.3	309.28	4.02	89.5	64.22	35063.56	17219.3	2.04
64	5.39	378.89	639.3	592.64	311.87	1138.5	273.92	3.66	86.3	63.29	27297.88	18668.15	1.46
65	5.96	315.08	506.5	622.08	275.22	1142.2	240.96	3.06	88.42	69.21	27751.91	17003.55	1.63
66	5.94	332.25	570	582.88	280.62	1120	250.56	3.34	85.58	64.62	22743.92	17860.96	1.27
67	5.73	305.52	477.7	639.52	255.74	1114.6	229.44	2.84	89.65	71.79	21577.92	21295.15	1.01
68	6.31	425.76	534	797.28	339.61	1080.2	314.4	3.53	100.1	77.9	46943.78	23248.24	2.02
69	5.57	392.45	646.3	607.2	334.16	1115.1	299.68	4.01	87.35	62.16	24969.73	22068.92	1.13
70	5.16	363.71	687.8	528.8	304.54	1119.6	272	3.93	81.52	56.81	27901.28	12354.4	2.26
71	6.58	396.68	536.3	739.68	325.01	1108.8	293.12	3.42	96.41	74.91	39619.16	23467.53	1.69
72	6.08	438.79	628.6	698.08	379.41	1096.8	345.92	4.32	93.66	66.52	34707.12	30377.65	1.14
73	7.68	445.65	476.1	936.16	365.08	1122.9	325.12	3.32	108.46	87.63	51428.13	36456.53	1.41
74	5.81	438.4	616.1	711.52	375.98	1120.6	335.52	4.11	94.56	68.74	33642.15	30691.26	1.1
75	5.37	398.09	637.6	624.32	338.03	1159.5	291.52	3.81	88.57	64.67	30807.17	20610.92	1.49
76	5.57	322.61	562.6	573.44	277.91	1097.9	253.12	3.41	84.89	63.45	21544.46	19358.37	1.11
77	5.06	331.99	626.5	529.92	282.07	1120	251.84	3.58	81.6	59.11	22339.08	15125.44	1.48
78	4.89	320.96	640.9	500.8	284.26	1141.1	249.12	3.68	79.33	56.24	19528.55	15087.82	1.29
79	6.4	379.35	502.5	754.88	312.61	1097.7	284.8	3.27	97.4	76.86	37097.22	27010.54	1.37
80	5.8	310.07	542.7	571.36	258.02	1153.5	223.68	2.97	84.73	66.1	22636.33	15438.59	1.47
81	6.01	334.92	540.5	619.68	295.23	1134.1	260.32	3.35	88.25	67.2	22683.8	21717.1	1.04
82	6.12	334.02	535.4	623.84	277.05	1093.2	253.44	3.23	88.54	68.23	27842.45	16615.5	1.68
83	5.84	411.87	608.4	676.96	359.53	1140.1	315.36	3.95	92.23	67.41	33675.08	25955.05	1.3
84	5.78	343.13	632.4	542.56	290.54	1117.4	260	3.66	82.57	59.59	25946.95	14534.34	1.79
85	6.32	407.54	465.1	876.32	293.73	1078	272.48	2.84	104.94	87.11	40120.03	31739.29	1.26
86	5.42	328.69	523.4	628	270.31	1102.1	245.28	3.1	88.84	69.35	26690.68	15950.69	1.67
87	4.68	394.11	716.9	549.76	360.26	1101	327.2	4.81	83.12	52.89	21985.39	21007.28	1.05
88	6.22	340.25	508.3	669.44	278.49	1115.8	249.6	3.04	91.72	72.64	25870.64	22570.6	1.15
89	5.63	374.44	639.4	585.6	327.85	1145.4	286.24	3.89	85.78	61.33	31881.08	16043.81	1.99
90	5.82	301.63	541.1	557.44	249.72	1157.8	215.68	2.89	83.7	65.53	20634.44	14973.94	1.38
91	5.93	326.91	533.9	612.32	290.58	1136.5	255.68	3.31	87.72	66.95	22997.63	20740.73	1.11
92	5.75	311.81	501.9	621.28	266.64	1111	240	3.05	88.36	69.22	32274.28	11363.82	2.84
93	6.05	346.44	506	684.64	288.95	1127.3	256.32	3.09	92.76	73.37	37308.64	15180.91	2.46
94	6.2	410.96	585.5	701.92	338.65	1073.3	315.52	3.86	93.92	69.68	39572.48	22864.08	1.73
95	6.84	386.17	459.5	840.48	297.49	1057	281.44	3.02	102.77	83.82	42991.67	23561.46	1.82
96	6.08	370.89	521.3	711.52	281.07	1093.8	256.96	3.02	94.56	75.58	27596.71	25361.15	1.09
97	5.87	381.05	527.6	722.24	315.73	1101.8	286.56	3.39	95.27	73.99	33199.33	25988.75	1.28
98	6.65	383.82	513.8	747.04	310.77	1139.2	272.8	3.13	96.89	77.2	38862.21	23008.57	1.69
99	5.5	377.32	642	587.68	326.77	1123.4	290.88	3.96	85.94	61.07	24723.37	22487.82	1.1
100	5.06	373.33	721.9	517.12	333.21	1160.2	287.2	4.28	80.61	53.75	25051.69	15081.49	1.66
101	5.8	313.92	462.3	679.04	247.72	1080.4	229.28	2.74	92.38	75.18	29852.5	15997.25	1.87
102	5.08	298.38	536.7	556	254.36	1079.2	235.68	3.21	83.59	63.45	19294.16	16044.92	1.2
103	6.03	340.4	507.1	671.2	281.88	1117.9	252.16	3.07	91.84	72.57	25974.74	21994.09	1.18
104	5.91	264.02	445.9	592.16	210.3	1042.3	201.76	2.58	86.26	70.04	22500.36	13976.9	1.61
105	5.41	261.93	503.6	520.16	220.91	1138.3	194.08	2.68	80.85	64.01	15578.51	14734.62	1.06
106	5.81	343.43	595.1	577.12	298.75	1131.6	264	3.57	85.16	62.73	24463.69	21108.46	1.16
107	6.58	365.01	490.5	744.16	280.2	1049.9	266.88	3.07	96.7	77.45	29434.58	28210.88	1.04
108	6.22	393.27	533.3	737.44	332.65	1160.8	286.56	3.34	96.27	75.27	31156.88	30237.95	1.03
109	5.93	334.79	510.4	656	267.92	1139.9	235.04	2.88	90.79	72.73	22132.07	21558.86	1.03
110	5.9	387.28	641.2	604	336.48	1145.4	293.76	3.93	87.12	65.44	30043.52	19111.44	1.57
111	5.99	395.67	550.2	719.2	318.11	1107	287.36	3.41	95.07	73.67	31630.05	27516.95	1.15
112	6.16	359.45	532.5	675.04	280.57	1093.9	256.48	3.12	92.1	72.52	28286.82	22230.78	1.27
113	5.63	333.66	557.7	598.24	286.25	1107.8	258.4	3.4	86.71	65.35	27863.44	16088.21	1.73
114	6.6	388.36	508.2	764.16	316.57	1107.8	285.76	3.26	97.99	77.54	35834.47	26125.15	1.37
115	5.68	305.24	515.3	592.32	249.99	1101.8	226.88	2.95	86.28	67.77	23170	11688.38	1.98
116	5.72	339.83	568.8	597.44	278.56	1102.6	252.64	3.31	86.65	65.83	21496.07	19518.87	1.1

	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT
1	t75ssi	t75ssitoc	t85toc	t85tod	t85toa	t85trc	t85trd	t85tra	t85coc	t85cod	t85coa	t85cth	t85peri
2	3906.67	8.44	516.91	368	1404.8	204.82	193.4	1059.04	267.21	1034.7	258.24	2.05	132.27
3	3179.3	7.67	499.82	314.8	1587.68	267.14	205.5	1299.84	154.93	976.1	158.72	1.66	100.79
4	4513.25	8.46	614.99	425.4	1445.76	192.89	195.9	984.48	346.6	1036	334.56	2.66	134.21
5	3328.94	7.06	556.19	530.4	1048.64	146.83	241.9	606.88	346.96	1027.7	337.6	3.24	114.31
6	3742.85	11	537.53	397.8	1351.36	157.63	166.7	945.28	332.72	1023.9	324.96	2.68	129.73
7	2882.5	7.03	485.09	450.5	1076.8	157.44	220.6	713.6	277.3	997.2	278.08	2.59	115.56
8	2946.25	6.45	547.42	417	1312.64	185.71	203.6	912.16	303.51	1005.3	301.92	2.52	127.71
9	3566.33	7.21	591.92	528.9	1119.2	156.34	243.3	642.72	355.31	1033.8	343.68	3.17	118.36
10	3673.17	7.55	566.53	511.2	1108.32	175.35	260.3	673.6	323	1009.9	319.84	2.95	117.6
11	3172.34	7.34	489.8	437.3	1107.68	134.18	181.4	739.84	303.76	1044.8	290.72	2.65	117.98
12	2414.99	6.51	433.28	524.5	826.24	98.05	202.1	485.12	301.54	1064.2	283.36	3.09	101.47
13	3493.55	7.6	527.06	435.1	1211.36	199.43	231.3	862.08	280.81	1044.7	268.8	2.32	123.02
14	3230.77	6.78	583.42	489.2	1192.64	162.25	222.4	729.44	361.05	998.5	361.6	3.26	121.33
15	3329.15	7.31	568.53	467.7	1215.68	234.85	277.1	847.52	286.43	1005.7	284.8	2.48	122.73
16	2741.92	6.28	478.71	504.5	948.96	147.12	248.5	592.16	281.01	1039.9	270.24	2.7	108.85
17	4069.34	8.79	459.49	291.5	1576.16	154.99	127.8	1212.64	237.51	985.7	240.96	1.87	134.55
18	3135.87	7.08	438.37	353.1	1241.6	150.27	162.2	926.4	249.83	1004.8	248.64	2.12	123.79
19	3342.68	8.16	408.66	319.5	1279.2	117.48	120.9	971.52	257.19	1030.4	249.6	2.11	125.05
20	3749.26	8.88	493.45	345.5	1428.32	127.59	121.6	1049.28	331.25	1033.1	320.64	2.55	133.7
21	4361.63	8.17	526.25	362.4	1452	176.55	165.8	1064.8	294.6	1002.9	293.76	2.33	133.45
22	3152.42	7.47	479.77	390.9	1227.36	128.27	149.9	855.68	308.14	1032.6	298.4	2.6	123.01
23	3592.45	8.12	479.65	374.4	1281.12	141.98	156.6	906.4	287.99	991.7	290.4	2.47	125.35
24	4973.14	7.91	695.07	436.6	1591.84	266.83	248.3	1074.72	306.46	983.7	311.52	2.34	140.49
25	3399.21	8.04	487.61	384.2	1269.28	157.21	173	908.64	287.36	1007.3	285.28	2.42	125.4
26	3854.31	8.9	403.76	248.5	1625.12	135.25	101.3	1335.52	232.75	1016.5	228.96	1.68	141.66
27	4064.52	8.55	541.55	342.5	1581.28	204.97	174.7	1172.96	237.01	987.5	240	1.89	133.27
28	4682.45	8.42	684.77	446.6	1533.44	180.96	180.3	1003.68	437.54	1041.4	420.16	3.28	138.43
29	2416.89	5.77	424.23	401.4	1056.96	117.21	160.1	732.32	270.89	1028.6	263.36	2.46	114.65
30	3604.51	8.32	462.89	311.9	1484	308.85	918.1	1164.16	305.85	918.1	333.12	2.58	137.17
31	3617.42	8.01	458.95	314.4	1459.84	181.8	159.4	1140.8	211.5	1014.5	208.48	1.78	122.98
32	3046.14	6.45	513.79	517.9	992.16	111.63	190.6	585.6	364.91	1063.7	343.04	3.41	111.4
33	3959.9	8.06	571.73	404.4	1413.76	183.51	183.5	1000.16	334.76	1036.8	322.88	2.6	132.56
34	3539.97	8.13	490.25	375.1	1306.88	359.6	910.7	925.28	298.7	1016.3	293.92	2.46	127.34
35	3417.81	7.72	450.26	380.5	1183.2	369.24	935.4	794.08	314.87	1027.6	306.4	2.74	120.55
36	5662.99	9.88	655.98	425.5	1541.76	131.71	132.9	991.36	458.89	1051	436.64	3.45	137.43
37	3317	8.05	472.64	320.8	1473.44	202.17	183.8	1100	192.96	947.3	203.68	1.95	110.41
38	3698.72	7.85	526	424	1240.16	125.08	157.1	796	331.34	1014.6	326.56	2.84	123.79
39	2843.22	7.45	436.31	348.3	1252.64	188.28	189.5	993.6	217.37	1052.3	206.56	1.77	122.37
40	4048.9	7.62	589.46	416.4	1415.52	166.27	171.1	971.68	365.71	1053.8	347.04	2.82	131.89
41	4310.71	8	661.13	424	1559.36	246.03	229.6	1071.52	304.61	1030.2	295.68	2.28	136.77
42	3132.86	7.88	402.57	391	1046.56	86.19	126.3	682.24	276.67	985.8	280.64	2.69	112.96
43	2957.82	7.75	406.36	346.1	1174.08	109.88	127.3	862.88	260.32	1043	249.6	2.2	120.61
44	4692.22	8.74	575	387.2	1484.96	175.57	165.2	1062.72	354	1027.1	344.64	2.75	134.18
45	3825.7	8.36	497.77	329.5	1510.72	156.05	138.6	1125.92	263.39	1034.7	254.56	2	133.56
46	2352.37	6.78	351.77	351.8	999.84	88.48	122	725.44	229.5	1060.9	216.32	2.12	108.66
47	2929.24	7.12	448.65	452.2	992.16	350.53	919.3	620.64	292.61	1026.3	285.12	2.82	110.13
48	3684.84	8.35	474.91	358.7	1323.84	352.28	934.1	955.68	287.75	1060.4	271.36	2.26	127.02
49	3641.04	8.39	501.8	372.8	1346.08	354.54	914.9	974.56	290.95	1033.8	281.44	2.3	129.51
50	3036	7.63	448.69	356.6	1258.08	139.89	149.7	934.24	274.13	1037.1	264.32	2.24	124.84
51	2467.68	6.94	393.27	399.8	983.68	76.82	118.5	648	280	1021.6	274.08	2.7	110.14
52	2975.01	7.19	404.99	366.9	1103.84	88.33	116	761.12	268.45	1020.6	263.04	2.61	109.12
53	4059.84	9.16	427.37	263.2	1623.52	130.46	100.2	1301.6	252.62	1029.3	245.44	1.87	136.83
54	3762	8.04	537.08	322.1	1667.52	219.64	169.7	1294.4	240.85	991	243.04	1.93	132.08
55	4957	9.64	564.38	292.7	1928	216.79	141	1537.44	284.36	1002.4	283.68	1.97	150.38
56	3936.51	8.14	538.95	420.6	1281.44	140.09	160.7	872	352.53	1062.4	331.84	2.82	126.41
57	2587.98	7.1	437.12	411.4	1062.56	129.11	176.8	730.08	266.87	1012.1	263.68	2.46	114.99
58	2182.95	6.26	396.74	436.6	908.64	123.36	198.7	620.8	236.41	1057.7	223.52	2.25	106.3
59	2329.45	6.59	376.12	399.2	942.08	124.49	183.2	649.52	221.28	1051.7	210.4	2.06	108.74
60	1999.84	6.69	312.94	327.8	954.72	94.84	130.9	724.64	195.1	1030.8	189.28	1.83	109.2
61	2817.37	6.6	494.43	492.1	1004.8	171.44	256.9	667.36	285.79	1056.3	270.56	2.61	111.88

	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT
62	t75ssi	t75ssitoc	t85toc	t85tod	t85toa	t85trc	t85trd	t85tra	t85coc	t85cod	t85coa	t85cth	t85peri
63	2717.18	6.49	450.46	423.7	1063.2	181.82	234.3	776.16	233.55	1050.9	222.24	2.04	115.19
64	2393.03	6.32	432.75	414.7	1043.52	159.73	211.4	755.68	236.98	1060.2	223.52	2.08	114.07
65	2194.32	6.96	321.11	315.4	1018.24	82.33	107	769.28	210.72	1045.2	201.6	1.89	112.81
66	2291.76	6.9	376.92	374.9	1005.28	141.98	191.7	740.8	192.45	1015	189.6	1.8	111.09
67	2102.03	6.88	317.1	299.2	1060	124.17	149	833.6	151.63	968	156.64	1.42	114.44
68	3255.22	7.65	492.79	383.3	1285.6	171.67	184	932.96	267.53	1020.2	262.24	2.19	126.6
69	2680.97	6.83	431.17	434.9	991.52	285.67	936.2	699.2	240.29	1049.5	228.96	2.2	111.04
70	2140.78	5.89	465.22	460.4	1010.56	296.47	888.3	686.4	241.17	1004.2	240.16	2.3	111.8
71	3055.7	7.7	424.98	358	1187.04	297.99	925.2	279.52	248.25	1039.9	238.72	2.07	121.63
72	3190.43	7.27	514.13	448.4	1146.56	368.96	927.2	764.48	308.3	1042.7	295.68	2.65	119.74
73	3694.85	8.29	466.27	341.8	1364	166.53	159.9	1041.44	247.12	1059.3	233.28	1.89	129.1
74	3178.75	7.25	489.45	446.8	1095.36	135.32	186.4	725.92	311.45	1050.5	296.48	2.74	116.75
75	2676.86	6.72	449.6	413.8	1086.56	153.92	199	773.28	259.02	1059.5	244.48	2.23	116.51
76	2113.91	6.55	343.43	377.4	910.08	78.95	128.4	614.88	224.01	983.2	227.84	2.3	106.19
77	2083.94	6.28	366.72	356.6	1028.48	137.19	178.1	770.4	183.38	1014.3	180.8	1.68	112.8
78	1902.57	5.93	317.54	378.4	839.2	253.28	986.3	593.44	223.79	1081.8	206.88	2.19	101.56
79	2902.02	7.65	425.01	297.3	1429.6	264.9	847.7	1130.4	203.6	965.5	210.88	1.82	121.68
80	2106.97	6.8	326.33	312.4	1044.64	233.47	892.5	795.44	183.09	1032.8	177.28	1.64	113.42
81	2340.65	6.99	346.71	335.3	1033.92	73.19	96.3	759.84	249.86	1074.8	232.48	2.18	113.49
82	2408.81	7.21	364.62	345.5	1055.2	116.21	148.3	783.52	211.09	1011.7	208.64	1.92	114.65
83	2962.02	7.19	427.77	385.7	1109.12	104.81	136.2	769.6	281.06	1046.2	268.64	2.45	117.3
84	2145.5	6.25	394.35	422.8	932.8	101.13	164.9	613.12	248.99	1038.4	239.84	2.4	107.52
85	3283.75	8.06	452.52	320.4	1412.48	194.63	176.9	1100.32	192.48	982.8	195.84	1.64	124.52
86	2340.81	7.12	344.17	329.8	1043.68	98.05	124.9	785.28	214.95	1043.9	205.92	1.9	114.28
87	2531.96	6.42	381.09	338.8	1124.8	98.34	121.5	809.28	244.03	1010.7	241.44	2.19	117.17
88	2477.69	7.28	328.07	332.7	986.24	93.92	125.1	750.56	212.18	1075.5	197.28	1.88	110.9
89	2568.45	6.86	409.03	420.4	972.96	112.05	167.6	668.64	263.52	1063.2	247.84	2.42	110.22
90	2038	6.76	302.76	317.9	952.48	89.77	125.1	717.6	249.72	1157.8	215.68	2.89	83.7
91	2413.28	7.38	352.51	360.5	977.76	81.16	117.9	688.16	239.04	1049.2	227.84	2.24	108.89
92	2200.47	7.06	319.9	296.3	1079.52	89.1	107.2	830.88	195.21	1034.8	188.64	1.71	115.53
93	2682.51	7.74	355.82	293.4	1212.8	114.97	119.6	961.12	210.77	1060.6	198.72	1.69	122.82
94	2977.09	7.24	446.73	371.6	1202.08	160.68	183.3	876.48	224.76	1005.5	223.52	1.96	120.19
95	3119.37	8.08	440.61	270.4	1629.28	203.22	181.9	1117.12	128.7	898.7	143.2	1.43	104.58
96	2651.61	7.15	400.12	334.8	1195.2	158.99	173.7	915.2	191.37	982.8	194.72	1.67	122.03
97	2979.74	7.82	375.39	337.5	1112.32	115.02	138.5	830.4	222.23	1025	216.8	1.96	116.91
98	3078.19	8.02	412.54	303.9	1357.28	149.16	140.9	1058.88	212.66	1022.4	208	1.75	124.26
99	2482.74	6.58	400.97	419.8	955.2	94.35	145.7	647.52	277.71	1080.1	257.12	2.55	108.97
100	2218.69	5.94	381.62	470	812	83.28	165.8	502.4	257.38	1073.1	239.84	2.61	100.08
101	2300.79	7.33	353.22	287.6	1228	151.82	169	898.24	111.76	925.1	120.8	1.48	86.38
102	1975.52	6.62	323.92	325.6	979.04	88.38	119.5	739.68	201.85	1018.2	198.24	1.89	110.92
103	2435.25	7.15	312.17	272.5	1145.44	100.84	111.2	907.04	160.54	1049.6	152.96	1.55	103.68
104	1878.38	7.11	295.45	277	1066.72	107.97	127.4	847.36	146.57	976.6	150.08	1.43	109.7
105	1721.89	6.57	271.6	302.5	897.92	76.02	111	684.8	161.35	1052.6	153.28	1.56	103.18
106	2332.41	6.79	367.86	403.8	911.04	91.48	146.8	623.04	244.68	1045.3	234.08	2.36	106.51
107	2795.82	7.66	366.36	337.8	1084.64	132.75	163	814.4	174.53	1010	172.8	1.72	106.05
108	3054.51	7.77	408.44	347.9	1174.08	103.3	118.3	873.28	282.71	1080	261.76	2.3	121.17
109	2362.26	7.06	401.67	339.5	1183.2	148	165.8	892.64	200.89	1020.8	196.8	1.72	119.96
110	2531.21	6.54	422.87	459.8	919.68	127.56	198.6	642.24	290.05	1082.9	267.84	2.72	106.95
111	2764.48	6.99	391.08	325.4	1201.76	147.1	161.4	911.52	186.77	1003.7	186.08	1.8	108.9
112	2731.36	7.6	362.24	362	1000.8	89.1	124.5	715.84	243.4	1040.5	233.92	2.23	111.81
113	2355.51	7.06	353.33	382.5	923.68	92.3	139.3	662.4	239.47	1068.3	224.16	2.23	107.51
114	2956.5	7.61	426.89	359.7	1186.72	146.6	165.1	888.16	237.08	1056.9	224.32	1.97	120.08
115	1956.43	6.41	294.96	305.1	966.72	81.33	112.9	720.16	160.3	1027.5	156	1.71	96.83
116	2272.76	6.69	340.53	372.4	914.4	75.45	117.9	639.84	234.8	1055	222.56	2.23	106.67

	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF
1	t85endo	t85imax	t85imin	t85irat	t85ssi	t85ssitoc	toc515r	toc535r	toc585r	toc565r	coc1585r	coc1555r
2	119.38	76045.64	42070.79	1.81	4292.22	8.3	1.14	0.86	0.71	0.77	1.05	0.6
3	90.35	65279.79	34782.4	1.88	3238.95	6.48	1.28	1.02	0.79	0.93	1.56	0.63
4	117.5	94549.74	55513.29	1.7	5642.9	9.18	1.25	0.91	0.69	0.78	0.8	0.54
5	93.94	81609.51	30389.65	2.69	4446.65	7.99	1.49	1.23	0.86	1.01	0.76	0.59
6	112.9	86402.87	45473.27	1.9	3742.85	6.96	1.84	1.32	0.77	0.83	0.59	0.59
7	99.3	77553.15	22571.06	3.44	3912.54	8.07	1.22	0.91	0.69	0.85	0.88	0.63
8	111.88	87531.71	38620.46	2.27	4607.66	8.42	1.31	0.98	0.74	0.86	0.89	0.59
9	98.44	67360.88	47678.57	1.41	4937.36	8.34	1.29	1.03	0.73	0.86	0.73	0.56
10	99.04	55963.18	50733.07	1.1	4493.36	7.93	1.35	1.05	0.77	0.88	0.72	0.52
11	101.32	52456.02	47622.24	1.1	4027.04	8.22	1.33	0.93	0.74	0.81	0.72	0.52
12	82.07	46650.99	21216.69	2.2	3223.76	7.44	1.44	1.1	0.94	1.03	0.81	0.64
13	108.43	66534.17	36372.1	1.83	3999.32	7.59	1.26	1.02	0.73	0.85	0.86	0.55
14	100.88	92235.2	34454.42	2.68	4880.19	8.36	1.27	1.02	0.71	0.89	0.78	0.64
15	107.17	74216.74	36272.72	2.05	4171.82	7.34	1.39	1.04	0.7	0.88	0.85	0.57
16	91.74	53199.79	25630.91	2.08	3544.18	7.4	1.32	0.95	0.74	0.82	0.83	0.57
17	122.78	79099.33	49528.61	1.6	4494.08	9.78	1.23	0.87	0.81	0.72	1.06	0.53
18	110.46	60706.46	34773.58	1.75	3788.41	8.64	1.3	0.83	0.67	0.75	0.76	0.49
19	111.8	71606.98	30733.39	2.33	3679.88	9	1.16	0.8	0.75	0.69	0.85	0.53
20	117.67	96840.38	43645.78	2.22	5056.21	10.25	1.31	0.98	0.76	0.83	0.76	0.59
21	118.81	80169.45	49819.32	1.61	4836.88	9.19	1.19	0.94	0.8	0.81	0.95	0.58
22	106.69	75181.45	38066.23	1.98	4491.69	9.36	1.25	0.97	0.77	0.86	0.79	0.63
23	109.84	91086.28	30894.27	2.95	4484.58	9.35	1.14	0.79	0.74	0.79	0.97	0.65
24	125.79	107007.05	63282.06	1.69	5903.71	8.49	1.36	1.06	0.77	0.9	0.92	0.53
25	110.18	78050.09	37466.99	2.08	4209.79	8.63	1.25	0.89	0.73	0.85	0.88	0.64
26	131.08	79429.06	41324.38	1.92	4021.19	9.96	1.3	0.89	0.97	0.85	1	0.5
27	121.42	88465.73	50180.6	1.76	4695.59	8.67	1.16	0.92	0.67	0.79	1.12	0.61
28	117.83	125153.25	64587.17	1.94	6686.97	9.77	1.31	0.93	0.69	0.82	0.73	0.57
29	99.17	66746.76	24087.57	2.77	3453	8.14	1.29	0.85	0.82	0.78	0.84	0.53
30	120.95	76734.55	42942.64	1.79	4361.4	9.42	1.16	0.87	0.72	0.74	0.71	0.5
31	111.82	69585.43	37301.39	1.87	3710.99	8.09	1.15	0.82	0.78	0.77	1.19	0.58
32	89.99	78004.04	25972.17	3	4514.05	8.79	1.25	0.96	0.74	0.8	0.71	0.58
33	116.25	89080.03	48142.17	1.85	4684.03	8.19	1.25	0.9	0.7	0.83	0.82	0.59
34	111.9	93015.64	33431.88	2.78	4647.8	9.48	1.26	0.99	0.79	0.86	0.86	0.61
35	103.36	80619.43	31313.53	2.57	4498.82	9.99	1.06	0.75	0.72	0.69	0.84	0.61
36	115.76	144779.68	58672.88	2.47	6893.57	10.51	1.3	0.96	0.78	0.87	0.68	0.56
37	98.14	70995.52	32134.47	1.34	3708.27	7.85	1.21	0.93	0.76	0.88	1.26	0.66
38	105.93	76808.2	41829.1	1.84	4761.52	9.05	1.12	0.89	0.72	0.8	0.87	0.7
39	111.25	45304.05	33731.93	1.34	3080.58	7.06	1.37	0.99	0.79	0.94	0.93	0.53
40	114.17	100367.42	54298.65	1.85	5606.79	9.51	1.16	0.88	0.65	0.72	0.78	0.57
41	122.43	115072.85	50046.41	2.3	5808.88	8.79	1.31	1	0.72	0.89	0.86	0.52
42	96.09	50028.14	37828.46	1.32	3635.53	9.03	1.11	0.76	0.75	0.7	0.78	0.59
43	106.82	60714.09	34986.67	1.74	3627.24	8.93	1.28	0.93	0.77	0.82	0.79	0.54
44	116.93	111762.61	46096.77	2.42	5656.34	9.84	1.25	0.9	0.8	0.83	0.82	0.56
45	120.99	84963.31	47303.08	1.8	4618.94	9.28	1.19	0.96	0.77	0.83	0.99	0.7
46	95.33	41350.55	23520.83	1.76	2464.9	7.01	1.22	0.9	0.86	0.81	0.91	0.6
47	92.44	64831.68	25059.68	2.59	3822.16	8.52	1.29	0.95	0.77	0.81	0.79	0.58
48	112.98	65462.09	54296.03	1.21	4326.36	9.11	1.17	0.85	0.75	0.74	0.89	0.56
49	115.05	75314.51	48502.66	1.55	4796.38	9.56	1.34	0.95	0.76	0.81	0.74	0.49
50	110.74	76155.58	31745.05	2.4	4159.88	9.27	1.35	1.05	0.87	0.95	0.87	0.6
51	93.2	63942.13	19878.82	3.22	3587.47	9.12	1.12	0.87	0.66	0.75	0.75	0.64
52	92.74	65165.86	30107.15	2.16	3741.75	9.24	1.14	0.81	0.74	0.73	0.85	0.62
53	125.05	79621.75	53360.43	1.49	4443.81	10.4	1.12	0.76	0.76	0.67	0.9	0.49
54	119.97	100282.72	43499.86	2.31	4678.14	8.71	1.08	0.76	0.58	0.66	1.02	0.56
55	138.02	100787.17	82926.56	1.22	5642.72	10	1.09	0.71	0.63	0.67	0.94	0.51
56	108.67	90011.65	45479.01	1.98	5085.73	9.44	1.31	0.99	0.79	0.85	0.73	0.59
57	99.54	55187.11	32285.13	1.71	3153.1	7.21	1.19	0.93	0.62	0.8	0.75	0.63
58	92.15	38785.55	23124.81	1.68	2991.43	7.54	1.3	0.98	0.7	0.81	0.79	0.57
59	95.82	39016.32	21867.6	1.78	2350.89	6.25	1.22	0.82	0.76	0.79	0.88	0.53
60	97.71	33103.37	20745.61	1.6	2388.41	7.63	1.31	1.03	0.88	0.91	0.86	0.61
61	95.48	47685.98	36595.31	1.3	3595.6	7.27	1.25	0.98	0.7	0.81	0.75	0.57

	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF
62	t85endo	t85imax	t85imin	t85irat	t85ssi	t85ssitoc	toc515r	toc535r	toc585r	toc565r	coc1585r	coc1555r
63	102.35	46947.79	27460.19	1.71	3286.35	7.3	1.09	0.86	0.65	0.73	0.94	0.59
64	101.01	51101.08	24750.65	2.06	2961.51	6.84	1.31	1.14	0.84	0.97	0.93	0.62
65	100.96	34668.17	31241.74	1.11	2783.21	8.67	1.06	0.85	0.69	0.72	0.9	0.63
66	99.79	37338.36	22065.07	1.69	2577.02	6.84	1.2	0.92	0.67	0.75	0.87	0.54
67	105.49	31963.56	23023.37	1.39	2328.62	7.34	1.07	0.73	0.63	0.65	1.07	0.56
68	112.84	69898.09	35795.44	1.95	4388.69	8.91	1.13	0.8	0.64	0.73	0.86	0.53
69	97.22	43268.03	25939.65	1.67	3190.41	7.4	1.29	0.96	0.74	0.84	0.87	0.56
70	97.38	52976.17	23736.53	2.23	3298.75	7.09	1.22	0.93	0.61	0.82	0.81	0.57
71	108.6	63492.5	29311.12	2.17	3674.82	8.65	1.2	0.93	0.76	0.83	0.92	0.59
72	103.06	63017	44878.13	1.4	4480.1	8.71	1.09	0.79	0.54	0.65	0.72	0.55
73	117.19	53198.86	51937.27	1.02	3877.9	8.32	1.15	0.76	0.72	0.7	1	0.51
74	99.52	56287.78	41514.46	1.36	4137.63	8.45	1.27	1	0.77	0.84	0.79	0.62
75	102.48	56907.18	31916.74	1.78	3642.77	8.1	1.21	0.85	0.64	0.69	0.75	0.5
76	91.72	32211.41	31626.6	1.02	2819.51	8.21	1.13	0.77	0.7	0.7	0.8	0.55
77	102.23	38848.53	21287.2	1.82	2696.26	7.35	1.2	0.91	0.7	0.79	0.98	0.59
78	87.83	34742.13	19043.37	1.82	2498.22	7.87	1.05	0.74	0.67	0.63	0.81	0.59
79	110.26	57226.9	40999.78	1.4	3486.46	8.2	1.19	0.84	0.7	0.78	0.98	0.52
80	103.13	37669.81	24866.27	1.51	2721.12	8.34	1.12	0.87	0.71	0.77	0.99	0.62
81	99.79	42078.04	31148.3	1.35	3194.52	9.21	1.26	0.92	0.75	0.81	0.7	0.55
82	102.58	46217.47	27690.04	1.67	3057.06	8.38	1.16	0.89	0.71	0.76	0.87	0.61
83	101.9	50826.74	41012.85	1.24	3993.78	9.34	1.13	0.84	0.67	0.68	0.79	0.58
84	92.45	49846.49	22332.91	2.23	3169.18	8.04	1.15	0.84	0.64	0.72	0.75	0.58
85	114.21	48204.5	43605.3	1.11	3639.12	8.04	1.2	0.89	0.7	0.77	1.01	0.51
86	102.33	34192.14	32544.98	1.05	2895.16	8.41	1.05	0.7	0.63	0.61	0.8	0.54
87	103.41	52095.96	28704.68	1.81	3364.82	8.83	2.45	0.86	0.77	0.76	0.24	0.16
88	99.1	39245.88	22935.43	1.71	2730.19	8.32	1.06	0.8	0.76	0.72	0.83	0.55
89	95.05	48731.65	31678.72	1.54	3279.68	8.02	1.22	0.92	0.74	0.8	0.81	0.61
90	65.53	28163.37	27211.19	1.03	2431.33	8.03	1.15	0.8	0.75	0.73	0.65	0.56
91	94.83	38463.01	30909.42	1.24	2996.88	8.5	1.34	0.95	0.81	0.85	0.79	0.58
92	104.77	49994.47	19356.21	2.58	2674.94	8.36	1.16	0.86	0.76	0.76	0.93	0.61
93	112.19	50389.51	27748.45	1.82	3050.78	8.57	1.19	0.92	0.8	0.77	0.89	0.55
94	107.88	62681.32	29928.09	2.09	3561.9	7.97	1.23	0.91	0.73	0.78	1	0.57
95	95.59	54305.75	30782.34	1.76	2865.2	6.5	1.11	0.8	0.63	0.77	1.58	0.56
96	111.55	45060.74	32530.58	1.39	3182.11	7.95	1.2	0.79	0.67	0.76	0.93	0.51
97	104.61	46982.34	29165.93	1.61	3295.01	8.78	1.09	0.72	0.67	0.63	0.85	0.5
98	113.26	57770.61	34690.06	1.67	3468.23	8.41	0.94	0.74	0.66	0.67	1.14	0.59
99	92.97	49174.32	29599.25	1.66	3315.09	8.27	1.23	0.89	0.72	0.75	0.71	0.54
100	83.68	31965.87	28957.39	1.1	2950.36	7.73	1.18	0.87	0.68	0.71	0.66	0.5
101	77.09	42175.06	19789.22	2.13	2453.96	6.95	1.31	1.01	0.72	0.86	1.53	0.68
102	99.06	35701.44	24646.03	1.45	2703.58	8.35	1.18	0.95	0.74	0.77	0.88	0.64
103	93.95	36602.88	24251.94	1.51	2352.85	7.54	0.95	0.68	0.68	0.61	1.23	0.59
104	100.74	36059.6	17557.96	2.05	2301.2	7.79	1.29	0.91	0.74	0.79	0.87	0.51
105	93.38	24864.92	21449.26	1.16	1991.57	7.33	1.3	0.91	0.85	0.77	0.86	0.5
106	91.64	38798.55	32123.73	1.21	3118.8	8.48	1.09	0.82	0.66	0.65	0.76	0.5
107	95.27	42410.87	27074.3	1.57	2697.2	7.36	1.29	0.98	0.87	0.89	1.16	0.63
108	106.73	48157.96	46089.88	1.04	3962.37	9.7	1.09	0.79	0.62	0.68	0.73	0.55
109	109.17	43573.92	32186.58	1.35	3084.69	7.68	1.1	0.8	0.61	0.69	0.96	0.56
110	89.85	48153.83	29358.5	1.64	3385.11	8.01	1.33	1.42	0.78	0.77	0.75	0.62
111	97.57	38432.86	36140.34	1.06	2901.35	7.42	1.16	0.84	0.74	0.71	0.99	0.51
112	97.79	39698.78	31835.19	1.25	3207.32	8.85	1.22	0.85	0.73	0.7	0.67	0.51
113	93.5	40170.35	22399.92	1.79	2789.32	7.89	1.2	1	0.83	0.82	0.75	0.55
114	107.7	48119.14	36516.55	1.32	3514.31	8.23	1.3	1.03	0.78	0.87	0.82	0.56
115	86.11	33026.24	18266.13	1.81	2083.2	7.06	1	0.75	0.69	0.65	1	0.54
116	92.64	37430.84	26945.55	1.39	2774.43	8.15	1.24	0.88	0.76	0.73	0.67	0.49