# ANALYSIS OF ROLE FUNCTIONS AND LIFESTYLE PRACTICES OF SPORTS <br> AND CARDIOVASCULAR <br> NUTRITIONISTS 

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#### Abstract

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## CHAPTER I

## INTRODUCTION

Heart disease continues to be the leading cause of death in the United states. It is estimated that coronary heart disease will contribute to 1.5 million heart attacks and 550,000 deaths each year in the United states. Of these deaths, more than 300,000 will be under 65 years old. The National Center for Health Statistics reported a 39 percent decline in death from cardiovascular disease in the United States from 1963 to 1983. One-third of this decline can be attributed to improved eating habits resulting in the reduction of cholesterol (U.S.D.H.E.W., 1979).

The American Heart Association estimates that the cost of treating patients with cardiovascular disease will be greater than $\$ 78.6$ billion and $\$ 13.8$ billion will be lost annually due to reduced productivity. Specialized nutrition counseling is becoming more important in coronary health care and prevention. Hospitals are starting to set up specialized cardiac centers which require a cardiac dietitian. Cardiovascular risk reduction programs at corporations are also increasing in number (LaRosa, Goor and Haines, 1986).

Americans have become more health-conscious and fitness-minded. Many people exercise to lose weight, to be able to eat more without gaining weight, and to reduce stress. Athletes are searching for valid sports nutrition information and are seeking professional nutritional advice (Clar, 1986).

Fitness and wellness centers, sports medicine clinics, health clubs, athletic teams, in-patient cardiac care centers and cardiac rehabilitation centers are creating more employment opportunities for dietitians who specialize in sports and cardiovascular nutrition. With the abundance of research literature available, a specialized knowledge is essential for keeping abreast of current research information.

The 1972 Study Commission on Dietetics found that "there will be increased differentiation of roles and functions of dietitians" and "dietetics will become more specialized." A dietitian employed in the area of sports and cardiovascular nutrition needs to know more than nutrition. Dietitians must also understand metabolic changes and their effects on the body during exercise (O'Neil, Gorman and Hynak-Hankinson, 1986).

The American Dietetic Association (ADA) practice group of Sports and Cardiovascular Nutritionists (SCAN) promotes the following:

To promote the integration of nutrition, exercise, and respiratory fitness to achieve and maintain optimal health; to help prevent or control cardiovascular
disease; and to utilize nutrition and fitness to enhance the quality of life for all people (ADA, 1986).

As the demand for sports and cardiovascular nutrition counseling increases and the SCAN practice group grows, so is there a need for increased research information about the SCAN practice group members. Since SCAN members are employed in a variety of employment settings, a functional role analysis is needed to determine the different tasks and activities performed. At present, no analysis of role function studies have been performed on this practice group.

SCAN members promote optimal health and wellness. This researcher wishes to determine if members of SCAN practice health promotion activities and if participation in these activities is a necessary part of their role when interacting with patients/clients and other health professionals.

Only recent studies have been performed to document dietetic practitioners' current personal lifestyle practices. Martin, Holcomb, and Mullen (1987) surveyed members of the Texas Dietetic Association about their personal health behaviors and beliefs. The results found that dietetic practitioners had better health habits (e.g. non-smoking, physical activity, and dietary patterns) than those of the general female population.

Information obtained from this research would be useful to educators, students, dietitians, and other health care professionals enabling them to better understand the role functions and practices of sports and cardiovascular nutritionists in different health services.

Purpose and Objectives

The purpose of this research was to conduct an analysis of role functions and lifestyle practices of Sports and Cardiovascular Nutritionists. Specific objectives included:

1. To determine the role functions (activities, responsibilities, or duties) and frequency of activities performed by Sports and Cardiovascular Nutritionists.
2. To determine the lifestyle practices of Sports and Cardiovascular Nutritionists.
3. To determine the wellness inventory score of Sports and Cardiovascular Nutritionists.
4. To make recommendations for further studies involving Sports and Cardiovascular Nutritionists.

## Hypotheses

The hypotheses postulated in this study were:
$\mathrm{H}_{1}$ : There will be no significant Associations between the frequency of the role functions (activities, responsibilities, or duties) of Sports and Cardiovascular Nutritionists and the following selected demographic variables:

1. Age
2. Sex
3. R.D. status
4. Route to registration
5. Highest degree obtained
6. Place of employment
7. Job title
8. Salary
9. Years employed in the dietetic profession
10. Years employed in the area of Sports and Cardiovascular Nutritionist.
11. Years employed in present position
$\mathrm{H}_{2}$ : There will be no significant associations between the lifestyle practices of SCAN members and the selected demographic variables as listed in $H_{1}$.
$H_{3}$ : There will be no significant differences in the wellness inventory scores of SCAN members based on the same variables as in $\mathrm{H}_{1}$.

## Limitations

This study was limited to the American Dietetic Association Practice group of Sports and Cardiovascular Nutritionists at the time of August 1988. Results from this study can therefore only be generalized to this group.

Assumptions

1. Respondents were working in the area of Sports and/or Cardiovascular Nutrition.
2. Respondents completed the questionnaire objectively and without bias.
3. The survey questionnaire used was a valid and reliable instrument for testing the hypotheses under consideration.

## Definitions

American Dietetic Association (ADA): A professional organization responsible for establishing educational and
supervised clinical experience requirements and standards of practice in the profession of dietetics (Arkwright, Collins, Sharp, and Yakel, 1974, p. 664). Analysis: "The separation of an intellectual or substantial whole into constituents for individual study" (Morris, 1981, p. 47).

Competence: The quality of being functionally adequate in assuming the role of a specified position with the requisite knowledge, ability, capability, skill, judgement, attitudes, and values (Lanz, 1983, p. 156).

Entry-level Position: The minimum-based position within each practice level of the role (or generic position) (Lanz, 1983, p. 157).

Function: "The nucleus of activities, responsibilities, or duties so homogeneous in character as to fall logically into a unit for purpose of execution" (Tead and Metcalf, 1925, p. 59).

Health: A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (Lanz, 1983, p. 157).

Lifestyle: An individual's mode of living as affected by physiologic, psychosocial, environmental, economic, and religious influences (Lanz, 1983, p. 157).

Registered Dietitian (R.D.): A specialist educated for the profession responsible for the nutrition care of individuals and groups. This includes the application of the science and art of human nutrition in helping
people select and obtain food for the primary purpose of nourishing their bodies in health or disease throughout the life cycle. This participation may be in single or combined functions, in foodservice systems management, in extending knowledge of food and nutrition principles, in teaching these principles for application according to particular situations, or in dietary counseling (Lanz, 1983, p. 159).

Responsibilities: General statements of the actions for which entry-level personnel must be accountable. There are two types of responsibilities: major and specific (Lanz, 1983, p. 159).

Role: Configuration of major and specific responsibilities for which one is accountable (Lanz, 1983, p. 159).

Role Delineation: A process for determining the minimal basic level of major and specific responsibilities that must be assumed by personnel in a given generic practitioner position (Lanz, 1983, p. 159).

Skill Statements: Specific statements describing what entry-level personnel must do in order to successfully assume their specific responsibilities (Lanz, 1983, p. 159).

Sports and Cardiovascular Nutritionists: A practice group of the American Dietetic Association with a membership listing of 3,279 in August 1988 .

Wellness: "The actualized potential in each person to function at peak levels of performance with a healthy body, alert mind and sound emotions" (Cook, 1981).

## CHAPTER II

## REVIEW OF LITERATURE

## Historical Perspectives

Dietetics as a practice dates back to the beginning of medical history (Barber, 1959). The professional status of the dietetic practitioner, however, was not reached until the development of nutrition knowledge and the founding of a national organization (Lanz, 1983). The American Dietetic Association (ADA) was founded in Cleveland, Ohio, in October 1917. The ADA was organized by 58 dietitians, educators, foodservice directors and students in response to the need created by problems of feeding during world War $I$ (Langholz, 1982). World War I marked the beginning of change in the practice of diet therapy and the training of dietitians (Ohlson, 1976). The ADA defined dietetics in 1917 as "the science of nutrition and the art of feeding people."

In cooperation with the American Hospital Association, the first annual ADA convention was held in September 1918. At this meeting, four sections or areas of practice were identified: dietotherapy, administration, social welfare, and teaching. These names were eventually changed to diet therapy, food administration, community nutrition, and
education (Lanz, 1983). The 1970's were a time of change and restructuring of the ADA. Between 1949 and 1979, the membership had grown by almost 30,000 (Winterfeldt, 1979). This growth of membership, along with changes in practice and need, spawned the emergence of special interest groups. The ADA and the four areas of practice were unable to meet the needs of these special interest groups which led the ADA to reevaluate its structure (Langholz, 1982).

The 1970 Study Commission on Dietetics was formed to review the ADA's organizational framework. The Commission recommended changes in the organization of the $A D A$ and, in 1972, developed bylaws for the Association. The Commission identified the need for better communication among members with similar interests and made several changes to provide for this. These changes included the elimination of the four sections or areas of practice and the organizing of the Council on Practice (COP) in 1977 (Lanz, 1983).

The Council on Practice is the coordinating body for the Divisions of Practice and Dietetic Practice Groups. It gives dietetic practitioners with similar interests an opportunity to share information. The Council consists of five Divisions of Practice: Community Dietetics, Clinical Dietetics and Research, Consultation and Private Practice, Management Practices, and Educators. Each Division of Practice has a number of Dietetic Practice Groups within it. There are currently 23 Practice Groups that are recognized by the ADA. They include:

- Public Health Nutrition
- Gerontological Nutrition
- Dietetics in Developmental and Psychiatric Disorders
- Renal Dietitians
- Pediatric Nutrition
- Diabetes Care and Education
- Dietitians in Nutrition Support
- Dietetics in Physical Medicine and . Rehabilitation
- Sports and Cardiovascular Nutritionists
- Dietitians in General Clinical Practice
- Consulting Nutritionists - Private Practice
- Consultant Dietitians in Health Care Facilities
- Dietitians in Business and Industry
- ADA Members with Management Responsibilities in Health
- Care Delivery Systems
- School Food and Nutrition Services
- Dietitians in College and University Foodservice
- Clinical Nutrition Management
- Technical Practice in Dietetics
- Dietetic Educators of Practitioners
- Nutritionists in Nursing Education
- Nutrition Education for the Public
- Dietitians in Medical and Dental Education
- Nutrition Research

Practice Groups reflect the diversity among the membership and are a fast-growing component of the ADA (Lanz,
1983). In 1982, Practice Group membership exceeded 13,200, while in 1988, membership exceeded 30,094 . A Practice Group may be formed when at least 50 members petition to form such a group. Once established, a Practice Group functions to: determine quality assurance standards for its area of practice, identify continuing education needs for its members, and plan and implement activities to meet education needs (Lanz, 1983; Study Commission on Dietetics, 1984).

The dietetic practice group, sports and Cardiovascular Nutritionists (SCAN), is a part of the Division of Clinical Dietetics and Research. The SCAN practice group has its roots in New York where a group of registered dietitians, mostly employed by the Mr. Fit Program, began campaigning in 1979 to form a national dietetic practice group of dietitians specialized in sport and cardiovascular nutrition. SCAN became a dietetic practice group in 1982 with approximately 500 members. By 1983, the membership was over 950 , and by October 1987 had grown to a membership of 3,300 . From 1982 to 1987, SCAN experienced a growth of 560 percent which made SCAN the second largest ADA Dietetic Practice Group (Muir, 1987). In 1989 the membership of SCAN was 3,500.

SCAN held its first Symposium at the Cooper Clinic, Aerobics Center in Dallas, Texas, in 1984. Since then a symposium has been held every year. These symposia have been vital to SCAN's professional growth and image and have benefitted SCAN in at least two ways:

1. The SCAN practice group has increased its visibility to others in fields akin to sports/ cardiovascular/wellness medicine.
2. SCAN members have come away better "equipped to respond to consumer and professional demands in their field" (Muir, 1987).

SCAN has produced three practice manuals for use by professionals as a resource:

1. Sports Nutrition: A Manual for Professionals Working with Active People.
2. The Cardiovascular Nutrition Manual.
3. The Wellness Nutrition Manual.

ADA/SCAN has an official professional liaison with the American College of Sports Medicine which has greatly improved communication between these organizations. Both have worked together on organizationl projects which has helped to stimulate growth (Muir, 1987).

## Functions of Sports and Cardiovascular Nutritionists

This study was prompted by a desire to find out what SCAN members actually do. What types of jobs do they have? Are their lifestyle practices the same as they promote to their patients/clients? Any member of the ADA can join a practice group whether employed in that area or not. This research will help to determine the approximate percentage of SCAN members employed in the area of SCAN.

SCAN members are employed in a variety of settings.
They work as consultants with some or all of the following health care facilities and professionals:

- Cardiac rehabilitation centers
- In-patient cardiac care centers
- Sports medicine clinics and institutes
- Health clubs and conditioning centers
- Wellness centers and health promoters
- Community recreation departments
- Corporate fitness programs
- Exercise and weight reduction groups
- Athletic staff at schools and colleges
- Coaches and athletic trainers
- Professional and Olympic athletics
- Individuals interested in physical fitness
- Runners' clubs and sports organizations
- Physicians and health professionals
- Exercise physiologists and researchers
- Cardiac, orthopedic, and pulmonary specialists
- Sports, health and food writers
- Media specialists
- Health specialists
- Health educators

Since SCAN members are employed in a variety of employment settings, a functional role analysis is needed to determine the different tasks and activities performed. At present, no analysis of role function studies have been performed on this practice group.

Individuals in the health care field are identified through the concept of "role." A professional in a specific
role elicits a definite set of expectations based on training and orientation (Cason, 1972). "Role delineation" refers to the identification of responsibilities which a practitioner must perform at a defined competency level.

The formalized study of role delineation within dietetics is providing a legitimate basis for the profession to make strides in setting standards for education, certification, and practice (ADA, 1981). In 1981, the Role Delineation Study for entry-level clinical dietetics was published (Baird and Armstrong, 1981). It is the official position of the ADA concerning what a clinical dietetic practitioner must do and know to provide quality care. The definition of the Registered Dietitian in clinical practice includes the following:

A specialized dietetic professional who affects the nutrition care of individuals and groups in health and illness.

Provides nutrition assessment, planning, implementation (including education and referral) and educational services.

Provides consultation for foodservice to coordinate nutrition care services, manages departmental and personnel functions for nutrition care services.

Delineates and manages external influences on the delivery of nutrition care.

Educates and coordinates activities as a member of the health care team.

Maintains skill and knowledge in optimal nutrition care.

The SCAN practice group has defined some of its roles as follows:

Sports and Cardiovascular nutritionists practice the nutritional care for all people with special emphasis on promotion of cardiovascular health. SCAN members also develop and promote educational programs for dietitians, allied health professionals and the general public; and they promote research, writing, and teaching in the field of sports and cardiovascular nutrition (A.D.A., 1986).

This research analyzed the roles of SCAN members as compared with the ADA's Role Delineation for entry-level clinical dietetics. This analysis will help to more clearly define the roles of members in the SCAN practice group and aid in further research of role delineations.

Future Challenges for SCAN

SCAN is one of the fastest growing practice groups and with this growth, will need to come revisions and standardization of practice. The science of sports/ cardiovascular/wellness nutrition is young with new research advances occurring rapidly. This, along with the large variety of employment settings, will create future challenges for SCAN members as new opportunities in the field open up.

As public interest in nutrition has grown, many individuals and groups are identifying themselves with nutrition, and there is a growing competition outside the profession (South, 1981). Physicians, nurses and other health professionals are viewed by the public as a reliable source of nutrition information (Poplin, 1980). There is currently, no standard of practice for sports and cardiovascular nutritionists. Specialization credentialing for SCAN members is
at present being investigated and devloped. This will help to prevent the encroachment of other professions into this area and also help to insure competency among SCAN members (Muir, 1987).

Perhaps the best description of the future challenges for SCAN members is stated by Jennettee Harris, SCAN Chairman 1988-1989:

As we approach the 1990 's, it is important to take note of trends and new ideas that may shape our practice. A willingness to step into uncharted territory through experimentation and research, to solicit feedback from colleagues, and to inspire patients/clients with new methods is the hallmark of a leader. SCAN members must develop and grow in response to change and demands of the marketplace. Enthusiastic, energetic and caring SCAN members can respond to these changes. The type of growth our practice niche is experiencing requires qualities of the adventurer/caregiver (1989, p. 1).

These statements reflect the need for risk taking in today's highly competitive and changing markets. The 1984 Study Commission on Dietetics stated: "The profession must become more dynamic, but in order to do so, it must increase its depth of knowledge and expertise" (p. 1052). For this to occur, the Commission recommended changes in education, in patterns of dietetic practice, and in the activities of the ADA. This role analysis study will hopefully aid in recognizing the needs of the SCAN Practice Group with regards to education and patterns of dietetic practice.

CHAPTER III

## METHODS AND PROCEDURES

The purpose of this research was to determine the kinds of responsibilities and activities (role functions) of Sports and Cardiovascular Nutritionists and assess their personal lifestyle practices. The research design, sample, data collection and analysis is outlined in this chapter.

Research Design

A descriptive status survey was the research design used in this study. Descriptive research is concerned with hypotheses formulation and testing, analysis or relationships between non-manipulated variables in a natural setting and development of generalizations, principles or theories through the use of inductive-deductive reasoning (Best, 1981).

Sample

The study sample was drawn from a population comprised of the 1988 membership listing of the American Dietetic Association practice group of "Sports and Cardiovascular Nutritionists" ( $\mathrm{n}=3279$ ). A simple random sample of 655
was selected to be mailed the research questionnaire. The information collected from this study can only be generalized to this group.

## Data Collection

## Instrumentation

The research instrument consists of multiple choice questions, check lists and short answer or completion-type questions. In developing the instrument, several questionnaires from Faye (1982), Taylor (1984), Fisher (1984), and Boog (1985) were used to compile Part One. The questionnaire consists of four parts:

Part One - Questions concerning relevant demographic information.

Part Two - Questions about personal lifestyle practices.

Part Three - Questions contained in the wellness inventory score.

Part Four - Questions about Sports and Cardiovascular Nutritionists' role functions (activities, responsibilities or duties).

A trial study of the questionnaire was sent to a random sample of five members of the SCAN practice group.

## Survey Procedure

A cover letter accompanied the instrument explaining the research and providing information for completion of the questionnaire. The questionnaire was folded into thirds and stapled shut. Mailing information and codes were
printed on the back of the last sheet so that the questionnaire could be folded when completed and mailed without an envelope. The questionnaires were mailed from the Oklahoma State University Department of Central Mailing using third class bulk rates. Business reply mail were used for the return mailing so that only those which were returned were paid for.

Data Analysis

Data collected was transcribed and processed into computer work sheets and entered into the computer. Appropriate programs to analyze the data using the statistical Analysis System (SAS) (SAS, 1986) was used. Percentages and frequencies were generated to translate demographic, functional, attitudinal, institutional and educational variables into meaningful and useful information (Joseph and Joseph, 1979). The analysis of variance (ANOVA) procedure, t test and Duncan's new multiple range test were used to test if differences existed between the wellness inventory scores and the selected independent variables. Chi square values were used to test whether a relationship existed between selected independent variables and functional activities (Kerlinger, 1973).

CHAPTER IV

## RESULTS AND DISCUSSION

The purpose of this study was to analyze the lifestyle practices and role functions of Sports and Cardiovascular Nutritionists (SCAN). The research instrument was developed to obtain the data as described in Chapter III. Copies of the research instrument were sent to 655 randomly selected members of the SCAN practice group. Ten of the questionnaires were returned blank due to change of address or unknown reasons, therefore, the researcher used 645 as the study sample size. A total of 213 completed questionnaires were returned, for a response rate of 33 percent.

## Characteristics of the Respondents

## Sex and Age

Participants in this study were 94 percent ( $n=200$ ) female and 6 percent ( $n=13$ ) male. The respondents ranged in age from less than 25 to over 60. Only 5 percent ( $n=$ 10) of the respondents were less than 25 years old. The majority of the respondents were between $25-35,36$ percent $(n=76)$ were between $25-30$, and 26 percent ( $n=56$ ) were between 31-35. Of the remaining respondents, 18 percent (n
$=39$ ) were between $36-40,10$ percent ( $n=20$ ) were between 41-50, and 5 percent ( $n=11$ ) were 51 years of age and older (Figure 1). One participant did not respond to this question.

## Highest Level Degree Obtained and Major

The percentage of respondents holding only the bachelor's degree was 46 percent ( $n=98$ ) (Figure 2). Ninety-one percent ( $n=89$ ) of these respondents received their degree in food and nutrition or dietetics. Six percent ( $n=6$ ) of these respondents majored in institution administration or foodservice, while 3 percent ( $n=3$ ) comprised the "other" category of study.

Half of the respondents received their master's degree ( $n=106,50 \%$ ). Seventy-five percent ( $n=78$ ) of these respondents earned their master's degree in food and nutrition, nutrition education, or community-public health nutrition. Eighteen percent ( $n=19$ ) majored in institution administration or foodservice, and 7 percent ( $n=7$ ) indicated the "other" category. Two participants did not indicate their field of study.

Four percent ( $n=9$ ) of the respondents had obtained their doctoral degree. Seventy-eight percent ( $n=7$ ) of these respondents earned their doctoral degree in food and nutrition, nutrition education or a related area, while 22 percent ( $n=2$ ) majored in institution administration or foodservice.


Figure 1. Respondents by Age Group


Figure 2. Respondents by Degree Earned

## R.D. Status and Route

Ninety-five percent ( $n=194$ ) of the respondents were registered dietitians, while 5 percent ( $n=11$ ) were not (Figure 3). Eight participants did not respond to this question. Almost half of the respondents chose the dietetic internship as their route to registration ( $n=93,49 \%$ ) (Figure 4). The advanced degree plus six-month work experience and Coordinated Undergraduate Program (CUP) were about equal in popularity as a route to registration with 24 percent ( $n=45$ ) obtaining advanced degrees and 21 percent ( $n=41$ ) graduating from a CUP program.

There were 12 respondents (6\%) who indicated the category of "other" as their route to registration. Of these respondents, 5 indicated a three-year work experience; 5 a "dietetic traineeship," 1 respondent grandfathered into registration, and 1 listed being an undergraduate. Twentytwo participants did not respond to this question.

## Position Title and Type of Employer

Seventy-four percent of the respondents are either clinical or consulting dietitians: clinical dietitians represented 50 percent $(n=102)$ and consulting dietitians 24 percent ( $n=50$ ) of the respondents (Figure 5). Seventeen percent ( $n=34$ ) of the respondents were administrative dietitians, while university professors or students comprised the remaining 9 percent ( $n=18$ ). Nine individuals did not respond to this question.


Figure 3. Respondents by R.D. Status


Figure 4. Respondents by Route to Registration

Hospitals employed the largest number of respondents at 55 percent ( $\mathrm{n}=111$ ) (Figure 6). SCAN members employed in private practice comprised 15 percent ( $n=31$ ) of the respondents and an almost equal 15 percent ( $n=30$ ) were employed by either a doctor's office, weight management center, or other business. Dietitians employed in sports clinics, wellness programs, fitness centers or related businesses comprised 7 percent ( $n=14$ ) of the respondents, while the remaining 8 percent ( $\mathrm{n}=15$ ) were either professors employed by a university or students. Twelve respondents did not choose to respond to this question.

## Employment Status and Annual Salary

Sixty-nine percent ( $n=144$ ) of the respondents were employed full-time and 17 percent ( $\mathrm{n}=35$ ) were employed half-time. Nine percent ( $n=18$ ) of the respondents were employed less than half-time, while the remaining 5 percent ( $\mathrm{n}=11$ ) were not employed. Five individuals did not respond to this question.

Twelve percent ( $n=24$ ) of the respondents earned an annual salary that was $\$ 20,000$ or less (Figure 7). A possible reason for this was the high number of respondents who work half-time or less. This salary was comparable to the salaried from the 1986 census of The American Dietetic Association which found that slightly more than 20 percent of the census respondents reported annual salaries of $\$ 20,000$ or less (Bryk, 1987).


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Figure 5. Respondents by Position Title


Figure 6. Respondents by Type of Employer

The salary range between $\$ 20,001$ to $\$ 30,000$ was the most prevalent in this study with 64 percent ( $n=127$ ) response rate. Eighteen percent ( $n=35$ ) of the respondents earned a salary between $\$ 30,001$ to $\$ 40,000,5$ percent $(n=$ 11) between $\$ 40,001$ to $\$ 50,000$, and 1 percent ( $n=2$ ) between $\$ 50,001$ to $\$ 50,000$. Fourteen participants did not choose to respond to this question.

## Number of Years in Dietetic Profession, Present

## Position, Sports and Cardio-vascular

Nutrition and Percentage of Time Devoted to SCAN Functions

Of the respondents, 39 percent ( $n=82$ ) had been employed from 5 to 10 years in the dietetic profession, 34 percent $(n=72)$ for less than 5 years, and 27 percent ( $n=$ 58) for greater than 10 years. One individual did not respond to this question. With regard to the number of years in their present position, 67 percent ( $n=141$ ) of the respondents had been in their position for less than three years, and 33 percent $(n=71)$ for three years or more. One participant did not respond to this question. The majority of the respondents had been employed in the area of sports and cardiovascular nutrition for two years or less $(n=131$, 62\%) . Twenty-eight percent ( $n=59$ ) of the respondents indicated employment in this area to be 2.5 to 5 years, and 10 percent $(n=22)$ indicated greater than 5 years of


Figure 7. Respondents by Annual Salary


Figure 8. Respondents by Methods of Specialization
employment in this area. One individual did not respond to the question.

The majority of respondents indicated that they spent 25 percent or less of their time on functions related to sports and cardiovascular nutrition ( $n=140,66 \%$ ). This may reflect the number of respondents who are not employed in this specific area: the ADA allows members to join one or more Practice Groups regardless of whether they are practicing in that group or not. This may also reflect the fact that $S C A N$ as a function may be only a percentage of clinical responsibility (i.e., clinical 75\%, SCAN 25\%). Twenty percent ( $n=42$ ) of the respondents spent 27 to 70 percent of their time on SCAN functions. One participant did not respond to this question.

## Specialization

Participants were asked to check all of the ways in which they have obtained specialized knowledge in sports and cardiovascular nutrition. Multiple answers were allowed so percentages will not equal 100 percent. The most popular method of obtaining specialized knowledge was attendance at seminars and workshops ( $n=172,81 \%$ ) (Figure 8). Other popular methods were the mass media ( $n=157,74 \%$ ), work experience $(n=135,64 \%)$, advanced degree ( $n=45,21 \%$ ), and non-degree courses ( $n=30,14 \%$ ). Thirty-eight respondents (18\%) comprised the "other" category. The responses given for the "other" category included: in-services,
personal interest and self study, being a member of the SCAN DPG, research experience in this area, practical application, aerobic instructor certification, and personal participation in physical exercise and competitive athletics.

## Health and Fitness Characteristics of the Respondents

## Weight

Participants were asked to check their appropriate weight range according to height and weight charts. The majority of the respondents were in the normal range for weight ( $\mathrm{n}=144,68 \%$ ) (Figure 9). Almost an equal number of the respondents were above normal weight ( $\mathrm{n}=33$ ), 16\%) and below normal weight ( $\mathrm{n}=35,17 \%$ ). Nine percent ( $\mathrm{n}=19$ ) of the respondents were 10 percent overweight, 7 percent ( $\mathrm{n}=$ 14) were $11-20$ percent overweight, 13 percent ( $n=28$ ) were 10 percent underweight, and 3 percent ( $n=7$ ) were $11-20$ percent underweight. One participant did not respond to this question.

Respondents of this survey had a higher percentage in the normal weight range than a study of Texas dietitians in which 41 percent were average weight, 21 percent overweight, and 38 percent underweight. The researchers for that study suggested that the high percentage of dietitians considered underweight "may indicate a desire to portray an ideal weight for height image and/or the respondents' acquired
ability to modify their personal eating or exercise behavior" (Martin, Holcomb and Mullen, 1987). This reason may be the reason for the 35 percent of respondents who were underweight, since SCAN members promote optimal health and wellness. The 11 demographic variables did not significantly affect the weight of the respondents.

## Vitamin/Mineral Supplements and Medications

The respondents were almost equally divided between those who take a vitamin and/or mineral supplement and those who do not. Fifty-two percent ( $n=110$ ) of the respondents stated that they do not take a vitamin and/or mineral supplement, while 48 percent ( $n=102$ ) do take a supplement. One participant did not respond to this question. The variable job title significantly affected ( $p=0.044$ ) the taking of vitamin and/or mineral supplements. Sixty-three percent ( $n=32$ ) of the total consultants and 53 percent ( $n$ $=18)$ of the respondents in administrative positions took a vitamin and/or mineral supplement. In contrast, less than half of the respondents in clinical dietetic positions took a vitamin and/or mineral supplement ( $n=45,45 \%$ ) while 28 percent ( $\mathrm{n}=5$ ) of the university professors and students took a supplement. Respondents in consultant or administrative positions may take supplements because of their busy schedules effect on eating habits and their belief in the health benefits of supplements. This also reflects the same behaviors found in the general population where 35 to 40
percent of adults use supplements with an even higher usage among women (Koplan, Annest, Layde, and Rubin, 1986;

Stewart, McDonald, Schucker, and Henderson, 1985). In one study, 80 percent of the women surveyed used supplements (Raab, 1987). The remaining 10 demographic variables did not significantly affect this health characteristics.

With regard to medications, 76 percent ( $n=162$ ) of the respondents were not currently taking any medications, while 24 percent ( $\mathrm{n}=51$ ) were. The 11 demographic variables did not significantly affect the taking of medications.

## Breakfast, Meals per Day and Snacks

Ninety-six percent ( $n=204$ ) of the respondents usually ate breakfast, while only four percent ( $n=8$ ) did not. One respondent did not answer this question. The variables sex ( $\mathrm{p}=0.012$ ) and years employed in the area of $\operatorname{SCAN}(\mathrm{p}=$ 0.033) significantly affected the eating of breakfast. Ninety-seven percent ( $\mathrm{n}=193$ ) of the female respondents usually ate breakfast while 85 percent ( $n=11$ ) of the male respondents did. This may reflect the differences in eating patterns of the sexes in the general population. Respondents employed in the area of SCAN for more than five years ate breakfast less often ( $86 \%, \mathrm{n}=19$ ) than respondents employed from two to five years (98\%, $\mathrm{n}=59$ ) and less than two years (97\% $\mathrm{n}=126$ ). Many of those employed longer are older in age and may have developed the habit of not eating breakfast in a less health-conscious time. Also, they may
be in more administrative positions with busier schedules that affect the skipping of meals. The remaining nine demographic variables did not significantly affect the eating of breakfast.

In response to the number of meals eaten per day, 92 percent ( $n=197$ ) of the respondents ate three meals or less per day, while 8 percent ( $n=16$ ) ate more than three meals per day. The variables sex $(p=0.029)$ and R.D. status $(p=$ 0.000) significantly affected the number of meals eaten each day. Ninety-three percent ( $n=186$ ) of the female respondents and 77 percent ( $n=10$ ) of the male respondents ate three meals or less each day. Only 7 percent ( $n=13$ ) of the females ate more than three meals a day while 23 percent ( $n=3$ ) of the males did. These results suggest that women ate less frequently than men throughout the day which may reflect the same differences between sexes in the general population. Women tend to be more diet conscious and may skip more meals than men. Ninety-four percent ( $n=184$ ) of R.D. respondents ate three or less meals per day while 36 percent ( $n=4$ ) of the non-R.D. respondents ate more than three meals per day. This may reflect that most non-R.D. respondents were students with their lifestyle and schedules allowing them to eat more frequently. The other nine demographic variables did not significantly affect meals eaten per day.

With regard to snacks eaten, 45 percent ( $n=96$ ) of the respondents ate one or less snacks per day, 44 percent ( $\mathrm{n}=$
94) ate more than one to 2.5 snacks per day, and 11 percent ( $\mathrm{n}=23$ ) ate three or more snacks per day. The variable title significantly affected ( $p=0.041$ ) the number of snacks eaten per day. Respondents who were consultants ate snacks more frequently, greater than three per day, than those in other positions ( $\mathrm{n}=10,20 \%$ ). Clinical dietitian respondents ate fewer snacks with 50 percent ( $n=51$ ) eating only one or less per day. These results suggest that the different work environments affect eating patterns. Consultants may have busy schedules with traveling that interferes with eating standard meals but allows them to snack instead. The other 10 demographic variables did not significantly affect snacks eaten.

## Caffeinated Beverages and Alcohol

Respondents who consumed one to two cups of coffee, tea or other caffeinated beverages per day comprised the largest percentage ( $n=84,40 \%$ ). Twenty-seven percent ( $n=57$ ) of the respondents occasionally consume these beverages, 24 percent ( $n=51$ ) consume three or more cups per day, while only 9 percent ( $n=20$ ) never consume these beverages (Figure 10). One participant did not respond to this question. The variable R.D. status significantly affected ( $p=0.001$ ) the consumption of caffeinated beverages. The majority of R.D.'s ( $n=78,40 \%$ ) drank one to two cups per day while the majority of non-R.D.'s (n = 4, 36\%) only occasionally consumed these beverages. Why the non-R.D.'s


Figure 9. Respondents by Weight


Figure 10. Respondents by Intake of Coffee, Tea or Other Caffeinated Beverage
drank less caffeinated beverages than R.D.'s can only be speculated. The other 10 demographic variables did not significantly affect caffeine consumption.

With regard to consumption of alcohol, the majority of respondents consumed alcohol ( $n=150,71 \%$ ), while 29 percent ( $n=62$ ) did not consume alcohol. One individual did not respond to this question. The variable of years employed in the dietetic profession significantly affected $(p=0.030)$ the consumption of alcohol. Seventy-nine percent ( $n=57$ ) of respondents employed less than or equal to 5 years, 60 percent $(n=79)$ of those employed 5 to 10 years, and 75 percent $(n=44)$ of participants employed 10 years or more consumed alcohol. Why respondents employed 5 to 10 years in the dietetic profession drank significantly less alcohol than those employed less or more years can only be speculated. The other 10 demographic variables did not significantly affect alcohol consumption.

## Diet and Type of Diet

Seventy-six percent ( $n=161$ ) of the respondents were not on a diet while 24 percent ( $n=52$ ) were on a diet. The majority of the respondents on a diet were on either a low fat, low cholesterol, low sodium, or a combination of the three ( $n=26,58 \%$ ). Thirty-six percent ( $n=16$ ) were on a weight reducing or maintenance diet, and seven percent (n = 3) were on a diabetic diet.

The variable place of employment significantly affected ( $\mathrm{p}=0.031$ ) the diet of the respondents. A higher percentage of respondents employed in the area of sports/ cardiovascular nutrition (sports clinics, wellness centers, and health clubs; $n=5,36 \%$ ) and employed by a hospital (n $=33,30 \%$ ) were on a diet than respondents employed in other areas. The other 10 demographic variables did not significantly affect the diet of respondents. The variable R.D. significantly affected ( $p=0.028$ ) the type of diet that respondents were on. The majority of R.D.'s who were on a diet ( $n=26,61 \%$ ) were on a low fat/low cholesterol and/or low sodium diet, none of the non-R.D.'s were on this diet. Thirty-three percent ( $n=14$ ) of the R.D.'s on a diet were on a weight loss or maintenance diet and 5 percent ( $n=2$ ) were on a diabetic diet. The non-R.D.'s were equally divided between being on a diabetic diet and a weight loss or maintenance diet.

Dietitians employed in sports/cardiovascular nutrition and in hospitals usually have much more patient/client contact than those in consulting or administrative positions. Therefore, these results may show a desire by R.D.'s in these positions to practice the diets (low fat/low cholesterol/low sodium) which they promote to their patients/clients.

## Participation in Exercise

Fifty-two percent ( $n=111$ ) of the respondents did not belong to a fitness/exercise center, while 48 percent (n = 102) did belong. An overwhelming majority of the respondents exercised on a regular basis ( $n=198,93 \%$ ), while only 7 percent ( $n=15$ ) do not exercise on a regular basis. The variables where employed $(p=0.013)$ and years employed in the area of $\operatorname{SCAN}(p=0.008)$ significantly affected the current participation of respondents in regular exercise. All of the respondents employed in the area of sports/ cardiovascular nutrition (sports clinics, wellness centers and health clubs) and by doctors' offices, weight loss centers or corporations exercised on a regular basis. Ninety-four percent $(n=104)$ of those employed by a hospital and 91 percent ( $n=29$ ) of respondents in private practice exercised regularly. As related to years employed in the area of SCAN, an overwhelming majority of those employed for five years or less ( $n=181,95 \%$ ) exercised on a regular basis while 77 percent ( $n=17$ ) of those employed greater than five years do. These results may be related to the factor of age with those respondents who are employed longer being older and exercising less frequently.

With regard to frequency of exercise, 50 percent ( $n=$ 97) of the respondents exercised three to four times per week, 43 percent ( $n=84$ ) exercised one to two times per week (Figure 11). Nineteen participants did not respond to this question. In response to duration of exercise, 46


Figure 11. Respondents by Frequency of Exercise per Week


Figure 12. Respondents by Exercise Duration
percent ( $n=66$ ) of the respondents exercised for one hour or more, 43 percent ( $n=61$ ) exercised for 31 to 59 minutes, and 11 percent ( $n=16$ ) exercised for 30 minutes or less (Figure 12). Seventy participants did not respond to this question.

SCAN members were asked to specify physical activities in which they participate. Multiple answers were allowed so percentages will not total 100 percent. The respondents were almost equally divided between participation in cycling ( $\mathrm{n}=94,44 \%$ ) and running $(\mathrm{n}=93,44 \%$ ). The next most popular physical activities were walking ( $n=74,35 \%$ ), aerobic dancing ( $n=70,33 \%$ ), the category of "other" physical activities ( $n=58,27 \%$ ), weight training ( $n=48$, $23 \%$ ), and swimming ( $n=46,22 \%$ ) (Figure 13). The "other" category included mostly team sports such as basketball, volleyball, tennis and racketball, but also included horseback riding, hiking, rowing machine, light stretching, and yoga.

There were no significant associations between the 11 demographic variables and the participation by respondents in the activities of running or aerobic dancing. There was a significant association ( $p=0.003$ ) between the respondents' place of employment and participation in cycling. An overwhelming majority ( $n=12,86 \%$ ) of those employed in the area of SCAN (sports clinics, wellness centers and health clubs) rode bicycles for exercise while significantly less of those employed in other areas did. The variable of sex


Figure 13. Respondents by Choices of Physical Fitness Activities


Figure 14. Respondents by Change in Physical Activity Since Employed in SCAN
significantly affected the participation in walking $(p=$ 0.034), swimming ( $p=0.027$ ), and "other" exercises ( $p=$ 0.024). More women walked as an activity than men, while more male respondents swam and did "other" exercises than women. The variable of years employed in the dietetic profession significantly affected the participation in walking and weight training. About half of the respondents who have been in the profession for greater than 10 years walked ( $\mathrm{n}=29,49 \%$ ) for exercise, while more of those employed for less than five years ( $n=21,29 \%$ ) and greater than 10 years ( $n=16,27 \%$ ) participated in weight training than those employed between 5 to 10 years ( $n=11,13 \%$ ). The variable of R.D. significantly affected ( $p=0.007$ ) the participation in weight training. A higher percentage of non-R.D.'s ( $n=6,54 \%$ ) weight trained than R.D.'s. The variable title significantly affected ( $p=0.012$ ) the participation in "other" exercises. Respondents in administrative positions ( $\mathrm{n}=16,47 \%$ ) participated more in "other" activities than those respondents with other job titles. The variable of years employed in the area of SCAN significantly affected ( $p=0.018$ ) the participation in swimming. More respondents who have been employed in the area of SCAN for two years or less ( $\mathrm{n}=36,27 \%$ ) participated in swimming than those employed for greater than two years ( $n=10,10 \%$ ). Why the significant associations existed between some of the demographic variables and physical fitness activities can only be speculated.

Fifty-nine percent ( $n=126$ ) of the respondents have participated regularly in sports or other athletic activities throughout their lives, while 41 percent ( $n=86$ ) have not. One individual did not respond to this question. The variables R.D. ( $p=0.004$ ) and age $(p=0.000)$ were significantly related to the respondents participation in exercise throughout life. All of the non-R.D.'s and 56 percent $(n=$ 109) of the R.D.'s have participated in exercise throughout their lives. With regard to the variable of age, the majority of those who were 30 years old or less ( $\mathrm{n}=60$, 70\%) have participated in lifetime exercise while 56 percent $(n=53)$ of those $31-40$ years old and 39 percent $(n=12)$ of those 41 years old or older had. These results suggest that the younger SCAN members have been more physically active in their youth than the older members were since almost all of the SCAN members currently exercise. This may also be related to generational differences, the younger members have been raised in a more health and exercise conscious time. The remaining nine demographic variables did not significantly affect this health characteristic.

In response to a change in physical activity since being employed in the area of sports and cardiovascular nutrition, 56 percent ( $n=112$ ) of the respondents stated that their physical activity has remained the same, 36 percent ( $n=72$ ) have increased their physical activity, and 8 percent ( $n=15$ ) have decreased their physical activity (Figure 14). Fourteen participants did not respond to this
question. The variables sex ( $p=0.014$ ) and years employed in the area of SCAN ( $p=0.002$ ) significantly affected if the respondents have changed their physical exercise since being employed in the area of SCAN. Most of the males and females have not changed their level of physical activity. However, 38 percent ( $n=7$ ) of the women have increased their physical activity while only 9 percent ( $n=1$ ) of the men have and 26 percent ( $n=3$ ) of the men have decreased their activity while only 6 percent ( $n=12$ ) of the women have. Why more women have increased their level of activity and more men have decreased their physical activity can only be speculated. With regard to years employed in the area of SCAN, the majority of those employed for five years or less ( $\mathrm{n}=107,56 \%$ ) had not changed their level of exercise while the majority of those employed for more than five years had increased their physical activity. These results may be due to differences in age with those being employed in the area of SCAN for longer being older.

## Wellness Inventory

SCAN members promote optimal health and wellness. This section of the questionnaire was used to determine if members of SCAN practice health promotion activities. Participants were asked to respond to statements in 10 areas of lifestyle/wellness practices. Within each area are five statements which participants answered as being either true
(1 point each) or false ( 0 points). The Wellness Inventory Score (WIS) key is as follows:

40-50: Healthier than average lifestyle
25-39: Average lifestyle
0-25: Below average, need for improvement
It would be expected that SCAN members would score in the healthier than average lifestyle range which 89 percent ( $\mathrm{n}=191$ ) of the respondents did (Figure 15). This suggests that an overwhelming majority of SCAN members practice good health/wellness promotion activities. Nine percent ( $n=20$ ) of the respondents had average lifestyle scores while only two percent ( $n=4$ ) had below average lifestyle scores.

The $t$-test and analysis of variance (ANOVA) were used to determine the effect of independent variables on the WIS through the calculation of mean differences. Significant differences were considered at the $p=0.05$ level or less. The variable of age significantly affected ( $p=0.018$ ) the WIS, while the other 10 independent variables had no significant effect (Table I). A Duncan's multiple range test was performed to determine if significant differences existed between WIS scores based on age. A significant difference was found; SCAN members who were 41 years of age or older had lower WIS than younger members (Table II). This could be due to generational differences in health habits. With age may also come a decrease in physical activity and an increase in body weight, similar to that which is found in the general population.


Figure 15. Respondents by Wellness Inventory Score

## TABLE I

ANALYSIS OF VARIANCE TABLE FOR THE WELLNESS INVENTORY SCORE AND AGE

| Age | df | Sum of <br> Squares | Mean <br> Square | F <br> Value | Observed <br> Significant <br> Level |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Between <br> Groups | 2 | 172.08 | 86.04 | 4.07 | 0.0184 |
| Within <br> Groups | 207 | 4371.43 | 21.11 |  |  |
| Corrected <br> Total | 209 | 4543.52 |  |  |  |

TABLE II
MEAN SCORES FOR THE WELLNESS INVENTORY SCORE AND AGE

| Age | N | Mean Scores | Duncan |
| :--- | :---: | :---: | :---: |
| $\leq 30$ years | 86 | 38.116 | A |
| $31-40$ years | 93 | 38.817 | A |
| $\geq 41$ years | 31 | 36.097 | B |

Two health and fitness characteristic variables significantly affected the WIS; these included: body weight and swimming. The other health and fitness characteristics had no significant effect on the WIS. A Duncan's multiple range test was also performed to determine if significant differences existed between WIS scores based on body weight. Therewas a significant difrerence found between the WIS scores based on categories of body weight (Tables III and IV). The WIS score of underweight respondents was significantly different than the WIS scores of overweight respondents. There was a significant difference ( $\mathrm{p}=0.019$ ) between categories of body weight. Respondents that were below normal weight had a higher WIS than those of normal and above normal weight. The relationship between body weight and WIS may reflect the respondents' ability to modify their eating, exercise and other health behaviors. Those able to control their weight through modification in diet and exercise may be more willing and/or dedicated to practicing good health/ wellness behaviors. As stated earlier, dietitians who are underweight "may indicate a desire to portray an ideal weight for height image and/or the respondents' acquired ability to modify their personal eating or exercise behavior" (Martin, Holcomb and Mullen, 1987).

The second variable to significantly affect (p = 0.0004 ) the WIS is swimming (Table V). Respondents who swam for exercise had a higher WIS than those who did not. Why

TABLE III
ANALYSIS OF VARIANCE TABLE FOR THE WELLNESS INVENTORY

SCORE AND WEIGHT

| Weight | df | Sum of <br> Squares | Mean <br> Square | F <br> Value | Observed <br> Significant <br> Level |
| :--- | :---: | :---: | :---: | :---: | :---: |
| Between <br> Groups | 2 | 242.61 | 121.27 | 4.01 | 0.0196 |
| Within <br> Groups | 208 | 6297.44 | 30.27 |  |  |
| Corrected <br> Total | 210 | 6540.05 |  |  |  |

TABLE IV
MEAN SCORES FOR THE WELLNESS INVENTORY SCORE AND WEIGHT

| Weight | N | Mean Scores | Duncan |
| :--- | :---: | :---: | :---: |
| Below normal | 34 | 48.70 | A |
| Normal | 144 | 46.67 | AB |
| Above normal | 33 | 44.90 | B |

TABLE V
T-TEST PROCEDURE FOR THE WELLNESS INVENTORY SCORE AND THE HEALTH VARIABLE OF SWIMMING

| Variable | N | Mean | Standard <br> Deviation | $t$ | Observed <br> Significant <br> Level |
| :--- | ---: | :---: | :---: | :---: | :---: |
| Participate <br> in Swimming: |  |  |  |  |  |
| $\quad$ No | 166 | 46.37 | 5.89 | -2.01 | 0.0465 |
| $\quad$ Yes | 46 | 47.89 | 4.05 |  |  |

swimming would affect the WIS while the other six activities that respondents participated in did not can only be speculated. It seems to reflect that those participants who swim for exercise are possibly more dedicated to good health/wellness behaviors in their lives.

## Analysis of Role Functions

The fourth and last section of the questionnaire listed role functions and activities which may have been performed by members of the SCAN practice group. The role functions were divided into 10 separate groups of major responsibility with additional functional activities delineated within the 10 groupings. The respondents stated the frequency (daily, weekly, monthly, "other", or never) with which they performed each activity. The responses given for the "other" category included: occasionally, as needed, bimonthly, semi-annually, more than twice a year, and yearly. Of the 213 total respondents, 187 answered this section of the questionnaire. For more detailed information of the role functions, please refer to the ADA's Role Delineation and Verification for Entry-level Positions in Clinical Dietetics.

## Function One: Assessment of the Nutritional

## Status of Client/Patient

This function contains three activities:

1. Evaluates nutritionally relevant data (anthropometric, laboratory, energy and intake data).
2. Interviews client/patient for diet history.
3. Analyzes nutrition needs based on relevant data.

Within this function, the variables job title and place of employment significantly affected all three activities while MS degree significantly affected activities two and three (Table VI). The other eight independent variables did not significantly affect function one activities.

The first activity was significantly affected by job title ( $p=0.039$ ) and place of employment ( $p=0.009$ ). Sixty percent ( $n=112$ ) of the 187 respondents performed this activity daily/ weekly, 19 percent ( $n=36$ ) performed it monthly or "other", while 21 percent ( $n=39$ ) never performed this activity. Concerning job title, more clinical dietitian respondents ( $n=100$ ) performed this activity on a daily/weekly basis than the other job titles $\ln =70$, 70\%). Fifty-one percent ( $n=24$ ) of the 47 consultant respondents also performed this activity daily/ weekly. Respondents in administrative positions ( $n=31$ ) performed the least on a daily/weekly basis ( $\mathrm{n}=13,42 \%$ ), but performed more than the other job titles on $a$ weekly or "other basis. It was unexpected that 56 percent ( $n=5$ ) of

TABLE VI
SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION ONE AND DEMOGRAPHIC VARIABLES

| Evaluation of the Nutritional Status of Client/fiatient | Variables | P | $x$ | $d+$ |
| :---: | :---: | :---: | :---: | :---: |
| Evaluate Nutritionally Fielevant Data (anthropometric. 1 aboratory. energy and intake data) | Job Title | 0.039 | 13.26 | 6 |
|  | Filace of Emplayment* | 0.009 | 20.514 | 8 |
| ```Interviews Client/ Fatient for Diet History``` | Job Title* | 0.001 | 23.739 | 6 |
|  | Filace of Employment* | 0.000 | 27.886 | 8 |
|  | MS Degree | 0.000 | 10.332 | 2 |
| Analyzes Nutrition Needs Eased on Fielevant Data | Job Title* | 0.000 | 31.841 | 6 |
|  | Flace of Emplayment* | 0.000 | 59.403 | 8 |
|  | MS Degree | 0.001 | 14.572 | 2 |

*Warning: More than 20 percent of the cells have expected counts less than 5.
the nine respondents who are educators, teachers, professors, or graduate student teaching assistants performed this activity daily/weekly. This group, however, also had the largest percentage who never performed this activity ( $\mathrm{n}=3$, $33 \%$ ).

With regard to activity one and place of employment, respondents employed in sports clinics, wellness centers or health clubs performed this activity on a daily/weekly basis more than those employed in other areas ( $\mathrm{n}=10,77 \%$ ). Sixty-five percent ( $n=71$ ) of the 109 dietitians employed in hospitals also performed this activity on a daily/weekly basis. Respondents employed in private practice ( $n=29$ ) performed this activity more than those in the other employment areas on a monthly or "other" basis. Fifty-six percent ( $\mathrm{n}=5$ ) of those employed in education never do this activity, as well as, 41 percent ( $n=11$ ) of those employed by doctors offices, weight loss centers or corporations ( $\mathrm{n}=$ 27).

The second activity was significantly affected by job title ( $p=0.001$ ), place of employment ( $p=0.000$ ), and $M S$ degree $(p=0.006)$. Seventy-four percent ( $n=138$ ) of the respondents performed this activity daily/weekly, 13 percent ( $n=25$ ) performed it monthly or "other", while 12 percent ( $n=23$ ) never performed this activity. Eighty-eight percent ( $\mathrm{n}=88$ ) of the clinical dietitian respondents ( $\mathrm{n}=$ 100) performed this activity on a daily/weekly basis, as well as, 61 percent ( $n=28$ ) of the consulting respondents
and 58 percent ( $n=18$ ) of the administrative respondents. The nine educators performed this activity more than the other job titles on a monthly or "other" basis ( $n=2,22 \%$ ) and never performed this activity ( $n=3,33 \%$ ).

With regard to activity two and place of employment, 85 percent ( $n=93$ ) of those employed in hospitals performed this activity on a daily/weekly basis, as well as, 77 percent ( $n=10$ ) of those employed by a sports clinic, wellness center or health club, and 63 percent ( $n=17$ ) of those employed by a doctor's office, weight loss center or corporation. Respondents employed in private practice performed this activity the most on a monthly or "other basis ( $\mathrm{n}=9,32 \%$ ). Those employed ed education ( $\mathrm{n}=9$ ) never performed this activity less than the other areas of employment ( $\mathrm{n}=4,44 \%$ ). Concerning activity two and MS degree, respondents who held a Masters Degree performed this activity less frequently than those who did not. Eightyfour percent ( $n=81$ ) of 97 respondents who do not have an M.S. degree performed this activity daily/weekly while 64 percent ( $n=59$ ) of those with an M.S. degree ( $n=92$ ) performed daily/weekly.

The third activity was significantly affected by job title ( $p=0.000$ ), place of employment ( $p=0.000$ ) and M.S. degree ( $p=0.001$ ). Seventy-four percent ( $n=148$ ) of the respondents performed this activity on a daily/weekly basis, 13 percent ( $n=24$ ) performed it on a monthly or "other" basis, and 8 percent ( $n=15$ ) never did this activity.

Concerning job title, more clinical dietitian respondents (n $=100$ ) performed this activity on a daily/weekly basis than the other job titles ( $n=94,94 \%$ ). Sixty-four percent ( $n=$ 30) of the 47 consulting respondents and 61 percent ( $n=19$ ) of the administrative respondents also performed this activity on a daily/weekly basis. Twenty-two percent (n = 2) of the nine educators never performed this activity.

As related to activity three and place of employment, 100 percent ( $n=13$ ) of those employed in sports clinics, wellness centers or health clubs performed this activity on a daily/weekly basis. Eighty-six percent ( $n=94$ ) of those employed in hospitals also performed it on a daily/weekly basis, as well as, 70 percent ( $n=19$ ) of those employed by a doctor's office, weight loss center or corporation; 66 percent ( $\mathrm{n}=6$ ) of those employed in education; and 59 percent ( $\mathrm{n}=17$ ) of those employed in private practice.

Concerning activity three and M.S. degree, respondents who had an M.S. degree performed this activity less frequently than those who did not. Ninety percent ( $\mathrm{n}=88$ ) of the 98 respondents who did not have an M.S. degree performed this activity daily/weekly, while 67 percent (n = 62) of those with an M.S. degree ( $n=92$ ) did. This may be because those respondents with M.S. degrees may be employed in more administrative and less clinical-type positions.

Function Two: Nutrition Care Planning

This function contains four activities:

1. Identifies desired goals/outcomes of plan.
2. Determines nutrient and energy requirements.
3. Selects appropriate sources of specific nutrients.
4. Develops and documents nutrition care plan. Within this function, the variables job title, place of employment and M.S. degree significantly affected all four activities (Table VII). The other seven demographic variables did not have significant associations with function two activities.

The first activity was significantly affected by job title $(p=0.000)$, place of employment $(p=0.000)$ and M.S. degree $(p=0.002)$. The majority of the respondents $(n=$ 149, 79\%) performed this activity daily/weekly, while only 11 percent ( $n=22$ ) performed it monthly or "other" and 8 percent ( $n=16$ ) never performed this activity. concerning job title, almost all of the clinical dietitians performed this activity on a daily/weekly basis ( $n=94,94 \%$ ), while 68 percent ( $n=32$ ) of the consulting dietitians, 58 percent ( $n=18$ ) of the administrative dietitians, and 55 percent ( $n$ $=5)$ of the educators performed it daily/weekly. More administrators $(n=7,23 \%)$ and consultants ( $n=10,21 \%$ ) performed this activity on a monthly or "other" basis, while more educators ( $n=3,33 \%$ ) and administrators ( $n=6$, 19\%) never performed this activity.

TABLE VII

SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION TWO AND DEMOGRAPHIC VARIABLES

| Nutrition Care Flanning | Variables | P | $x^{2}$ | $\Delta t$ |
| :---: | :---: | :---: | :---: | :---: |
| Identifies Desired Goals/Outcomes of Filan | Job Title* | 0.000 | E\% - 611 | 6 |
|  | Flace of Employinent* | 0.000 | 35. 23 | 8 |
|  | MS Degree | 0.002 | 12.080 | 2 |
| Determines Nutrient and Energy Fiequirements | Job Title* | 0.000 | 27.075 | 6 |
|  | Filace of Employment* | 0.000 | 42.117 | 8 |
|  | ms Degree | 0.010 | 8.286 | 2 |
| Gelects Appropriate Sources of Specific Nutrients | Job Title* | 0.000 | 3.3 .298 | 6 |
|  | Flace of Emplayment* | 0.000 | 27.909 | 8 |
|  | MS Degree | 0.000 | 19.6.55 | 2 |
| Develops and Documents Nutrition Care Flan | Job Title* | 0.000 | 41.004 | 6 |
|  | Filace of Employment* | 0.600 | 45.458 | 8 |
|  | MS Degree | 0.005 | 10.80 .3 | 2 |

*Warning: More than 20 percent of the cells have expected counts 1 ess than 5.

With regard to activity one and place of employment, those employed by sports clinics, wellness centers or health clubs ( $\mathrm{n}=12,94 \%$ ) and by hospitals ( $\mathrm{n}=96,88 \%$ ) performed this activity almost exclusively on a daily/weekly basis. Sixty-seven percent ( $n=18$ ) of respondents employed by doctors' offices, weight loss centers or corporations, 65 percent ( $\mathrm{n}=19$ ) of those employed in private practice, and 56 percent ( $\mathrm{n}=5$ ) employed in education also performed this activity on a daily/weekly basis. Respondents in private practice ( $\mathrm{n}=9,31 \%$ ) performed more on a monthly or "other" basis than those employed elsewhere, while those employed in education ( $\mathrm{n}=3,33 \%$ ) and employed by a doctor's office, weight loss center or corporation ( $\mathrm{n}=7,26 \%$ ) never performed this activity. Concerning M.S. degree, respondents who held a Masters Degree ( $\mathrm{n}=87$, $89 \%$ ) performed this activity less on a daily/weekly basis than those who did not $(\mathrm{n}=64,69 \%)$.

The second activity was significantly affected by job title $(\mathrm{p}=0.000)$, place of employment $(\mathrm{p}=0.000)$, and M.S. degree $(\mathrm{p}=0.016)$. The frequency with which the activity was performed by the respondents was the same as for activity one: 80 percent ( $n=147$ ) performed it daily/ weekly, 12 percent ( $n=24$ ) performed it monthly or "other", and 8 percent ( $n=16$ ) never performed this activity. The majority of clinical dietitians ( $n=92,92 \%$ ) performed this activity daily/weekly, while 68 percent ( $n=32$ ) of the consulting dietitians, 58 percent ( $n=18$ ) of the
administrative dietitians, and 56 percent ( $n=5$ ) of the educators also performed daily/weekly.

As in activity one, more administrators ( $\mathrm{n}=8,26 \%$ ) and consultants ( $\mathrm{n}=10,21 \%$ ) performed this activity monthly or "other", while 33 percent ( $n=3$ ) of educators never performed this activity.

Concerning activity two and place of employment, 89 percent ( $n=97$ ) employed by hospitals, 84 percent ( $n=11$ ) employed by sports clinics, wellness centers or health clubs, 65 percent ( $n=19$ ) employed in private practice, 55 percent ( $n=15$ ) employed by doctors' offices, weight loss clinics or corporations, and 55 percent ( $n=5$ ) employed in education performed this activity on a daily/weekly basis. Respondents in private practice ( $\mathrm{n}=9,31 \%$ ) and employed by doctors' offices, weight loss centers or corporations (n = 6, $22 \%$ ) performed more on a monthly or "other" basis than those employed in the other areas. Forty-four percent ( $n=$ 4) of those employed in education never performed this activity. With regard to M.S. degree, less respondents who held a Masters Degree ( $\mathrm{n}=64,69 \%$ ) performed activity two than those who did not ( $\mathrm{n}=84,85 \%$ ).

The third activity was significantly affected by job title $(p=0.000)$, place of employment ( $p=0.000$ ), B.S. degree ( $p=0.008$ ), and M.S. degree ( $p=0.000$ ). Eighty percent ( $\mathrm{n}=150$ ) of the respondents performed this activity daily/weekly, 11 percent ( $n=20$ ) performed it monthly or
"other", and 9 percent ( $n=17$ ) never performed this activity.

Concerning job title, clinical dietitians $(n=94$, 94\%) performed this activity the most on a daily/weekly basis, while 70 percent $(n=33)$ of consultants, 58 percent $(n=18)$ of administrators, and 55 percent ( $n=5$ ) of educators also performed it daily/weekly. Twenty-two percent (n $=2)$ of educators and 21 percent ( $n=10$ ) of consultants performed this activity on a monthly or "other" basis more than those with other job titles, while 26 percent ( $n=8$ ) of administrators never performed this activity.

With regard to activity three and place of employment, 100 percent $(n=13)$ of the respondents employed by sports clinics, wellness centers or health clubs performed this activity daily/weekly, while 86 percent ( $n=94$ ) employed by hospitals, 72 percent ( $n=21$ ) employed by a doctor's office, weight loss center or corporation, and 56 percent (n $=5)$ employed in education also performed daily/weekly. A higher percentage of respondents employed in private practice $(n=7,24 \%)$ performed this activity on a monthly or "other" basis than those employed in other areas. On the other hand, 33 percent $(n=3)$ employed in education and 267 percent ( $n=7$ ) employed by a doctor's office, weight loss center or corporation never performed activity three. Concerning M.S. degree, respondents who had a Master Degree $(n=61,66 \%)$ performed this activity less than respondents who did not have this degree $(n=90,92 \%)$.

The fourth activity was significantly affected by job title ( $\mathrm{p}=0.000$ ), place of employment ( $\mathrm{p}=0.000$ ) and M.s. degree ( $p=0.005$ ). Seventy-nine percent ( $n=147$ ) of the respondents performed this activity daily/weekly, 12 percent ( $\mathrm{n}=23$ ) performed it monthly or "other", and 9 percent ( $\mathrm{n}=$ 17) never performed this activity. Concerning job title in the first three activities, clinical dietitians (n = 94, 94\%) performed this activity daily/weekly more than consulting dietitians ( $\mathrm{n}=31,66 \%$ ), administrators ( $\mathrm{n}=17$, 54\%) and educators ( $\mathrm{n}=5,56 \%$ ). Consulting dietitians ( $\mathrm{n}=$ 12, $26 \%$ ) performed this activity on a monthly or "other" basis more than those with other job titles, while 30 percent ( $\mathrm{n}=9$ ) of the administrative respondents never performed it. With regard to place of employment, 100 percent ( $n=13$ ) of respondents employed by sports clinics. wellness centers or health clubs performed this activity daily/weekly, while 88 percent ( $n=96$ ) employed by hospitals, 63 percent ( $\mathrm{n}=17$ ) employed by a doctor's office, weight loss center or corporation, 62 percent $(\mathrm{n}=$ 18) employed in private practice, and 44 percent ( $n=4$ ) employed in education performed it daily/weekly. A higher percentage of respondents in private practice ( $\mathrm{n}=10,34 \%$ ) performed this activity monthly or "other" than those employed elsewhere; while 30 percent of respondents employed by a doctor's office, weight loss clinic or corporation never performed it. Concerning M.S. degree, once more, respondents who had an M.S. degree ( $n=63,68 \%$ ) performed
this activity less on a daily/weekly basis than those without an M.S. degree.

## Function Three: Nutrition Care

## Implementation

This function contains four activities:

1. Communicates implementation.
2. Monitors implementation.
3. Documents all aspects of plan.
4. Verifies implementation.

Within this function, the variables job title, place of employment, and M.S. degree significantly affected all four activities, while sex significantly affected only activities three and four (Table VIII). The other seven demographic variables did not have significant associations with function three activities.

The first activity was significantly affected by job title $(p=0.000)$, place of employment ( $p=0.000$ ), and M.S. degree $(p=0.045)$. Of the respondents, 77 percent ( $n=$ 145) performed this activity daily/weekly, 13 percent ( $\mathrm{n}=$ 24) performed it monthly or "other", and 10 percent ( $\mathrm{n}=18$ ) never performed this activity. Concerning job title, almost all of the clinical dietitians ( $n=93,93 \%$ ) performed this activity daily/weekly, while only 66 percent ( $n=31$ ) of consultants, 51 percent ( $n=16$ ) of administrators, and 55 percent ( $n=5$ ) of educators did. Consultants ( $n=12,26 \%$ ) performed more on a monthly or "other" basis than the other

TABLE VIII

## SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION THREE AND DEMOGRAPHIC VARIABLES

| Nutrition Care Imolementation | Variables | P | $x^{2}$ | $d f$ |
| :---: | :---: | :---: | :---: | :---: |
| Communicates Implementation | Job Title* | 0.000 | 42.793 | 6 |
|  | Flace of Empl oyment* | 0.000 | 45.724 | $\varepsilon$ |
|  | MS Degree | 0.045 | 6.207 | 2 |
| Monitors Imolementation | Job Title* | 0.000 | 31.151 | 6 |
|  | Flace ot Employment* | 0.002 | 24.515 | 8 |
|  | MS Degree | 0.017 | 7.706 | 2 |
| Uocuments All Aspects of Filan | Job Title* | 0.000 | 27.179 | 6 |
|  | Flace of Employment* | 0.000 | 58.216 | 8 |
|  | Sex* | 0.017 | 7.748 | 2 |
|  | MS Degree | 0.001 | 1.3 .997 | 2 |
| Verifies Imolementation | Job Title* | 0.000 | 5.5079 | 6 |
|  | Flace of Employment | 0.000 | 40.216 | 8 |
|  | Sex* | 0.009 | 7.381 | 2 |
|  | MS Degree | 0.001 | 14.066 | 2 |

*Warning: More than 20 percent of the cells have expected counts less than 5.
ob titles, while 32 percent ( $n=10$ ) of the administrators never performed this activity.

In regards to activity one and place of employment, 100 percent of respondents employed by sports clinics, wellness centers or health clubs performed it daily/weekly, while 87 percent ( $n=95$ ) employed by hospitals, 65 percent ( $n=19$ ) employed in private practice, and 51 percent ( $n=14$ ) employed by a doctor's office, weight loss center or corporation did. Respondents in private practice ( $\mathrm{n}=9,31 \%$ ) performed more on a monthly or "other" basis than those employed by the other groups. Forty-four percent ( $n=4$ ) of educators and 30 percent ( $n=8$ ) of those employed by a doctor's office, weight loss center or corporation never performed activity one. In relation to M.S. degree, respondents who held a Master Degree ( $\mathrm{n}=64,69 \%$ ) performed this activity less frequently than those who did not (n $=83$, 83\%).

The second activity was significantly affected by job title ( $\mathrm{p}=0.000$ ), place of employment $(\mathrm{p}=0.002)$, and M.S. degree ( $p=0.019$ ). Seventy-seven percent ( $n=143$ ) of the respondents performed this activity on a daily/weekly basis, while 7 percent ( $n=14$ ) performed it monthly or "other", and 16 percent ( $n=30$ ) never performed this activity. With regards to job title, 90 percent ( $n=90$ ) of the clinical dietitians performed this activity on a daily/weekly basis, while 70 percent ( $n=33$ ) of consultants, 56 percent ( $n=5$ ) of educators, and only 48 percent ( $n=15$ ) of administrators
did. Administrators performed this activity more on a monthly or "other" basis ( $n=6,19 \%$ ) or never performed this activity $(\mathrm{n}=10,32 \%)$.

In relation to activity two and place of employment, almost equal percentages of respondents employed by sports clinics, wellness centers or health clubs ( $n=11,84 \%$ ) and employed by hospitals $(n=91,83 \%)$ performed it on a daily/weekly basis. Seventy-two percent (n = 21) of respondents employed in private practice, 59 percent ( $n=16$ ) employed by a doctor's office, weight loss center or corporation, and 56 percent ( $n=5$ ) employed in education also performed it daily/weekly. As in the previous activity, educators ( $n=4,44 \%$ ) and respondents employed by a doctor's office, weight loss center or corporation never performed this activity more than those employed in the other employment groups. Concerning M.S. degree, the same occurred as in activity one. Respondents who had an M.S. degree ( $n=62,67 \%$ ) performed this activity less than those who did not have the degree ( $n=83,84 \%$ ).

The third activity was significantly affected by job title $(p=0.000)$, place of employment $(p=0.000)$, M.S. degree $(p=0.001)$, and $\operatorname{sex}(p=0.019)$. Of the respondents, 80 percent ( $n=150$ ) performed this activity daily/ weekly, 8 percent ( $n=15$ ) performed it monthly or "other", and 12 percent $(n=22)$ never performed it. With regard to job title, the same held true as in the previous activities, with almost all of the clinical dietitians ( $n=93,93 \%$ )
performing activity three daily/weekly. The majority of the other groups also performed this activity on a daily/weekly basis: 70 percent $(n=33)$ of consultants, 60 percent $(n=$ 19) of administrators, and 56 percent ( $n=5$ ) of educators. As in the previous activities, a higher percentage of administrators ( $n=9,29 \%$ ) never performed this activity than those with other job titles.

In relation to activity three and place of employment, 92 percent ( $n=12$ ) of respondents employed by sports clinics, wellness centers, or health clubs performed it daily/weekly, while 89 percent ( $n=97$ ) employed by hospitals, 69 percent $(n=20)$ employed in private practice, 59 percent ( $n=16$ ) employed by a doctor's office, weight loss center or corporation, and 67 percent ( $n=6$ ) of educators also perform it daily/weekly. A surprising 41 percent ( $n=11$ ) of respondents employed by a doctor's office, weight loss center or corporation never performed this activity.

Concerning activity three and M.S. degree, the same held true as for the previous activities with respondents who had an M.S. degree ( $n=64,69 \%$ ) performing significantly less on a daily/weekly basis than those who did not have this degree ( $n=88,90 \%$ ). With regard to sex, a much higher percentage of female respondents ( $n=144,81 \%$ ) performed this activity daily/weekly than the male respondents ( $n=7,58 \%$ ).

The fourth activity was significantly affected by job title $(p=0.000)$, place of employment $(p=0.000)$, M.S. degree ( $p=0.001$ ), and sex $(p=0.009)$. The majority of the respondents performed this activity on a daily/weekly basis ( $n=126,67 \%$ ), while 17 percent ( $n=31$ ) performed it monthly or "other", and 16 percent ( $n=30$ ) never performed it. In relation to job title, 87 percent ( $n=87$ ) of clinical dietitians, 51 percent ( $n=24$ ) of consultants, 56 percent ( $n=5$ ) of educators, and only. 48 percent ( $n=15$ ) of administrators performed this activity daily/weekly. Thirty-four percent ( $\mathrm{n}=16$ ) of consultants and 26 percent ( $\mathrm{n}=8$ ) of administrators performed this activity on a monthly or "other" basis, while 33 percent ( $n=3$ ) of educators and 26 percent ( $n=8$ ) of administrators never performed this activity.

With regard to activity four and place of employment, 100 percent of respondents employed by sports clinics, wellness centers or health clubs performed this activity daily/weekly, the same as for activity one. In addition, 79 percent ( $n=86$ ) of respondents employed by hospitals, 52 percent ( $n=15$ ) employed in private practice, 56 percent ( $n$ $=5$ ) employed in education, and only 48 percent ( $n=13$ ) of those employed by a doctor's office, weight loss center or corporation also performed activity four daily/weekly. Thirty-eight percent ( $n=11$ ) of respondents in private practice performed this activity monthly or "other", while

41 percent ( $n=11$ ) employed by a doctor's office, weight loss center or corporation never performed it.

In relation to activity four and M.S. degree, the same holds true as for the previous activities. Respondents who had an M.S. degree $(\mathrm{n}=53,57 \%$ ) performed this activity less on a daily/weekly basis than those who did not have an M.S. degree $(n=80,81 \%)$. Concerning the variable sex, female respondents ( $n=128,72 \%$ ) performed this activity more on a daily/weekly basis than the male respondents (n $=$ 5, 41\%).

Function Four: Nutrition Care Evaluation of Client/Patient Adherence to Tolerance of Nutrition Care Plan

This function contains two activities:

1. Monitors outcome of plan.
2. Makes necessary adjustments to plan.

Within this function, the variables job title, place of employment, and M.S. degree significantly affected both activity one and two (Table IX). The other eight demographic variables did not have significantly associations with function four activities.

The first activity was significantly affected by job title $(p=0.000)$, place of employment $(p=0.000)$, and M.S. degree $(p=0.000)$. The majority of the respondents performed this activity daily/weekly ( $n=135,72 \%$ ), while 14 percent ( $n=27$ ) performed it monthly or "other", and 13

TABLE IX
SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION FOUR AND DEMOGRAPHIC VARIABLES

percent $(n=25)$ never performed this activity. With regards to job title, a much greater percentage of clinical dietitians ( $n=88,88 \%$ ) performed this activity daily/ weekly than those with other job titles. Fifty-six percent $(n=5)$ of educators, 55 percent ( $n=26$ ) of consultants, and 51 percent ( $n=16$ ) of administrators performed this activity daily/weekly. More consultants $(\mathrm{n}=13,28 \%$ ) performed this activity on a monthly or "other" basis, while more administrators $(\mathrm{n}=9,29 \%$ ) never performed this activity.

Concerning activity one and place of employment, respondents employed by sports clinics, wellness centers or health clubs ( $n=12,92 \%$ ) and employed by hospitals ( $n=$ 90, $82 \%$ ) had a higher percentage performing this activity daily/weekly than the other employment areas. Fifty-six percent of both those employed in education ( $n=5$ ) and respondents employed by a doctor's office, weight loss center or corporation ( $n=15$ ) performed this activity daily/weekly, as well as, 48 percent ( $n=14$ ) of respondents in private practice. Respondents in private practice (n = 11, $38 \%$ ) performed more than the other groups on a monthly or "other" basis. Forty-one percent ( $n=11$ _ of respondents employed by a doctor's office, weight loss center or corporation and 33 percent ( $n=33$ ) of educators never performed activity one. In relation to activity one and M.S. degree, the same held true as for the first three functions.

Respondents with an M.S. degree ( $n=52,56 \%$ ) performed this
activity less on a daily/weekly basis than respondents without this degree ( $n=84,85 \%$ ).

The second activity was significantly affected by job title $(p=0.000)$, place of employment $(p=0.000)$, and M.S. degree $(p=0.003)$. The majority of the respondents performed this activity daily/weekly ( $n=126,67 \%$ ) , 17 percent $(n=31$ performed it monthly or "other", and 16 percent $(n=30)$ never performed it. Concerning job title, 85 percent ( $n=85$ ) of the clinical dietitians performed this activity daily/weekly, while only 56 percent ( $n=5$ ) of educators, 49 percent ( $n=23$ ) of consultants, and 42 percent $(n=13)$ of administrators did. Consultants ( $n=$ 15, $32 \%$ ) and administrators ( $n=8,26 \%$ ) performed more than the other job titles on a monthly or "other" basis. In addition, 33 percent ( $n=3$ ) of educators and 32 percent ( $n$ $=10)$ of the administrators never performed this activity. With regard to activity two and place of employment, the same two groups as in activity one, those employed by a sports clinic, wellness center or health club ( $\mathrm{n}=11,85 \%$ ) and those employed by a hospital ( $n=86,79 \%$ ), performed more than the other employment areas on a daily/weekly basis. Fifty-six percent ( $n=5$ ) of educators, 52 percent ( $n=14$ ) employed by a doctor's office, weight loss center or corporation, and only 38 percent ( $n=11$ ) employed in private practice performed this activity daily/weekly. Respondents in private practice ( $n=12,41 \%$ ) performed more on a monthly or "other" basis. Forty-one percent ( $n=11$ )
of respondents employed by a doctor's office, weight loss center or corporation never performed this activity.

Concerning activity two and M.S. degree, one again, respondents who had an M.S. degree ( $n=51,55 \%$ ) performed this activity less on a daily/weekly basis than respondents who did not have an M.S. degree ( $\mathrm{n}=77,78 \%$ ).

## Function Five: Nutrition Education

## and Referral

This function contains nine activities:

1. Recommends nutrition education.
2. Identifies all appropriate opportunities and settings for learning.
3. Prepares and/or selects nutrition.
4. Provides technical support for implementing and maintaining nutrition education processes.
5. Counsels individual clients/patients concerning nutrition concepts and desired eating habits.
6. Gives classes and lectures in nutrition to groups.
7. Evaluates effectiveness of nutrition education events.
8. Documents individual responses to nutrition education.
9. Arranges for follow-up or terminates nutrition care.

Within this function, the variable job title significantly affected activities one $(p=0.000)$, two $(p=0.000)$, three $(p=0.009)$, four $(p=0.048)$, seven $(p=0.000)$, and eight ( $\mathrm{p}=0.021$ ) (Table X$)$. The variable place of employment

TABLE X

## SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION FIVE AND DEMOGRAPHIC VARIABLES


*Warning: More that 20 percent of the cells have expected counts 1ess trat E.
significantly affected activity one ( $p=0.000$ ), two $(p=$ $0.000)$, and seven $(p=0.028)$, while M.S. degree was only significantly associated with activities one (p $=0.012$ ) and two ( $p=0.021$ ). The variable number of years employed in the area of SCAN was significantly associated with activities four ( $p=0.018$ ) and five ( $p=0.008$ ). The other seven demographic variables were not significantly associated with function five activities. In addition, none of the variables had a significant effect on activity six or activity nine.

For the first activity, the majority of the respondents performed it daily/weekly ( $n=115,62 \%$ ), 26 percent ( $n=$ 49) performed it monthly or "other", and 12 percent ( $n=26$ ) never performed it. Concerning job title, 77 percent (n = 77) of clinical dietitians performed this activity daily/ weekly, while only 51 percent ( $n=24$ ) of consultants, 35 percent $(n=11)$ of administrators, and 33 percent $(n=3)$ of educators did. More respondents performed this activity monthly or "other" than for the activities in previous functions. Thirty-six percent ( $n=17$ ) of consultants, 32 percent $(n=10)$ of administrators, 22 percent ( $n=2$ ) of educators, and 20 percent ( $n=20$ ) of clinical dietitians all performed this activity monthly or "other". Forty-four percent $(n=4)$ of educators and 32 percent ( $n=10$ ) of administrators never performed this activity.

In relation to activity one and place of employment, the same held true as in previous functions' activities; a
higher percentage of respondents employed by sports clinics, wellness centers or health clubs ( $n=10,77 \%$ ) and by hospitals ( $\mathrm{n}=73,67 \%$ ) performed this activity daily/ weekly. Fifty-six percent ( $n=15$ ) of respondents employed by a doctor's office, weight loss center or corporation and 48 percent ( $n=14$ ) employed in private practice performed it daily/weekly. A higher percentage of respondents in private practice ( $\mathrm{n}=13,45 \%$ ) and employed by hospitals (n $=29,27 \%$ ) performed this activity monthly or "other", while forty-four percent ( $n=4$ ) of educators and 33 percent ( $n=$ 9) of respondents employed by a doctor's office, weight loss center or corporation never performed this activity. With regard to M.S. degree, 69 percent ( $n=68$ ) of respondents who did not have an M.S. degree performed this activity monthly or "other", while only 53 percent ( $n=49$ ) of respondents who had an M.S. degree did.

Concerning the second activity, the majority of respondents performed it daily/weekly ( $\mathrm{n}=119$ ), 24 percent ( $\mathrm{n}=$ 44) performed it monthly or "other", and 13 percent ( $\mathrm{n}=24$ ) never performed it. With regard to job title, 80 percent (n $=80$ ) of the clinical dietitians performed this activity daily/weekly while only 51 percent ( $n=24$ ) of consultants, 39 percent ( $n=12$ ) of administrators, and 33 percent of educators did. As in the first activity, a higher percentage of consultants ( $\mathrm{n}=17,36 \%$ ) and administrators $(\mathrm{n}=8$, 26\%) performed this activity on a monthly or "other" basis,
while educators $(n=4,44 \%)$ and administrators $(n=11$, $35 \%$ ) never performed this activity.

In relation to activity two and place of employment, the percentages of respondents in different groups performing daily/weekly, monthly or "other", and never performing were almost identical to those found in activity one. Concerning M.S. degree, the same also held true as in activity one with respondents who had an M.S. degree ( $n=$ 70, 71\%) performing the activity less than those who did not have the degree ( $\mathrm{n}=51,55 \% \%$ ).

Concerning the third activity, more respondents performed this activity daily/weekly ( $n=142,76 \%$ ) than in activity one and two, while 15 percent ( $n=29$ ) performed it monthly or "other", and 9 percent ( $n=16$ ) never performed it. With regard to job title, one again, more clinical dietitians performed this activity daily/weekly than those with other job titles. Seventy-four percent ( $n=35$ ) of consultants, 67 percent $(n=6)$ of educators, and 55 percent ( $n=17$ ) of administrators performed it daily/weekly. The administrative respondents had an equal percentage ( $n=7$, 23\%) performing monthly or "other" and never performing.

Concerning the fourth activity, 73 percent ( $n=137$ ) of the respondents performed it daily/weekly, 18 percent (n $=$ 33) monthly or "other", and 9 percent ( $n=17$ ) never performed this activity. In relation to job title, an unexpected 89 percent ( $n=8$ ) of educators performed this activity daily/weekly, while 81 percent ( $n=81$ ) of clinical
dietitians, 64 percent ( $n=30$ ) of consultants, and 58 percent ( $n=18$ ) of administrators did. It would be assumed that most of the educators would perform the activities related to education as in activity four. Once again, a higher percentage of consultants ( $n=12,26 \%$ ) performed on a monthly or "other" basis.

With regard to the fifth activity, 68 percent ( $\mathrm{n}=127$ ) of the respondents performed it daily/weekly, 26 percent (n = 49) monthly or "other", and only 6 percent ( $n=11$ ) never performed this activity. This activity was only significantly affected by the number of years employed in the area of SCAN. A higher percentage of respondents employed in this area for 2.5 to 5 years ( $n=45,81 \%$ ) performed this activity daily/weekly than those employed two years or less ( $\mathrm{n}=74,64 \%$ ) and more than five years ( $\mathrm{n}=11,52 \%$ ). Twenty-six percent ( $n=30$ ) of those employed two years or less, 18 percent ( $n=10$ ) employed 2.5 to 5 years, and 43 percent ( $n=9$ ) employed more than five years performed this activity on a monthly or "other" basis.

Concerning activity six, 65 percent ( $n=22$ ) of respondents performed this activity daily/weekly, 21 percent (n = 39) monthly or "other", and 14 percent ( $n=26$ ) never performed this activity. There were no significant associations between any of the 11 variables and this activity.

For the seventh activity, a higher percentage of respondents performed it daily/weekly ( $\mathrm{n}=154,82 \%$ ) than for the previous activities in function five, while 11
percent ( $\mathrm{n}=20$ ) performed it monthly or "other" and 7 percent ( $n=13$ ) never performed it. With regard to job title, the majority of all of the groups performed this activity on a daily/weekly basis: 94 percent ( $n=94$ ) of clinical dietitians, 74 percent ( $n=35$ ) of consultants, 67 percent ( $n=6$ ) of educators, and 61 percent ( $n=19$ ) of administrators.

In relation to activity seven and place of employment, respondents employed by a hospital ( $\mathrm{n}=97,89 \%$ ) or a sports clinic, wellness center or health club ( $\mathrm{n}=11,84 \%$ ) performed more on a daily/weekly basis than those employed in education ( $n=7,78 \%$ ), respondents in private practice ( $\mathrm{n}=22,76 \%$ ), and those employed by a doctor's office, weight loss center or corporation ( $\mathrm{n}=18,67 \%$ ). Number of years employed in the area of SCAN was also significantly associated with activity seven. Unlike in activity five, a higher percentage of respondents employed greater than five years ( $n=17,81 \%$ ) in the area of SCAN performed on a daily/weekly basis than those employed 2.5 to 5 years ( $n=$ 43, 78\%) and two years or less ( $\mathrm{n}=72,63 \%$ ). Thirty percent ( $n=35$ ) of respondents employed two years or less. 20 percent ( $\mathrm{n}=11$ ) employed 2.5 to 5 years, and 19 percent ( $\mathrm{n}=4$ ) employed more than five years performed this activity monthly or "other".

Concerning activity eight, a much higher percentage of respondents performed this activity on a monthly or "other" basis ( $n=84,45 \%$ ) than for all of the previous function's
activities. The remaining respondents performed daily/ weekly ( $\mathrm{n}=92,49 \%$ ) or never performed ( $\mathrm{n}=11,6 \%$ ). As related to job title, the majority of respondents still performed this activity daily/weekly: 56 percent ( $\mathrm{n}=56$ ) of clinical dietitians, 56 percent of educators, and 51 percent ( $\mathrm{n}=24$ ) of consultants. However, a higher percentage of respondents performed on a monthly or "other" basis than for all of the previous function's activities: 64 percent ( $\mathrm{n}=20$ ) of administrators, 42 percent ( $\mathrm{n}=42$ ) of clinical dietitians, 40 percent ( $n=19$ ) of consultants, and 33 percent ( $n=3$ ) of educators.

For the ninth and last activity of function five, as similarly occurred in activity eight, less respondents performed on a daily/weekly basis ( $n=54,29 \%$ ) and more performed monthly or "other) ( $\mathrm{n}=100,54 \%$ ) than for all of the previous function's activities. Eighteen percent (n = 33) of the respondents never performed this activity. There were no significant associations between any of the 11 variables and this activity.

## Function Six: Professional/Educational

## Activity and Development

This function contains two activities:

1. Use research findings and current knowledge to solve nutritional problems.
2. Designs applied nutrition research projects and reports results to solve nutritional problems.

Within this function, the variable job title significantly affected activity one ( $p=0.015$ ) and two ( $p=0.015$ ) (Table XI). The variables place of employment ( $p=0 .-16$ ), route to registration ( $p=0.032$ ), and M.S. degree also significantly affected activity two. The other seven independent variables were not significantly associated with any of this function's activities.

Concerning the first activity, 52 percent ( $n=97$ ) of the respondents performed it daily/weekly, 27 percent ( $n=$ 51) monthly or "other", and 21 percent ( $n=39$ ) never performed this activity. With regard to job title, less respondents performed this activity daily/weekly and more monthly or "other", or never performed it more than for any of the previous function's activities. Sixty-four percent ( $\mathrm{n}=64$ ) of clinical dietitians performed daily/weekly, while only 45 percent ( $n=21$ ) of consultants, 29 percent ( $n$ $=9$ ) of administrators, and 33 percent ( $n=3$ ) of educators did. An equal percentage of the administrative respondents ( $\mathrm{n}=11,35 \%$ ) performed both monthly or "other" and never performed this activity. In addition, 44 percent ( $n=4$ ) of educators, 34 percent ( $n=16$ ) of consultants, and 20 percent ( $n=20$ ) of clinical dietitians performed this activity monthly or "other".

Concerning activity two, once again, the majority of respondents performed daily/weekly ( $\mathrm{n}=118$, 63\%), while 21 percent ( $n=40$ ) performed monthly or "other" and 16 percent ( $\mathrm{n}=29$ ) never performed it. In relation to job title, 73

TABLE XI

## SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION SIX AND DEMOGRAPHIC VARIABLES


percent $(n=73)$ of clinical dietitians, 60 percent $(\mathrm{n}=$ 28) of consultants, and only 44 percent ( $n=4$ ) of educators and 42 percent $(n=13)$ of administrators performed this activity daily/weekly. An equal percentage of both consultants $(n=12,26 \%)$ and administrators $(n=8,26 \%)$ performed this activity on a monthly or "other" basis. Thirty-three percent $(n=3)$ of educators and 32 percent (n $=10)$ of administrators never performed this activity.

With regard to activity two and place of employment, a near equal percentage of respondents employed by hospitais $(n=76,70 \%)$ and by a sports clinic, wellness center or health club ( $n=9,69 \%$ ) performed it daily/weekly. In addition, an equal 52 percent of respondents employed in private practice ( $n=15$ ) and employed by a doctor's office, weight loss center or health club also performed this activity daily/weekly. A higher percentage of respondents in private practice ( $n=11,38 \%$ ) and employed by a sports clinic, wellness center or health club ( $n=4,31 \%$ ) performed this activity on a monthly or "other" basis. Lastly, 33 percent of both respondents employed by a doctor's office, weight loss center or corporation ( $n=9$ ) and educators never performed this activity.

In relation to activity two and M.S. degree, the same held true as for previous function's activities: respondents with an M.S. degree ( $n=50,54 \%$ ) performed less on a daily/weekly basis than respondents without this degree $\ln =$

69, $70 \%$. Also, more respondents with an M.s. degree in $=$ 23, 25\%) never performed this activity.

Route to registration was the fourth variable to significantly affect activity two. Respondents who completed an internship $(\mathrm{n}=58,68 \%$ ) or a CUP program ( $\mathrm{n}=25$, 67\%) performed this activity more daily/weekly than respondents who completed an advance degree plus work experience $(n=17,44 \%)$ and those who completed "other" programs ( $n=$ 8, $57 \%$ ). More of the respondents who completed these last two programs never performed this activity: 34 percent ( $n=$ 13) of advanced degree plus work experience and 28 percent $(n=4)$ of "other" program respondents.

## Function Seven: Health Team Functions

This function contains five activities:

1. Contributes the nutrition-related expertise to health team.
2. Participates in grand rounds.
3. Meets with health team members to coordinate nutrition care of clients/patients.
4. Coordinates clinical dietetic activities with administrative dietetic activities.
5. Gives classes and lectures on nutritionrelated topics for health team members.

Within this function, the variable job title significantly affected activities three ( $p=0.043$ ) and five ( $p=0.003$ ) (Table XII). M.S. degree and route to registration both significantly affected activity five ( $p=0.011$ ) and ( $p=$ $0.020)$ respectively. The variable number of years employed

TABLE XII
SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION SEVEN AND DEMOGRAPHIC VARIABLES

| Heミlth Team ドuntions | Vari atles | $P$ | $\times^{2}$ | $d f$ |
| :---: | :---: | :---: | :---: | :---: |
| Farticipates 1 O Grand Rourias | Years Employed in SCAN | 0.028 | 10.850 | 4 |
| reets witn Health Team Members to Coordinate Nutrition Care of <br>  | Job Title＊ | 0.943 | 12.777 | 6 |
| Glves Classes and Lectures on Nutrition－ FiEl ated Toples for Health Team Memoers | Joロ Title＊ <br> Fioute to Fiegistration | 0.003 0.020 | 19.731 15.049 | 6 6 |
|  | MS Dearee | 0.011 | 9.092 | 2 |

in the area of SCAN significantly affected activity two. The remaining six variables had no significant associations with function seven activities. None of the 11 independent variables had a significant effect on activities one and four.

Concerning the first activity, the majority of respondents performed daily/weekly ( $\mathrm{n}=131,70 \%$ ), while 26 percent $(n=49)$ performed monthly or "other", and only 4 percent ( $n=7$ ) never performed it. As stated before, there were no significant associations between the 11 variables and activity one.

With regard to the second activity, the majority of respondents never performed this activity ( $n=94,50 \%$ ). This activity is the first of all the previous 25 activities to have the majority of respondents not performing it. The remaining respondents performed it more monthly or "other" $(n=62,33 \%)$ than daily/weekly ( $n=31,17 \%$ ) . This activity was only significantly affected by the number of years employed in the area of SCAN. The majority of respondents employed two years or less ( $n=63,55 \%$ ) and those employed more than five years $(n=12,57 \%)$ never performed this activity more than respondents employed 2.5 to 5 years $(n=20,36 \%)$. Forty-seven percent ( $n=26$ ) of respondents employed 2.5 to 5 years, 30 percent ( $n=35$ ) employed two years or less, and only 14 percent ( $n=3$ ) employed more than five years performed this activity monthly or "other".

Concerning the third activity, 67 percent ( $n=125$ ) performed it daily/weekly, 19 percent ( $n=35$ ) monthly or "other", and 14 percent $(n=26)$ never performed it. With regard to job title, clinical dietitians ( $n=78,78 \%$ ) performed this activity more on a daily/weekly basis than consultants $(n=27,57 \%)$, administrators $(n=16,52 \%)$ and educators $(n=5,56 \%$ ). An equal 21 percent $(n=10$ _of consultants performed both monthly or "other" or never performed this activity, while 26 percent ( $n=8$ ) of administrators performed it monthly or "other" and 23 percent (n = 7) never performed it.

Concerning the fourth activity, the majority of respondents never performed it ( $\mathrm{n}=124,66 \%$ ). This response is similar to that found in activity two. An equal 17 percent of the remaining respondents performed this activity daily/ weekly ( $n=32$ ) and monthly or "other". As previously stated, there were no significant associations between the 11 variables and this activity.

With regard to activity five, the majority of respondents performed daily/weekly ( $n=102,54 \%$ ), while 20 percent $(n=37$ ) performed it monthly or "other", and 26 percent $(n=48)$ never performed it. Concerning job title, once again, a higher percentage of clinical dietitians (n = 67, $67 \%$ ) performed this activity daily/weekly than consultants $(\mathrm{n}=22,47 \%)$, administrators $(\mathrm{n}=10,32 \%)$, and educators ( $n=3,33 \%$ ). Forty-two percent ( $n=13$ ) of administrators and 36 percent ( $n=17$ ) of consultants never
performed this activity, while the majority of educators (n $=4,44 \%$ ) performed it monthly or "other".

In relation to activity five and M.S. degree, as held true for previous activities, respondents with an M.S. degree ( $n=41,44 \%$ ) performed this activity less on a daily/weekly basis than those without an M.S. degree ( $\mathrm{n}=$ 63, 64\%). Thirty-five percent ( $\mathrm{n}=32$ ) of M.S. degree respondents never performed this activity.
. In regards to activity five and route to registration, the majority of CUP ( $\mathrm{n}=23,64 \%$ ), internship ( $\mathrm{n}=49,57 \%$ ) and "other" program ( $\mathrm{n}=8,57 \%$ ) respondents performed this activity daily/weekly. In contrast, the majority of advanced degree plus work experience respondents $(\mathrm{n}=18$, 47\%) never performed this activity and 42 percent ( $\mathrm{n}=16$ ) did it daily/weekly.

## Function Eight: Strategic Direction

## and Personnel Management

This function contains ten activities:

1. Formulates budgets for nutrition care.
2. Maintains system to contain costs while preserving quality.
3. Specifies criteria to measure the quality of nutritional care.
4. Provides the nutrition expertise in establishing goals for the health care facility.
5. Establishes program goals for a clinical dietetics section.
6. Participates in an ongoing program of quality assurance for patient care and for delivery of services to clients/patients.
7. Develops orientation and training program for clinical dietetic personnel.
8. Supervises and evaluates personnel in clinical dietetics section.
9. Develops orientation and training programs for dietetic students.
10. Develops clinical dietetic personnel in nutrition care area.

Within this function, the variable job title significantly affected activities one $(p=0.003)$, three ( $p=0.000$ ), four $(p=0.018)$, and seven $(p=0.018)($ Table XIII). Place of employment significantly affected activities one ( $p=$ $0.000)$, two ( $\mathrm{p}=0.044$ ), seven ( $\mathrm{p}=0.033$ ), eight (p= $0.000)$, and ten $(\mathrm{p}=0.011)$. M.S. degree significantly affected only activity two ( $p=0.043$ ), while sex was significantly associated with activity three ( $p=0.001$ ) and four ( $p=0.016$ ). In addition, the R.D. status of respondents significantly affected activities three (p $=0.000$ ) and five ( $p=0.027$ ). The remaining six variables were not significantly associated with function eight activities. Furthermore, none of the 11 variables had a significant affect on activities six and nine.

Concerning activity one, 49 percent ( $n=92$ ) of the respondents never performed this activity, while 36 percent $(n=67)$ performed it daily/weekly and 15 percent ( $n=28$ ) never performed it. With regard to job title, 72 percent in $=34)$ of consultant dietitians and 67 percent ( $n=6$ ) of

## TABLE XIII

## SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION EIGHT AND DEMOGRAPHIC VARIABLES

| ごヒジきらiに Direction and Fersonines management |  | p | $x^{2}$ | $d f$ |
| :---: | :---: | :---: | :---: | :---: |
| Formuiヨさミs Euagets for rvitrition Care | JobTitle＊ | 0.003 | 20.055 | 6 |
|  | Flace ot Emaloyment＊ | 0.00 | 31.80 | 6 |
| Maintains System to Contain Losts Winile Freserving uuality | Flace of |  |  |  |
|  | Einployment＊ | 0.044 | 15.868 | $\theta$ |
|  | MS Degree | 0.043 | 6.307 | 2 |
| ```specifies Criteria to Measure the Guality of Nutritional Care``` | Job Title＊ | 0.000 | 20．353 | 6 |
|  | Sex＊ | 0.001 | 1．5．567 | 2 |
|  | Fi．D．＊ | 0.000 | 17.65 | 2 |
| Frovided the Nutrition Expertise in Estaロー lishing Goals for the Healtn Care Facility | Job Title＊ | 0.018 | 15.284 | 6 |
|  | Sex＊ | 0.016 | 8.254 | 2 |
| Eヒtミロlishes Frogram Lロa」s for a Clinical Dietetics section | F．D．＊ | 0.027 | 7.257 | 2 |
| Develops Orientation and Training Frogram tor Clinical Dietetıc Fersonnel | JoもTitle＊ <br> Fibace of Emplayment＊ | 0.018 0.038 | 15.200 16.765 | 6 8 |
| ```Supervises and Evaluates FErsonnes in Ellnical Dietetres Section``` | Flace of Emalcyment＊ | 0.000 | צ2．97 | 8 |
| Develops Clinical טleteric Fersonnel Nutrition Care Area | Flace of Employment＊ | 0.011 | 17.844 | 8 |

＊warning：More than 20 percent of the cells have expected Eounts 1Eミ5 than 5 ．
educators never performed this activity, as well as, 45 percent ( $n=14$ ) of administrators and 38 percent ( $n=38$ ) of clinical dietitians. An equal 45 percent of both clinical dietitians ( $n=45$ ) and administrators performed this activity daily/weekly.

In relation to activity one and place of employment, respondents employed by a hospitai ( $n=56,51 \%$ ) performed the most on a daily/weekly basis, while the majority of respondents employed in other areas never performed this activity. Seventy-six percent $(n=22)$ of respondents employed in private practice, 70 percent ( $n=19$ ( employed by a doctor's office, weight loss center or corporation. 67 percent ( $n=6$ ) employed in education and only 33 percent in $=36)$ of clinical dietitians never performed this activity.

Concerning activity two, the majority of respondents performed on a monthly or "other" basis ( $n=118,63 \%$ ). This is the first activity, as compared to all of the previous function's activities, in which the majority of respondents performed monthly or "other". Thirty percent in $=57$ ) of respondents never performed this activity and only 6 percent ( $n=12$ ) performed it daily/weekly.

In relation to activity two and place of employment, 70 percent $(n=76)$ of respondents employed by a hospitai, 69 percent ( $n=9$ ) employed by a sports clinic, wellness center or health club, 59 percent ( $n=17$ ) employed in private practice, 52 percent ( $n=14$ ) employed by a doctor's office, weight loss center or corporation, and only 33 percent ( $n=$
3) employed in education performed it monthly or "other". An equal 44 percent of respondents employed by a doctor's office, weight loss center or corporation ( $n=12$ ) and employed in education ( $n=4$ ) never performed this activity, while 41 percent ( $n=12$ ) employed in private practice, 31 percent ( $n=4$ ) employed by a sports clinic, wellness center or corporation, and only 22 percent ( $n=24$ ) employed by a hospital also never performed it.

With regard to activity two and M.S. degree, respondents who had an M.S. degree ( $\mathrm{n}=50,54 \%$ ) performed less on a monthly or "other" basis than respondents who did not have this degree ( $\mathrm{n}=69,70 \%$ ). More M.S. degree respondents never performed this activity than non-M.S. degree respondents ( $\mathrm{n}=22,22 \%$ ).

Concerning activity three, the overwhelming majority of respondents never performed ( $\mathrm{n}=145,77 \%$ ) this activity. Only 2 percent ( $n=3$ ) performed it daily/weekly and 21 percent ( $\mathrm{n}=39$ ) performed it monthly or "other". With regard to job title, 10 percent ( $n=3$ ) of administrative respondents performed on a daily/weekly basis, while none of the respondents with other job titles did. Fifty-six percent ( $n=5$ ) of educators, 14 percent ( $n=14$ ) of clinical dietitians, and an equal 26 percent of consultants ( $\mathrm{n}=12$ ) and administrators ( $\mathrm{n}=8$ ) performed this activity monthly or "other". The remaining percentages never perform this activity: 86 percent ( $n=86$ ) of clinical dietitians,

74 percent ( $n=35$ ) of consultants, 64 percent ( $n=20$ ) of administrators, and 44 percent of educators.

In relation to activity three and the sex of participants, male respondents performed this activity more than female respondents. Sixteen percent ( $n=2$ ) of male respondents performed this activity daily/weekly, while only 1 percent ( $\mathrm{n}=2$ ) of females did. Female respondents never performed ( $\mathrm{n}=138,78 \%$ ) this activity more than males ( $\mathrm{n}=$ 7, $58 \%$ ), while similar percentages of both performed monthly or "other".

With regard to activity three and R.D. status, more non-R.D.'s performed daily/weekly ( $n=2$, 22\%) than R.D.'s ( $\mathrm{n}=2,1 \%$ ). Twenty-two percent ( $\mathrm{n}=40$ ) of R.D.'s performed monthly or "other" while none of the non-R.D.'s did.

Concerning activity four, most of the respondents never performed ( $\mathrm{n}=118,63 \%$ ) it, 22 percent ( $\mathrm{n}=41$ performed it monthly or "other", and 15 percent ( $n=28$ ) performed it daily/weekly. With regard to job title, the majority of clinical dietitians ( $\mathrm{n}=69,69 \%$ ) and consultants ( $\mathrm{n}=33$, 70\%) never performed this activity. Thirty-three percent of educators and 29 percent of administrators performed it daily/weekly. In addition, forty-four percent of educators and 26 percent ( $n=8$ ) of administrators performed this activity monthly or "other".

In relation to activity four and the sex of participants, a higher percentage of men ( $n=5,41 \%$ ) performed
daily/weekly than women $(n=14,25 \%)$. However, 23 percent ( $n=41$ ) of the female respondents performed this activity on a monthly or "other" basis, while none of the men did.

With regard to activity five, 47 percent ( $n=89$ ) of the respondents never performed it, 43 percent ( $n=80$ ) performed it monthly or "other", and 10 percent ( $n=18$ ) performed it daily/weekly. Concerning place of employment, more respondents employed by a hospital performed this activity on a monthly or "other" basis than respondents. employed by a sports clinic, wellness center or health club $(n=5,38 \%)$; employed in private practice ( $n=10,34 \%$ ) employed by a doctor's office, weight loss center or corporation $(\mathrm{n}=9,33 \%)$; and educators $(\mathrm{n}=2,22 \%)$. The majority of respondents, other than employed by a hospital, never performed this activity: 62 percent ( $n=18$ ) employed in private practice, 56 percent ( $n=5$ ) employed in education, 54 percent ( $n=7$ ) employed by a sports clinic, wellness center or health club, and 52 percent ( $n=14$ ) employed by a doctor's office, weight loss center or corporation.

In relation to activity five and R.D. status, the same held true as for activity three; more non-R.D.'s performed daily/weekly ( $n=3,33 \%$ ) than R.D.'s $(n=16,9 \%)$. On the other hand, a much higher percentage of $R$.D. respondents in $=78,44 \%$ ) performed this activity monthly or "other" than non-R.D.'s $(n=1,11 \%)$.

Concerning activity six, 44 percent ( $n=82$ ) of respondents never performed this activity, 36 percent ( $n=67$ ) performed it monthly or "other", and 20 percent ( $n=38$ ) performed it daily/weekly. With regard to job title, thirty-three percent ( $n=3$ ) of educators and an equal 25 percent of both consultants ( $\mathrm{n}=12$ ) and administrators ( $\mathrm{n}=$ 8) performed this activity daily/weekly, while even less of the clinical dietitians did. On the other hand, more clinical dietitian respondents ( $n=41,41 \%$ ) performed this activity monthly or "other" than administrators (n = 12 . $38 \%$ ), consultants ( $\mathrm{n}=12,25 \%$ ) and educators ( $\mathrm{n}=2,22 \%$ ). Forty-nine percent ( $n=23$ ) of the consultant respondents, an equal 44 percent of both clinical dietitians ( $n=44$ ) and educators ( $n=44$ ), and 35 percent ( $n=35$ ) of administrators never performed this activity.

In relation to activity six and place of employment, a much higher percentage of respondents employed by a doctor's office, weight loss center or corporation ( $\mathrm{n}=11,41 \%$ ) performed this activity daily/weekly than respondents employed in other areas. Most of the respondents employed by hospitals ( $\mathrm{n}=48,44 \%$ ) performed this activity monthiy or "other" and 38 percent ( $n=41$ ) never performed this activity. The majority of respondents employed in private practice ( $\mathrm{n}=17,59 \%$ ), employed by a sports clinic. wellness center or health club ( $\mathrm{n}=7,54 \%$ ), and employed in education ( $\mathrm{n}=5,56 \%$ ) never performed this activity. In addition, 41 percent ( $n=11$ ) employed by a doctor's office,
weight loss center or corporation and 38 percent ( $n=41$ ) employed by a hospital also never performed this activity. Concerning activity seven, once again, the majority of respondents never performed this activity ( $\mathrm{n}=109$, 58\%), while 33 percent ( $n=62,33 \%$ ) and only 9 percent ( $n=16$ ) performed it daily/weekly. Place of employment was the only variable significantly associated with activity seven. As with the previous activity, respondents employed by hospitals ( $\mathrm{n}=48,44 \%$ ) performed more on a monthly or "other" basis than those employed in education ( $n=3,33 \%$ ), employed by a sports clinic, wellness center or health club ( $\mathrm{n}=4,31 \%$ ), employed in private practice $(\mathrm{n}=5,17 \%$ ), and employed by a doctor's office, weight loss center or corporation ( $n=3,11 \%$ ). The majority of respondents in each of the employment groups never performed this activity; this included: 81 percent ( $n=22$ ) of respondents employed by a doctor's office, weight loss center or corporation; 76 percent ( $\mathrm{n}=22$ ) employed in private practice; 61 percent ( n = 8) employed by a sports clinic, wellness center or health club; 56 percent ( $n=5$ ) employed in education; and 47 percent ( $n=51$ ) of clinical dietitians.

With regard to activity eight, an almost equal percentage of respondents performed monthly or "other" ( $\mathrm{n}=72$, 38\%) and never performed this activity ( $\mathrm{n}=70,37 \%$ ). The remaining 24 percent ( $n=45$ ) of respondents performed this activity daily/weekly. As previously stated, there were no

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significant associations between this activity and any of
the 11 selected variables.
Concerning activity nine, one more, the majority of respondents never performed ( \(n=130,70 \%\) ) this activity, while 27 percent ( \(n=51\) ) performed it monthly or "other", and only 3 percent ( \(n=6\) ) performed it daily/weekly. None of the 11 selected independent variables significantly affected activity nine.
In regards to activity ten, the majority of respondents never performed this activity ( \(\mathrm{n}=125\), \(67 \%\) ), while 18 percent ( \(n=34\) ) performed it daily/weekly, and 15 percent ( \(n=28\) ) performed it monthly or "other". As with activities eight and nine, none of the 11 selected variables significantly affected activity ten.
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## Function Nine: Identification and Management

of Extraneous Influences upon Nutrition Care

This function contains four activities:

1. Identifies programs and/or sources of outside funding related to the provision of nutrition care for individual clients/patients.
2. Specifies policies and procedures to insure conformance with laws, regulations, and professional guidelines related to nutrition care.
3. Communicates with elected representatives about legislation affecting nutrition care of individual clients/patients.
4. Informs health care team about laws, requiations and professional guidelines related to nutrition care.

Within this function, the variable job title was significantly associated with activity two ( $\mathrm{p}=0.003$ ) (Table XIV). The other 10 selected variables were not significantly associated with this function's activities.

For the first activity, 60 percent ( $\mathrm{n}=113$ ) of the respondents never performed this activity, 30 percent ( $n=$ 56) performed it monthly or "other", and only 10 percent (n = 18) performed it daily/weekly. There were no significant associations between the 11 independent variables and this activity.

Concerning activity two, respondents performed with similar frequencies as in activity one: 60 percent ( $\mathrm{n}=$ 112) never performed, 27 percent ( $n=50$ ) performed monthly or "other", and 13 percent ( $n=25$ ) performed daily/weekly. With regard to job title, a higher percentage of administrative respondents ( $n=5,16 \%$ ) performed this activity than those with other job titles. Similar percentages of respondents for each job title group performed this activity monthly or "other"; this included: 35 percent ( $n=11$ ) of administrators, 33 percent ( $n=3$ ) of educators, 32 percent ( $\mathrm{n}=15$ ) of consultants, and 27 percent ( $\mathrm{n}=27$ ) of clinical dietitians. The majority of respondents from each job title group never performed this activity; 64 percent ( $n=64$ ) of clinical dietitians, 62 percent ( $n=29$ ) of consultants, 56 percent ( $n=5$ ) of educators, and 48 percent ( $n=15$ ) of administrators.

## TABLE XIV

SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION NINE AND DEMOGRAPHIC VARIABLES

| じものtifiロヨtion and | Variables | $\square$ | $x^{2}$ | $d f$ |
| :---: | :---: | :---: | :---: | :---: |
| Man玉gument of Extra－ |  |  |  |  |
| neous Influences Upon Nutrition Lare |  |  |  |  |
| 勺pecifies Folicies and | Job Title＊ | 0.005 | 20.144 | 6 |
| rrocedures to Insure |  |  |  |  |
| Contormance with Laws： |  |  |  |  |
| Fenulations，and |  |  |  |  |
| Frofessional Guidelimes |  |  |  |  |
| Kelated to Nutrition |  |  |  |  |
| Care |  |  |  |  |

＊Warning：More than cio percent of the cells have expected counts 1ess than 5．

In regards to activity three, once again, the majority of respondents never performed this activity ( $n=113,60 \%$ ), while 36 percent ( $n=68$ ) performed it monthly or "other", and 3 percent ( $n=6$ ) performed it daily/weekly. There were no significant associations between the 11 selected variables and this activity.

Concerning activity four, the same held true as for the previous three activities; the majority of respondents ( $n=$ 94, $51 \%$ ) never performed this activity. The remaining respondents mostly performed on a monthly or "other" basis ( $n=77,41 \%$ ) and few performed daily/weekly ( $n=15,8 \%$ ). None of the 11 selected variables significantly affected this activity.

## Function Ten: Food Procurement,

## Production, and Service

This function contains four activities:

1. Consults and reviews cycle menus for compliance with therapeutic guidelines.
2. Specifies standards and reviews procedures for purchasing special food/supplemental nutrient products/nutrient solutions for modified/therapeutic diets.
3. Consults in specifying standards and procedures for preparing supplemental nutrient products/nutrient solutions for modified therapeutic diets.
4. Establishes criteria for quality food and foodservice for clients/patients.

Within this function, the variable place of employment significantly affected activity one ( $p=0.003$ ), while R.D.
status significantly affected both activities three $(p=$ $0.014)$ and four ( $p=0.001$ ) (Table XV). The remainirg nine independent variables were not significantly associated with any of this function's activities.

Concerning activity one, the majority of respondents never performed this activity $(n=117,62 \%)$, while 28 percent $(n=52)$ performed it monthly or "other", and only 10 percent ( $n=18$ ) performed it daily/weekly. With regard to place of employment, a higher percentage of respondents employed in education $(n=3,33 \%)$ performed this activity daily/weekly than respondents employed elsewhere. OnIy 36 percent $(n=39)$ of respondents employed by hospitals, 24 percent ( $n=7$ ) employed in private practice, and 22 percent $(n=6)$ employed by a doctor's office, weight loss center or corporation performed this activity monthly or "other". All of the respondents employed by a sports clinic, wellness center or health club ( $n=13,100 \%$ ) never performed this activity. In addition, the majority of respondents in the rest of the employment groups never performed this activity; this included: 78 percent $(n=21)$ employed by a doctor's office, weight loss center or corporation, 69 percent ( $n=$ 20) employed in private practice, 56 percent ( $n=5$ ) employed in education, and 52 percent ( $n=57$ ) employed by a hospital.

In relation to activity two, 68 percent ( $n=127$ ) of the respondents never performed this activity, 24 percent (n $=45$ ) performed it monthly or "other", and only 8 percent

TABLE XV

## SIGNIFICANT ASSOCIATIONS BETWEEN FUNCTION TEN AND DEMOGRAPHIC VARIABLES

| Food Frocurement, Froduction, and Service | Variables | P | $x^{2}$ | $d f$ |
| :---: | :---: | :---: | :---: | :---: |
| Consults and Feviews Cycle Menus for Compliance with Therapeutic Guidelines | Flace of Employment* | 0.003 | 2 S 24 | 8 |

Consults in Specifying Fi.D.*
otandards and Frocedures
tor Freparing Supple-
mental Nutrient Froducts/
Nutrient Solutions for
Modified/Therapeutic
Diets

| Estaglishes Criteria | Fi.D.* | 0.001 | 14.868 | 2 |
| :--- | :--- | :--- | :--- | :--- |
| for Gulity Food and |  |  |  |  |
| Foodservice for Client/ |  |  |  |  |
| Fatients |  |  |  |  |

*inarning: More than 20 percent of the cells have expected counts Less than 5.
( $n=15$ ) never performed activity two. There were no significant associations between the 11 selected independent variables and this activity.

Concerning activity three, once again, the majority of respondents never performed ( $n=111,59 \%$ ) this activity, while 29 percent ( $n=54$ ) performed it monthly or "other", and 12 percent ( $n=22$ ) performed it daily/weekiy. with regard to R.D. status, the majority of $R . D$. respondents ( $n=$ 105, 59\%) never performed this activity, while an equal 44 percent of non-R.D. respondents performed both daily/weekly and never performed. In addition, 29 percent ( $n=51$ ) of R.D. respondents performed this activity monthly or "other". while only 11 percent $(n=1)$ of non-R.D.'s did.

For the fourth activity, as with the other activities in function ten, the majority of respondents never performed ( $n=119,64 \%$ ) this activity, while 26 percent ( $n=43$ ) performed it monthly or "other", and only 11 percent ( $n=$ 20) never performed this activity. As with the previous activity, R.D. status was significantly associated with this activity. Similarly, the majority of R.D. responcients ( $n=$ 121, $69 \%$ ) never performed this activity, while 44 percent of the non-R.D. respondents performed it daily/weekly. In contrast to activity three, more non-R.D. respondents ( $n=$ 3, $33 \%$ ) performed this activity monthly or "other" than R.D. respondents $(n=41,23 \%)$.

The hypotheses postulated in this study included:
$H_{1}$ : There will be no significant association between the frequency of role functions (activities, responsibilities, or duties) of Sports and Cardiovascular Nutritionists and the following selected demographic variables:

1. Age
2. Sex
3. R.D. status
4. Route to registration
5. Highest degree obtained
6. Place of employment
7. Job title
8. Salary
9. Years employed in the dietetic profession
10. Years employed in the area of sports and cardiovascular nutrition
11. Years employed in present position

Based on Tables VI through XV and the discussion of Role Functions, the researcher rejected $H_{1}$.
$\mathrm{H}_{2}$ : There will be no significant associations between lifestyle practices of $S C A N$ members and the selected demographic variables as listed in $H_{1}$. Based on the discussion of the health and fitness characteristics, the researcher rejected $\mathrm{H}_{2}$.
$H_{3}$ : There will be no significant differences in the wellness inventory scores of SCAN members based on the same
variables as in $H_{1}$. Based on Tables $I$ and $I I$ and the discussion of the wellness inventory score, the researcher rejected $\mathrm{H}_{3}$.

## CHAPTER V

## SUMMARY AND RECOMMENDATIONS

The purpose of this study was to analyze the lifestyle practices and role functions of Sports and Cardiovascular Nutritionists. A five-page questionnaire was developed to obtain the data. Copies of the questionnaire were sent to 655 randomly selected members of The ADA Practice Group, Sports and Cardiovascular Nutritionists (SCAN). A total of 213 surveys were returned, with a response rate of 33 percent. The responses were analyzed using frequencies. percentages chi square, analysis of variance (ANOVA), ttest, and Dun-can's multiple range test.

Characteristics of Respondents

Ninety-four percent of the respondents were female. They ranged in age from less than 25 to over 60 with the majority being between 25 to 35 years old. Half of the respondents held an M.S. degree, 46 percent held only a B.S. degree, while 4 percent held Ph.D.'s. Ninety-five percent of the respondents were R.D.'s and almost half of the respondents completed a dietetic internship as their route to registration (48\%).

Seventy-four percent of the participants were either clinical or consulting dietitians and hospitals employed 55 percent of the respondents. The most popular method of obtaining specialized knowledge was attendance at seminars and workshops (81\%). Sixty-nine percent of the respondents were employed full-time, and 17 percent half-time. The most prevalent salary range was between $\$ 20,001$ to $\$ 40,000(81 \%)$.

Thirty-nine percent of the respondents have been employed from 5 to 10 years in the dietetic profession. 34 percent for less than 5 years, and 27 percent for greater than 10 years. Sixty-seven percent have been in their present position for less than three years, and 33 percent for three years or more. The majority of the respondents have been employed in the area of SCAN for two years or less (62\%). Sixty-six percent of respondents spend 25 percent or less of their time on functions related to SCAN. This may reflect the number of respondents who are not employed in this specific area.

## Health and Fitness Characteristics <br> of the Respondents

The majority of the respondents were in the normal weight range ( $68 \%$ ) with 16 percent above normal weight and 17 percent below. Forty-eight percent of participants did take a vitamin and/or mineral supplement. Ninety-six percent of the respondents usually ate breakfast, 92 percent ate three meals or less per day, and 45 percent ate one or
less snacks per day. The majority of responcents, 71
percent, consumed alcohol and 40 percent consumed one to two cups of coffee, tea or other caffeinated beverages per day. Seventy-six percent of the respondents were not on a diet. The majority of those on a diet were on either a low fat, low cholesterol, low sodium or a combination of the three (58\%) . Thirty-six percent were on a weight reducing or maintenance diet, and 7 percent were on a diabetic diet. Fifty-two percent did not belong to a fitness/exercise center and an overwhelming majority of the respondents exercise on a regular basis (93\%). Fifty percent of the respondents exercised three to four times per week, 43 percent exercised five to seven times per week, and 7 percent exercised only one to two times per week. Forty-six percent exercised for 1 hour or more, 43 percent for 31 to 59 minutes, and 11 percent for 30 minutes or less. The respondents were equally divided between participation in cycling (44\%) and running (44\%) as the most popular physical fitness activities. Fifty-nine percent of the respondents had participated regularly in sports or other athletic activities throughout their lives. In response to a change in physical activity since being employed in the area of SCAN, 56 percent of the respondents stated that their physical activity had remained the same, 36 percent had increased, while 8 percent had decreased.

## Wellness Inventory

Eighty-nine percent of the respondents had wellness Inventory Scores (WIS) that reflected a healthier than average lifestyle. Nine percent had average lifestyle scores and two percent had below average, need improvement scores. The variable age significantly affected the WIS, participants who were 41 years old or older had lower WIS. The health and fitness characteristics of body weight and swimming significantly affected the WIS. With regard to body weight, those respondents who were below normal weight had a significantly higher WIS than those of above normal weight. Respondents who used swimming for exercise had a higher WIS.

## Role Functions

Function three of the questionnaire contained 10 role functions with 47 activities, duties, or responsibilities delineated within the function groupings. The respondents stated the frequency (daily, weekly, monthly, "other", or never) with which they performed each activity and these results were analyzed in relation to the 11 demographic variables. Seven out of the 11 demographic variables had a significant effect on 41 out of a total of 47 activities within the 10 role functions. The four variables, age, salary, years employed in the dietetic profession, and years employed in present position, had no significant effect on any of the role function activities.

The variable job title had a significant effect on all of the activities in function one, two, three, four and six, and was associated with some of the activities in the other functions except for function ten. Clinical dietitians performed functions one through six on a daily basis more than those with other job titles. For function seven, the majority of respondents never perform activity three "meets with health team members to coordinate nutrition care of clients/patients," but the majority of respondents perform activity five "gives classes and lectures on nutritionrelated topics for health team members." Most of the respondents never perform function eight "strategic direction and personnel management" and function nine "identification and management of extraneous influences upon nutrition care." Administrators, on the other hand, performed function nine activity two "specifies policies and procedures to insure conformance with laws, regulations, and professional guidelines related to nutrition care" on a monthly or "other" basis.

The variable place of employment significantly affected all activities in functions one, two, three, and four and was associated with some of the activities in functions five, six and ten. Within these functions, respondents employed by a hospital or in the area of sports/cardiovascular nutrition (sports clinics, wellness centers, health clubs) performed the activities on a daily basis more than those employed by other places, except for in function ten.

For function ten, almost all of the respondents never perform it.

The variable of highest degree obtained significantly affected all of the activities in functions two, three and four, and was associated with some of the activities in functions one, five, six, seven, eight and ten. For the above functions, respondents with only a B.S. degree performed the activities more on a daily basis than those with an M.s. degree, except for functions eight and ten. For function eight "strategic direction and personnel management," those with M.S. degrees performed it mostly on a monthly and/or "other" basis or never performed it, while most respondents with only a B.S. degree never performed it. For function ten "food procurement, production, and service," the majority of those with only a B.S. degree never performed it.

The variable sex of respondents significantly affected some of the activities in function three and eight. For function three "nutrition care implementation," more women preform these activities on a daily basis than men. For function eight "strategic direction and personnel management," most never performed it, but men performed it more on a daily/weekly, monthly and/or "other" basis.

The variable route to registration was significantly associated with some of the activities in functions six and seven. For function six "professional/educational activity and development," more CUP and internship graduates do this
daily, while most of those from advanced degree programs never do it. For function seven "health team functions," more CUP and internship graduates do these activities daily, while half of those from advanced degree programs performed them daily and the other half never did it.

The number of years employed in the area of SCAN was significantly associated with some of the activities in functions five and seven. For function five "nutrition education and referral," those employed for greater than two years performed these activities on a daily basis more than those who have been employed for two years or less. For function seven "health team functions," most of the respondents never performed these activities but those employed for greater than two to five years performed more on a monthly and/or "other" basis.

The R.D. status of respondents was significantly associated with some of the activities in functions eight and ten. For both of these functions, R.D.'s performed the activities more on a monthly and/or "other" basis or never performed them more than non-R.D.'s who performed the activities mostly on a daily basis or never performed them.

## Testing the Hypotheses

Based on the effects of the 10 selected demograpnic variables (age, sex, R.D. status, route to registration, highest degree obtained, place of employment, job title, years employed in the dietetic profession, years employed in
the area of sports and cardiovascular nutrition, and years employed in present position) had on the role functions' activities, as well as the 13 lifestyle practices, the researcher rejected $\mathrm{H}_{1}$ and $\mathrm{H}_{2}$. In addition, based on the effect that the variable age had on the wellness inventory score, the researcher rejected $\mathrm{H}_{3}$.

Recommendations

## Questionnaire

Suggestions for future studies include the following: the questionnaire was lengthy and perhaps too complex to complete in 20 minutes; this may have contributed to the low response rate. There were actually two studies in this research: role functions and lifestyle practices. A shorter questionnaire concentrating on only one or two areas would make it possible for more accurate and detailed information to be received with a better response rate.

The frequency of the role functions should be collapsed on the questionnaire to daily/weekly, monthly, yearly, and never for ease in analysis. In addition, including a ranking of role functions by respondents as to the level of importance would aid in better understanding of responsibilities education needs. The questionnaires were mailed in October, around the time of The A.D.A. National Convention; avoiding this time of the year may have increased the response rate. Also, a follow-up mailing is recommended to increase the rate of response.

## Other Recommendations

This study included all of the respondents, regardless of whether or not they were employed in the area of SCAN. Narrowing future studies to only those employed in the specific area of sports/cardiovascular/wellness nutrition would be helpful in better understanding this core group of members. This could be achieved by sending a postcard to the sample population to determine which respondents are working in this area before sending research instrument. Specifying the subject (e.g. exercise physiology) of seminars/workshops and other methods of obtaining specialized knowledge is recommended. Also more questions related to the use of vitamin/mineral supplements should be included, such as: why they use, what type, and if they promote the usage of supplements to their clients.

Further studies would be beneficial in gathering information related to members' specific interests as to why they joined SCAN. Was it for personal or professional reasons? More specific questions need to be asked concerning education and what members feel is most important in developing standards of practice, especially in relation to the present credentialing investigation of SCAN.

In this study, educators and students were included in the sample. Their data may have skewed the role function significant association values. It is recommended in future studies to only include respondents actually working in the area of research.

## Implications

SCAN members promote optimal health and wellness. This study found that SCAN members have a healthier than average lifestyle and that they live and participate in the health and wellness activities that they promote to their clients/ patients. It would seem that these activities are a necessary part of their role when interacting with clients/ patients and other health professionals.

The demand for sports and cardiovascular nutrition specialists is increasing and the SCAN Practice Group is growing rapidly. There is a need for increased research information about SCAN members to help form a basis for the definition of their roles and scope of practice. It is hoped that the information obtained from this research will be useful to educators, students, dietitians, and other health care professionals to better understand the roles, needs and future challenges of this ADA Practice Group.

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APPENDIXES

APPENDIX A

CORRESPONDENCE


## Dear SCAN Member:

We are conducting an "Analysis of Role Functions and Lifestyle Practices of Sports and Cardiovascular Nutritionists" and request your participation in this study. Your participation in this endeavor will help us answer some key questions which have not been answered in past research, such as 1) What functions are performed by SCAN members in their jobs? and 2) What are SCAN members' lifestyle and wellness practices? You have been chosen as one of 655 SCAN members invited to participate in this study.

The information you supply to us will be held in strict confidence. At no time will you or the facilities you serve be identified in the research results. The code number on your questionnaire is merely to assist the researcher in tabulating data and to follow-up responses.

Please take time from your busy schedule to complete this questionnaire. It will take approximately 25 minutes. Your time and effort are greatly appreciated. Please return the questionnaire on or before Friday, October 7, 1988. Kindly refold, staple, and return completed questionnaire. Postage is furnished for your convenience. Thank you for your time and professional assistance.

Sincerely,

deaths<br>Lea L Ebro, Ph.D., R.D.<br>Professor, FNIA Department

APPENDIX B

## RESEARCH INSTRUMENT

## Analysis of Role Functions and Lifestyie Practices of Sports and Cardiovascular Nutritionists

## 1. General Information:

Directions: Please check or fill in the appropriate answers. It is important that all of the questions are answered.

1) Title of current position:
2) Type of business or institution where employed:
3) Sex: maie___(1) female____(2)
4) Age: $\qquad$ (4) 36 to 40
(7) 51 to 55
(2) 25 to 30
(5) 41 to 45
(8) 56 to 60
——(3) 31 to 35
(1) R.D.
(6) 46 to 50
(9) over 60
5) Registration status:
(1) CUP
$\qquad$ (2) Non-A.D.
6) Route to registration:
(2) Intemship
$\qquad$ (3) Advanced degree plus work experience (4)Other $\qquad$ (please specify)
7) Degree(s) obtained and major emphasis:
(1) Bachelors
(2) Masters
(3) Doctorate
8) How did you obtain specialized sports and cardiovascular nutrition knowledge? Please check all that apply:
9) Seminars/workshops
10) Advanced degree
11) Non-degree courses
12) Work experience
13) Mass media (e.g. Joumals, newsletters, etc.)
14) Other $\qquad$ (piease specify)
15) Present employment status:
16) Full time ( 36 hours per week or more)
17) __Half time or more but less than full time (20-35 hrs/week)
18) Less than half time
19) Number of years employed in dietetic profession: $\qquad$
20) Not employed
21) Number of years employed in the area of sports and cardiovascular nutrition: $\qquad$
22) Number of years in present position: $\qquad$
23) Percent of time devoted to sports and cardiovascular nutrition in your present position: $\qquad$
24) Salary level per year: (based on full-time)
$\qquad$
(1) Under $\$ 20,000$
(3) $\$ 30,001$ to $\$ 40,000$
(5) $\$ 50,001$ to $\$ 60,000$
(2) $\$ 20,001$ to $\$ 30,000$
(4) $\$ 40,001$ to $\$ 50,000$
(6) Over $\$ 60,000$

## II. Health Information

Directions. Please check or fill in the appropriate answers. It is important that you answer all of the questions.

1) According to height and weight charts, your weight falls at:
_(1) $11 \%-20 \%$ above normal
(3) Normal
(2) $10 \%$ above normal
(4) $10 \%$ below normal
(5) $11 \%-20 \%$ below normal
2) Do you take a vitamin and/or mineral suppiement(s)? $\qquad$ (1) yes
(1) yes
(2) no
3) Are you currently taking any medications?
(1) yes
(2) no
4) Do you usually eat breakfast?
$\qquad$
5) How many between meal snacks do you eat per day?
6) Do you drink coffee, tea or caffeinated beverages? $\qquad$ (1) never (2) no
7) How many meals do you eat per day?
$\qquad$
(4) 3-4 cups/day
(2) no
8) Do you drink alcohol? $\qquad$ (1) yes
(1) yes

9) Are you presently on a diet? If yes, please speciity type of diet:
$\qquad$
10) Do you belong to a fitness/exercise center?
$\longrightarrow$
(1) yes $\quad \ldots$ (2) no
11) Do you exercise on a regular basis? If yes, piease answer the following: What activities do you participate in: $\qquad$ (times/week and duration) How often do you exercise: $\qquad$
12) Have you participated regularly in sports or other athletic activities throughout your life? $\qquad$ (1) yes $\qquad$ (2) no If yes, please explain briefly:
13) Have you been more physically active since you began your employment in the area of sports and cardiovascular nutrition: $\qquad$ (1) increased $\qquad$ (2) decreased $\qquad$ (3) remained the same

## III. Wellness Inventory

This section was developed by John Cavendish at West Virginia University and has been documented as valid in assessing wellness practices. Please put a $T$ if it is true for you or $F$ if it is false for you beside each statement. It is important that you answer all the questions.

1) Alcohol Use

## ___ I drink less than two drinks a day.

In the past year, I have not driven an automobile after having more than two drinks.
When I'm under stress, I do not drink more than usual.
I do not do things when I'm drinking that I later regret.
I have not experienced any problem because of my drinking in the past.
2) Tobaceo Uso

I have never smoked cigarettes.
I haven't smoked cigarettes in the past year.
I do not use any form of tobacco (pipes, cigars, chewing tobacco)
I smoke only low tar and nicotine cigarettes.
I smoke less than one pack of cigarettes a day.
3) Blood Pressure

I have had my blood pressure checked within the last six months.
I have never had high blood pressure.
I do not currently have high blood pressure.
I make a conscious effort to avoid salt in my diet
There is no history of high blood pressure in my family.
4) Woight/Body Fat

According to height and weight charts, 1 am in the average range.
I have not been on a weight reduction diet in the past year.
There is no place on my body that I can pinch an inch of fat.
I am satisfied with the way my body looks.
None of my family, friends or health care professionals has ever urged me to lose weight.
5) Physical Fitness

I do some form of vigorous exercise for at least 30 minutes three times a week or more.
My resting pulse is 80 beats a minute or less.
I don't get fatigued easily while doing physical work.
I engage in some recreational sport such as tennis or swimming on a weekly basis.
I would say that my level of physical fitness is higher than most of the people in my age group.
6) Stress/Anxiety Leval

I find it easy to relax.
I am able to cope with stressful events as well as or better than most people.
I do not have trouble falling asleep or waking up.
I rarely feel tense or anxious.
I have no trouble completing tasks I have started.
7) Car Safoty
$\therefore \quad 1$ aiways use seat belts when I drive.
I always use seat belts when I am a passenger.
I have not had an automobile accident in the past three years.
I have not had a speeding ticket or other moving violation for the past three years.
I never ride with a driver who has had more than two drinks.
8) Relationships
___ I am married and living with my spouse.
I have a lot of close friends.
I am able to share my feelings with my spouse and/or other family members.
When I have a problem, I have other people with whom I can talk it over.
Given a choice between doing things by myself or with others, I usually choose to do things with others.
9) Rest/Sleep

I almost always get between seven and nine hours of sleep a night.
I wake up few, if any, times during the night.
I feel rested and ready to go when I get up in the morning.
Most days, I have a lot of energy.
Even though I sometimes have a chance, I never take naps during the day.
10) Life Satisfaction

If I had my life to live over, I wouldn't make all that many changes.
l've accomplished most of the things that l've set out to do in my life.
I can't think of an area in my life that really disappoints me.
I am a happy person.
As compared to the people with whom I grew up, I feel l've done as well or better than most of them with my life.

## N. Role Functions

This section lists the functions and activities which may be performed by a dietitian in the area of sports and cardiovascular nutrition. (For more detailed definitions of functions/activities, refer to The American Dietetic Association's Role Delineation and Verification for Entry-level Positions in Clinical Dietetics, 1983.) Answer each question by checking the frequency with which the activity is performed. If the function does not apply, please indicate such on the questionnaire.


|  |  |  | Never | Daily | Weekiy | Monthly | Other (please specify frequency) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | d) | Provides tectrical support for menting and maintaining nutri tion education processes | imple- |  |  |  |  |
|  | e) | Counsels individual clients/ patients concerning nutrition concepts and desired eating habits |  |  |  |  |  |
|  | f) | Gives classes and lectures in nutrition to groups |  |  |  |  |  |
|  | g) | Evaluates effectiveness of nutrition education events |  |  |  |  |  |
|  | h) | Documents individual responses to nutrition education |  |  |  |  |  |
|  | i) | Arranges for follow-up or terminates nutrition care |  |  |  |  |  |
| 6) |  | essional/Educational Activity Development: |  |  |  |  |  |
|  | a) | Use research findings and current knowiedge to solve nutritional problems |  |  |  |  |  |
|  | b) | Designs applied nutrition research projects and reports results to solve nutritional problems |  |  |  |  |  |
| 7 | He a) | ith Team Functions: Contributes the nutrition-relate expertise to health team |  |  |  |  |  |
|  | b) | Participates in grand rounds |  |  |  |  |  |
|  | c) | Meets with health team memb coordinate nutrition care of clients/patients | ers to |  |  |  |  |
|  | d) | Coordinates clinical dietetic activities with administrative dietetic activities |  |  |  |  |  |
|  | e) | Gives classes and lectures on nutrition-related topics for heaith team members |  |  |  |  |  |
| 8) |  | tegic Direction and Personnel agement: |  |  |  |  |  |
|  | a) | Formulates budgets for nutrition care |  |  |  |  |  |
|  | b) | Maintains system to contain cost while preserving quality | osts |  |  |  |  |
|  | c) | Specifies criteria to measure th quality of nutritional care |  |  |  |  |  |
|  | d) | Provides the nutrition expertise establishing goais for the health care facility | e in th |  |  |  |  |
|  | e) | Establishes program goals for clinical dietetics section |  |  |  |  |  |
|  | f) | Participates in an ongoing prog of quality assurance for patient care and for delivery of service to clients/patients | gram |  |  |  |  |
|  |  |  | CONT | O NEX |  |  |  |


|  |  | Never | Daily | Weekly | Monthly | Other <br> (please <br> specify frequency) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | g) | Develops orientation and training program for clinical dietetic personnel |  |  |  |  |
|  | h) | Supervises and evaluates personnel in clinical dietetics section |  |  |  |  |
|  | i) | Develops orientation and training programs for dietetic students |  |  |  |  |
|  | j) | Develops clinical dietetic personnel in nutrition care area $\qquad$ |  |  |  |  |
| 9) |  | tification and Management of Extraneous ences upon Nutrition Care: Identifies programs and/or sources of outside funding related to the provision of nutrition care for individual clients/patients |  |  |  |  |
|  | b) | Specifies policies and procedures to insure conformance with laws. regulations, and professional guidelines related to nutrition care $\qquad$ |  |  |  |  |
|  | c) | Communicates with elected representatives about legislation affecting nutrition care of individual clients/ patients |  |  |  |  |
|  | d) | Informs health care team about laws, regulations and professional guidelines related to nutrition care |  |  |  |  |
| 10) | Fooc a) a) | d Procurement. Production, Servics: <br> Consults and reviews cycie menus for compliance with therapeutic guidelines |  |  |  |  |
|  | b) | Specifies standards and reviews procedures for purchasing special food/supplemental nutrient products/ nutrient solutions for modified/ therapeutic diets |  |  |  |  |
|  | c) | Consults in specifying standards and procedures for preparing supplemental nutrient products/nutrient solutions for modified/ therapeutic diets |  |  |  |  |
|  | d) | Consults in specifying standards and procedures for preparing suppiemental nutrient products/ nutrient solutions for modified/therapeutic diets |  |  |  |  |
|  | e) | Establishes criteria for quality food and foodservice for clients/patients |  |  |  |  |

## V. Job Description

Directions: Please attach a copy of your current job description or write a brief description of your position.

## APPENDIX C

FREQUENCIES AND PERCENTAGES OF WELLNESS INVENTORY SCORE

## Key for Wellness Inventory Score

```
0 = False
l = True
```



|  |  | sas |  |  |
| :---: | :---: | :---: | :---: | :---: |
| W1_1 | frequency | PERCENT | cumulative FREQUENCY | cumulative PERCENT |
| $\bigcirc$ | $\begin{array}{r} 2 \\ 7 \\ 206 \end{array}$ | 3.3 96.7 | 213 | 100.3 |
| W1_2 | FREQUENCY | PERCENT | Cumulative | Cumulative PERCENT |
| $\bigcirc$ | $\begin{array}{r} 2 \\ 25 \\ 188 \end{array}$ | 11.7 88.3 | 25 213 | 11.7 100.0 |
| W1_3 | FREOUENCY | PERCENT | cumulative frequency | Cumulative PERCENT |
| $\stackrel{1}{1}$ | 2 15 198 | 7.0 93.0 | 15 213 | 7.0 100.0 |
| W1-4 | FREQUENCY | PERCENT | cumulative frequency | cumulative percent |
| $\bigcirc$ | $\begin{array}{r} 2 \\ 16 \\ 197 \end{array}$ | 7.5 92.5 | 16 213 | $\begin{array}{r} 7.5 \\ 100.0 \end{array}$ |
| W1_5 | FREOUENCY | PERCENT | cumulative frequency | $\begin{aligned} & \text { CUMULATIVE } \\ & \text { PERCENT } \end{aligned}$ |
| $\begin{aligned} & 0 \\ & 1 \end{aligned}$ | 2 15 198 | 7.0 93.0 | 15 213 | 7.0 100.0 |
| W2-1 | FREOUENCY | PERCENT | Cumulative frequency | $\underset{\text { PURCENT }}{\text { Cumulative }}$ |
| $\begin{aligned} & \dot{0} \\ & 1 \end{aligned}$ | $\begin{gathered} 2 \\ 62 \\ 62 \\ 151 \end{gathered}$ | 29.1 70.9 | 62 213 | 29.1 100.0 |
| W2 ${ }^{2}$ | FREOUENCY | PERCENT | Cumulative FREOUENCY | cumulative |
| $\stackrel{1}{1}$ | $\begin{array}{r} 2 \\ 7 \\ 206 \end{array}$ | 3.3 96.7 | 213 | 3.3 100.0 |
| W2 ${ }^{3}$ | FREOUENCY | Percent | CUMULATIVE | cumulative PERCENT |
| $0$ | $\begin{array}{r} 2 \\ 2 \\ 211 \end{array}$ | 0.9 99.1 | 213 | $\begin{array}{r} 0.9 \\ 100.0 \end{array}$ |
| W2-4 | FREOUENCY | PERCENT | Cumlative | Cumulative |
| $\bigcirc$ | $\begin{array}{r} 2 \\ 161 \\ 52 \\ 52 \end{array}$ | $\begin{aligned} & 75.6 \\ & 24.4 \end{aligned}$ | $\begin{aligned} & 16 i \\ & 213 \end{aligned}$ | $\begin{array}{r} 75.6 \\ 100.0 \end{array}$ |
| W2_5 | frequency | PERCENT | Cumulative frequency | CUMULATIVE PERCENT |
| 0 | $\begin{array}{r} 2 \\ 74 \\ 139 \end{array}$ | 34.7 65.3 | 74 213 | 34.7 100.0 |





| w9_1 | FREOUENCY | PERCENT | cumulative fREDUENCY | cumulative PERCENT |
| :---: | :---: | :---: | :---: | :---: |
|  | 2 |  |  |  |
|  | 64 149 | 30.0 70.0 | 64 243 | 30.0 100.0 |
|  |  |  |  |  |
| w9_2 | FREOUENCY | PERCENT | CUMULATIVE FREQUENCY | cumulative PERCENT |
| $0$ | $\begin{array}{r} 23 \\ 39 \\ 174 \end{array}$ | $\begin{array}{r} 18.3 \\ 81.7 \end{array}$ | $\begin{array}{r} 399 \\ 213 \end{array}$ | $\begin{array}{r} 18.3 \\ 100.0 \end{array}$ |
| W9_3 | FREQUENCY | PERCENT | Cumulative FREQUENCY | cumulative PERCENT |
| $0$ | $\begin{array}{r} 2 \\ 50 \\ 163 \end{array}$ | 23.5 76.5 | 50 213 | 23.5 100.0 |
| w9 ${ }^{4}$ | FREQUENCY | PERCENT | Cumulative FREQUENCY | cumulative PERCENT |
| $1$ | $\begin{array}{r} 2 \\ 24 \\ 189 \end{array}$ | 11.3 88.7 | 24 213 | 11.3 100.0 |
| W9_5 | freduency | PERCENT | cumulative FREQUENCY | CUMULATIVE PERCENT |
| $1$ | $\begin{array}{r} 2 \\ 87 \\ \mathbf{8 7} \\ \hline 126 \end{array}$ | $\begin{aligned} & 40.8 \\ & 59.2 \end{aligned}$ | 87 213 | 40.8 100.0 |
| W10-1 | frequency | PERCENT | cumalative fREQUENCY | cumulative PERCENT |
| $\dot{i}$ | $\begin{array}{r} 2 \\ 46 \\ 467 \end{array}$ | 21.6 78.4 | 46 213 | $\begin{array}{r} 21.6 \\ 100.0 \end{array}$ |
| W10_2 | Frequency | Percent | CUMULATIVE frequency | Cumulative PERCENT |
| $\dot{0}$ | $\begin{array}{r} 2 \\ 54 \\ 549 \end{array}$ | 25.4 74.6 | $\begin{array}{r} 54 \\ 213 \end{array}$ | $\begin{array}{r} 25.4 \\ 100.0 \end{array}$ |
| W10_3 | FREQUENCY | Percent | cumulative frequency | cumulative PERCENT |
| i | $\begin{array}{r} 2 \\ 8_{1}^{2} \\ 132 \end{array}$ | $\begin{aligned} & 33.0 \\ & 62.0 \end{aligned}$ | $\begin{aligned} & 8 \\ & \hline \end{aligned}$ | $\begin{array}{r} 38.0 \\ 100.0 \end{array}$ |
| W10 ${ }^{4}$ | FREOUENCY | PERCENT | cumulative FREOUENCY | $\begin{aligned} & \text { CUMLATIVE } \\ & \text { PERCENT } \end{aligned}$ |
| $\dot{i}$ | $\begin{array}{r} 12 \\ 211^{2} \\ 202 \end{array}$ | $\begin{array}{r} 5.2 \\ 94.8 \end{array}$ | $\begin{array}{r} 1 i \\ 213 \end{array}$ | $\begin{array}{r} 5.2 \\ 100.0 \end{array}$ |
| W10_5 | FREOUENCY | PERCENT | cumulative FREQUENCY | CUMULATIVE |
| $\begin{array}{r} 0 \\ 10 \end{array}$ | $\begin{array}{r} 2 \\ 11 \\ 202 \end{array}$ | $\begin{aligned} & 5.2 \\ & 34.8 \end{aligned}$ | 11 213 | $\begin{array}{r} 5.2 \\ 100.0 \end{array}$ |

## APPENDIX D

SUMMARY OF CHI-SQUARE TABLES



table of title gy vitmin


| STATISTIC | DF | VALUE | PROB |
| :--- | :--- | :--- | :--- | :--- |
| CHI-SQUARE | 3 | 8.110 | 0.044 |


| title | smacks | 2 |  |  |
| :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT | 11 |  | 31 | TOTAL |
| 1 | 51 45.8 .596262 24.88 50.00 55.43 | 44 45.3 .036075 21.46 43.14 48.35 | 7 10.9 1.42272 3.41 6.86 31.82 | 102 49.76 |
| 2 | 17 22.9 1.51482 8.29 33.33 10.48 | 24 22.6 .0818 .17 11.71 47.06 26.37 | 10 <br> 5.5 <br> 3.74412 <br> 4.88 <br> 19.61 <br> 45.45 | 51 |
| 3 | 15.3 <br> 695877 <br> 5.85 <br> 35.29 <br> 13.04 | 19 19 1.01158 9.27 55.18 20.88 | 3 <br> 3.6 <br> 115358 <br> 1.46 <br> 8.82 <br> 13.64 | 34 16.59 |
| 4 | 12 8.1 1.90414 5.85 66.67 13.04 | 4.0 1.99269 1.95 22.22 4.40 | 2  <br> 1.9  <br> .002414  <br> 0.98  <br> 11.11  <br> 9.09  | 18 8.78 |
| TOTAL | $\begin{array}{r} 92 \\ 44.08 \end{array}$ | $44.91$ | $\begin{array}{r} 22 \\ 10.73 \end{array}$ | $\begin{array}{r} 208 \\ 100.00 \end{array}$ |
| sta | Stics fo | R table of | Of TItLE By | smacks |


| Statistic | DF | value | PROB |
| :---: | :---: | :---: | :---: |
| CHI-scuane | 6 | 13. 118 | 0.041 |





| WHEREEMP | regex |  |  |
| :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT | 이 | 11 | total |
| 1 | 7.7 <br> 062439 <br> 3.47 <br> 66.31 <br> 50.00 | 104 103.3 0.00465 51.49 93.69 55.32 | 111 54.95 |
| 2 | r 2 272 .27857 1.49 9.38 21.43 | 29 29.8 02543 14.36 90.63 15.43 | 32 15.84 |
| 3 | $\left\lvert\, \begin{array}{r}0 \\ 2.1 \\ 2.07921 \\ 0.00 \\ 0.00 \\ 0.00\end{array}\right.$ |  | 30 14.85 |
| 4 | ¢ <br> 1 <br> .97029 <br> 0.00 <br> 0.00 <br> 0.00 | 14 <br> 13.0 <br> .07256 <br> 6.93 <br> 100.00 <br> 7.45 | 14 6.93 |
| 6 |  | \|r $\begin{array}{r}14 \\ 14.0 \\ .62772 \\ 54.45 \\ 73.33 \\ 5.35 \\ \hline\end{array}$ | 15 7.43 |
| total | $\begin{array}{r} 14 \\ 6.93 \end{array}$ | $\begin{array}{r} 188 \\ 93.07 \end{array}$ | $\begin{array}{r} 202 \\ 100.00 \end{array}$ |

STATISTIC
CHI-SOUARE
WARNINE: $40 \%$ OF THE CEILS HAVE EXPECTED COUNTS LESS


| STATISTIC | DF | value | PROB |
| :---: | :---: | :---: | :---: |
| CHI-SQUARE | 4 | 15.838 | 0.003 |


STATISTIC
CHI-SOUARE
WARNING: $25 \%$ OF THE CELLS HAVE EXPECTED COUNTS LESS

THAN 5. CHI-SQUARE MAY NOT BE A VALID TEST.


| STATISTIC | DF | value | PROS |
| :---: | :---: | :---: | :---: |
| CHI-SOUARE | 1 | 5. 120 | 0.024 |
| WARNING: |  | $\begin{gathered} \text { CTED C } \\ \text { TBE } \end{gathered}$ | LESS TEST. |



| STATISTIC |
| :--- |
| CHI-SOUARE |
| WARNING: $33 X$ OF THE CELLS HAVE EXPECTED COUNTS LESS |
|  |
|  |




STATISTIC
CHI-SOUARE
WARNING: $25 X$ OF THE CELLS HAVE EXPECTED COUNTS LESS

THAN 5. CNE-SOUARE MAY NOT BE A VALID TEST.


| YRSDIET | ACT3 |  |  |
| :---: | :---: | :---: | :---: |
| FREQUENC EXPECTED GELL CHI PERCENT ROW PCT COL PCT | $2{ }^{1}$ | 11 | total |
| 1 | 50 47.0 0.19335 23.47 69.44 35.97 | 22 25.0 .363184 10.33 30.56 29.73 | 72 33.80 |
| 2 | 59 53.5 .562888 27.70 71.95 42.45 | 23 28.5 1.05731 10.80 28.05 31.08 | 82 38.50 |
| 3 | 30 38.5 1.87755 14.08 50.85 21.58 |  |  |
| total | $\begin{array}{r} 139 \\ 65.26 \end{array}$ | $\begin{array}{r} 74 \\ 34.74 \end{array}$ | $\begin{array}{r} 213 \\ 100.00 \end{array}$ |
| Statistics for table of yrsoiet by actu |  |  |  |


| STATISTIC | DF | VALUE | PROB |  |
| :--- | :--- | :--- | :--- | :--- |
| CHI-SQUARE |  | 2 | 7.581 | 0.023 |


table of yrssport by best

| YRSSPORT | BFST |  |  |
| :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT |  | 11 | total |
| 1 | $\begin{array}{r} 4 \\ 4.9 \\ 167199 \\ 1.89 \\ 3.08 \\ 50.00 \end{array}$ | 126 125.1 .006557 59.43 96.92 61.76 | 130 61.32 |
| 2 | 2.3 2.3 705818 0.47 1.67 12.50 | 59 57.7 .027679 27.83 98.33 28.92 | 60 28.30 |
| 3 | 3 0.8 5.6711 1.42 13.64 37.50 | 19 21.2 .222396 8.96 86.36 9.31 | 22 10.38 |
| total | $3.77$ | $\begin{array}{r} 204 \\ 96.23 \end{array}$ | $\begin{array}{r} 212 \\ 100.00 \end{array}$ |

STATISTICS FOR TABLE OF YRSSPORT BY BFST


WARNING: SOX of THE CELLS HAVE EXPECTED COUNTS LESS
THAN 5. CHI-SOUARE WAY NOT BE A VALID TEST.



| YRSSPORT | moreacr |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT | 1 | 2 | total |  |  |
| 1 | 32 42.3 2.52159 16.08 27.35 44.44 | 10 8.8 .158127 5.03 8.55 66.67 | 75 65.8 1.27164 37.69 64.10 66.96 | 11758.79 |  |
| 2 | 24 21.7 .241876 12.06 40.00 33.33 | 4 <br> 4.5 <br> .060391 <br> 2.01 <br> 6.67 <br> 26.67 | 32 33.8 .092654 16.08 53.33 28.57 | 6030.15 |  |
| 3 | 16 8.0 8.12142 8.04 72.73 22.22 | 1.7 <br> 261322 <br> 0.50 <br> 4.55 <br> 6.67 | 5 12.4 4.40098 2.51 22.73 4.46 | 2211.06 |  |
| TOTAL | $\begin{array}{r} 72 \\ 36.18 \end{array}$ | $\begin{array}{r} 15 \\ 7.54 \end{array}$ | $\begin{array}{r} 112 \\ 56.28 \end{array}$ | $\begin{array}{r} 199 \\ 100.00 \end{array}$ |  |
| StATISTICS FOR TABLE OF YRSSPORT BY MOREACR |  |  |  |  |  |
| Statistic |  |  | DF | Value | PROB |
| CHI-SOUARE |  |  | 4 | 17.130 | 0.002 |
| WARNING: | 22\% of the cells have expected counts less than 5. Chi-square may not be a valid test. |  |  |  |  |


STATISTIC
CHI-SOUARE
TABLE OF YRSPP OY ACT2


SAS











TABLE OF WHEREEMP BY R2_2

| WHEREEMP | R2_2 | 3 |  |  |
| :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT | 21 |  | 4) | TOTAL |
| 1 | $\begin{array}{r} 97 \\ 85.7 \\ 1.49433 \\ 51.87 \\ 88.99 \\ 65.99 \end{array}$ | 7 14.0 3.49198 3.74 6.42 29.17 | 5 <br> 9.3 <br> 2.00682 <br> 2.67 <br> 4.59 <br> 31.25 | 109 58.29 |
| 2 | $\begin{array}{r} 19 \\ 22.8 \\ 632353 \\ 10.16 \\ 65.52 \\ 12.93 \end{array}$ | 9 3.7 7.48486 4.81 31.03 37.50 | 1 2.5 .884301 0.53 3.45 6.25 | 29 15.51 |
| 3 | 15 <br> 21.2 <br> 1.82551 <br> 8.02 <br> 55.56 <br> 10.20 | 6 3.5 1.85413 3.21 22.22 25.00 | 6 2.3 5.89349 3.21 22.22 37.50 | 27 14.44 |
| 4 | $\begin{array}{r} 11 \\ 10.2 \\ .059649 \\ 5.88 \\ 84.62 \\ 7.48 \end{array}$ | 1.7 .065885 1.07 15.38 8.33 | 0 <br> 1.1 <br> 1.1123 <br> 0.00 <br> 0.00 <br> 0.00 | 13 6.95 |
| 6 | 7 7.1 .608502 2.67 55.56 3.40 | 0 1.2 1.15508 0.00 0.00 0.00 | a 13.84 2.18 2.14 44.44 25.00 | 9 4.81 |
| total | $\begin{array}{r} 147 \\ 78.61 \end{array}$ | $\begin{array}{r} 24 \\ 12.83 \end{array}$ | $\begin{array}{r} 16 \\ 0.56 \end{array}$ | $\begin{array}{r} 187 \\ 100.00 \end{array}$ |
|  | tistics for | or table | OF WHEREE | P BY R2 |


warning: 53x of the cells have expected counts less
than 5. Chi-square may not be a valid test.









| STATISTIC | DF | VALUE | PROB |
| :--- | :--- | :--- | :--- | :--- |
| CHI-SQUARE | 2 | 6.207 | 0045 |








StATISTICS for table of ms by r3_3







| STATISTIC | DF | VALUE | PROB |  |
| :--- | :--- | :--- | :--- | :--- |
| CHI-SOUARE |  | 2 | 20.778 | 0.000 |



$$
\text { STATISTICS FOR TABLE OF TITLE BY RA } 2
$$




| MS | R4_2 |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT | 21 |  | 41 | total |
| 0 | 77 66.0 1.82574 40.53 76.57 60.16 | 11 16.0 1.55695 5.79 11.22 35.48 | 16 <br> 16.0 <br> 2.24359 <br> 5.26 <br> 10.20 <br> 32.26 | 98 51.58 |
| 1 | 51 62.0 1.94481 26.84 55.43 39.84 | 20 15.0 1.65849 10.53 21.74 64.52 | 151 21.0 2.3899 11.05 22.83 67.74 | 92 48.42 |
| total | $\begin{array}{r} 128 \\ 67.37 \end{array}$ | $\begin{array}{r} 31 \\ 16.32 \end{array}$ | $\begin{array}{r} 31 \\ 16.32 \end{array}$ | $\begin{array}{r} 190 \\ 100.00 \end{array}$ |
|  | Statisti | fon ta | LE OF ms | Y R4_2 |


| STATISTIC | DF | VALUE | PROB |
| :--- | :--- | :--- | :--- | :--- |
| CHI-SQUARE | 2 | 11.619 | 0.003 |




| WhEREEMP | R5_1 |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT |  | 3\| | 41 | TOTA |
| 1 | $\begin{array}{r} 73 \\ 67.6 \\ .428877 \\ 39.04 \\ 66.97 \\ 62.93 \end{array}$ | $\begin{array}{r} 29 \\ 28.6 \\ .006732 \\ 15.51 \\ 26.61 \\ 59.18 \end{array}$ | $\left.\begin{array}{r} 72.8 \\ 2.64463 \\ 3.74 \\ 6.42 \\ 31.22 \end{array} \right\rvert\,$ | 109 58.29 |
| 2 | $\begin{array}{r} 14 \\ 18.0 \\ .884687 \\ 7.49 \\ 48.28 \\ 12.07 \end{array}$ | 13 7.6 3.8309 6.95 44.83 26.53 | 3.4 .584178 1.07 6.90 9.09 | 29 15.51 |
| 3 | $\begin{array}{r} 15 \\ 16.7 \\ 182571 \\ 8.02 \\ 55.56 \\ 12.93 \end{array}$ | 3 7.1 2.34698 1.60 11.11 6.12 | 9 3.2 10.6765 4.81 33.33 40.91 | 27 14.44 |
| 4 | $\begin{array}{r} 10 \\ 8.1 \\ .464702 \\ 5.35 \\ 76.92 \\ 8.62 \end{array}$ | 3.4 .048489 1.60 23.08 6.12 | 0 <br> 1.5 <br> 1.52941 <br> 0.00 <br> 0.00 <br> 0.00 | 13 6.95 |
| 6 | 5.6 .448788 2.14 44.44 3.45 | 1 2.4 .782325 0.53 11.11 2.04 | 4.1 8. 16993 2.14 44.44 18.18 | 4.41 |
| total | $\begin{array}{r} 116 \\ 62.03 \end{array}$ | $\begin{array}{r} 49 \\ 26.20 \end{array}$ | $\begin{array}{r} 22 \\ 11.76 \end{array}$ | $\begin{array}{r} 187 \\ 100.00 \end{array}$ |





STATISTIC
CHI-SOUARE
WARNING: $25 \%$ OF THE CELLS HAVE EXPECTED COUNTS LESS
THAN 5. CHI-SCUARE MAY NOT BE A VALID TEST.




STATISTICS FOR TABLE OF TITLE EY RS_4


WARNING: $33 X$ OF THE CELLS MAVE EXPECTED COUNTS LESS
THAN 5. CHI-SOUARE MAY NOT BE A VALID TEST



| title |  | B | by R5 |  |
| :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT | 21 | 31 | 41 | total |
| 1 |  | 4. $\begin{array}{r}10.7 \\ \text { 4. } 1919 \\ 2.14 \\ 4.00 \\ 20.00\end{array}$ | $\left\|\begin{array}{r}\text { 7 } \\ 7.0 \\ 3.52726 \\ 1.07 \\ 2.00 \\ 15.38\end{array}\right\|$ | 100 53.48 |
| 2 | 35 38.7 .354819 18.72 74.47 22.73 | 7 7 0.77461 3.74 14.89 35.00 |  | 47 25.13 |
| 3 | 19 25.5 1.66996 10.16 61.29 12.34 | a 3.3 2. 17357 3.21 19.35 30.30 |  | 31 16.58 |
| 4 | 7.4 7 268908 3.21 66.67 3.90 | $\left\lvert\, \begin{array}{r}1.3 \\ 4.3128 \\ 1.60 \\ 33.33 \\ 15.00\end{array}\right.$ | 0.6 <br> 0.6568 <br> 0.00 <br> 0.00 <br> 0.00 | 4.81 |
| total | $\begin{array}{r} 154 \\ 82.35 \end{array}$ | $\begin{aligned} & 20 \\ & 10.70 \end{aligned}$ | $6.95$ | $\begin{array}{r} 187 \\ 100.00 \end{array}$ |
| Statistics for table of title by rs_7 |  |  |  |  |






STATISTICS FOR TARLE OF WEREEMP EY R_2






| PCSPORT | table of R7_3 | PCSPORT | BY R7_3 |  |
| :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT | 21 | 31 | 41 | TOTAL |
| 1 | 77 80.5 .250164 40.53 63.64 60.16 | 19 $\mathbf{2 2 . 3}$ 0.48546 10.00 15.70 54.29 | \|r|r|r|r|25 <br> 17.2 <br> 3.5307 <br> 13.16 <br> 20.66 <br> 92.59 | 121 63.68 |
| 2 | 27 26.9 16.9 14.24 67.50 21.09 | ( 72 7.4 2.91128 6.32 30.00 34.29 | $\|$5 <br> 1 <br> 3.86014 <br> 0.53 <br> 2.50 <br> 3.70 | 40 21.05 |
| 3 | 24 19.5 1.0198 12.63 82.76 18.75 | 4 5 5 337179 2.11 13.79 11.43 |  | 29 15.26 |
| total | $\begin{array}{r} 128 \\ 67.37 \end{array}$ | $\begin{array}{r} 35 \\ 18.42 \end{array}$ | $\begin{array}{r} 27 \\ 14.21 \end{array}$ | $\begin{array}{r} 190 \\ 100.00 \end{array}$ |

STATISTICS FOR TABLE OF PCSPORT BY R7_3





| TABLE OF Employ 8 Y R8_1 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| EMPLOY | R8_1 |  |  |  |  |
| FREQUENCY <br> EXPECTED <br> CELL CHI 2 <br> PERCENT ROW PCT <br> COL PCT | 2 | 3 |  | total |  |
| 1 | 58 49.2 1.5773 30.85 42.65 85.29 | 23 21.0 194748 12.23 16.91 79.31 | 55 <br> 65.8 <br> 1.78163 <br> 29.26 <br> 40.44 <br> 60.44 | 13672.34 |  |
| 2 | 7 11.6 1.80792 3.72 21.88 10.29 | 4 <br> 4.9 <br> 0.17755 <br> 2.13 <br> 12.50 <br> 13.79 | 21 <br> 1.96052 <br> 11.17 <br> 65.63 <br> 23.08 | 3217.02 |  |
| 3 | 2 6.1 2.79946 1.06 11.76 2.94 | 1 <br> 2.6 <br> 1.00368 <br> 0.53 <br> 5.88 <br> 3.45 | 14 8.2 4.0473 7.45 82.35 15.38 | 179.04 |  |
| 4 | 1 1.1 .006675 0.53 33.33 1.47 | 1 <br> 0.5 <br> .623685 <br> 0.53 <br> 33.33 <br> 3.45 | 1 1.5 140772 0.53 33.33 1.10 | 1.60 |  |
| total | $\begin{array}{r} 68 \\ 36.17 \end{array}$ | $\begin{array}{r} 29 \\ 15.43 \end{array}$ | $\begin{array}{r} 91 \\ 48.40 \end{array}$ | $\begin{array}{r} 180 \\ 100.00 \end{array}$ |  |
| Statistics for tanle of employ by ra_1 |  |  |  |  |  |
| STATISTIC |  |  | DF | value | PROB |
| CHI-SOUARE |  |  | 6 | 16. 122 | 0.013 |
| WARNING: | 41\% of the cells have expected counts less than 5. Chi-souare may not be a valio test. |  |  |  |  |





Wanning: SOK OF THE CELLS HAVE EXPECTED COUNTS LESS





| title | R8_7 |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| FREQUENCY EXPECTED CELL CHI 2 PERCENT ROW PCT COL PCT | 21 | 31 | 4 | \| total |  |
| 1 | 5 <br> 1.6 <br> 1.47802 <br> 2.67 <br> 5.00 <br> 31.25 | 43 33.2 2.92331 22.99 43.00 69.35 | 52 58.3 .678495 27.81 52.00 47.71 | 100 53.48 |  |
| 2 | 5 4.0 .238146 2.67 10.64 31.25 | 15 4.6 4.72736 3.74 14.89 11.29 | 35 27.4 2.11073 18.72 74.47 32.11 | 47 <br> 25.13 |  |
| 3 | 4.7 2.78464 2.14 12.90 25.00 | 10.3 <br> 158928 <br> 4.81 <br> 29.03 <br> 14.52 | 18 18.1 $3 E-04$ 9.63 58.06 16.51 | 31 <br> 16.58 |  |
| 4 | 2 0.8 1.9645 1.07 22.22 12.50 | 3.0 $98-05$ 1.60 33.33 4.84 | 4.2 .295938 2.14 44.44 3.67 | 9 4.81 |  |
| total | $\begin{array}{r} 16 \\ 8.56 \end{array}$ | $\begin{array}{r} 62 \\ 33.16 \end{array}$ | $\begin{array}{r} 109 \\ 58.29 \end{array}$ | $\begin{array}{r} 187 \\ 100.00 \end{array}$ |  |
| STATISTICS FOR TABLE OF TITLE BY R8_7 |  |  |  |  |  |
| Statistic |  |  | DF | value | PROS |
| CHI-SOUAR |  |  | 6 | 15.260 | 0.018 |
| WARNING: 33\% of the cells have expected counts less <br> than 5. Chi -souare may not be a valid test. |  |  |  |  |  |


STATISTIC
CHI-SOUARE
WARNING:







# 1 <br> VITA <br> Jenifer Ann Mitchell <br> Candidate for the Degree of <br> Master of Science 

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