FITNESS LEVEL AND SUCCESS IN FEMALE INTERCOLLEGIATE EQUESTRIAN ATHLETES

By

SUSAN KEETON

Bachelor of Science in Health Promotion

Oklahoma State University

Stillwater, Oklahoma

2003

Submitted to the Faculty of the Graduate College of Oklahoma State University in partial fulfillment of the requirements for the Degree of MASTER OF SCIENCE July, 2005

FITNESS LEVEL AND SUCCESS IN FEMALE

INTERCOLLEGIATE EQUESTRIAN

ATHLETES

Thesis Approved:

Dr. Steven Edwards

Thesis Advisor Dr. Frank Kulling

Dr. Tona Palmer

Dr. A. Gordon Emslie

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Equestrian has been an emerging NCAA sport since 1998 and is currently at complete varsity status (USA Equestrian, 2003). Three-hundred teams with more than 6,200 riders exist around the country and compete through the Intercollegiate Horse Show Association or IHSA (IHSA Hall of Teams), and 16 of those teams have varsity status through NCAA (USA Equestrian, 2003). With the emergence of this unique sport, the need for a sport-specific training program was created.

Equestrian is very different from other sports because of the horse as a variable. Unlike non-collegiate equestrian events, where riders use their own horses that they have trained and are familiar with, intercollegiate equestrian competitors do not use their own horses. The riders draw a horse which they may have never ridden and compete on that animal without practice or warm-up. This ensures a true test of horsemanship ability because an inept rider will not be successful just because he or she has a well-trained horse (IHSA).

Intercollegiate equestrian athletes must be able to adapt to the animal they draw. Also, since the horse is so much more powerful than any rider is able to be, pure strength and athletic ability are not enough to control the animal. Riders must also have adaptability, finesse, and excellent technique in order to perform well.

In intercollegiate equestrian events, only the rider is judged. Judging for intercollegiate equestrian events is primarily subjective. Consequently, the rider's style and "look" are very important for success. Even if the rider does everything correctly, if she does not "look the part," with proper attire, effortlessness, long and slender lines, etc. she may not score well. The IHSA rule book states that for judging purposes, "Riders should have a workmanlike appearance, seat and hands light and supple, conveying the impression of complete control." Only the rider is to be judged, and no penalty should be given because of the horse's conformation, gate, or color. Faults of the horse are also not to be considered unless deemed the fault of the rider.

IHSA shows are divided into levels depending on the rider's experience. Riders advance through the levels by earning points at the horse shows. First place is worth seven points, second is worth five, third is worth four, fourth is worth three and so on. Riders must earn 35 points to advance to the next level. Once riders earn 35 points for their level, they are eligible to compete in the regional championships. The top three competitors for each level at Regionals advance to Zones, and the top two competitors for each level at Zones advance to the National Championships (IHSA).

STATEMENT OF THE PROBLEM

The problem of this study was to determine whether higher fitness levels correlate positively with success in competition for female intercollegiate equestrian athletes.

PURPOSE OF THE STUDY

Because of the lack of research on this unique sport, the optimal aerobic capacity needed for best performance remains unclear. Moreover, it is unknown whether high fitness levels actually increase performance in female intercollegiate equestrian athletes. Sport-specific education is beneficial for many sports, but this type of information does not exist for equestrian athletes. Without knowledgeable fitness assessments, exercise prescription for equestrian athletes will not have optimal effectiveness. In general, testing of athletes has shown that lower-than-average fitness levels lead to decreased performance. However, no such studies exist for equestrian athletes (Meyers, 2000). This study aimed to help collegiate equestrian coaches tailor their conditioning and practice sessions to elicit the greatest success from their athletes.

HYPOTHESIS

The following null hypothesis will be examined:

Ho1

There will be no relationship between the components of fitness and success in intercollegiate equestrian athletes.

ASSUMPTIONS

This study relied on the following assumptions:

- All tested riders were placed in the appropriate division for their experience level, and all the riders they competed againstwere of equal experience.
- 2. All horses in each class were fair and evenly matched.

- 3. Judging was correct and fair.
- None of the riders received instruction in the sport other than daily team practices.
- There were no extraneous factors such as state of mind, physical illness, etc. that negatively affected the athlete's performance.

DELIMITATIONS

This study included the following delimitations:

- 1. Subjects were female college students between the ages of 18 and 25.
- 2. Subjects completed an informed consent form.
- 3. Subjects must have participated in at least four competitions, half of the total scheduled competitions for the normal season.
- Fitness variables were determined using standard fitness testing which included blood pressure, three-minute step test for predictive VO₂ maximum, sit-and-reach test, curl-up test, and hand grip test.

LIMITATIONS

This study included the following limitations:

- 1. Only a single team of athletes was studied.
- 2. Only one season of competition was used.
- 3. The subjects were not randomly selected.

DEFINITION OF TERMS

<u>Equestrian Sports</u> – equestrian disciplines available through IHSA including Hunt Seat Equitation, Hunt Seat Equitation over Fences, Western Horsemanship, and Reining. <u>Western Discipline</u> – subjects perform in Western saddles and with Western attire. Western events include Western Horsemanship and Reining.

<u>Hunt Seat Discipline</u> – subjects perform in Hunt Seat saddles and with Hunt Seat attire. Hunt Seat events include Hunt Seat Equitation and Hunt Seat Equitation over Fences.

<u>High fitness levels</u> – performing in the eightieth percentile or better for their age on each fitness test.

<u>Success</u> – scoring points at shows - the more points, the higher the success.

<u>VO₂ max</u> – the only true measure of aerobic fitness, maximal oxygen consumption of the body expressed in milliliters per kilogram of body weight per minute (ACSM, 2000).

CHAPTER II

REVIEW OF THE LITERATURE

The literature used in forming the hypothesis of this study will be discussed in order to elucidate the problem and variables at question. The literature includes research studies, websites, and topic-specific articles.

FITNESS LEVELS OF OTHER ATHLETES

Because little is known about the fitness requirements for success in intercollegiate equestrian competition, the fitness levels of other female athletes were used as a comparison to the fitness levels of equestrian athletes. In "Ventilatory Threshold in Young and Adult Female Athletes," researchers used treadmill tests to determine the VO2 max of similarly-trained female athletes. The adult athletes had a mean age of 24 years for long-distance runners and 22 years for middle-distance runners. These ages were similar to the ages of the population to be tested for this study on equestrian athletes. The 14 long-distance runners had a mean VO₂ max of 67 ml/kg/min., and the 10 middle-distance runners had a mean VO₂ max of 62 ml/kg/min (Bunc & Heller, 1993).

In "Body Composition of Elite American Athletes," 298 female athletes participating in 15 Olympic events underwent body fat percentage and lean body mass testing. Female athletes possessed a below-average percentage of body fat when compared to collegiate women. This article also states that athletes

involved in a sport where their body weight is supported tend to have a higher percentage of body fat. Canoe and kayak female athletes average 22% body fat, and swimmers average 20% body fat. This is an important finding because in equestrian sports, the rider's weight is supported by the horse, making them more likely to have a higher percentage of body fat than athletes involved in weight-bearing sports. Sprinters, for example, were found to have an average body fat of 14% (Fleck, 1983). These two studies were helpful in determining how equestrian athletes compare to other athletes in fitness levels.

FITNESS LEVELS OF COLLEGIATE RODEO ATHLETES

Although rodeo is very different from intercollegiate horse showing, rodeo athletes are more similar to equestrian athletes than those from any other sport. The horse variable is the same, and rodeo athletes prepare for competition in much the same way as equestrians, by spending most, if not all, of their practice time in the saddle.

"Exercise Performance of Collegiate Rodeo Athletes" examined the fitness level of 10 female intercollegiate rodeo athletes. Meyers and associates say, "When compared to other intermittent-activity sports, female rodeo athletes appear to have lower aerobic capacities and possess lower lean body mass and greater percentage of body fat." The average age of female rodeo athletes tested was 20 years with an average body fat of 24%. Average blood pressure was 130 systolic and 81 diastolic, and average VO2 max was 37 ml/kg/min (Meyers, Wilkinson, Elledge, Tolson, Sterling, & Coast, 1992).

FITNESS LEVELS OF INTERCOLLEGIATE EQUESTRAIN ATHLETES

Although many people become sore after a long riding session, horseback riding has not been shown to improve fitness levels such as aerobic capacity, muscular strength, and flexibility (Gunning, 2003). Also, as other studies have shown, most riders are at a similar fitness level to the general population and are below average when compared to other female athletes (Meyers & Sterling, 2000; Meyers, et al, 1992). In her article "Fit to Ride," Gunning states that even our national and world class equestrian athletes' fitness levels are below average when compared to other similar caliber athletes.

In "Physical, Hematological, and Exercise Response of Collegiate Female Equestrian Athletes," Meyers and Sterling's research provided an excellent source for comparison with the current study. They tested 24 collegiate equestrian athletes to determine aerobic power, anaerobic power, body composition, muscular strength, blood chemistries, and coronary risk profile. The age of the participants ranged from 18 to 25. An average body fat of 25% was found. This is higher than most other sports but similar to normatives for the general population. When comparing VO₂ max, equestrians' average of 34 ml/kg/min is similar to rodeo athletes and the general population but inferior to most other sports. Also, hand grip strength of equestrian athletes was lower than reported in other athletes (Meyers & Sterling, 2000).

Meyers and Sterling concluded that equestrian exercise performance was found to be lower than performance reported from athletes of other sports, but

similar to the general population. This study provided an excellent model for comparison of results.

ENERGY EXPENDITURE IN EQUESTRIAN SPORTS

In their study, "Energy Expenditure of Horse Riding," Devienne and Guezennec studied oxygen consumption (VO2 max), ventilation, and heart rate of five recreational riders during dressage (a discipline of riding where the horse and rider execute a predetermined pattern at different gates) and jumping. Each subject rode one known horse and one unknown horse. Devienne and Guezennec found that riding induces a significant increase in energy expenditure, and also that this increase differs according to the horse being ridden. Because every horse is different, with its own unique tendencies, riders must adjust their technique to each different horse that they ride. Some horses, like people, are lazy and have to be urged on, while other horses must be restrained. This skill of adapting themselves to the particular horse being ridden becomes even more difficult when riding an unknown horse, because the rider does not know what to expect. Devienne and Guezennec reported that riding an unknown horse results in an increase in energy expenditure.

In addition, different activities on the horse require different energy expenditures. Jumping a course of fences required the highest mean energy expenditure on a known horse at 2.15 L/min. Cantering and jumping a course of fences on an unknown horse required similar mean energy expenditure at 2.35 L/min and 2.3 L/min respectively. Both walking and trotting on known and unknown horses required lower energy expenditures. Devienne and Guezennec

observed that the subject's mean energy expenditure while riding was between 20 and 70 percent of VO₂ max. Most of the subjects tested reached 75% of their VO₂ max at the end of a jumping course. However, some subjects reached 100% VO₂ max and maximal heart rate during jumping. Consequently, VO₂ max may limit performance in competition (Devienne & Guezennec, 2000). The literature reviewed here provided excellent resources for the current study.

CHAPTER III

METHODS AND PROCEDURES

This chapter includes a brief explanation of the subjects, instruments, research design, and procedure of this study. The subjects will be thoroughly described including the method of selection, sample size, and all relevant characteristics. The purpose and details of each instrument chosen will be given, including appropriateness, validity, and reliability. Finally, the design chosen will be clarified and each step in the procedure outlined.

SUBJECTS

The sample chosen was similar to equestrian athletes participating in collegiate programs around the United States. The2004 -2005 equestrian team at Oklahoma State University in Stillwater, Oklahoma, was used in this study. This team consisted of 64 women between the ages of 18 and 25. Team members were originally from different states around the country, and they had varying degrees of experience. This sample was chosen because of its convenience and similitude to typical collegiate equestrian teams. Coaches advised team members of their opportunity to take part in this study, but participation was voluntary.

INSTRUMENTS

The instruments used in this study were a blood pressure sphygmomanometer, a YMCA three-minute step test, a sit-and-reach test, a curlup muscular endurance test, and a hand grip dynamometer. These are all standard components of fitness testing, and test-retest reliability and validity has been established when procedures are performed correctly.

RESEARCH DESIGN

The design of this study was correlational research. The variables of interest were blood pressure, VO_2 max, muscular strength, and flexibility and success throughout the competitive season. These variables were correlated, and a correlation coefficient was used to indicate the degree of relationship between the two variables.

PROCEDURE

After written consent and clearance from the Oklahoma State University IRB, success at competitions was tracked by the team's coaches for each subject throughout the season. Midway through the season, each member I underwent fitness testing. Fitness testing included blood pressure by auscultation, predicted VO₂ max by a YMCA three-minute step test, flexibility by a sit and-reach test, muscular endurance by a curl-up test, and muscular strength by a hand grip test. Testing was held at the Seretean Wellness Center on the campus of Oklahoma State University and conducted by the Wellness Center's graduate assistant staff who have previously been trained and demonstrated accuracy on the testing techniques. No pilot study was conducted. Success was

calculated by taking each subject's average number of points earned per competition. Only riders who competed in at least four competitions, half of the regular season, were used. At the end of the season, fitness test results were correlated with success.

When participants arrived for the fitness test battery, theywere asked to sign an informed consent form, and blood pressure was measured. VO_2 max was determined from a YMCA three-minute step test. The test consisted of the subject stepping up and down on a 12.0 inch bench to a metronome set at 96 beats per minute for three minutes. At the end of the three minutes, the subject immediately sat down and heart ratewa s taken for 60 seconds. This recovery heart rate was then used to predict cardiovascular capacity (Golding, 2000).

The sit-and-reach test was only be performed after the step test so that the participant's muscles were adequately warmed. To begin the test, the participant removed their shoes and sat in front of the sit-and-reach box with their feet flat up against the box. Their legs remained straight throughout the entire test. The participant stretched forward across the box as far as possible without leading with one hand or the other, or bending their knees. The score was the farthest distance reached with the finger tips (in inches or centimeters), and the best of three trials was recorded (ACSM, 2000).

Muscular endurance was measured by a curl-up (crunch) test. In this test, the subject lay in a supine position on a mat with the knees at a 90-degree angle. The arms were at the subject's side, with finger tips touching a pieceof masking tape. A second piece of masking tape we place 12 centimeters beyond the first.

A metronome was set to 40 beats per minute, and the subject performed slow, controlled curl-ups, lifting the shoulder blades off the mat in time to the metronome (20 curl-ups per minute). The subject had tobring her shoulders up high enough so that her finger tips slidrom the first piece of tape to the second. The subject performed as many curl-ups as possible without pausing, up to a maximum of 75 (ACSM, 2000).

Muscular strength was determined using a hand-grip dynamometer. The participant held the dynamometer in her right hand with her arm hanging straight down to her side. She then gripped the dynamometer as hard as possible. The best of three tries was recorded for each hand, with the participant alternating hands between tries (ACSM, 2000).

ANALYSIS OF THE DATA

Fitness level and success was correlated and a correlation coefficient found to determine the size and direction of the relationship. The coefficient was then squared to determine the extent of the shared variance between fitness levels and success. A variance of 75% was considered high, 50% moderate, and 25% low. All hypotheses were tested at the .05 level of significance.

When information was entered into the computer for analysis, each participant was randomlycoded with a number, and their paper records were shredded and disposed of in confidential trash. Once coded and in the computer, no individual records were identifiable.

CHAPTER IV

RESULTS AND DISCUSSION

This section will explain the data analysis used and the results of the study. The relationship between the results found and the stated hypothesis will be discussed. The purpose of this study was to determine if fitness level correlates with success (points earned in competitions) in intercollegiate female equestrian athletes.

DESCRIPTION OF THE SAMPLE

This study began with 56 female equestrian athletes from the Oklahoma State University Equestrian Team. The average age of the participants was 19.76 years. Participants ranged from freshmen to seniors and had widely varying degrees of experience in their sport. Each athlete underwent a battery of fitness tests including blood pressure, a three-minute step test, a sit-and-reach flexibility test, a hand grip test, and a curl-up test. Two participants were excluded from the step test due to injury but performed all other testing.

Each participant's success was tracked throughout the season by the points they earned at competitions. The fitness level variables were then correlated with the average number of points earned through competitions. Of the 56 participants tested, 35 met the requirements of competing in at least 4 competitions throughout the season. The group averages for each fitness test

and for average points are summarized in Table I and the correlation between

each fitness variable and success is summarized in Table II.

TABLE I

Average Results for Fitness Tests

Fitness Test	Results
Systolic Blood Pressure	103.54 mm mercury
Diastolic Blood Pressure	65.89 mm mercury
Estimated VO ₂ Maximum	45.11 ml/Kg/min
Sit-And-Reach	20.33 inches
Right Hand Grip	28.8 kg
Left Hand Grip	27.15 kg
Curl-Ups	62.32 curl-ups
Average Points per Competition	4.21 points

TABLE II

Fitness Variable	Correlation	Significance
Systolic Blood Pressure	0.040	0.822
Diastolic Blood Pressure	-0.013	0.939
Estimated VO ₂ Maximum	-0.183	0.293
Sit-And-Reach	-0.115	0.512
Right Hand Grip	0.208	0.230
Left Hand Grip	0.094	0.592
Curl-Ups	0.067	0.701

Correlations between Fitness Variables and Average Number of Points

HYPOTHESIS

As seen in Table II above, none of the variables had a significant correlation when tested at the 0.05 level of significance. Therefore, Ho: There will be no relationship between fitness level and success in intercollegiate equestrian athletes is accepted.

DISCUSSION OF RESULTS

This study sought to determine if any correlation exists between fitness level and success in intercollegiate equestrian competitors. No correlation was found between systolic blood pressure, diastolic blood pressure, VO₂ maximum, flexibility, right hand grip, left hand grip, or muscular strength and the average number of points earned per competition (success). The following will compare the results found in this study to results from similar studies.

In their study, "*Physical, Hematological, and Exercise Response of Collegiate Female Equestrian Athletes* (2000)," Myers and Sterling hoped to provide insight into the fitness levels of equestrian athletes and compare them to other better-studied sport athletes. In this study, 24 female equestrian students 18-25 years old underwent anthropometric, cardiovascular endurance, anaerobic power, upper and lower body strength, and blood chemistry measurements. Myers and Sterling found that female equestrian athletes possessed average aerobic capacity when compared to age-defined norms but lower aerobic capacity than athletes in other sports. Hand grip was found to be lower than average, but curl-up (muscular endurance) was above average when compared to established norms for young females (Myers & Sterling, 2000). Myers and Sterling's testing was very similar to the current study with the only differences being a different protocol for the VO₂ maximum and curl-up measurements. Table III shows the findings of this study compared to Myers and Sterling's.

TABLE III

Comparison of Fitness Variables

Fitness Test	Myers and Sterling	Current Study
VO ₂ Maximum	33.94 ml/kg/min	45.11 ml/kg/min
Right Hand Grip	28.9 kg	28.8 kg
Left Hand Grip	26.7 kg	27.15 kg

When compared to Myers and Sterling's study, the current study found a higher VO₂ maximum for equestrian athletes. This finding could be attributed to

the fact that the Equestrian Team at Oklahoma State University holds conditioning workouts 3 days per week in addition to their riding practices. Hand grip strength was very similar for both studies. Curl-ups could not be compared because Myers and Sterling used curl-ups per minute, and I used maximum number of curl-ups completed. However, both studies found equestrian athletes to be above average in abdominal strength.

In contrast to Myers and Sterling, the current study found equestrian athletes to possess above average VO₂ maximum when compared to norms and similar to many other sport athletes. This difference, however, could be due to different testing methods. The current study used a predictive VO₂ maximum test, whereas Myers and Sterling tested their subjects to their actual maximum. Table IV shows the VO₂ maximum for equestrian athletes found in this study compared to other better studied athletes.

TABLE IV

Mean VO_2 Maximum Comparison between Equestrian Athletes and Other

Sport	VO ₂ Maximum (ml/kg/min)
Equestrian	45.11
Alpine Skiing	52.7
Basketball	47.2
Biathlon	59.8
Cross-Country Skiing	61.5
Cycling	52.5
Distance Running	67.1
Field Hockey	50.2
Gymnastics	43.0
Orienteering	46.1
Rodeo	36.9
Rugby	41.9
Softball	45.4
Speed Skating	50.2
Swimming	43.9
Volleyball	49.0
Water Skiing	49.6
Norms	34.0

Female Athletes

Table adapted from Myers and Sterling (2000)

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This final chapter provides an overview of the study. Included are a summary, description of findings, conclusions, and recommendations for future research.

SUMMARY

The purpose of this study was to determine if fitness level has any effect on performance in intercollegiate equestrian sport. In general, testing of athletes has shown that lower-than-average fitness levels lead to decreased performance. However, no such studies exist for equestrian athletes (Meyers, 2000). The results of this study will help coaches better tailor their conditioning and practices to elicit the best performance from their athletes.

The participants were 56 members of the 2005 Oklahoma State University Equestrian Team. All participants signed an informed consent form and underwent a variety of fitness tests including blood pressure, 3-minute step for VO₂ maximum estimate, sit-and-reach test for flexibility, hand grip test for muscular strength, and a curl up test for muscular endurance. Participants' success was tracked via the points they earned at competitions throughout the regular season. First place equals 7 points, second place equals 5 points, third place equals 4 points, fourth place equals 3 points, and so on. In order to be eligible for the study, participants had to participate in at least 4 competitions. Of the 56 participants, 35 met this requirement. Each participant's average number of points earned per competition was then correlated with each fitness variable.

FINDINGS

No correlation was found between success (average number of points earned) and any of the fitness variables. Therefore, Ho: Therewill be no relationship between fitness level and success in intercollegiate equestrian athletes was accepted.

CONCLUSIONS

This study found no correlation between fitness level and success in intercollegiate equestrian athletes. One reason for this may be that the horse is a very large, powerful animal. No rider is strong enough to control this animal just by strength and force. Also, in this sport, riders do not use their own horses, but must be able to compete on many unknown horses. Therefore, technique and skill at bringing the best out of each unique animal is extremely important. Also, like other subjectively-judged sports, the look of the rider on the horse is key. Style, finesse, and seemed effortlessness must be seen in each performance; and slender, long, clean lines make the best picture.

Moreover, because the team at Oklahoma State University is a wellestablished, large, and successful team, only the best riders actually compete. Of the 56 athletes tested in this study, only 35 met the requirements of

participating in at least half of the competitions in the regular season. These riders averaged greater than 4 points per competition, which translates into averaging better than third place in each outing. This is very successful when considering that each individual may be competing against more than 20 other top riders. Smaller teams who have to compete all of their members may not experience the same type of success.

RECOMMENDATIONS

Equestrian is an emerging sport which was recently inducted into the NCAA. When compared to other sports, equestrian athletes are understudied and information about this sport's unique physical requirements and needs is lacking. Based on the results of this study, recommendations for future studies on equestrian athletes can be made.

- A correlation between fitness level and success using multiple teams of varying sizes and abilities would be useful. This study only looked at one large, well-established team.
- 2. A comparison between teams that have structured conditioning training versus those that do not may show different results. The Equestrian Team at Oklahoma State University meets 3 days per week with a conditioning coach to train doing a variety of aerobic and strength training exercises. Consequently, the athletes on this team may be more physically fit than other equestrian athletes. Will the conditioned teams perform better?

- 3. Future research on some of these intangible variables in equestrian sport may present more insight on success in this sport. Because equestrian is a subjectively-judged sport, the rider's look is very important. Are intangible variables such as look, style, technique, and the ability to work with a variety of animals with different temperaments more important than fitness level for success in equestrian competition?
- Studying a single fitness variable more completely may be worthwhile.
 Hand grip strength showed the highest correlation. Also looking at upper body, lower body, or core strength could be useful.

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APPENDICES

APPENDIX A

IRB APPROVAL

Oklahoma State University Institutional Review Board

Date: Thursday, October 21, 2004

Expedited

IRB Application No ED0529

Proposal Title: Fitness Levels and Success in Intercollegiate Equestrian Atheletes

Reviewed and Processed as:

Status Recommended by Reviewer(s): Approved Protocol Expires: 10/20/2005

Principal Investigator(s

Susan Keeton 2203 Crestwood Drive Stillwater, OK 74075 Steven Edwards 432 Willard Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

- Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
- Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
- Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
- 4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact me in 415 Whitehurst (phone: 405-744-1676, colson@okstate.edu).

Sincerely,

Carol Olson, Chair Institutional Review Board

APPENDIX B

INFORMED CONSENT

CONSENT TO PARTICIPATE

Project Title:

Fitness Level and Success in Intercollegiate Equestrian Athletes

Investigators:

Susan Keeton B.S. Health Promotion

Dr. Steven Edwards B.P.E, M.S., PhD

Purpose:

I understand that this is a research study at Oklahoma State University and that testing is for research purposes. I understand that I was asked to participate because I am a member of the Oklahoma State Equestrian Team, a sample of the population of investigation in this study. I understand that the tests that are about to be administered to me are for the purpose of determining my physical fitness status, including heart rate, blood vessel capacities for whole body activity, muscular endurance and strength, and joint flexibility.

Explanation of Procedures:

I understand that the test which I will undergo will be performed on a 12-inch step, and that I will step up and down for three minutes. This test is designed to increase the demands on the heart, lungs, and blood vessel system, and has been explained to my satisfaction. I understand that I will perform a curl-up test to determine abdominal muscular endurance and a hand grip strength test. The sit and-reach test will be used to determine the flexibility of the hip joint. I understand that during this test I will be asked to stretch forward toward my toes to measure my flexibility. Testing will take approximately thirty minutes.

Description of Potential Risks:

I understand that there exists the possibility that certain abnormal changes may occur during the testing. During the step test, changes could include abnormal heart beats, abnormal blood pressure response, various muscle and joint strains or injuries, and in rare instances, heart attack. During the curl up test and flexibility test, muscle and joint strains may occur. Professional care throughout the entire testing process should provide appropriate precaution against such problems.

Benefits to be Expected:

I understand that the results of these tests will aid in determining my physical fitness status, and in determining potential health hazards. These results will facilitate a better individualized exercise prescription.

Confidentiality:

I understand that the information gathered from these tests is strictly confidential and will not be disclosed to anyone other than my physician or others who are involved in my care or exercise prescription without my permission. I understand that data will be stored in a locked file cabinet stored in the Wellness Center Lab which is locked. Only the researcher has access to my data. I understand that my data will only be kept until analysis is complete upon which time it will be shredded. I understand that OSU IRB has the authority to inspect consent records and data files to assure compliance with approved procedures.

Contacts:

For information on this study, contact Susan Keeton at 405-377-2386 or <u>srkeeton@excite.com</u>. For information on subjects' rights, contact Dr. Carol Olson, IRB Chair, at 415 Whitehurst Hall or 405-744-1676.

Participant Rights:

Questions concerning these procedures have been answered to my satisfaction. I understand that I am free to deny answering any questions during the evaluation process, or to withdraw consent and discontinue participating in any procedures without penalty. I understand that to be included in this study I must participate in at least ½ of the competitions during the current competition season.

I have read and fully understand this consent form. I sign it freely and voluntarily. A copy of this form has been given to me.

Signature of Participant

Date

I certify that I have personally explained this document before requesting that the participant sign it.

Signature of Researcher

Date

VITA

SUSAN RENE KEETON

Candidate for the Degree of

Master of Science

Thesis: FITNESS LEVEL AND SUCCESS IN FEMALE INTERCOLLEGIATE EQUESTRIAN ATHLETES

Major Field: Health and Human Performance

Biographical:

- Personal Data: Born in Oklahoma City, Oklahoma, on December 12, 1979, the daughter of Michael and Nancy Reed.
- Education: Graduated from Deer Creek High School, Edmond, Oklahoma in May 1998; received Bachelor of Science in Health Promotion from Oklahoma State University, Stillwater, Oklahoma, December 2002. Completed the requirements for the Master of Science degree with a major of Health and Human Performance with an emphasis in Applied Exercise Science at Oklahoma State University, Stillwater, Oklahoma, July, 2005.
- Experience: Graduate Assistant at Oklahoma State University, Seretean Wellness Center, Stillwater, Oklahoma, August 2003 – present; Exercise Physiologist at Cardiology of Stillwater, Stillwater, Oklahoma, February 2005 – present; Fitness Specialist at Total Rehab, Stillwater, Oklahoma, August 2003 – February 2005; Intern at PACER Fitness Center, Oklahoma City, Oklahoma, Summer 2003.
- Professional Memberships: American College of Sports Medicine (Certified Health-Fitness Instructor), Oklahoma Cardiovascular and Pulmonary Rehabilitation, and American Fitness Professionals and Associates.