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### Analysis of Higher Education Employee Exercise Behaviors

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ANALYSIS OF HIGHER EDUCATION EMPLOYEE EXERCISE BEHAVIORS

By

Michele Linder

Dissertation

Presented to the Faculty of

The Graduate College at the University of Nebraska

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University of Nebraska – Lincoln

Major: Education Studies

(Educational Leadership and Higher Education)

Under the Supervision of Professor Barbara Y. LaCost

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# ANALYSIS OF HIGHER EDUCATION EMPLOYEE EXERCISE BEHAVIORS

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University of Nebraska-Lincoln, 2009

Advisor: Barbara Y. LaCost

With the introduction of technology into our daily lives, the need for physical exertion has decreased, which has led to an increase in sedentary lifestyles. Sedentary lifestyles lead to the state of obesity, and nearly two-thirds of the United States' adult population is considered overweight or obese. This has resulted in a reduced quality of life, adverse health effects that strain the health care system, and tension on the financial condition of American companies. Current literature indicates that organizations that had implemented exercise or wellness programs reported healthier and more productive employees, an improved morale within the company, and significant savings per dollar spent on the exercise/wellness program.

The intent of this study was to provide an argument for the implementation of exercise programs into the higher education environment. Data were gathered from a variety of organizations regarding the personal and organizational benefits of such program implementation, and primary research was conducted to study the exercise behaviors of higher education employees at a small Midwestern university.

Data indicated that most employees at the small Midwestern University who responded did not receive the recommended weekly exercise. The employees who reported exercise participation did so for the mental/emotional benefits, as well as to improve appearance and weight management. Employees experienced barriers including

lack of time and lack of employer support. Nearly 60% of most employees believed the institution should implement an exercise program.

## Acknowledgements

I thank God for His direction, guidance and words. I could not have done it without Him.

I thank my husband, Mark, for his love, support and sacrifice. I thank him for having a strong shoulder when I needed strength and a soft shoulder when I needed reassurance, for being such a good listener and offering advice when needed, and for consoling and encouraging me when I felt like giving up. I thank him for the time he has sacrificed with me so I could finish this.

I thank my children, Braxton, Brodrick and Breylee, for their love, sacrifice and support as well. They gave up so much time with me, because they knew I had to finish this. They have been my greatest cheerleaders, just waiting to officially call me, “Dr. Mom.”

I thank my entire family for their love, support and encouragement during this seemingly endless process. There was always someone checking up on me, making sure I was not getting discouraged. I also thank my church family for their prayers and encouragement.

I thank my committee for their support, time and efforts, and I thank the Department of Educational Administration staff for their help as well. I thank Tim Gaskill for his help with statistics, and I thank my advisor, Dr. Barbara LaCost, for all the time and efforts she gave to this project and just for being there to help me.

## Dedication

To my husband, Mark Linder and my children, Braxton, Brodrick and Breylee  
who have supported me, encouraged me and sacrificed so much.

“Commit your works to the LORD, And your thoughts will be established.”

Proverbs 16:3, NKJV.

“Therefore, whether you eat or drink, or whatever you do, do all to the glory of God.”

1 Corinthians 10:31, NKJV.

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## **CHAPTER 1**

### **INTRODUCTION**

In the United States, the leading causes of death are lifestyle-related. Hoeger & Hoeger (2004) reported that “nearly 62 percent of all deaths in the United States are caused by cardiovascular disease and cancer. Almost 80 percent of these deaths could be prevented through a healthy lifestyle program” (p. 12).

Each year an increasing number of people in the United States are categorized as obese. Obesity increases the risk of cardiovascular disease, as well as other chronic illnesses, such as insulin resistance, higher blood pressure, Type 2 diabetes, high cholesterol, stroke, heart attack, congestive heart failure, gallstones, cancer, gout, osteoarthritis, and sleep apnea. According to National Institutes of Health, (1995) one out of four people in the United States are inactive. Physical inactivity is the leading cause of obesity, as well as a major risk factor for cardiovascular disease.

Godbey (2003) reported on Sedentary Death Syndrome (SeDS). According to Godbey sedentary is explained as less than 30 minutes of daily moderate physical activity, such as brisk walking. Three of four adults were reported to be sedentary. SeDS is the result of 26 unhealthy conditions and has arisen as a result of lack of exercise. In the United States, one of 10 deaths is premature due to SeDS. Godbey estimated that sedentary-related conditions were estimated to cost about one and one-half trillion dollars through 2013. Between 1991 and 1999, adult obesity increased by 57% in the United States. Furthermore, children were reported to be getting adult-onset (type 2) diabetes at an increasing rate, and 60 % of children had at least one cardiovascular risk factor (Godbey, 2003).

### **Context of the Problem**

The number of health and fitness facilities available for the United States' population to utilize has increased annually for several years. Some businesses have implemented health promotion programs to encourage healthy lifestyles among their employees, and they are experiencing numerous benefits, such as decreased medical and health care costs, increased productivity, and higher morale. Nearly all higher education institutions have health and fitness facilities available on campus, or they can partner with fitness facilities in the community, however, few higher education institutions have implemented health promotion programs. Furthermore, little is known about the expectations and exercise practices and expectations for exercise of higher education employees. An exploration of practices and expectations of employees in higher education was warranted.

### **Purpose of the Study**

The purpose of this study was threefold: (a) to determine exercise behaviors of higher education employees at a small Midwestern university, (b) to determine the barriers to exercise that higher education employees encounter, and (c) to determine that which motivates higher education employees to exercise.

This study was conducted at a small Midwestern university to provide information about the existing employee wellness program. The researcher determined reasons employees were and were not exercising, as well as reasons employees who were not exercising would begin an exercise program. The researcher determined types of exercise in which employees would be willing to participate and how employees might be motivated to begin an exercise program.

### **Definitions**

The following definitions, relevant to this study, are offered.

**Aerobic Exercise** – Anything that steadily used the big muscles of the lower body and lasted a minimum of 12 minutes (Shape Up America, 2004).

**Amotivation** – A non-self determined form of motivation in which individuals have no intention or desire to take part in an activity (Markland, 1997).

**Anaerobic Exercise** – Anything active but with much stop-and-go or too slow to be considered aerobic (Shape Up America, 2004).

**Exercise** – “A type of physical activity that requires planned, structured, and repetitive bodily movement with the intent of improving or maintaining one or more components of physical fitness” (Hoeger & Hoeger, 2004, p. 454).

**External Regulation** – A non-self determined form of motivation in which individuals do not view an activity as beneficial, and they only participate because someone, usually in authority, has said to do so (Markland, 1997).

**Identified regulation** – A self determined type of motivation in which individuals accept and take part in an activity because they consider the outcome valuable (Markland, 1997).

**Integrated regulation** – The internalization of the acceptance of a behavior as important to reach a personal goal and engaging in the behavior willingly (Markland, 2006).

**Intrinsic regulation** – A completely self determined type of motivation in which individuals are not concerned with extrinsic outcomes and competence is not an issue (Markland, 1997).

**Introjected Regulation** – An internally driven but somewhat self determined form of



motivation in which external situations place internal pressures on individuals to participate in an activity (Markland, 1997).

Lifestyle Physical Activity – Activities that are incorporated into everyday living (Whiteley, 2006).

Moderate Physical Activity – “Activity that uses 150 calories of energy per day, or 1,000 calories per week.” It is comparable to brisk walking (Hoeger & Hoeger, 2004, p. 456).

Motivation – “The interaction of cognitive, affective, behavioral, and social processes contributing to purposeful, often goal directed behavior” (DiNardo, 2005, p. 1).

Obesity – The condition of having a higher percentage of body fat, generally over 25% for men and over 30% for women” (Powers, et. al, 2006, p. G-4).

Physical Activity – “Bodily movement produced by skeletal muscles; requires expenditure of energy and produces progressive health benefits” (Hoeger & Hoeger, 2004, p. 457).

Recommended weekly exercise (RWE) – The appropriate amount of weekly exercise, as indicated by health care professionals, to receive health benefits. For this study, the researcher considered many health care professionals’ suggestions and determined that participants had to exercise 150 minutes or more to receive RWE.

Sedentary – Participating in less than 30 minutes of moderate physical activity each day (Godbey, 2003).

Sedentary Lifestyle – An approach to living in which a person is relatively inactive. This involves a great deal of sitting.

### **Research Questions and Hypotheses**

Seven research questions were formulated, and multiple hypotheses were tested for differences among and between variables.

**RQ1. In which types of exercise did higher education employees participate?**

**RQ2. What reasons for exercising did higher education employees offer?**

H<sub>1</sub>     There were significant differences in mean scores on five reasons to exercise between male and female higher education employees.

H<sub>2</sub>     There were significant differences in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by age.

H<sub>3</sub>     There were significant difference in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by institutional position.

**RQ3. What barriers did higher education employees face that inhibit exercise?**

**RQ4. What motivated higher education employees to exercise?**

H<sub>4</sub>     There were significant differences in mean scores on eight assessments of motivation, when categorized by five demographic categories associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

**RQ5. Did participation of higher education employees in recommended weekly exercise (RWE) vary within demographic categories?**

H<sub>5</sub>     There were significant differences in percentages of respondents getting recommended weekly exercise (RWE), when percentages were categorized by

five demographics associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

**RQ6 What differences exist between motivational orientations and receiving the recommended weekly exercise (RWE)?**

H<sub>6</sub> Employees who received RWE scored higher on intrinsic motivation than on extrinsic motivation.

H<sub>7</sub> Employees who did not receive RWE scored higher on amotivation than on intrinsic or extrinsic motivation.

**RQ7 How did higher education employees accommodate exercise site and time?**

Sub question 1: Where do higher education employees exercise?

Sub question 2: To what degree did higher education employees exercise outside work hours?

Sub-question 3: To what degree did higher education employees exercise at work during breaks?

Sub-question 4: Might employees exercise if the institution provided time to do so?

Sub-question 5: Might employees exercise if an exercise program was implemented by the institution?

### **Delimitations**

This study was delimited in the following ways:

1. The study was restricted to one Midwestern university.
2. All employees were surveyed.
3. Survey was restricted to exercise behavior

### **Limitations**

The results of this study may be subject to the following limitations.

Generalizability is limited because only one university in the Midwest was used for data collection at one point in time. Results were not robust for some categories of analysis.

## **CHAPTER 2**

### **REVIEW OF SELECTED LITERATURE**

A plethora of health and exercise literature was reviewed and compiled in this chapter. The following topics were discussed: (a) aspects of health and wellness, (b) history of exercise, health and wellness, (c) obesity epidemic, (d) personal benefits of exercise, (e) types of exercise training, (f) appropriate levels of exercise, (g) barriers to exercise, (h) motivational theories of exercise behaviors, (i) organizational impact of unhealthy behaviors, (j) organizational exercise programs, (k) development of organizational exercise programs (l) benefits of organizational exercise programs and (m) examples of organizational exercise programs and their benefits. Though all areas of health and wellness were important to a healthy lifestyle, the focus of this research study was on physical wellness within organizations, more specifically, exercise in higher education institutions.

#### **Aspects of Health and Wellness**

A healthy lifestyle involves taking care of the entire body. According to Hoeger and Hoeger (2004), wellness was defined as “the constant and deliberate effort to stay healthy and achieve the highest potential for well-being. It encompasses seven dimensions – physical, emotional, mental, social, environmental, occupational, and spiritual—and integrates them all into a quality life” (p. 5). The authors provided an explanation of each of these dimensions.

Some characteristics of physical wellness include being physically active, and maintaining a recommended body weight by eating a well-balanced diet and exercising regularly. Among other characteristics, physically well people have proper body

composition, adequate muscular strength and flexibility, good cardiorespiratory endurance, and are able to “carry out ordinary and unusual demands of daily life safely and effectively” (Hoeger & Hoeger, 2004, p. 5).

Emotional wellness involves being happy. This is accomplished when people are emotionally stable, able to understand their own feelings, able to accept their own limitations and able to be accepting of others. Also involved in emotional wellness is the ability to be open-minded, apply things learned, create opportunities to learn more, positively deal with stress, adjust to change, and enjoy life, even in the midst of crisis (Hoeger & Hoeger 2004).

Social wellness involves an interest in humanity and the environment as a whole. One who is socially well is confident enough to be outgoing and friendly, as well as, able to be affectionate to others. A socially well person can maintain close relationships with others (Hoeger & Hoeger, 2004).

Environmental wellness means one is educated on environmental issues and understands the importance of protection against environmental hazards. Environmentally well people understand that natural surroundings effect our well-being (Hoeger & Hoeger, 2004).

Occupational wellness involves the ability to encourage collaboration and interaction among co-workers. This, in turn, promotes a sense of teamwork and support. Occupationally well people are able to maximize their skills. In addition, they take advantage of opportunities to improve existing skills or learn new ones (Hoeger & Hoeger, 2004).

Spiritual wellness integrates all dimensions of wellness. Spiritually well people have a sense of who they are in this world. They have meaning and direction in life, which is the result of their relationship to a higher being. Spiritually well people rely on prayer, faith and love, and as a result, receive peace, joy, fulfillment, and personal freedom (Hoeger & Hoeger, 2004).

### **History of Exercise, Health and Wellness**

Early societies spent most of their time walking and living off the land. Any exercise took place as part of cultural rituals. Navajo Native Americans took part in wrestling matches, and Choctaw Native Americans played a fast-moving and dangerous game called *toli*. It is now known as lacrosse (Cordes & Ibrahim, 1999).

Primitive societies were characterized by more social stratification. They hosted public hunts for everyone and royal hunts for the king. Any other leisure time was spent being entertained by the performing class (Cordes & Ibrahim, 1999).

Old World Societies included those societies that existed about approximately 1000 BCE, before the discovery of the western hemisphere. Some of the societies during this time included Mesopotamia, Ancient Egypt, Ancient Israel, Ancient Greece, and Ancient Rome. During this time agriculture emerged due to reliable water source. The people established settled communities and a complex social system (Cordes & Ibrahim, 1999).

The leisure and recreation activities at that time varied by region, however dancing, wrestling, hunting expeditions, chariot racing and gladiatorial combats were the more prominent physical activities of the time. The Olympic Games were introduced in ancient Greece in 776 BCE, and ancient Rome introduced *Ludi Romani* during this time

also. Ludi Romani were organized sporting games similar to the Olympic Games (Cordes & Ibrahim, 1999).

The New World Societies of the Western Hemisphere significantly contributed to what we now know as play and recreation. The Mayans were a cultural society with music, dancing and drama. They also developed the sporting games of jai-alai and pok-a-pok (Cordes & Ibrahim, 1999). Pok-a-pok was an extremely physical sport in which the goal was to pass the ball around and get it through one of the rings, but the players could not use their hands. This game was a ritual for the Mayans, and the leader of the losing team was killed as a form of sacrifice (Mayan Sports, 2008). The Aztecs were a highly stratified society with the upper level taking part in hunting and a ball game, tlachtli which was very similar to the Mayan game Pok-a-pok (Cordes & Ibrahim, 1999).

Middle Era societies existed between 500 and 1500 CE. Some of the societies of this time were China, Japan, India and Islam. Some forms of physical activities during this time period were dancing and acrobatics. Jujitsu emerged in Japan for the commoners as a form of self-defense from the samurai soldiers. The Greek Olympics were discontinued during the 4<sup>th</sup> century (Cordes & Ibrahim, 1999).

During the Middle Era, Europe experienced the fall of Rome and the rise of a feudalistic system. Life was difficult for the common people, except for fairs which were celebrations of saints' days. By the 10<sup>th</sup> century Venice prospered due to trade increasing with the east and the west. As a result a strong merchant class emerged and urban populations increased. Leisure time increased and social and recreational centers for members of merchant guilds and craftsmen were formed. Some of the leisure activities



they took part in were wrestling matches, acrobatics and stage shows (Cordes & Ibrahim, 1999).

During the European Revival the aristocracy controlled most aspects of life in Europe. It was a time of stability, peace and prosperity. During the day the aristocrats took part in hunts, horse riding and falconry. In the evening they enjoyed singing, dancing and games. They also organized jousting tournaments and other contests of skill. By the 15<sup>th</sup> century city-states had given way to nation-states, which resulted in more holidays. Besides celebrating religious holidays, they also celebrated national holidays. The nobility attended balls and tournaments. Tennis and lawn bowling emerged during this time also (Cordes & Ibrahim, 1999).

By the 14<sup>th</sup> century the European Renaissance was taking place. Two forms of leisure were gaining in popularity, recreation and amusement. Religious celebrations still occurred with the nobility and the commoners. They also enjoyed playing and watching games (Cordes & Ibrahim, 1999).

Modern societies emerged during the 18<sup>th</sup> century. Some of the modern societies were Great Britain, France, Germany and America. (Cordes & Ibrahim, 1999).

In Great Britain, in the middle of the 18<sup>th</sup> century, most of the labor force moved from rural areas and into the cities for manufacturing jobs. The middle class grew rapidly and began to participate in many of the same recreational activities as the upper class. Some of activities of the time included horseback riding, hunting, and falconry. Tennis and lawn bowling emerged during this time also. Sports, such as cricket, rugby, soccer, badminton and rowing, became popular in schools, which were available only to upper class children (Cordes & Ibrahim, 1999).

There was a great deal of free time for everyone in France before the French Revolution. After the revolution, with the new republican government, the French lost most of their free time. Any leisure activities were cultural related, and the French aristocracy took part in hunting (Cordes & Ibrahim, 1999).

Germany invented Turnen, gymnastics, as a way of strength training their soldiers for war, because they were humiliated after the French conquered them in the French and German war. Turnen was later abolished, but the sport of gymnastics remains a sport that Germany is known for. In 1811 the first Turnplatz, playground, was opened on the outskirts of Berlin (Cordes & Ibrahim, 1999).

The first settlers in America did not have much free time, because they were living in harsh and demanding times. In addition, the Puritan influence did not approve of leisure. During the 18<sup>th</sup> century the Puritan influence had decreased and Americans were experiencing more leisure. Generally, on Sundays they took part in hunting, horseracing, fishing, playing cards and dancing. In the 17<sup>th</sup> century, spectator sports became more popular. Some of these sports included cock fighting, and bull baiting. The more privileged members of society attended horse races (Cordes & Ibrahim, 1999).

After the War of Independence in 1776, Americans developed their own rituals, such as cornhusking, barn raisings, quilting bees, billiards, dice, and card games. The sports craze we recognize today began in the 19<sup>th</sup> and early 20<sup>th</sup> centuries. Men and women began playing tennis, badminton, croquet, ice skating, cycling and archery (Cordes & Ibrahim, 1999).

The first Young Men's Christian Association (YMCA) was founded in London, England in 1844. It was established to instill Christian principles in the young men who

had been working in the cities. It was attempting to replace life on the streets with prayer and Bible study. YMCAs had been opened in the United States by 1851. They were popular with the less affluent class in America during this time due to the interest in sports and the negative influence of taverns on the American family. As time went on YMCA had expanded to the Young Women's Christian Association (YWCA), Young Men's Hebrew Association (YMHA), and the Young Women's Hebrew Association (YWHHA) (Cordes & Ibrahim, 1999).

Interest kept growing in sports and fitness in America, and that led to the introduction of national magazines on sports and fitness. Interest in spectator sports grew and prizefighting, wrestling, college football, basketball and baseball emerged. America was experiencing an increase in leisure time, and an increase in physical activity. Unfortunately, with improving technology, America was also experiencing an increase in sedentary activities, such as watching television, driving automobiles, and the use of computers and video games. In 1994, the Nielsen Surveys reported that one-third of Americans, approximately 90 million people at that time, watched television in the evening. According to United Nations data, the United States had the highest ratio of television sets to people in the world. At that time there was one television set to 1.68 people in the United States, there was one television set to 98 people in Britain, and one television set to 375.5 people in India (Cordes & Ibrahim, 1999).

### **Obesity Epidemic**

According to Mathur (2003), obesity has become an epidemic in the United States. Between 1991 and 1999, adult obesity increased by 57% (Godbey, 2003). The

resulting reduced quality of life and adverse health effects are threatening to bankrupt the health care system (Peters, 2003).

Obesity is generally associated with individuals who have a high percentage of body fat. Men who have 25% or more and women who have 30% or more body fat are considered obese (Powers et. al., 2006). One out of three people in the United States is obese, and almost 2 of 3 are overweight. Approximately 300,000 people in the United States die each year from causes directly related to obesity (Mathur, 2003). Loza (2005) reported that the Centers for Disease Control determined that 61% of United States adults are obese and obese people are 50% more likely to die prematurely.

Gupta (2007) also reported that a study by the National Health and Nutrition Examination Survey revealed that from 1988 to 1994, 55.9% of Americans were overweight or obese, and from 1999 to 2002, the percentage had increased to 65.2%. That computes to about two-thirds of all Americans being overweight or obese.

There are numerous health risks associated with being obese. Some of the chronic diseases that result from obesity include insulin resistance, Type 2 diabetes, high cholesterol, stroke, heart attack, high blood pressure, congestive heart failure, gallstones, cancer, gout, osteoarthritis, and sleep apnea (Mathur, 2003).

Mathur (2005) reported about 6.4 million cases of Type 2 diabetes in 1985 in the United States. That number of cases accounted for about 14 billion dollars in health care spending. By 2003 there was an estimated 13.8 million cases of Type 2 diabetes that accounted for about 132 billion dollars a year in health care spending. In addition, there were an estimated five million undiagnosed cases. He indicated that there are 1.3 million people diagnosed with Type 2 diabetes each year, and about 41 million people have pre-

diabetes in the United States. Mathur predicted that by the year 2030 there will be about 23 million people with Type 2 diabetes, 100 million people will have pre-diabetes, and the cost to treat this disease will be about 250 billion dollars each year. According to Mathur, this could bankrupt the health care system.

### ***Causes of Obesity***

There are a number of factors that can be considered causes of obesity, such as genetics, childhood weight, medications, psychological factors, hormones, environment, eating habits and lack of exercise. “Estimates indicate that more than half of disease is lifestyle-related, a fifth is attributed to the environment, and a tenth is influenced by the health care the individual receives. Only 16% is related to genetic factors. Thus, the individual controls as much as 84% of disease and quality of life.” (Hoeger & Hoeger, 2004, p. 13)

“Being mildly overweight in the early 20’s was linked to substantial incidence of obesity by age 35. Being overweight during older childhood is highly predictive of adult obesity, especially if a parent is also obese. Being overweight during teenage years is even a greater predictor of adult obesity.” (Mathur, 2003, p. 3).

The rise in obesity was viewed by health care professionals as a result of environment, not genetics. The increasing convenience of food available in conjunction with the decreased requirement for physical activity due to the introduction of labor saving devices has resulted in the obesity epidemic in America (Peters, 2003).

Jeffery and Utter (2003) added, “...education has not been successful in changing population body weight” (p. 7). They agreed that the obesity epidemic is caused by environmental changes and decreased levels of physical activity. They reported that

influences on eating and exercise included attractiveness, cost and convenience. Fast food and exercise opportunities fall into every one of those categories. Therefore reducing access to food and sedentary activities would be the most convenient and quickest way to beginning losing weight and improving overall health.

Varela (2008) reported that the geographic access to recreation facilities and high calorie foods affected obesity rates. Low income neighborhoods were less likely to be physically active than neighborhoods in mid to high income levels. She concluded that some interventions are needed socially and geographically to help with the obesity epidemic today. She suggested aiming at increasing income and education levels within the urban environment by reaching the individuals and families in those areas. She also suggested creating a healthy lifestyle environment in the lower income neighborhood areas by improving access to healthy foods and recreational opportunities.

Overeating and lack of physical activity are the major causes of obesity (Mathur, 2003). Gupta (2007) reported that overeating is easier now than ever before while the opportunities to exercise have decreased. The growing portion size of our meals has added to the problem as well as Americans dining out more.

Gupta (2007) reported that according to the United States Department of Agriculture, daily food consumption in the United States increased by 16 % from 1970 to 2003. The increase in calories went from 2,234 per day to 2,757 per day. That calculated to an extra 523 calories each day. In addition, fats and oils accounted for 216 of those additional calories, which was a 63 % increase.

Gupta (2007) added that a person weighing 200 pounds must walk for one hour and 40 minutes or jog 32 minutes at a 10 minute per mile pace, to burn off those extra

calories. That does not include everyday calories. For a person weighing 150 pounds to burn those extra calories, it would require walking two hours and 13 minutes or jogging 43 minutes at a 10 minute per mile pace to burn off those extra calories.

### ***Sedentary Lifestyles***

According to Godbey (2003), sedentary is participating in less than 30 minutes of moderate physical activity each day. Moderate physical activity is comparable to brisk walking. More than 25 % of American adults are physically inactive and more than 60 % are active, but they do not receive enough physical activity ([Executive Office of the President & U.S. Department of Health and Human Services](#), 2005).

Sedentary Death Syndrome (SeDS) is the result of 26 unhealthy conditions. SeDS has risen due to the consequences of lack of exercise, and in the United States, one out of 10 deaths is premature due to SeDS (Godbey, 2003). The scope of SeDS is such that sedentary-related conditions will cost about one and one-half trillion dollars over the next 10 years, and three out of four adults are sedentary. This means they are likely candidates for SeDS (Godbey, 2003).

The introduction of automobiles, elevators, and other labor saving devices is seemingly removing physical activity from our lives and replacing that time with sedentary activities such as watching television, playing games or working on the computer (Peters, 2003). According to Godbey (2003) people in the United States are facing diverse forces that work together to minimize movement of the human body. Some of these forces include emerging “galactic” cities with single-use zoning, increased use of automobiles and decreased walking, increases in population and population density, and increased use of televisions, computers, and laborsaving devices.

Godbey (2003) refers to a “galactic” city as a city spread out over much land with an internal transportation system that is made up of mostly interstate and limited access highways. These main highways produce a great deal of internal commercial clustering, which is where interstate and primary highways intersect. He also indicated that residential areas have taken up much space, due to single houses with lawns and garages. Single-use zoning has added to this mix because it prevents housing and businesses from being built in the same areas. These conditions will assure that the primary means of transportation will be the automobile.

Varela (2008) reported a link between urban surroundings and obesity that affected obesity rates. This link was the geographic access to recreation facilities and high calorie foods, as well as the walkability of neighborhoods. Walkability of neighborhoods increased as residential density, street connectivity and mixed-use zoning increased. Situations that allowed for sedentary behaviors included urban sprawls, low residential density, low land and use mix, and low intersection density. These types of geographics supported lower levels of physical activity and promoted obesity.

Americans currently drive four out of the five miles they move. With this, the percentage of overweight Americans has increased by 40%. Americans may be walking less due to the convenience of using an automobile, or it may be because it is more dangerous now to walk than to drive. This trend will continue if the government funding expenditures remain the same. Currently, most state governments use very little of their funding to make walking safer. States spend an estimated \$72 per person on highways and only 55 cents per person on pedestrian projects (Godbey, 2003).



Another force that is limiting movement of the human body is the increasing population, which leads to an increased population density. With higher population densities, participation in exercise becomes more difficult due to safety factors. These safety issues can be automobiles, other people, and pollution. With increased population densities, the participation in welfare increases and the occurrence of disease increases. It also leads to harmful environmental impacts such as air pollution and toxic chemical releases. If someone is inhaling more pollutants while exercising, then exercising can become counterproductive (Godbey, 2003).

The final forces that Godbey (2003) explains as limiting movement of the human body are television, computers and laborsaving devices. In the United States, watching television is the number one use of free time at anywhere from 15 to 28 hours per week. The percentage of Americans that consider watching television with their family as a family activity is 78%. The probability of children becoming obese increases by 2% for every hour of television watched each day. With these statistics, and the fact that the use of computers and laborsaving devices such as golf carts, riding lawn mowers, remote control devices and other appliances, has become part of everyday life in the United States, our country will be experiencing negative health consequences.

Gupta (2007) claimed that most of the working class adults in the United States are active but too busy to really exercise. Exercising is just not a priority in Americans' lives as they get older. He also said that so many people are searching for a shortcut to increase life expectancy, but they do not take advantage of what is already known.

Over two-thirds of American adults are overweight, and 6 of 10 Americans reported that they never participate in vigorous physical activity for leisure. Gupta wants

Americans to know exercise does not have to be “hard-core” to get benefits from it. He said any exercise helps the heart and lungs. That includes walking, lifting weights, riding a bike and swimming. Lifting weights has been shown to reduce the symptoms of many diseases and chronic conditions, such as diabetes, back pain, depression, obesity and arthritis. It can also increase metabolism by 15% (Gupta, 2007).

Gupta (2007) reported on a study published by the Journal of the American College of Cardiology. The study revealed that the decline in exercise capacity as Americans get older is mainly from inactivity, not from an aging cardiovascular system. The study involved a six month exercise program for older adults. The participants took part in a six month exercise program of stretching and their choice of walking, jogging or bicycling. The result was an increase in oxygen to their working muscles. This increase amounted to the levels found in 20 and 30 year old people. Basically, the participants were able to do more without being exhausted.

Gupta, 2007 reported on a study with participants between the ages of 70 and 79. This study found that the ability of older people to walk one quarter mile was a good predictor of death, disability and illness. The data indicated the adults who could walk the quarter mile distance were much more likely to be alive six years later.

### ***Health Risks***

Katz, (cited in Reinberg, 2005) stated, “obesity is the gravest public health threat in the United States today” (p. 1). He added that it is one of the root causes of all major chronic diseases. One out of three people in the United States is obese, and almost 2 of 3 are overweight. Approximately 300,000 people in the United States die each year from causes directly related to obesity (Mathur, 2003).

Obesity increases the risk of cardiovascular diseases, and according to Hoeger & Hoeger (2004), the American Heart Association reported that "...61.8 million people in the United States were afflicted with diseases of the cardiovascular system in 2002, including 50 million with hypertension (high blood pressure) and 12.6 million with coronary heart disease..." Approximately 1.1 million people suffer heart attacks each year. Almost 500,000 of those people die. Diseases of the heart and blood vessels account for 39% of all deaths in the United States, and the cost of heart and blood vessel disease in 2000 was estimated at over \$329 billion.

Other chronic diseases that result from obesity include insulin resistance, Type 2 diabetes, high cholesterol, stroke, heart attack, high blood pressure, congestive heart failure, gallstones, cancer, gout, osteoarthritis, and sleep apnea (Mathur, 2003). The increase in obesity has resulted in increased heart disease, diabetes, and other chronic diseases (Gupta, 2007). Children are now getting adult-onset (type 2) diabetes at an increasing rate, and 60% of children have at least one cardiovascular risk factor (Godbey, 2003).

Stone (2006) reported that those people who have bulging stomachs have greater strain on their backs. The weight of the stomach places strain on the lower back muscles and the vertebra. It can also cause an increased curvature of the back.

According to Preidt (2005b), the increasing obesity epidemic is resulting in overburdened backs. He reported that the results of a five year study revealed a 67% increase in number of patients who had been treated for spine disorders. In addition, 87% of spine care professionals indicated that obesity played a major role in back pain, and 97% said a weight loss program would be beneficial for their obese patients. Another 55% of spine

care professionals reported major improvement in their obese patients' symptoms after weight loss.

### ***Link Between Obesity and Exercise***

Gupta (2007) reported that approximately 65% of Americans were overweight or obese, and that was more than 175 million people. He indicated that sedentary lifestyles were the cause of the increased obesity rates in the United States, and weight was determined by the balance between caloric intake and energy expenditure. When more calories were consumed than burned, more weight was gained and when more calories were burned than consumed, more weight was lost. Bailey (1991) stated, "the only way to improve metabolism is to exercise" (p. 3).

Whiteley (2006), reported that 60 to 70% of the American population was not physically active, and physical activity was beneficial because it was one of the best ways to lose weight and maintain weight loss. According to her, diet without physical activity did not result in long-term weight management.

According to Warner (2005), physical activity levels of girls during adolescent years significantly decreased, while the number of overweight and obese girls doubled. This was while there was no significant increase in caloric intake. The problem was not just indicative of youth. Many young adults had bodies that were middle-aged or older due to the lifestyles they led. According to Hoeger & Hoeger (2004), "Healthy choices made today influence health for decades" (p. 14).

The Centers for Disease Control and Prevention reported an important reason for the increased percentage of obese adults in the United States between 1991 and 1999 was the lack of exercise. They also claimed the gene pool in the United States did not

significantly change during that time therefore could not have accounted for the increased incidence of obesity (Godbey, 2003).

According to Shape Up America (2004), exercise was critical for weight management, and the most important factor in losing weight was reducing calories by eating less, however exercising while reducing calories produced much better results. They also reported the most important lifestyle change anyone could make was increasing physical activity. Bailey (1991) added “the ultimate cure for obesity is exercise” (p. 3).

Shape Up America’s database contained a great deal of information on thousands of people who had lost 30 or more pounds and kept it off for five or more years. The data indicated a key factor to successful weight management was exercise (Shape Up America, 2004).

Bailey (1991) indicated that exercise was any activity that used muscles, and the benefits went beyond loss of fat. He indicated aerobic exercise was mainly fat-burning exercise, and weightlifting was muscle building exercise. He said excess fat was not the problem with most people; the problem was lack of athletically trained muscle.

### **Personal Benefits of Exercise**

According to Hoeger & Hoeger (2004) the leading causes of death in the United States were lifestyle-related, and “nearly 62% of all deaths in the United States are caused by cardiovascular disease and cancer. Almost 80% of these deaths could be prevented through a healthy lifestyle program” (p. 12).

Gupta (2007) reported people lose lung capacity, strength, and flexibility as they age. Even the fittest people lose strength and flexibility, but all can become biologically

younger by getting fit. Bailey (1991) reported that almost every physiological system in the human body benefited from exercise. It improved metabolic profile, and it resulted in more improvement to overall health than any other behavioral change.

According to (Hoeger and Hoeger, 2004). Migliore & Merz (2002) and Whitely (2006), personal health benefits of exercise included (a) lowered risk for and decreased mortality rate from chronic diseases and illnesses, such as cardiovascular diseases, cardiorespiratory diseases, high blood pressure, diabetes and cancer due to strengthened cardiovascular, cardiorespiratory and immune systems; (b) improved muscular tone, strength and endurance as well as improved bone strength and mass resulting in decreased risk for osteoporosis; (c) reduced stress and depression, improved energy levels and job productivity, and promoted psychological well-being through better morale, self-image, and self-esteem; and (d) increased savings on total health care costs and medical expenses.

### ***Cardiovascular, Cardiorespiratory and Immune Systems***

Godbey (2003) reported that moderate physical activity removed “bad” blood lipids and reduced the risk of colon cancer. He also reported that by taking an additional 600 steps each day for 10 years, adults could prevent adding 10 pounds of fat.

Hitti (2005) reported that moderate intensity exercise improved the heart. The study involved 282 middle-aged people, in which no one exercised before the study. They were instructed to maintain their diets for nine months and were assigned to exercise in one of four groups ranging from no exercise at all to high intensity exercise. In each of the three exercise groups, aerobic fitness improved, and adding more miles improved aerobic fitness more than raising the intensity of the exercise. Many improved

their cardiovascular fitness, and as a result reduced the risk for heart disease, without losing weight. The results indicated an exercise program maintains a body.

Edelson (2005) reported that regular exercise prevented, and even reversed, the decline of aerobic capacity that accompanied aging. This aerobic exercise improved the body's oxygen consumption and its use in metabolism or energy generation. Middle-aged people experienced a decline in maximal aerobic power, which resulted in fatigue when doing any activity. However aerobic exercise increased maximal aerobic power by 25%. That 25% computed into 10 to 12 biological years (Preidt, 2008).

McKeever (2008a) reported that a long-term study involving more than 60,000 people indicated that moderate aerobic fitness reduced stroke risk. Data were collected between 1970 and 2001 on the participants, of multiple ages. The results indicated a substantially lower overall risk for stroke in the participants who exercised at a moderate level as compared to those who did not exercise. There was a 43% lower relative risk for stroke in women with higher cardiorespiratory fitness levels than women in the lowest fitness level. In addition, there was a 40% lower relative risk for stroke in men at the highest fitness level than men in the lowest fitness level. The results indicated a low-to-moderate amount of aerobic fitness was needed to reduce a stroke risk (McKeever, 2008a).

Moderately intense physical activity partaken in regularly for at least 30 minutes on most days helped control heart disease, obesity, diabetes, high blood pressure and stroke (Sarnataro, 2008). Bailey (1991) indicated that physical activity helped the heart work more efficiently and the pH of blood changed when people exercised. This change in pH resulted in reduced hunger. Blood changes also improved mood and attitude due to

the release of endorphins. Bailey (1991) reported that some benefits of exercise included improved blood profiles, and Whitely (2006), reported that physical activity helped prevent obesity, control heart disease, some cancers, diabetes and stroke.

### ***Musculoskeletal Systems***

According to Bailey (1991), the human body was made up of 30 to 50% muscle, and muscle accounts for approximately 90% of metabolism or calories burned. He reported that proper exercise changed muscle, because it was able to burn many calories in short periods of time due to special enzymes. This change resulted in the altering of the body's use of calories, and burning calories left the body with less stored fat. Therefore when the body lost muscle mass, the metabolism process diminished. "Exercise increases muscle, tones it, alters its chemistry, and increases its metabolic rate. All of these cause you to burn more calories even when asleep." (p. 30) Physical activity conditioned the body by improving flexibility, muscular strength, endurance and strength around joints (Sarnataro, 2008).

Bailey (1991) reported that increased bone density was one benefit of exercise. The results of a 14 year study involving 866 people, some of whom were runners and some who were controls, indicated that as the participants grew older, those who received regular exercise experienced 25% less joint and muscle pain than the lesser active participants. Another study involving men and women between the ages of 55 and 75 concluded that exercise helped maintain, and possibly improved, bone mass. After six months of aerobic exercise and weightlifting, the participants had achieved overall better fitness and fat loss without a significant change in bone mineral density. The study indicated that the participants who exercised the most intensively experienced increases



in both aerobic fitness and in muscle strength, but they also improved bone mass by 1 to 2% (Preidt, 2005a).

Whitely (2006) reported that physical activity helped prevent and control osteoporosis. Tufts University conducted a study that revealed older men and women who had moderate to severe osteoarthritis decreased pain levels by 43% due to involvement in a 16-week strength training program. It was found that attention to the upper body muscles relieved back stress. Weightlifting increased flexibility and balance, preserved bone density and prevented osteoporosis. “Every expert I spoke with recommended an upper body resistance training program for men and women” (Gupta, 2007, p. 82).

### ***Mental/Emotional/Psychological***

According to Gordon (2006), everyone experienced stress, and some possible signs of being under too much stress were back pain, stiff neck, fatigue, depression, unexpected weight gain, trouble sleeping, anxiety, headaches, and trouble in relationships. She also reported that managing stress must be a priority in peoples’ lives, because constant stress increased the risk of heart attack and other serious health problems, due to constant elevated levels of stress hormones. Even the immune system weakened as a result of stress. Gordon, 2006 reported psychologist Kalayjian indicated that one-half hour of exercise each day reduced the toxins and stress levels in the body.

Hitti (2008a) reported on the mental benefits of exercise in a study of 19,000 men and women in Scotland. The results indicated that people who had engaged in 20 minutes of physical activity a week were less likely to be stressed than those who were inactive.

Furthermore, participants who were physically active every day experienced the lowest risks of mental and physical ill health.

Bailey (1991) reported that some benefits of exercise included improved sleep patterns. He also said psychological problems were improved with exercise, and exercise kept people younger even as they age. He stated, “people who are fit live longer and the fitter you are, the longer you live” (p. 4).

Physical activity also improved psychological well-being by improving one’s mood, reducing feelings of depression and anxiety, and promoting an overall sense of well-being (Sarnataro, 2008). Exercise released tension and anxiety and promoted healthy eating (Bailey, 1991).

Whitely (2006) reported that physical activity improved stress levels, energy and mood. Archer reported (cited in Sarnataro, 2008) that when people began a walking program they felt and slept better, gained energy, were better able to manage stress and their self-esteem improved. Hitti (2008b) found that healthy young adults who reported being tired all the time actually received more energy from a low-intensity workout plan. These participants rode a stationary bike three times a week at a mild pace and were told to push themselves just far enough to break the sense of tiredness. The participants, especially those previously sedentary, found that regular exercise increased energy levels.

### **Types of Exercise Training**

According to Love (2004) one exercise did not meet all of the body’s needs. Each type of exercise had its own benefits and limitations.

Love (2004) indicated that strength training was beneficial for the development of the muscular system. The benefits of strength training were improved bone density and

muscular strength and endurance, which allowed for the completion of everyday activities for a longer period of time. There were limitations to strength training also. Some of those limitations included, not exercising the cardiovascular system, not improving skill activities, and not improving flexibility enough.

Cardiovascular training improved heart and lung operations, and increased blood pumped through the heart, thus carrying more oxygen in the blood. Between 200 and 300 calories could be burned in a 30-minute exercise session; cardiovascular exercise would be most beneficial when combined with a reduction in caloric intake (Love, 2004).

Stretching improved the range of motion around the joints, which made everyday activities easier and safer. Stretching not only improved joint mobility, but it also improved balance.

Functional exercise was a combination of strength training and stretching, and the benefits were improved balance, stability and flexibility. The limitations of functional exercise were that they did not work the cardiovascular system to the extent that cardiovascular exercise did, nor did they allow improved muscular strength (Love, 2004).

### **Appropriate Levels of Exercise**

Shape Up America (2004) recommended 30 minutes of moderate intensity physical activity each day, in addition to reducing calories, to lose weight. Moderate intensity exercise was walking briskly at a pace of 4 to 5 miles per hour or one mile in 12 minutes.

Bailey (1991) advised exercising as often as possible, and he suggested at least one-half hour three times a week or 12 minutes a day, six times a week. He said regular maintenance exercise was at least 60 minutes of aerobic exercise three times each week,

and three days of 30 minute anaerobic exercise each week. The minimum maintenance program included three days of exercise each week for a total of 60 minutes. Shape Up America (2004) reported to maintain weight people exercised at a moderate intensity for 60 minutes most days of the week.

Whiteley (2006) reported that the American College for Sports Medicine and Centers for Disease Control suggested 30 minutes of moderate-intensity exercise at least five days each week, which could be broken up into 10 minute sessions throughout the day. It was suggested that healthy people who desire to exercise, participate in at least 20 minutes of vigorous exercise three days each week. It was recommended that people exercising for weight loss participate in 60 minutes of moderate intensity exercise five days each week.

Mathur (2003) suggested 20 to 30 minutes of moderate exercise five to seven times a week. They claimed it was best to exercise at least once a day. Some types of exercise they suggested were walking, jogging, stair-climbing, bicycling and swimming. It was also recommended to progress slowly to avoid injury or even excessive fatigue or soreness, all of which were reasons people discontinued their exercise programs. This coincided with Shape Up America (2004) who reported that once approval to exercise was obtained from a doctor, it was recommended to begin exercising five minutes each day for two weeks, then 10 minutes each day, and continue increasing the duration of exercise a little at a time until the 30 minutes was reached. It was also recommended that participants maintained a journal of progress that included milestones along the way and rewards for each milestone.

According to Powers et al. (2006), some health benefits were received from low levels of physical activity, however moderate to high levels of activity were required to provide major health benefits. “The minimum level of physical activity required to achieve some of the health benefits of exercise is often called the ‘threshold for health benefits’” (Powers et al., 2006, p. 77). The authors reported that most experts believed that 30 to 60 minutes of moderate to high intensity exercise, three to five days each week reached and possibly surpassed the ‘threshold for health benefits’ and reduced mortality.

Exercise could be broken up into smaller segments of time, such as 10 minutes three times a day, as long as the 30 minutes was attained each day. After exercising for a while on an exercise program, the time and intensity of exercise could be increased to reach 30 to 60 minutes of moderate to even vigorous exercise each day (Mathur, 2003), (Shape Up America, 2004).

Whiteley (2006) reported that moderate intensity activity included such activities as gardening, housework, bicycling and golfing without a cart. It was compared to taking a brisk walk, which was at about a three to four miles per hour speed. She compared this speed to that of walking to a meeting when running late. Walking was the most common and easiest form of physical activity. Vigorous intensity activities included running, jumping rope, basketball, swimming laps and jogging. These activities were more strenuous activities.

Aerobic exercise was anything that steadily used the big muscles of the lower body and lasted a minimum of 12 minutes. Some examples included running, rowing, bicycling, walking, swimming, dancing, stair-climbing, and jumping rope. Anaerobic exercise was active, but it had too much stop-and-go, or was too slow, to be considered

aerobic. Some examples included softball, golf, tennis, and weightlifting (Bailey, 1991). Studies indicated that strength training resulted in a reduction of body fat and an increase in muscle mass. Therefore, combining strength training with cardiovascular exercise resulted in more weight lost at a faster rate (Shape Up America, 2004).

Physical activity was beneficial because it was one of the best ways to maintain weight loss, but it also burned calories to improve weight loss. Intensity, duration and frequency of the activity, combined with the weight of the individual, determined the amount of calories burned (Whiteley, 2006) and the amount of exercise recommended to receive health benefits. “[H]igher intensity or longer duration activity could be performed approximately three times weekly to achieve cardiovascular benefits, but low-intensity or shorter duration activities should be performed more often to achieve cardiovascular benefits” (United States Department of Health and Human Services & National Institutes of Health, 1995, p. 7).

Whiteley (2006) added that few people were meeting the physical activity guidelines for weight management and even fewer were meeting the physical activity guidelines for weight loss. However, people were never too old to start exercising; strength and balance could be improved even in the elderly with a properly prescribed exercise program (Mathur, 2003).

Study results indicated that 50% of new exercisers dropped out of their exercise programs within the first few months. Lack of time due to work and family commitments was the most often cited excuse for not exercising (Sosin, 2003).

Other barriers included lack of energy after working all day, lack of support from family and friends, fear of injury, and lack of a convenient and safe place to exercise,

which included access to sidewalks, parks and recreational areas. Not having athletic ability was given as a reason for not exercising, as well as being too lazy, being bored, having failed in the past, and being in poor health. Cost was also cited as a reason for not exercising; this included the cost of fitness club memberships, exercise equipment and exercise clothing (Mayo Clinic staff, 2005), (Sosin, 2003), (Shape Up America, 2005).

Since the early 1980s the direction of promoting sport toward women has changed. It has moved from being a means of personal freedom, independence, and power to weight loss and improved sexual attractiveness. This thinking has resulted in another barrier to exercise, feeling self-consciousness about physical appearance, because women have chosen not participate in exercise or physical activity until they look good enough to go to the gym and wear the workout clothing. This thinking has also led to unhealthy weight-control behaviors that result in illness and injuries (Coakley, 1994).

Sosin (2003) reported that breaking down and overcoming barriers to exercise required an understanding of the short-term inconvenience and the long-term benefits. Time management and perception were also issues that needed to be addressed.

Godbey (2003) recommended that over the next few decades, the greatest possible strategy to increasing physical activity is to make it an enjoyable and pleasurable experience. Leisure, play, recreation, sport, or nature experiences were suggested to accomplish that. A long-term strategy was to redesign communities to allow for and encourage more walking and leisure activities.

### **Motivational Theories of Exercise Behaviors**

Motivation was the most difficult aspect of beginning and continuing an exercise program (Love, 2005). DiNardo (2005), defined motivation as, "...[T]he interaction of

cognitive, affective, behavioral, and social processes contributing to purposeful, often goal directed behavior” (p. 1). Therefore, motivation is a dynamic process with many different components.

Motivation is most often categorized as intrinsic and extrinsic. Intrinsic motivation focuses on internal factors that keep people in exercise programs or activities. Some of these motivators include increased energy, improved health, improved feelings toward self, increased competence, and decreased stress. Internal motivators produce long-term faithfulness to exercise programs, because internally motivated individuals look inward to determine the real meaning of exercise (DiNardo, 2005).

External motivators include being healthier, developing muscle, losing weight, looking better, and being more appealing to the opposite gender. External motivators work to motivate people to begin an exercise program, but they seldom keep them continuing with the program. When people do not observe the results they did at the beginning of their program they get discouraged and stop exercising (DiNardo, 2005). Coakley (1994) reported the exercise goal for many women was cosmetic related, and the tendency to drop out of a fitness or sport program was greater for a person with cosmetic goals than someone who had set health or physical competence goals.

DiNardo (2005) reported that Jay Kimiecik spent years developing his philosophy of intrinsic exerciser by conducting research in the field of psychology. His philosophy includes four main concepts. These concepts include (a) personal meaning orientation, (b) mastery, (c) inner synergy and (d) flow.

Kimiecik reported that people continue with an exercise program only if they find it personally meaningful. He claimed intrinsically motivated exercisers find exercise



rewarding and meaningful, and they see it as rewarding in and of itself. The second concept, mastery, is the stage in which the exercisers are able to recognize their own improvements. Personal, self imposed challenges are met, which results in increased motivation. The next stage, inner synergy, allows exercisers to attach meaning to each exercise they do. Finally, flow is experienced when the exercisers are completely connected to the exercise. This is achieved when the exercisers truly understand and concentrate on the exercise. Once this stage is achieved, the deep psychological connection the exercisers receive by doing the exercise drives them to continue (DiNardo, 2005).

Whiteley (2006) reported the same basic strategies to promoting physical activity were included in a number of effective theoretically-based strategies. The strategies included, logging activities, setting goals, providing feedback, gaining social support, listing benefits and barriers and improving confidence. These strategies are used to promote physical activity by matching the strategy with the level of motivational readiness.

The importance of logging physical activity is to determine individual patterns of activity and recognize barriers to participating in activities. Goal setting includes establishing short-term goals and long-term goals that are specific and manageable. Goals provide a visual account of focus, a means of measuring progress and a sense of accomplishment when finished. Feedback is necessary to recognize when the goals are met and when to set new and more challenging goals. Social support is very important for providing encouragement to the individual and removing barriers to physical activity. Participants need to know and understand the benefits of physical activity, the barriers to

physical activity and how to overcome those barriers. Finally, confidence in the ability to exercise is directly related to how active participants are in exercise programs (Whiteley, 2006).

Whiteley (2006) indicated that since people are in one of the five stages of motivation, a worksite stage-based approach is an excellent way to promote physical activity in the workplace. Once a person's motivational readiness stage has been determined, there are certain strategies that are used to promote physical activity to that person on an individual basis. Though it is challenging, there are ways to promote physical activity to a larger number of people.

There are a number of theories on motivation that are used to explain behaviors, devise ways to help people change their attitudes toward exercise and change their behaviors so they can improve their exercise habits. Some of these theories include: (a) Social Learning Theory, (b) Transtheoretical Model, (c) Self-regulation, (d) Self-Determination Theory and (e) Non-aversive Conditioning.

### ***Social Learning Theory***

Social Learning Theory is an integration of personality theory with learning theory. The main idea of this theory is that personality is a representation of the interaction of the individual with the environment. Mearns, 2008 reported that Rotter claimed personality was the way people respond to situations, and personality is made up of a relatively stable set of possibilities. He claimed personality is changeable.

Rotter viewed people as positive. He indicated people do not move toward their goals simply to avoid punishment, but rather they strive to achieve their goals to receive

the reinforcement. The four parts of Social Learning Theory are behavior potential, expectancy, reinforcement value and psychological situation (Mearns, 2008).

Behavior potential is how likely someone is to take part in a specific behavior in a given situation. Expectancy is the likeliness a behavior will result in a particular outcome. Reinforcement value is the degree to which a particular outcome is desired and psychological situation is the way different people interpret the same situation (Mearns, 2008).

Rotter's locus of control was developed in the 1950s as part of the Social Learning Theory, and it is an important aspect of personality because it refers to individuals' views of the causes of events in their lives. A locus of control orientation is a belief that what we do determines the outcome of our actions, or some event outside our control determines the outcome of our actions. People with internal locus of control believe that their behaviors are controlled by their personal efforts, decisions and experiences. People with external locus of control believe their behaviors are controlled by outside forces, such as luck, fate or other circumstances outside their control (Neill, 2006).

Having a more internal locus of control is generally considered desirable. Research has shown that men tend to be more internally controlled than women, older people tend to be more internally controlled than younger people, and higher ranked employees tend to have more internal control than others in the organization and are also more achievement oriented and get better paying jobs. However, being internally controlled can also be unstable and psychologically unhealthy. Externally controlled people tend to be more relaxed, happy and easy-going (Neill, 2006).

### ***Transtheoretical Model of Change***

The Transtheoretical Model of Change (TTM) has been used in a wide variety of situations to bring about positive change. In the field of health psychology the model is useful in helping to predict or explain behavior. More specifically, the model helps determine a person's success or failure during the behavioral change process. Some of the areas it has been successful in include dietary changes, weight loss, smoking cessation, and drug and alcohol cessation (Wikipedia, 2001).

TTM was developed in the late 1970s and early 1980s by James Prochaska and Carlo DiClemente. It is also known as the stages of change model and was intended to help patients or clients change their current behavior to a more desirable behavior by progressing through five stages. This model focuses on taking each individual through the stages at the individual's own pace. In addition, each person decides when one stage has been completed and it is time to progress to the next stage. By allowing the individual to make decisions, an internal locus of control develops within the person (Kern, 2008).

The five stages of the TTM include (a) precontemplation, (b) contemplation, (c) preparation, (d) action, and (e) maintenance/relapse. There is no desire to change in the precontemplation stage. People in this stage are resistant to change and unmotivated. They avoid information, discussion or thinking about a new behavior. They may not even realize they have a problem (Kern, 2008; Wikipedia, 2001; Zimmerman et al, 2000).

The contemplation stage is an awareness and assessment of the barriers and benefits of change and stating intent to change. People in this stage are aware of the costs of change, but they procrastinate making the decision. They realize that giving up one

behavior will lead to a sense of loss even though they know what they gain will be better (Kern, 2008; Wikipedia, 2001; Wright State University, 2000).

Clients preparing to make a specific change are in the preparation stage. They intend to take steps, or make smaller changes, as their desire to change increases. This is viewed as a transition stage, and change usually occurs within one month (Kern, 2008; Wikipedia, 2001; Wright State University, 2000).

When in the action stage, people are involved in taking steps to change their behavior, because they feel they are capable of changing their behavior. The clients are mentally involved in their commitment to change their behavior, and they have to rely on their own willpower the most. Occurring in one hour to six months, this is the shortest of all the stages, and the clients are most susceptible to relapse (Kern, 2008; Wikipedia, 2001; Wright State University, 2000).

The final stage is the maintenance/relapse stage. Clients work to maintain the positive changes and try to prevent reverting to the old behavior. In this stage, the clients are experiencing their highest levels of self-efficacy. Though clients are less frequently tempted to relapse during this stage, occasional slips will probably occur and can cause discouragement. Some clients give up during this stage, so it is important to educate the clients that the cycle of change and relapse is common, and the relapses are times to learn from mistakes, not give up (Kern, 2008; Wikipedia, 2001; Wright State University, 2000).

TTM is helpful for selecting appropriate interventions by determining the patient's position in the change process. This allows for the intervention to be individually tailored. In regard to the fitness trainer or physician, the focus of the visit is

not to convince patients to change their behavior, but rather to move them along the stages. This tends to be a realistic approach to changing behavior (Wright State University, 2000).

Wright State University (2000) recommended only providing basic and simple information and advice during the first session with the client. The fitness trainer listens to the client, determines the client's stage and matches a recommendation with the stage. This shows the trainer cares about the client, which increases communication effectiveness and improves outcomes. During this process, fitness trainers use motivation interviewing techniques. These techniques have been found to be the most effective means of communication, because they allow for patient centered interaction; yet it is direct. More client improvement has been reported when trainers use the empathic techniques than when they use the confrontational techniques to interviewing (Wright State University, 2000).

According to Wright State University (2000), the TTM helps physicians and trainers to determine how ready the patients or clients are to change and what the barriers to change might be. It also lowers the frustration of physicians and trainers during the change process because they realize that each person is different. The TTM also helps patients and clients understand and anticipate relapses so they can overcome them easier. Life-long behavioral changes are difficult and gradual. They will not happen quickly and easily.

### ***Self-Regulation Theory***

Bowman (2009) reported there are many interpretations of Self-Regulation Theory (SRT) however the overall understanding is that motivation is derived from

setting goals. Schunk (2001) reported that Zimmerman suggested that self-regulation was managing impulses without regard to emotions therefore SRT is the systematic process of directing feelings, thoughts, and actions toward reaching established goals.

According to SRT, the idea of self-control is linked to setting goals. Goals are established to help people change their behavior by establishing a standard to be reached, providing a focus for their efforts, and motivating people to give extra effort to reach their commitment. Specific goals provide a clear and concise standard to hold to and a projection into the future. The process for reaching goals is established upon steps in which to build, beginning with the short-term and reaching the long-term. Finally, goals provide the correct difficulty upon which to strive. Goals need to be challenging and moderately difficult to be effective. When goals are too easy to reach, people get bored and stop their efforts. Feelings of incompetency also result from trying to reach goals that are too difficult. People give up at this point also. People mature throughout the process of reaching their goals, and the result is long-term adherence to the new behavior (Schunk, 2001).

### ***Self-Determination Theory***

Self-Determination Theory (SDT) was developed in the 1970s by Deci & Ryan (1985) and focused on the development and function of personality within social environments. The theory focused on the degree to which behavior to participate in activities and make decisions was determined by the individual based on the individual's environment and experiences. SDT began by distinguishing the differences between types of motivation; the idea being that the total amount of motivation was not as

important as the type of motivation when making decisions such as changing health behaviors (Deci & Ryan, 2008).

Autonomous motivation and controlled motivation are the most central types of motivation distinguished in the studies, and both types of motivation involve stimulated and regulated behavior. Autonomous motivation is comprised of both intrinsic motivation and extrinsic motivation, however the extrinsic motivation is a positive form of motivation, in which individuals identify and internalize the value of an activity. Controlled motivation consists of pressure to believe, think and act in a particular way (Deci & Ryan, 2008).

Markland (1997) conducted numerous studies based on SDT, and a number of different types of motivation emerged. These included: (a) amotivation, (b) external regulation, (c) introjected regulation, (d) identified regulation, (e) integrated regulation and (f) intrinsic regulation.

Amotivation is considered a non-self determined form of motivation. Individuals have no intention or desire to take part in the activity (Markland, 1997).

External regulation, which is also considered a non-self determined type of motivation, is normally referred to as extrinsic motivation. Individuals do not view the activity as beneficial, and they only participate because they have been told to by someone in authority. Individuals obey their authority but unwillingly, and when the pressure to participate is gone, the individuals will likely discontinue the activity (Markland, 1997).

Introjected regulation is an internally driven but somewhat self determined form of motivation. External situations place internal pressures on individuals to participate in



an activity. External pressures can include health concerns, a sense of guilt for not participating and a sense of maintaining self-esteem (Markland, 1997).

Identified regulation is a self determined type of motivation. Individuals accept and take part in an activity because they consider the outcome valuable. The desire to achieve the outcome overrides any obstacles to taking part in the activity. Individuals with this motivation manage their time wisely and make room in their busy schedules for the activity (Markland, 1997).

Integrated regulation is the internalization of identified regulation. Individuals take part in the activity to the point it is completely harmonious with who they are. It is similar to intrinsic regulation because individuals are self determined and engage in the activity willingly. However, it is different from intrinsic regulation in that individuals do not simply take part in the activity for the enjoyment of it, but rather for the outcomes received (Markland, 1997).

Intrinsic regulation is a completely self determined type of motivation. Though individuals may recognize the benefits of the activity, they are not concerned with extrinsic outcomes and competence is not an issue. Individuals with this type of motivation simply enjoy the activity for the immediate rewards of the experience (Markland, 1997).

Markland (1997) reported that when using SDT, motivations are determined by whether or not the person is being controlled. Therefore intrinsic motivation may not necessarily be considered positive.

### ***Non-aversive Conditioning***

According to Godbey (2003) anyone can begin an exercise program, but to maintain an exercise program people must change their behavior. They need to voluntarily come to prefer a new behavior. One method of doing that is “non-aversive conditioning.” (p. 295)

Non-aversive conditioning is reinforcing a preferred behavior by offering praise or encouragement, or some other positive reward. It is also likely that learning and practice are needed to change individuals’ leisure behaviors to healthier ones. People are likely to do what they are taught to do or what they are good at. People need to learn the skills and feel competent with them. Godbey (2003) claimed “our health, after all, relates to our self-esteem.” (p. 295)

According to Peters (2003), the natural biological drive of people used to be to move more and eat less. Now, however, with the advent of technology, our drive seems to be to eat more and move less. We need to determine incentives to change this behavior. To date, we have not been successful in changing eating and physical activity patterns of people, because we have not been using the correct motivators when the people are ready to change. That is why current behavior change models have not been successful for the long-term. We need to determine the motivation that is important to the individual at the time they decide to change.

Peters (2003) also indicated that incentives or rewards are seldom used to motivate people to make healthy lifestyle choices. He said the motivation must come from within the person, and this has not been successful so far. He reported that to achieve change in large segments of the population, we need to study external incentives

and rewards. He added that it is unlikely that people currently have a high enough state of self-esteem or self-actualization to move healthy behaviors to a higher priority in their lives in the short-term.

USA Swimming (2004) used the Sport Motivation Scale (SMS) to examine the motivation of swimmers in the 2000 Olympic trials. Motivation was defined as “the direction and intensity of effort” (p. 1). Caution was used when analyzing the data, because intensity and focus could vary.

The SMS provided insight into the athletes’ levels of intrinsic, extrinsic and amotivation. Intrinsic motivation indicated a desire to take part in an activity simply for the enjoyment and satisfaction received from it. Intrinsic motivation was likely to be related to long-term participation and motivation. Extrinsic motivation was engaging in an activity to receive something external, such as praise from friends and family or to receive a medal. When athletes were amotivated, they did not see the reason to continue with the activity. They did not recognize the relationship between the activity and the outcome (USA Swimming, 2004).

Data revealed that coaches promoted intrinsic motivation for their athletes, older athletes possessed a higher level of amotivation, and elite athletes possessed higher intrinsic and extrinsic motivation levels and lower amotivation levels than the general athlete population (USA Swimming, 2004).

USA Swimming (2004) also researched two types of goal orientation. A task goal oriented athlete was focused on the task, skills and knowledge gained in the activity. These athletes felt a sense of accomplishment with their activity, and with their personal improvements; they also developed a sense of competency. This was described as

competing against oneself instead of others. These athletes compared their performance to their previous performances; they did not compete against others' performances. Coaches encouraged and promoted this type of goal orientation, because it resulted in positive achievement.

Athletes who exemplified ego goal orientation compare themselves to others when demonstrating their ability. Being superior to others was viewed as success. Athletes with this goal orientation compared themselves to others, and even though they may have performed a personal best and lost to someone else, they still viewed themselves as unsuccessful. Elite level swimmers scored high on ego goal orientation, however, they also scored high on task goal orientation. This was thought to be due to the competitive nature of being an elite athlete and having to stay focused to improve and reach the ultimate goal of winning (USA Swimming, 2004).

Data revealed that females had a higher task goal orientation than males, and more experienced athletes reported higher ego goal orientation than less experienced athletes. Age was not a factor in regard to task goal orientation versus ego goal orientation (USA Swimming, 2004).

Researchers found that people with high task goal orientation had more success continuing participation in their activity in the long-term, because they had more satisfaction and enjoyment with the activity, and they were able to achieve a sense of competence. People who possessed a high ego orientation had success maintaining an activity, but the motivation was not internalized (USA Swimming, 2004).

### **Organizational Impact of Unhealthy Behaviors**

Bosse'-Smith (2003) reported that health insurance and worker's compensation costs have continued to increase, and these are mandatory expenses that cut into organizations' bottom lines. According to The Wellness Councils of America (WELCOA) (2008a), half of corporate profits, or more, could be consumed in medical costs.

Savan (cited in VandeWater, 2003), reported that half the cost of a medical issue was lost productivity, and approximately 39% of that was direct costs of medical claims, while 11% was related to sick pay or short-term disability pay. In the year 2000, the total cost of unhealthy lifestyles including both direct and indirect costs was 117 billion dollars. Some corporate areas affected by preventable illnesses were disability, absenteeism, safety, morale, productivity, worker's compensation, and employer's cost of health care (Loza, 2005).

The Nevada State Psychological Association (NSPA) determined that personal problems and/or stress related problems accounted for 80-90% of all industrial accidents. They also found that psychological issues accounted for as much as 61% of all worker absences, and up to 66% of all doctor visits were related to stress (NSPA, 2005). Migliore & Merz (2002) reported that between 30 and 32% of health claims were associated with preventable health conditions, and Bosse'-Smith (2003) reported that 70% of American injuries and illnesses could be prevented.

Migliore and Merz (2002) reported that employee health had an impact on the workplace, in particular the health of an organization depended on the health of its employees (Bosse'-Smith, 2003). The impact of employee health was found in employee

motivation, employee retention, employee empowerment and the work culture (Migliore & Merz, 2002). The NSPA recognized that the psychological well-being of employees affected their productivity within the organization as well (NSPA, 2005).

### **Reasons for Organizational Exercise Programs**

Crawford et. al. (2004) and Harper (2005) encouraged large and small businesses to implement a wellness program to reduce health-care costs, absenteeism and increase productivity. Even small businesses should consider implementing a wellness program, since just a few sick employees would result in a majority of the workforce being absent. Harper also claimed that implementing a wellness program in a small business was easier because changing the culture of a small organization was easier than changing the culture of a large organization. He also reported there are many cost-effective options for smaller organizations.

WELCOA compiled six reasons for a worksite wellness program. These reasons included: (a) to decrease health care costs, (b) to avoid most illnesses, (c) to make up for the expanding work week, (d) to overcome the technology revolution, (e) to decrease employee stress levels and (f) to increase diversity in the workplace (WELCOA, 2008b).

More than one trillion dollars is spent on health care in the United States, which is more than any other country in the world. The average annual cost for health care in the United States is more than \$3,000 per person, and the cost of health care per person in a lifetime is approximately \$225,000. Since most employers provide health care coverage for their employees, these costs result in higher insurance costs for the organization (WELCOA, 2008b).

Experts have suggested that approximately 70 % of illnesses are preventable. By implementing a health promotion program at the worksite, companies can use preventative measures to help their employees (WELCOA, 2008b).

The typical American works about 47 hours per week, and if this trend continues, American workers could be working 60 hours per week. These longer hours do not allow time to exercise and therefore pose many threats to the workforce and their families (WELCOA, 2008b).

American businesses have added about 25 million new computers to the nation's businesses since 1983, which means much of the American workforce is sitting at computer workstations all day and are therefore sedentary at work. This has created a new set of work related problems, such as lower back problems, stress injuries and compromised vision (WELCOA, 2008b).

It was reported in a recent nationwide poll that 78% of Americans considered their jobs stressful, and their stress levels have increased over the last 10 years. Living in such a high tech era, in the middle of an information explosion, and trying to manage all that information is stressful. Stress leads to increased absenteeism, increased illness, increased accidents, decreased productivity and therefore increased medical costs (WELCOA, 2008b).

Recent statistics of small businesses in the United States indicated that the number of businesses owned and operated by women and people of color have significantly increased between the years of 1987 and 1992. Female run businesses have increased by 43%. African-American-owned businesses have increased by 46%, Hispanic-owned businesses have increased by 82.7%, and Asian-American, American Indian, Alaskan

Native and Pacific Islander-owned businesses have increased by 87.2%. Diversity in the workplace is positive and exciting however organizations need to be prepared to deal with a variety of additional health concerns (WELCOA, 2008b).

### **Development of Organizational Exercise Programs**

Two models for developing and implementing an employee exercise program emerged from the research. The two models were the 5D Model for fitness center management (Lee & Thomas, 2006) and a 7 step plan recommended by Harper (2005) and Loza (2005).

Lee and Thomas (2006) reported the 5D Model for fitness center management could be used when developing and implementing an employee exercise program. The 5D Model includes five steps: (a) design, (b) development, (c) disseminating, (d) delivering and (e) re-design.

The design stage involves strategic programming planning, which includes establishing the needs of the population to be served. It also involves planning the allocation of resources for the program, such as physical space, equipment, staffing, and other needs. It also includes establishing a financial model for the particular program (Lee & Thomas, 2006).

The development stage is determined by the needs and expectations of the program participants. Items considered are desired level of programming, service, education, and training. It also includes budget allocation (Lee & Thomas, 2006).

The disseminating stage is the marketing phase. Some forms of marketing include e-mails, flyers, posters, websites, seminars, new employee orientations and departmental



stretch breaks. It is important to target the inactive population as well as the individuals who are already active (Lee & Thomas, 2006).

The delivery stage involves the integration stage. This is an important step because successful integration of the program into the workplace can ensure participation as well as higher retention and usage rates. Administration must establish policies and procedures, to determine cost containment and decide how to deliver the program, on-site or outsourced to other facilities in the community. Other items to be considered are incentive programs, workshops, online technology, member tracking systems, education, coaching, and special small group targeted activities (Lee & Thomas, 2006).

The final stage is re-design, or evaluation stage. This stage involves the development of measurement tools for the program based on the needs of the employees and the program offerings, tracking and maintaining data on employees and conducting monthly and quarterly assessments of the program to determine what improvements should be made (Lee & Thomas, 2006).

A successful program allows for self-reported behavior using annual health risk appraisals and surveys on specific events; fitness testing and health screening; and participation feedback, staff interaction and accountability. Feedback on current and future programming should be discussed in focus groups. Staff must be prepared to appropriately address participant concerns, questions and comments, and management should be allowed to walk through the programs at any time. The evaluation of program objectives is accomplished using surveys and should cover specific information such as attendance and success rates of the programs. Program costs and benefits should be reviewed regularly using financial reports. Direct costs, such as staff and operating costs

need to be evaluated, along with indirect costs, such as the value of lost productivity, injuries and lost work time of employees. The employee health program should conduct program analyses and review membership and marketing reports regularly. Finally, the effectiveness of management is evaluated by reviewing the alignment of staff goals with program and organizational goals (Lee & Thomas, 2006).

Harper (2005) & Loza (2005) recommended a seven step plan to establish a workplace exercise program. The steps included: (a) gain senior management support, (b) establish a wellness team, (c) collect data, (d) develop a simple operating plan (e) choose appropriate interventions, (f) create a supportive environment for employees and the program and (g) evaluate outcomes. Hunnicutt, 1999 recommended to allow plenty of time to research, plan and promote the program.

Harper (2005) & Loza (2005) reported the most important step when trying to establish an employee exercise program on campus is to gain the support of top leaders and encourage them to participate in the program themselves. They also indicated the best opportunity for success of an employee exercise program is for senior managers to “buy into” the program and lead by example.

This requires initial research to compile and present a proposal to the leaders. The research should be complete with information on the current health condition in the United States as well as locally and within the organization. It should include research on motivation techniques and behavior change models. It should include steps to establishing a wellness program within the organization, as well as an explanation of the benefits to establishing such a program, not only to the individual participants, but also to the organization as a whole. Finally, it should include the cost of implementing and

maintaining the program, the means in which to finance the program, estimated costs that could be saved by the organization once the program is implemented, the possible partnerships that could be formed with community businesses, as well as possible corporate sponsors that could be utilized for funding the program (Harper, 2005) and (Loza, 2005).

According to Harper (2005) and Loza (2005) the second step to establishing an employee exercise program was to create a campus wellness team. They indicated it is important that this team be diverse. It should include a member from each educational department, human resources, campus health, administration, and a fitness trainer. This team should meet at least once a month, and they must ensure the program goals align with staff goals. They will research the organization's and the current staffs' conditions. They will then compile the information and use it to oversee the development and management of the exercise program.

Harper (2005) and Loza (2005) indicated the next step to establishing an organizational exercise program was collecting data on employees, the exercise program and the entire organization. All employees should complete an annual health risk appraisal, and surveys should be conducted to determine activity interests and possible barriers to exercise. Another suggestion was to visit with wellness professionals regarding their experiences and ask them for advice.

The wellness team is responsible for compiling a financial plan that includes the costs necessary to establish and maintain the program. The finances should include covering the cost of the wellness screenings for all employees. Some things to be considered include whether all employees will be required to complete a wellness

screening or if it will be on a voluntary basis, what the incentive will be to having a wellness screening completed, and who will conduct the wellness screenings. The wellness team is also responsible for collecting data and reporting any savings of institutional costs due to the implementation of the exercise program, such as decreased costs in health insurance, workmen's compensation claims, and absenteeism due to illness (Harper, 2005) and (Loza, 2005).

The next cost to consider is the cost of using fitness facilities. The fitness team will need to determine whether they will construct a fitness facility within the organization, use a local fitness club, or in the case of an educational institution, use the campus fitness facility. The wellness team will also need to evaluate the current situation of its employees, because many may already have memberships to local fitness facilities, in which case, the fitness program could simply keep track of exercise hours. However, there will be many employees who are not familiar with exercise or have not exercised in a long time, so they will need professional help to exercise safely (Harper, 2005) and (Loza, 2005).

The next cost to consider is the cost of fitness trainers. Organizations will need to determine whether to hire full-time or part-time fitness trainers and how they will utilize them in the program. Fitness trainers are available in most community fitness facilities, and intern fitness trainers could be available from local higher education institutions (Harper, 2005) and (Loza, 2005).

Harper (2005) and Loza (2005) indicated another cost to be considered was the cost of marketing the program to the employees and continuing those marketing efforts. A few examples of how this was accomplished were using campus flyers and e-mails,

creating a wellness program website and newsletter, conducting meetings and seminars on specific issues, and generating special communication from the president mentioning health and exercise issues.

A final cost that should be accounted for is the cost incurred from the incentives for being involved in the exercise program. These costs can easily be deferred through the use of community sponsorships. Once this program is introduced to the businesses in the community, they will more than likely be willing to get involved. The businesses can benefit by getting exposure for their business all over campus and even into households via the internet. Their name and logo can be placed on all wellness program communications, paper or electronic media (Harper, 2005) and (Loza, 2005).

According to Harper (2005) and Loza (2005) the next step to establishing an organizational exercise program is to create a simple operating plan that includes simple goals based on employee and organizational needs. The goals need to be established in long-term, because Mather (2003) reported that, “more than 95 percent of people who lose weight regain the weight within five years” (p. 5). They also indicated that treating obesity is not a short-term solution; it involves a change of lifestyle, therefore it must be a long-term process. The process should include acknowledging the benefits of modest weight loss, since health benefits are achieved with even a weight loss of 5 to 10% of initial weight.

DiNardo (2005) reported that there are a number of reasons individuals stop exercising, but adherence to an exercise program is more likely to those who find exercising internally rewarding. External rewards, such as building big muscles or losing

weight, will only motivate an individual for a limited time. He said, “Internal motivators will always outlast external motivators when talking about exercise adherence” (p. 2).

The next step to establishing an organizational exercise program, according to Harper (2005) and Loza (2005) was to establish interventions which were based on employee and organizational needs. Migliore & Merz (2002) reported that a Total Health Strategy (THS) ensured all employees would be active participants in the wellness program, and ultimately would be healthier employees. A THS provided a means of auditing the existing health of all employees within the organization and establishing health programs and annual physicals for the employees. One suggestion for choosing appropriate interventions was visiting with wellness professionals regarding their experiences, and asking them for advice (Hunnicut et al., 1999c).

According to Hunnicutt, et al (1999b), appropriate health care interventions were chosen for an organization by considering a number of factors. Some of those factors included: (a) common risk factors within the organization, (b) desires of the employees, (c) resources available, (d) information from the most current research, and (e) wellness program achievement desires by senior level management.

Hunnicut et al. (1999b) reported that common risk factors were determined by studying medical claims, productivity levels, group data from annual screenings, and the demographics of the organizational workforce. This information was retrieved from human resources departments and health care providers. Meetings, surveys and focus groups were conducted and promoted for employees to discuss their needs and desires for a wellness program and to generate encouragement, good will and a caring image for the program and the organization. Financial officers were involved in the process to inform

the wellness committee of available financial resources for the program. Time and people were other resources that were considered, since it might be more feasible for organizations to provide memberships to outside sources, such as YMCAs or health clubs, than to establish an internal program or build their own exercise facilities. Support groups and internet communication within the organization were established to help employers encourage employees to continue with healthy lifestyles. Studying the most current research helped organizations save a great deal of time and energy. Establishing programs on trial and error was more costly to organizations, participants lost confidence in programs and retention rates fell. Finally, all research was provided to senior level management for discussion in meetings with wellness committee members.

The overall consensus of the researchers was that when a health behavior was chosen to target, it was important to determine the most effective intervention, offer a variety of exercises, and use diverse means to promote it. Utilizing a variety of exercises helped improve health over the entire body, prevent boredom by making the routine more enjoyable, decrease overuse injuries and improve the ability to adapt to new sports and activities. It was also beneficial to allow individuals time to get acclimated to the idea of making a change (Hunnicutt et al., 1999a) & (Kohnle ,2008).

Fitness trainers provided help during this entire process. They were educated on the incentive program established by the wellness team, behavioral change models and motivational theories. Fitness trainers were beneficial, because they served as educators. They explained the risks of unhealthy lifestyles and the benefits of healthy lifestyles, as well as demonstrated the correct way to use exercise machines. Fitness trainers also acted as compliance personnel, and this was beneficial to maintain accountability and

commitment. They also served as motivators by helping employees establish their own personal goals, their own personal workout, and then they helped them work toward achieving those goals. Fitness trainers also helped employees by educating them on safety in the gym and on the machines. Finally, fitness trainers helped employees see their results, and positive results helped maintain the motivation needed to continue with the program (Fagan et al., 2003).

Though there are numerous theories on motivation and behavior change, most indicated having some type of support that provided positive feedback and encouragement. The common thread in all the motivation theories and behavioral change models was goal setting. Trainers used different strategies to encourage the clients, but everyone set goals, because goals provided focus. Since intrinsic motivation resulted in more longevity in exercise programs, goals also helped move the focus from external motivation to internal motivation. Trainers helped employees attach meaning to exercise activities; this helped them adhere to their fitness plan (DiNardo, 2005). For those who were extrinsically motivated the wellness committee initially utilized external motivators and established a support group for the longer-term (Harper, 2005).

Harper (2005) reported that businesses could not legally discriminate employees on the basis of their physical status. However they could offer incentives for employees to improve their physical well-being by participating in health-related programs. Some suggestions were to make benefits subject to participation and not on losing weight; offering classes, such as stress reduction and aerobics; building a track in the facility or using the local neighborhood, having healthy food available in vending machines, and buying every employee a pedometer to track their steps.



According to Harper (2005) and Loza (2005) the next step to establishing an organizational exercise program was to create a supportive environment for all participants and the exercise program. Since participants of all different levels were involved, some who have never exercised and some who were already on a stringent exercise program, this step had to be creative. In addition the wellness team had to devise a variety of means to promote the intervention chosen. Some ways to promote the intervention included introductory meetings, e-mails and education. In addition, since employees possessed different types of motivation, it was beneficial and necessary to devise a creative incentive package that included awarding prizes (Hunnicut et al., 1999a).

It was important for the wellness team to continually support and educate employees, not only on health risks of bad health behaviors, but also on the benefits of good health behaviors, as well as how they can safely combine fitness and nutrition to improve overall health. Each organization had different resources available to them. Therefore they had to use their available resources to choose and maintain the communications appropriate to their organization to support and encourage their employees. These communications included testimonies of employees who had experienced success. This involved mentioning the names of employees who experienced success and include their successes. This will not only encourage those who are already involved in the exercise program, but it could also encourage others to get involved. Finally, flexibility was built into the exercise program to allow for changes in interventions if needed Harper (2005), Loza (2005) and (Hunnicut et al., 1999a).

According to Harper (2005) and Loza (2005), the final step to establishing an organizational exercise program was to evaluate the progress of the organization as a whole, the overall exercise program, the individual exercise programs and the employees. A plan for evaluating the progress and success of interventions was established by the wellness committee at the beginning, and the programs were evaluated on that plan. Progress of the program was recorded in a variety of ways, and some of those included pictures, videotapes and newsletters, which helped the organization build upon successful activities (Hunnicut et al, 1999c).

Once the program had been in existence for a determined amount of time, an evaluation was conducted on the success of the programs and attendance. Statistical comparisons were conducted on absenteeism rates, production rates, and health care costs. Other ways to measure progress included collecting data on overall and individual progress. Some ways to measure were weight loss, muscle mass, distance walking or running, and time spent in exercise (Harper, 2005) and (Loza, 2005).

### **Benefits of Organizational Exercise Programs**

According to Bosse'-Smith (2003) there was a time when organizations did not consider proactive strategies, but they have recently realized they can protect their investments and increase their profit margins by incorporating organizational wellness programs.

Migliore and Merz (2002), Whiteley (2006), Nevada State Psychological Association (2005) and Kentucky Psychological Association (2005) reported that some of the organizational benefits received from an organizational exercise program included reduced absenteeism, stress, healthcare costs, workers compensation, injuries, medical

benefits and disability management costs. Other benefits included increased productivity, loyalty resourcefulness, efficiency and creativity; as well as improved morale, performance, and outlook. Finally, a transformation was reported, not only in the bottom line for the organization, but also in the employees; they were overall healthier. This resulted in a savings of three to six dollars for every dollar spent on an organizational exercise program.

Financial expenditures in health care have increased over the last century. “Health care costs in the United States rose from \$12 billion in 1950 to \$1.3 trillion in 2000” and on an annual basis, “...the United States spends more per person (\$3,724) than any other industrialized nation. Health care costs per capita are expected to reach almost \$9,000 per person in 2010” (Hoeger & Hoeger, 2004, p. 15).

Hoeger and Hoeger (2004) reported that the health care system in the United States ranked only 37<sup>th</sup> in the world. There was an “...overemphasis on state-of-the-art cures instead of prevention programs” and “...the system does a poor job of keeping people healthy in the first place” (Hoeger & Hoeger, 2004, p. 15). “Unhealthy behaviors are contributing to the staggering U.S. health care costs” (Hoeger & Hoeger, 2004, p. 15). “Scientific evidence now links participation in fitness and wellness programs not only to better health but also to lower medical costs and higher job productivity” (Hoeger & Hoeger, 2004, p. 15).

Hoeger and Hoeger, 2004 reported the economic benefit of a comprehensive wellness/exercise program was decreased health care costs, and the NSPA determined that medical costs could be reduced by implementing psychological-emotional-behavioral interventions. These types of interventions decreased medical costs by reducing doctor

visits for minor illnesses by 35%, for acute asthma by 49% and for arthritis by 40% (NSPA, 2005).

Employers can reduce costs by protecting the well-being of their employees, maintaining safety within the organization, and reducing health care costs. Employers can decrease health care costs and promote improved lifestyles by implementing strong wellness programs. Healthy workers are less prone to injuries and are more likely to return to work sooner after an injury or illness (Loza, 2005).

Over the past two decades, the number of employers offering wellness programs has grown (Anderson, 2002). Some organizations offer wellness programs to their employees simply out of concern for their employees' physical well-being. Other organizations offer such programs to attract, hire, and retain employees. (Hoeger & Hoeger, 2004)

According to the Wellness Councils of America (WELCOA, 2008b), 81 % of American businesses that employ 50 or more employees have a health promotion program of some kind. Due to this growth, research has been conducted that shows a significant return on investment. It took 3 to 5 years after implementing a comprehensive wellness/exercise program before organizations realize an impact on healthcare costs, but after that an organization can expect to save nearly four dollars in health care costs for every dollar invested. In addition, about five dollars for every dollar spent can be saved due to decreased absenteeism (Anderson, 2002) & (Hardy, 2005)

According to WELCOA, the only long-term answer for cost containment was worksite health promotion, because it keeps the employees well from the beginning.

WELCOA stressed that by keeping employees healthy, the organization was investing in its most important organizational asset, the employees. (WELCOA, 2008b)

VandeWater (2003) reported that behavior modification programs were not one-size-fits all. They had to be established according to the employees' needs and the employers' financial situation. Migliore and Merz (2002) reported that many organizations have realized that keeping employees healthy was more cost effective than treating them after they were sick.

#### Examples of Organizational Exercise Programs and their Benefits

*For-Profit Organizations.* According to a survey by the American Institute for Preventive Medicine, companies were receiving health-costs savings by implementing health promotion programs. "Cost savings per dollar spent on health promotion programs ranged from \$1.20 at the Adolph Coors Company to \$6.00 at the Pontiac Division of General Motors" (Hoeger & Hoeger, 2004, p. 16). San Bernadino County, California, reported a 20% decrease in sick leave expenses after implementing a wellness program. Carpenter Technology Corporation, with a wellness program that was only in place for five years, saved an estimated \$108,000 in 1996 (Migliore and Merz, 2002).

The Star Tribune newspaper in Minneapolis, Minnesota had exercise facilities and a personal trainer for its employees. Employees earned "wellbucks" for use in fitness classes and merchandise, and they could qualify for up to a two-month rebate on their health premiums if they completed a health assessment, swore off certain risk behaviors, exercised at least 90 minutes a week, and completed health-education courses. Every family member covered by the policy was responsible for the same (VandeWater, 2003).

VandeWater (2003) also reported that only two out of ten Johnson & Johnson Healthcare Systems workers made the effort to fill out an annual health-behaviors survey, until the company offered a \$500 rebate on health insurance premiums. The financial incentive was put in place in 1995, and participation in the survey increased to 90% by 1999. During that four-year period, workers reduced health risks associated with high cholesterol, high blood pressure, low-fiber diets, tobacco and lack of exercise. Johnson & Johnson also witnessed a decrease in medical costs by \$225 a year per employee with the increased participation in the survey.

Citibank yielded a return on investment of \$4.56 for each dollar invested when 51% of their employees completed a health risk assessment and 5% followed up with health interventions. The results revealed that a positive return on investment could result even at low participation rates since the costs of health risks were so high, and return on investment could be increased by using strategies to encourage participation in the program within the organization (Anderson, 2002).

International Truck and Engine Corporation implemented a wellness program over 10 years ago. The program, Vital Lives, was implemented to improve the lives of employees and their families, and it was managed through the human resources department with its budget established and maintained at the local level. International gained the support of top leadership, established an executive wellness council, and developed a strategy for projects that included evaluations, mentors, and safety. International built their programming around the needs of the employees which they collected from organizational medical claims data. The program is a continuous effort to improve health. It was reported that participation increased each year and productivity

increased while absenteeism and turnover decreased. In addition, they reported a decrease in unnecessary health care costs (Tin-Gluting & Weddle, 2006).

In 2003 International analyzed their current needs and found their concerns over high cost in health care were cardiovascular and musculoskeletal disease, so they built their wellness program around those areas first. They were able to contain health care costs using a creative approach and they avoided shifting the cost of the program to the employees (Tin-Gluting & Weddle, 2006).

International implemented a self-care program in 1998 to educate employees on healthy behavior, and the program helped employees and their families by reducing the number of doctor office and emergency room visits. They spent \$1.2 million to conduct three annual studies over the years of 2000, 2002, and 2004. The result was an estimated \$13.4 million savings in health care costs which was a net savings of \$12.1 million. International funded the initiative and calculated the return on their investment at \$9.70 savings for each dollar invested over the five year period (Tin-Gluting & Weddle, 2006).

International also studied the cost effects of diabetes. They found that employees with diabetes cost \$7,974 more per year in health care costs than employees without diabetes. Employees with diabetes cost \$10,385 per year, while employees without diabetes only cost \$2,411 per year. International discovered that more 11% of their employees had diabetes, which meant those employees accounted for 24% of International's health care costs. As a result of the study, International took part in a six screening education project for employees with diabetes. During the six months of the project, 48 of International's employees with diabetes or employees who were at risk for diabetes, had reduced their blood glucose levels. Of the employees who took part in the

telephone coaching part of the project, 27% had lost weight, 20% experienced a decrease in blood pressure and blood glucose levels, and 50% began exercising more (Tin-Glutting & Weddle, 2006).

International measured the financial outcome of their wellness efforts for the fall of 2003 and the fall of 2004. They observed a \$5.2 million savings based on their participation, and they estimated that if 100% of their employees participated, they would save \$21.1 million. They attributed the success of their program to top leadership support; they insisted the leaders in their company were valuable role models. They also attributed the success of their program to local leadership support which included people who held middle management positions at each local facility. Finally, they indicated it was important to link participation to incentives (Tin-Glutting & Weddle, 2006).

Numerous other For-Profit organizations have experienced cost savings by investing in organizational wellness programs. Some of these organizations are large and some are small, but they have all attributed their success to the same reasons as International. (Watkins et al., 2007)

Logan Aluminum (Logan) experienced an average increase of 7% in healthcare claims between 1998 and 2002 and a 20.2 % increase in pharmaceutical claims cost from 1998 and 2001, even though they had a health promotion program in place. They implemented a wellness program in 2002 that included completing a health risk assessment that helped Logan identify health risks and devise possible interventions. The wellness program also included Weight Watchers, a walking program which they called Ten Thousand Steps, and Health Coaches which was a telephonic intervention. Logan



also expanded their health promotion program and restructured their monetary incentive program (Watkins et al., 2007).

Since the implementation of the wellness program, Logan has experienced an increased participation rate of employees who completed a health risk assessment from 49% in 1997 to 99% in 2003. Health claims decreased by 19% which resulted in an overall 10% decrease in healthcare costs, and they witnessed a 19.5% decrease in claims paid per employee. Logan also saw a 5.5% decrease in pharmaceutical claims costs in 2002 and a 5.3% decrease in 2003. From 2002 to 2003 they experienced a reduction in healthcare facility stays by 16.6% per 1000 employees and the number of surgeries had decreased by 46.6%. In addition, they reduced their costs per employee by 10.8% (Watkins et al., 2007).

Blue Shield of California, with the help of Miavita, was the first wellness program to reward its members with cash. This was pilot program to encourage the adoption of meaningful behavior change. Four risk areas were identified which included physical activity, healthy eating, smoking cessation and stress management, and cash incentives were offered based on behavior change. The team decided the key to their success was providing rewards to practicing healthy behaviors and not basing incentives on outcomes (Blue Shield of California and Miavita, 2006).

This pilot program consisted of 25,000 people over the age of 18. Female participants made up 76% of the pilot group and another 15% of the group was made up of people between the ages of 18 and 29. As a whole group, 51% of the participants reported three to five health risks before the implementation of the program. Another

34% indicated zero to two risks, while the last group reported six or more health risks (Blue Shield of California and Miavita, 2006).

The pilot program continued for one year, and during that year about 30% of the participants earned rewards for completing the program requirements. This resulted in 1,200 checks mailed to participants totaling nearly \$200,000. The maximum reward that could be earned was \$200, and 49% of the participants earned that amount. (Blue Shield of California and Miavita, 2006)

The outcomes of this pilot program were significant. An aggregate weight loss of participants in the program was 5,103 pounds. Of those who completed the program, 53% measured an improvement in their body mass index. At the end of the year they noticed a significant decrease in the average number of health risks, which decreased from 3.3 risks to 2.4 risks, and this resulted in a savings of approximately \$277 annually for each member. (Blue Shield of California and Miavita, 2006)

The Beacon Mutual Insurance Company (Beacon) has had a wellness program in place since 1997. They determined their programming needs through the use of health assessments and surveys, and they operate under the Transtheoretical Model of Change, which has resulted in higher participation rates and retention rates. Beacon also witnessed more positive results from individuals with unhealthy behaviors (Johnson & Alarie, 2006).

Beacon claimed their employees are their most important asset and they are making a committed effort to protect them by implementing safety and health programs. This has resulted in a reduction in losses due to the positive impact on employee morale, product quality, productivity and profits (Johnson & Alarie, 2006).

Beacon realized a 60.6% decrease in worker's compensation claims costs from 2003 to 2004 and an 88.6% decrease in worker's compensation claims costs from 2004 to 2005. Individual outcomes have also been positive. In 2005 Beacon surveyed employees on the effectiveness of their wellness program regarding medical responsibility and behavior and about 86% of those who responded indicated they had made a positive change due the education and knowledge gained from the programming. In addition 54% of the Beacon workforce indicated they increased preventive care visits and reduced sick visits, 52% reported a decrease in sick days, and 50% reported a reduction in emergency room visits. (Johnson & Alarie, 2006).

In 2004 Beacon compared its members with other organizations insured by the same company. Beacon discovered they had 13.6% lower outpatient care costs, 13.3% lower inpatient care costs, 12.8% lower diagnostic costs, 4.2% lower prescription drug costs, and 1.7% lower surgical and medical costs. This all resulted in an average savings of \$118,497.60 or \$590.00 per contract per year. (Johnson & Alarie, 2006)

The Principal Financial Group (Principal) established their wellness program on issues they felt needed to be addressed due to their current employee population. They focused on managing stress, increasing physical activity, reducing obesity, improving nutrition, preventing disease, ensuring healthy pregnancies, and educating employees on wise health care consumption (Johnson & Alarie, 2006).

Principal updated their program in 2005 and have since conducted an employee wellness opinion survey. The results were positive with an increase in overall satisfaction rating of 72% that were satisfied or very satisfied in 2003 to 77% in 2005. The retirement and investor services rating increased from 70% in 2003 to 82% in 2005, and the health

division increased satisfaction levels from 74% in 2003 to 76% in 2005 (Johnson & Alarie, 2006).

Principal also compared their Health Behavior Survey of 2003 to the Health Screenings results of 2005. Though this was not an exact comparison, it indicated that the low-risk population was remaining low-risk and participation rates had increased from 60% in 2003 to 83% in 2005 (Johnson & Alarie, 2006).

The results of the comparison also indicated an improvement in certain risk areas. In 2003, 17% of the participants reported no risk factors, 32% reported one risk factor, 24% reported two risk factors, 14% reported three risk factors and 13% reported four risk factors. In addition, 10% reported high cholesterol, 57% reported stress and 19% reported depression. In 2005, those who reported no risk factors remained steady at 17%, while those who reported one risk factor decreased by 7% to 25%, and those who reported two risk factors decreased by 2% to 22%. Those who reported three risk factors increased by 2% to 16%, yet those who reported four risk factors decreased by 3% to 10%. Those who reported high cholesterol decreased 4% from 2003 to 2005, and those who reported stress decreased by 2%. The percentage of those who reported depression also decreased from 2003 to 2005 by 4% (Johnson & Alarie, 2006).

Financial outcomes also improved with the updating of the wellness program. The chronic disease management program reported a net savings of \$1.4 to \$1.9 million. It also reported improvement in overall return on investment. Though the numbers may be skewed due to changes in medical plan design, Financial still reported a savings of \$3.4 to \$7.88 for every dollar spent. The data indicated the most improvement in the category of asthma with a return on investment of \$14.61 for every dollar spent, and the prenatal

program observed a savings of \$707,550 in the second year of operation (Johnson & Alarie, 2006).

The Travelers Corporation (Travelers) saved \$146 million in benefits costs. They realized a \$3.40 savings for every dollar invested in the health promotion program. During a four year study, Travelers saw a 19% reduction in sick leave, and their health promotion program helped 36,000 employees reduce poor health habits. This resulted in increased positive health habits and improved overall health of the employees. Travelers were able to save costs by decreasing absenteeism, and decreasing the number of visits to a doctor or an emergency room (WELCOA, 2008b).

Reynolds Electrical & Engineering Company's wellness program has been in operation for over two years and costs \$76.24 per employee. The results of the implementation of the program were an 80% increase in participation rates, which is over one-half of their 1,600 employees. They have observed a savings of \$127.89 per participant and the benefit cost ratio was 1.68 to 1. Participating employees have reportedly lowered cholesterol levels, blood pressure and weight significantly and have 21% lower medical claim costs than non-participants (WELCOA, 2008a).

Superior Coffee and Foods, a subsidiary of Sara Lee Corporation, attributed its success to its wellness program. Since implementing the wellness program, the organization has observed a 22% decrease in hospital admissions with 29% shorter hospital visits. In addition, long-term disability costs have decreased by 40% (WELCOA, 2008a).

Union Pacific Railroad experienced medical costs of nearly two times the national average, which was \$6,000 per employee. They implemented a personal health

management program, at an annual cost of \$50 per employee, that began as a medical self-care initiative. They also implemented a voluntary program to help employees lower health risks. Employees were placed in treatment groups, and the results were a 45% decrease in high blood pressure and a 34% decrease in high cholesterol. Another group had weight problems and 30% were able to move out of the high risk range while 21% of the employees in the smoking group had stopped smoking. Due to the implementation of the health management program, Union Pacific Railroad achieved a \$1.26 million savings at a cost-benefit ratio of 1 to 1.57 (WELCOA, 2008a).

Berk-Tec experienced benefits within one year of implementing a health promotion program. They found that employees and their family members were making smarter medical decisions which resulted in a \$21.67 savings per employee and dependents or nearly an 18% decrease in costs. Employees also reduced doctor and emergency room visits for a savings of \$39.06 per employee which was a decrease of 24.3% over the previous year (WELCOA, 2008a).

Loza (2005) reported that Motorola realized a savings of \$3.93 in medical expenses for every one dollar invested in a wellness program. In addition, they had experienced an annual \$10.5 million savings in disability expenses.

The Xerox Corporation completed a four-year study of its workers and found that 8.9% of the workers who were not participants in the wellness program filed workers' compensation claims and the average cost of injuries was \$9,482. During that same time 5.6% of workers who participated in the wellness program filed workers' compensation claims, and the average cost of injuries was \$6,506. They discovered that lower

workman's compensation costs were due to decreased days lost because of fewer injuries (Loza, 2005).

### ***Not-For-Profit Organizations***

Washoe County School District (WCSD) in Reno, Nevada implemented an innovative wellness program that included using financial incentives for members to complete the health screening and four, eight-week online programs. Participation was voluntary however they created incentives for healthy behavior adherence (Hardy, 2005).

WCSD collected data for six years regarding healthcare and absenteeism. During 2001 and 2002, they observed a 20% decline in absenteeism that resulted in a \$15.60 savings for every dollar spent on the program. Data from 2003 indicated the wellness participants were 26% more likely to fall in the lowest quartile of healthcare costs. Analysis of the data collected between 2001 and 2004 indicated fewer overall health claims for those employees involved in the wellness program, which computed to an average decrease in health care claims costs of 7% (Hardy, 2005).

The Foundation for Educational Services implemented a wellness program in 2003, and they were able to partner with other organizations for services. Employees self reported that they anticipated attending programs, because they were able to meet employees at the programs that they normally did not have contact with on a daily basis, and 68% of them said the programs had made a positive impact on their overall health and wellness. Since implementing the wellness program, the company reported a 4% decrease in health insurance renewal premiums and an 18% decrease in health care claims (Foundation for Educational Services, 2005).

The City of Coppel, Texas launched its wellness program in 2002 in an effort to reduce health risks and control health care costs. The initial health assessment indicated that 87% of the employees were at risk due to physical inactivity. The assessment also indicated a high level of readiness to increase activity (City of Coppel, 2006).

Since the program's inception, employees have been moving from high health risk categories to more moderate and even low health risk categories. In 2002, 32.1% of the employees had five or more risk factors; in 2004 that percentage had decreased to 13.4%. Also in 2002, the percentage of employees at risk due to physical inactivity was 87%; in 2004 that percentage had decreased to 32%. In addition, the number of employees at risk due to lifestyle risk factors and those at risk of high cholesterol decreased. The City of Coppel also reported a downward trend in health care costs; between 2002 and 2004 healthcare claims decreased by 26.2% (City of Coppel, 2006).

Providence Everett Medical Center reduced healthcare utilization by 28% compared to nine other Providence hospitals during the first four years of their worksite wellness program. They estimated their savings at three million dollars. Their cost-benefit ratio was 1 to 3.8 over nine years (WELCOA, 2008a).

Du Pont offered health promotion programs at 41 sites. The result was a 14% decrease in absences due to illness unrelated to work, while 19 sites without the health promotion program decreased absences by 5.8%. Absenteeism costs decreased over two years so that each dollar invested saved the organization \$1.42 in absenteeism costs (WELCOA, 2008a).



### ***Higher Education Organizations***

M. Dolan (personal communication, October 16, 2003) indicated the only attempt at campus wellness at Missouri Western State University was through the wellness committee which had been in existence for approximately 17 years. The purpose of the committee was “to help encourage employees to have a healthier lifestyle. It was also designed to promote early detection of health conditions that could hurt the employee, for example higher cholesterol.”

The main activity used to encourage healthier lifestyles was the wellness screening, which was held in the fall of every year. The results of the lab work and a printout of the data were returned to each employee, and a group meeting was held to allow employees to ask questions and get advice. All employees were encouraged to share the results with their physicians. The wellness committee worked with the local hospital to provide educational opportunities for such topics as breast cancer, osteoporosis, prostate cancer, and colon cancer (M. Dolan, personal communication, October 16, 2003).

M. Dolan (personal communication, October 16, 2003) reported, “Over the years, I have been told of several cases of prostate cancer that, through early detection, were treated, possibly saving lives. I also know of several cases of high blood pressure that were detected and treated, and many cases of diabetes that were detected and treated” (2003). Dolan also reported that “approximately 350-370 employees and retirees participate in the screening each year.”

In 2003 the wellness committee encouraged employees to increase physical activity. Dolan stated, “We know that any exercise tends to increase morale, decrease

absenteeism, and make for a more all around healthier population” (M. Dolan, personal communication, October 16, 2003).

Symonds worked with the “be well” program at Northwest Missouri State University (NWMSU), which was a voluntary, incentive-based program for all employees. The program was called the “Great Walk” and according to Symonds, “employees sign up, log activity, convert the activity to aerobic miles and submit their results” (2006). They kept track of results and posted them, and Symonds also reported that for each 100 aerobic miles recorded, employees received \$10.00 in “Chamber Bucks” to be used in the local community. Employees were able to receive up to \$50.00 or 500 miles (M. Symonds, personal communication, February 10, 2006).

L. Salerno (personal communication, February 24, 2006) indicated that the University of Missouri did not have an employee exercise program in place. However, employees were able to purchase a membership to the recreation complex. After further questioning, Salerno reported they had over 1,000 employees with memberships to the recreation complex.

Salerno reported that using the recreation complex presented some barriers to employees. Those barriers included not being comfortable working out around the students, location, convenience, price, and parking. The recreation complex employed two individuals to who supervised memberships to the recreation complex and that included managing the student and non-student members. The recreation complex also employed two full-time staff members to administer personal training and the Tiger X program, which was a group exercise program that required instructors (L. Salerno, personal communication, February 24, 2006).

Oelling reported that the University of Nebraska in Lincoln attempted to establish an organizational exercise program for employees in 1999, but it was a difficult project to undertake due to lack of space, lack of finances for staffing and supplies, and lack of commitment from senior management. Oelling indicated that when the institutional effort failed, campus recreation instituted its own departmental program which she claimed was also difficult to maintain due to lack of funding (C. Oelling, personal communication, October 26, 2005).

J. Cahalan (personal communication, October 18, 2005) reported that a comprehensive exercise program existed at Des Moines University. The program was comprised of several components including preventive/education, physical activity, clinical measures, and emotional/mental wellness. The physical activity components included cardiovascular activities, strength training activities and flexibility activities. Cahalan indicated that a minimum of 30 cardiovascular sessions, each 20 minutes for more in length, per quarter were required to receive the \$25 quarterly bonus. A minimum of 20 strength training activity sessions, each at least 20 minutes in length, per quarter were required to receive the \$15 quarterly bonus. Finally, a minimum of 10 flexibility activity sessions, each at least 10 minutes in length, per quarter were required to receive the \$10 quarterly bonus. The goal for participants in the program was to reach \$200 in “credit”. The “credit” was paid to the employees as an annual bonus.

According to J. Peterson (personal communication, February 16, 2007), Drake University did not have an exercise program specifically; rather the university had a wellness program which had been in existence for seven years. The goal of the wellness program was to help employees establish lifelong patterns of wellness. They focused on

six areas, emotional, intellectual, social, occupational, spiritual and physical. Only one component of the wellness program was exercise.

Drake University considered the wellness program a success, because at least 89% of their employees had participated in at least one program. In addition, their health care costs decreased and many employees' risk factors lowered since the program was established (J. Peterson, personal communication, February 16, 2007).

Drake University linked their wellness program with benefits as an incentive program. When employees signed up for health insurance, they could choose to be a part of the wellness program, and if they did, they were required to complete one wellness screening each year which the university paid for. As a result they were able to save 5 to 10% on health insurance depending on what plan they chose. Some programs within the wellness program involved incentives prizes, and most of those were based on points accumulated (Peterson, personal communication, February 16, 2007).

According to Peterson (personal communication, February 16, 2007), the administration at Drake University supported the wellness program and without their support they would not have had a one. The university employed two full-time employees to administer the wellness program. In addition a few other employees help administer the program, however only part of their time is devoted to it. They also had a wellness advisory committee which was comprised of other university employees. Peterson reported some barriers to involvement in the wellness and exercise programs included lack of time, lack of motivation, and employees did not like to share facilities with the students.

D. Condos (personal communication, February 7, 2007) reported that Hastings College implemented an exercise program in 2005. They offered a variety of free exercise classes for employees. Some of those included, yoga, kickboxing, aerobics, step aerobics and weight training, and they provided walking maps that indicated the distances around campus. They also sponsored fall and spring walking events.

The wellness committee consisted of employees and students who volunteered their time to administer the wellness program. The wellness programs were located on campus, however they also utilized the local YMCA in which Hastings College employees were offered a corporate group rate membership. Some of the exercise classes were taught by paid, certified instructors (D. Condos, personal communication, February 7, 2007).

Condos indicated that various incentives, such as cash prizes, gift certificates, door prizes and small gift bags were used for different events. She also reported that the college was investigating their health insurance program as a tool for motivating employees to get involved in the wellness program (D. Condos, personal communication, February 7, 2007).

Most of the participants were involved in the program to improve their level of fitness, and she considered the exercise program a success with an average program participation rate of nearly 30%. However, Condos indicated barriers to participation in the exercise programs included time and budget. She felt the wellness program could be improved by disseminating more information about the programs to employees and students and by hiring a wellness coordinator whose duties would be strictly with the wellness program. (D. Condos, personal communication, February 7, 2007).

According to D. Obermiller and W. Morford (personal communication, February 7, 2007) the wellness program consisted of one full-time onsite wellness director which was funded through a contractual agreement with a wellness management company, a wellness council made up 14 Creighton University employees, and adjunct staff members to facilitate the various programs. The wellness program did not include a paid fitness trainer. The exercise programs were mainly walking programs in which participants were asked to keep track of their own progress on their participant tracking logs, and they turned those in at various times during the program. Employees were encouraged to exercise anywhere and in any way possible (D. Obermiller % W. Morford, personal communication, February 7, 2007).

The wellness program offered educational seminars, exercise programs, which were mainly walking programs, and the opportunity to get involved with SimplyWell. SimplyWell was an online health program aimed at decreasing health care costs to businesses, as well as improved employee health and increased employee productivity. The first step of this program was an assessment of the employer's health care costs. Then employees completed a health risk questionnaire and an onsite health screening to estimate the employees' health risks. SimplyWell then helped each individual employee create an exercise and wellness plan (Creighton University, 2007).

D. Obermiller and W. Morford (personal communication, February 7, 2007) also indicated that about 500 out of the 2800 employees at Creighton University were members of the Kiewit Fitness Center (KFC). The programs at KFC had been successful for students however, relatively few employees were involved. Employees were required to purchase their memberships and pay for program participation. Therefore, barriers to

participation included cost, as well as the location they worked and parked in comparison to the location of the fitness center. Mainly female staff members were involved in the programs offered at KFC, and they participated in aerobics classes over the lunch hour and early evenings. In addition, the weight conditioning classes and intramural sports each attracted between 15 and 30 employees each.

According to J. Glassett (personal communication, February 23, 2007), the exercise program at Brigham Young University (BYU) was established in 1993. It was administered by three paid student employees all of whom worked about 20 hours each week, a part-time staff member from human resources who supervised the student employees, and a wellness advisory committee that was comprised of faculty members from across campus who provided input for the program. Glassett also reported that BYU administration supported the program.

BYU provided a challenge once a year that required employees to form groups for competition. These usually involved a theme and small incentives based on the theme. A new overall incentive program was implemented in 2007, in which employees who participated in a certain number of activities offered by the wellness program would receive up to \$100 cash back on their insurance premium (J. Glassett, personal communication, February 23, 2007).

Though some barriers to participation existed, such as health reasons, lack of time, lack of facilities or a dislike of the facilities offered on campus, she considered the program a success. Many employees lost weight and improved health habits that resulted in long-term benefits for them. Interest in the program increased over the years as well,

which resulted in an increased number of participants; at last count they had 1,000 participants (J. Glassett, personal communication, February 23, 2007).

D. Murphy (personal communication, February 12, 2007) indicated Brown University's health promotion/wellness program was implemented in about 2002. The program was under the direction of several benefits office staff, as well as a volunteer health promotions committee. Approximately 1,000 out of 4,000 employees participated in at least one program, but the university did not monitor individual statistics, though they monitored the types of activities employees were involved in.

Administration supported the program, but Brown did not have a policy allowing employees time to exercise during the day, and they did not provide incentives for involvement in the program. Administration did, however, pay the registration fee for the 430 employees who signed up for the 2007 Shape UP Rhode Island competition. Brown University registered the third highest percentage of employees for an entity in that competition. Murphy considered the program a success. It has received several awards, and in 2006, it earned the Wellness Councils of America silver level award.



## **CHAPTER 3**

### **METHODOLOGY**

The purpose of this study was threefold: (a) to determine exercise behaviors of higher education employees at a small Midwestern university, (b) to determine the barriers to exercise that higher education employees encounter, and (c) to determine that which motivates higher education employees to exercise.

In this chapter, the researcher presented the research design, population and sample description, variables, the research questions and accompanying hypotheses, instrument, data collection procedures and data analysis.

#### **Research Design**

Survey research was used to determine aspects of university employees' exercise behaviors and attitudes. In this study, the researcher determined correlations between variables, correlations between variables and demographic information, and compared data collected from various groups within the sample. The researcher developed a survey from several different instruments; the survey is described in the section under Instrumentation.

#### **Study Population, Sample Frame and Sampling Plan**

The population of this study was all university employees during the spring 2007 semester. This group was chosen for this research because the institution had an interest in exploring a structured exercise program for employees. The total number of surveys that were mailed was 510. The sample of this study was employees who were self-selected into the research study by returning the surveys. This amounted to 203 employees.

### **Variables**

There were four major variables in this study, and they were observed to describe the sample's exercise behavior. One variable in this study was type of activities in which higher education employees prefer to participate. The second variable was constraints to physical activity, and the third variable was motivation for exercise. The fourth area of variation was demographics, notably age, gender, home responsibilities, marital status and position held at the institution. The variables were subjected to analysis to determine if correlations existed among them and to determine whether differences occurred between groups.

### **Research Questions and Hypotheses**

Seven research questions were formulated, and multiple hypotheses were tested for differences among and between variables.

**RQ1. In which types of exercise did higher education employees participate?**

**RQ2. What reasons for exercising did higher education employees offer?**

H<sub>1</sub> There were significant differences in mean scores on five reasons to exercise between male and female higher education employees.

H<sub>2</sub> There were significant differences in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by age.

H<sub>3</sub> There were significant difference in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by institutional position.

**RQ3. What barriers did higher education employees face that inhibit exercise?**

**RQ4. What motivated higher education employees to exercise?**

H<sub>4</sub> There were significant differences in mean scores on eight assessments of motivation, when categorized by five demographic categories associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

**RQ5. Did participation of higher education employees in recommended weekly exercise (RWE) vary within demographic categories?**

H<sub>5</sub> There were significant differences in percentages of respondents getting recommended weekly exercise (RWE), when percentages were categorized by five demographics associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

**RQ6 What differences exist between motivational orientations and receiving the recommended weekly exercise (RWE)?**

H<sub>6</sub> Employees who received RWE scored higher on intrinsic motivation than on extrinsic motivation.

H<sub>7</sub> Employees who did not receive RWE scored higher on amotivation than on intrinsic or extrinsic motivation.

**RQ7 How did higher education employees accommodate exercise site and time?**

Sub question 1: Where do higher education employees exercise?

Sub question 2: To what degree did higher education employees exercise outside work hours?

Sub-question 3: To what degree did higher education employees exercise at work during breaks?

Sub-question 4: Might employees exercise if the institution provided time to do so?

Sub-question 5: Might employees exercise if an exercise program was implemented by the institution?

### **Instrument**

The researcher used a five section instrument, the Linder survey. Two sections of the Linder survey were compiled using five instruments developed by other researchers. One section was developed by compiling information found in the research process. The final two sections were developed by the researcher for demographic purposes. The instrument is described section by section.

#### ***Section I***

The researcher utilized four different instruments when compiling Section I of the survey. This section contained 63 questions measured on a five-point Likert scale. The four instruments utilized were the revised Motives for Physical Activity Measure (MPAM-R), the Exercise Motivations Inventory-2 (EMI-2), and the Behavioral Regulation in Exercise Questionnaire-2 (BREQ-2) and ), the Reasons to Exercise Inventory (REI).

Three of the four instruments used in section I were based on self-determination theory (SDT). Self-determination theory proposes that motivation not only falls along a continuum from amotivation to extrinsic motivation, but it is also multidimensional. The three instruments based on SDT were MPAM-R, EMI-2 and BREQ-2. Since all the instruments included many of the same domains for exercising, the researcher cross-

checked the instruments and reasons/motivations for exercising and compiled a separate instrument that would be easier to read, understand, and answer quickly.

***MPAM-R.*** The MPAM-R was originally developed by Frederick & Ryan in 1993 and included only three motives to exercise. In 1997, it was revised and validated by Ryan, Frederick, Lepes, Rubio, and Sheldon. The MPAM-R was used to evaluate how strongly five motives weighed in the decision of participants to exercise. The five motives included appearance, competence/challenge, enjoyment, fitness, and social. (Self-Determination Theory, 2005). It was utilized in this research for the same purpose.

Plonczynski (2000) conducted research to review studies that measured motivation for exercise. She found the MPAM, which was the 1993 version of the MPAM-R to be reliable and valid. The MPAM had only three subscales, but was found to have construct validity for the three subscales and was reliable with an internal consistency of 0.69 to 0.90. Frederick et al (1997) introduced and validated the MPAM-R, which included five subscales.

***EMI-2.*** The EMI was developed by Markland and Hardy in 1993 to assess exercise participation motivation. The instrument was initially developed in part to evaluate the impact of different motivations in determining amount of exercise and the choice of activities participated in. The EMI-2 was developed by Markland and Ingledew (1997) to improve upon the weaknesses of the EMI, which were that it lacked an assessment of some fitness-related motivators, such as endurance and strength, as well as some health related motivations for exercising, mostly the positively-oriented reasons. In addition, it was also only applicable to current exercisers due to the wording of the instrument (Markland, 2006).

The EMI-2 was made up of 51 questions that evaluated 14 areas of motivation, and it is appropriate to exercisers and non-exercisers. The 14 motives in this instrument were affiliation, appearance, challenge, competition, enjoyment, health pressures, ill-health avoidance, nimbleness, positive health, revitalization, social recognition, strength & endurance, stress management, weight management (Markland, 2006).

The EMI was found to have internal consistency of the 12 subscales, and the test-retest reliability coefficients were 0.59 to 0.88. In addition, evidence supported construct validity as well as discriminative validity. The EMI-2 was comprised of 14 subscales, and it was determined to be a factorially valid instrument. According to Markland and Ingledew (1997), rigorous testing across gender, as well as across exercisers and non-exercisers, was conducted to determine the factorial validity and invariance of the factor structure. Ljubic et. al. (2006) reported internal consistency of the scale with alpha coefficients between 0.68 and 0.95. She also reported reliability in test-retest with coefficients of 0.59 to 0.88.

***BREQ-2.*** The BREQ was developed by Mullan, Markland & Ingledew in 1997. It assessed four regulatory behaviors. The four behaviors were external, introjected, identified and intrinsic motivation.

Amotivated means not motivated, internally nor externally, to engage in a behavior. External regulation means having no internal motivation and only engaging in a behavior because someone, usually in authority, has said to do so. Introjected regulation means engaging in a behavior only because of internal pressures placed on oneself. These pressures can be positive or negative. Identified regulation means accepting a behavior as important to reach a personal goal. Integrated regulation is internalizing identified

regulation and engaging in a behavior willingly. Intrinsic regulation is engaging in a behavior due to the love of that activity (Markland, 2006).

According to Markland, the BREQ was based on Deci & Ryan's (1985, 1991) concept of extrinsic and intrinsic motivation. During their preliminary analysis, Mullan et al. discontinued the amotivation motive items due to skewness issues. Markland & Tobin, 2004, reinstated the amotivation motive items in the BREQ-2, because they felt they could be useful in more general samples (Markland, 2006).

According to Markland (2006), Markland and Tobin's BREQ-2 assesses five regulatory behaviors (2004). Plonczynski (2000) found the instrument to be valid and reliable. She found the instrument to have "criteria validity: discriminant for subscales" (p. 702, Table II). She also found the instrument to have an internal reliability of 0.76 to 0.90 in one test, and in the second test she found internal reliability to be 0.78 to 0.90.

The BREQ-2 was used by Murcia et al (2008) in their study of peers' influence on exercise enjoyment. They reported reliability of the subscales using Cronbach alpha. Intrinsic regulation's reliability was determined to be 0.81, identified regulation was 0.64, introjected regulation was 0.66, external regulation was 0.71 and amotivation was 0.73. Only identified regulation and introjected regulation had scores below 0.70, which was the recommended level. Internal validity was deemed acceptable.

**REI.** The REI was developed by Silberstein, Streigel-Moore, Timko, & Rodin in 1988. This instrument has been used to assess the reasons people exercise, and it was used to achieve the same purpose in the current research study. It contains 24 items that make up seven domains that identify why participants take part in exercise. Those

domains include, weight control, fitness, health, improved body tone, improved overall physical attractiveness, improving one's mood, and for enjoyment (Ostrow, 2002).

Silberstein et. al.'s Reasons for Exercise Inventory (1988), Ostrow (2002) reported on the validity and the reliability of the instrument. In regard to validity, he indicated a low yet positive relationship ( $r=.36$  for  $N = 92$ ) between individuals' scores on the REI and another scale that was designed to measure disregulated eating behaviors. To determine reliability, he used Cronbach alpha to determine coefficients ranging from .67 in the enjoyment domain to .81 in the weight control domain. Brown (2002) determined the REI to have adequate internal consistency ( $\alpha=.82$ ) in her study to determine if social physique anxiety has an effect on women's motivation to exercise. Plonczynski (2000) reviewed a study by Cash et al (1994) and a study by Courneya (1995), and found that the REI was reliable with internal consistency of 0.67 to 0.81. She also found the instrument to have content validity by face validity.

## ***Section II***

The researcher used the Exercise Causality Orientations Scale (ECOS) in Section II of the instrument. This section contained 21 questions measured on a five-point Likert scale. The questions were scenarios in which the participants answered what they would do in each situation. Their responses indicated motivational orientations based on a continuum. Rose, Markland & Parfitt, 2001, developed the ECOS to assess in the areas of exercise. They based the instrument on Deci & Ryan's, 1985b, General Causality Orientations Scale (GCOS) which assessed the strength of three behavior orientations, autonomy orientation, control orientation, and impersonal orientation in a general setting (Markland, Rose & Parfitt, 2006).



Autonomy orientation describes people who set goals and base their behavior and actions on those goals or interests. Control oriented people need to rely on benchmarks or events that they set externally or internally to regulate their behavior. Impersonally oriented people are of the belief that they have no control over their behaviors or actions. These types of people generally feel incompetent and helpless (Markland, Rose & Parfitt, 2006).

This instrument began with nine scenarios in which factorial validity was measured “using a multi-trait, multi-method approach” (p. 6). More specifically, a “correlated-trait, correlated uniquenesses model was assessed using confirmatory factor analysis in LISREL 8.30” (p. 6).

The instrument was scaled down based on factorial ambiguity among items to seven scenarios. “The fit of this model was: Satorra-Bentler scaled chi sq = 387; minimum fit function chi square = 445; df = 165; CFI = .96; SRMR = .06; RMSEA = .05 (90% confidence interval. = .04 : .06)” (Markland, 2006, p. 7).

According to Rose et al. (2001) the ECOS was more reliable and valid than the original six-scenario model. The ECOS recorded non-standardized Cronbach’s alphas of 0.70 for autonomy, 0.65 for control and 0.68 for impersonal. These were figures were based on the correlated traits/correlated uniquenesses model. Reliability was also tested with a two month test and re-test assessment. The intraclass correlations and 95 percent confidence intervals were recorded at 0.73 for autonomy (0.59 - 0.81), 0.77 for control (0.65 - 0.85) and 0.71 for impersonal (0.57 - 0.81). Rose et al. (2001) preferred this seven-scenario scale over the six-scenario scale. They indicated that the fit statistics were nearly the same in their fit. In addition, the seven-scenario scale was deemed superior to

the six-scenario scale based on the model parsimony. They also found the subscale reliabilities to be greater and there was an overall improvement in the content validity of the scale.

Through their research Rose et al. (2001) found the ECOS to have good factorial validity and convergent validity, as well as acceptable discriminant validity. Support was garnered to indicated the ECOS had concurrent validity, and they also found the ECOS to have good retest reliability.

Plonczynski (2000) reported that her study revealed only 5 of the 22 instruments she reviewed, demonstrated both validity and reliability, and one of those was the same inventory just modified. Three of those instruments were used in this research project, either in the original form or in an updated form. Those instruments were the MPAM, and the BREQ, and the REI.

### ***Section III***

Section III consists of 30 barriers to exercise. This list of barriers was compiled after researching numerous sites regarding barriers and constraints to exercise; while extensive, it may not be inclusive. Each barrier is followed by a five-point Likert scale in which participants indicated how likely or unlikely that barrier was a constraint to their individual exercise regimens.

### ***Section IV***

Section IV was a minimal list of 10 exercise activities that participants in this survey had access to on campus. Each exercise activity listed was followed by a five-point Likert scale. Participants were to indicate how likely or unlikely they were to take

part in that exercise activity. Question number 10 allowed participants to indicate a particular sport they played.

### ***Section V***

Section V of the survey was the demographic section. This section contained 13 closed-ended questions that asked for a variety of information. The information included gender, age, marital status, family status, position held at the institution, time spent in exercise each week, and where each participant exercised. In addition, one question allowed room to indicate a particular type of exercise the participant was involved in, and two of the questions left room for comments. A copy of the questionnaire is found in Appendix D.

### **Data Collection/Survey Procedure**

The researcher initiated the survey process during the spring semester of 2007 when the faculty and staff members were present. The first surveys were distributed during final exam week, and the follow-up survey was sent about two weeks later. The data collection process took approximately one month.

Human resources had indicated that not every employee had an e-mail account, but that everyone had means of receiving mail. Therefore, the survey was distributed in paper form with a return address label attached.

The survey was mailed in an envelope to the participants, and respondents were requested to return the survey within one week. Included with the survey was a self-addressed envelope that was to be returned to the data collector. The data collector had a mailbox set up on campus specifically for this study. The return envelope address labels were coded with numbers to maintain confidentiality, and a research assistant, who had

an educational background in physical education and was not employed by the institution, collected the returned surveys and kept track of them via the number codes.

Two weeks after the original survey was sent, a follow up survey was mailed to all employees who had not returned their surveys. Participants were requested to return the survey within one week. Two weeks after the second round of surveys was sent, a thank you letter was mailed to all employees who had returned surveys. The thank you letter included information explaining how to reach the researcher in case participants wanted results of the research.

To ensure anonymity, surveys were collected by the research assistant. The research assistant (a) collected all surveys as they were returned, (b) removed labels from the survey and crossed the name off the address label list, (c) delivered the unmarked returned surveys to the researcher, and (d) distributed the thank you letters.

In an attempt to reduce response error the surveys were sent out during the school year when many of the participants in this study spent more time in their offices. A paper survey was chosen as the instrument to collect data related to time spent in exercise each week, exercise activities, reasons to take part in those activities, barriers/constraints to exercising, and motivators to exercising. Data collection lasted approximately one month.

Non-response error could have occurred due to the timing of the data collection process. Some employees may have been unavailable at the time the questionnaire was sent out. The data collection process occurred at the end of the semester and the beginning of summer sessions. Final examinations were administered during this time period therefore some employees may not have taken the time out of their busy schedules to complete a survey. In addition, some faculty members at the institution were adjunct

and did not have offices, however all employees had a means of receiving mail on campus.

Non-response error cannot be eliminated completely, because some participants may have chosen not to answer the questions at all. Some employees might not have considered this research important. They may not have found exercise important or they may not have found the idea of exercise during working hours appropriate. There was also a slight chance that some employees may not have received the survey.

Response bias may have occurred if participants answered questions falsely. This may have occurred deliberately, because they felt embarrassed about their lack of physical activity at this time in their lives, or they may have answered in a way they thought the researcher wanted them to answer. They may have even answered in a way that would make them look better. Response bias could have also occurred by accident. Some participants may not have been able to accurately answer questions, and others may have overestimated the time spent in exercise.

### **Data Analysis**

Data were analyzed using single variate and multivariate tests. The tests used included the Pearson Chi Square, the non-parametric Kruskal-Wallis, and the parametric one-way ANOVA. In questions where significance was found using the Kruskal-Wallis, a pairwise comparison was completed using the Mann-Whitney. A corrected alpha had to be calculated to determine significance. In questions where the one-way ANOVA was used, a pairwise comparison was completed using the Tukey HSD.

## CHAPTER 4

### FINDINGS AND DISCUSSION

The purpose of this study was threefold: (a) to determine exercise behaviors of higher education employees at a small Midwestern university, (b) to determine the barriers to exercise that higher education employees encounter, and (c) to determine that which motivates higher education employees to exercise. This chapter presents the findings by research question and relevant hypotheses.

#### Research Questions and Hypotheses

Seven research questions were formulated, and multiple hypotheses were tested for differences among and between variables.

**RQ1. In which types of exercise did higher education employees participate?**

**RQ2. What reasons for exercising did higher education employees offer?**

H<sub>1</sub> There were significant differences in mean scores on five reasons to exercise between male and female higher education employees.

H<sub>2</sub> There were significant differences in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by age.

H<sub>3</sub> There were significant difference in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by institutional position.

**RQ3. What barriers did higher education employees face that inhibit exercise?**

**RQ4. What motivated higher education employees to exercise?**

H<sub>4</sub> There were significant differences in mean scores on eight assessments of motivation, when categorized by five demographic categories associated with the

respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

**RQ5. Did participation of higher education employees in recommended weekly exercise (RWE) vary within demographic categories?**

H<sub>5</sub> There were significant differences in percentages of respondents getting recommended weekly exercise (RWE), when percentages were categorized by five demographics associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

**RQ6 What differences exist between motivational orientations and receiving the recommended weekly exercise?**

H<sub>6</sub> Employees who received RWE scored higher on intrinsic motivation than on extrinsic motivation.

H<sub>7</sub> Employees who did not receive RWE scored higher on amotivation than on intrinsic or extrinsic motivation.

**RQ7 How did higher education employees accommodate exercise site and time?**

Sub question 1: Where do higher education employees exercise?

Sub question 2: To what degree did higher education employees exercise outside work hours?

Sub-question 3: To what degree did higher education employees exercise at work during breaks?

Sub-question 4: Might employees exercise if the institution provided time to do so?

Sub-question 5: Might employees exercise if an exercise program was implemented by the institution?

### **Analysis of Findings**

The survey data were organized using factor analysis to determine relevant variables. The variables were factored together using a Varimax rotation and they were placed into categories. The researcher utilized descriptive statistics to determine (a) the types of exercise activities in which higher education employees participated and to what degree, and (b) the constraints/barriers that kept them from participating in exercise at all or as much as they would like. Inferential statistics were used with specific demographics and survey responses.

- The Pearson Chi-Square Test of Independence was used to analyze Hypotheses one and two. The Chi-Square Test was used to determine whether two or more demographic categories had different patterns of response to the dependent variable, which was recommended amount of weekly exercise (RWE).
- The multivariate statistical test, One-way ANOVA, was used when the data were distributed along a normal curve and the Homogeneity of Variance was greater than  $p = .05$ . When significance was found using this parametric test, a pairwise comparison, the Post Hoc Tukey HSD, was used to determine specifically where the significance occurred.
- The multivariate statistical test, Kruskal-Wallis, was used with data that were not normally distributed. When significance was found using this non-parametric test, a pairwise comparison, the univariate statistical test, Mann-



Whitney U-test, was used to determine specifically where the significance occurred. A corrected alpha had to be calculated by dividing the alpha of .05 by the number of possible comparisons.

***Research Question 1: In which types of exercise do higher education employees participate?***

Mean scores and rankings were used to analyze research question one on four distributions: total sample, gender, age, and marital status. The data described the sample and determined the types of exercise in which higher education employees took part.

Tables 1, 2, and 3 display the data on employee participation.

***Total Sample***

For the participants as a whole, walking was the type of exercise higher education employees participated in the most ( $M = 4.32$ ). Employees also indicated that self-selected specific sports were preferred over choices offered on the survey.

***Gender***

Female higher education employees participated in walking as a form of exercise more than did their male co-workers. Men ranked the aerobic activities of walking ( $M = 4.02$ ), jogging ( $M = 3.11$ ) and the anaerobic activity of weight lifting ( $M = 3.16$ ) as their three preferred physical activities. Women ranked the aerobic activities of walking ( $M = 4.59$ ), aerobics ( $M = 3.01$ ), and the anaerobic activity of weight lifting ( $M = 2.68$ ) as their three preferred physical activities.

***Age***

Table 2 displays the data by age, partitioned into ten-year increments, from age 20 to 70. When preferences were categorized by age, higher education employees over 30

Table 1

*Type of Exercise, by Total Sample and by Gender*

Type of Exercise	Total (N = 199) Mean	Total sd	Male (N = 77) Mean	Male sd	Female (N = 122) Mean	Female sd
Walking	4.31	1.052	4.02	1.142	4.59	0.853
Jogging	2.50	1.497	3.11	1.497	2.22	1.326
Biking	2.77	1.413	2.81	1.589	2.75	1.408
Aerobics	2.65	1.301	1.95	1.852	3.01	1.49
Tennis	1.94	1.128	1.82	1.493	1.93	1.422
Racquetball	1.72	1.139	1.93	1.418	1.57	1.734
Swimming	2.49	1.497	2.33	1.109	2.41	1.536
Water Aerobics	2.17	1.404	1.40	1.334	2.49	1.385
Weightlifting	2/79	1.486	3.16	0.947	2.68	1.201
Specific Sport	2.61	1.773	2.88	0.904	2.43	0.992

preferred walking with the greatest mean value in the 61 to 70 age group ( $M = 4.73$ ). The preference for jogging decreased as age increased. Those between the ages of 20 and 40 ( $M = 3.82$  and  $M = 3.15$ ) participated in jogging more than their co-workers between the ages of 41 and 70 whose jogging means decreased consistently by age group. Those in the age group of 20 to 30 also exercised through weight lifting ( $M = 4.09$ ) and specific sport activities ( $M = 4.55$ ) more than did older age groups.

Table 2

*Type of Exercise, by Age Groups*

<b>Exercise</b>	<b>20-30 (N = 13) Mean</b>	<b>20-30 sd</b>	<b>31-40 (N = 38) Mean</b>	<b>31-40 sd</b>	<b>41-50 (N = 54) Mean</b>	<b>41-50 sd</b>	<b>51-60 (N = 81) Mean</b>	<b>51-60 sd</b>	<b>61-70 (N = 15) Mean</b>	<b>61-70 sd</b>
Walking	3.73	1.272	4.11	1.188	4.51	.870	4.40	1.007	4.73	.594
Jogging	3.82	1.250	3.15	1.586	2.39	1.464	2.32	1.504	1.93	1.163
Biking	3.82	1.250	2.81	1.241	2.90	1.357	2.57	1.487	2.40	1.639
Aerobics	3.27	1.421	2.70	1.353	2.56	1.141	2.58	1.460	2.07	1.280
Tennis	2.91	1.300	2.11	1.086	1.93	1.104	1.64	1.021	1.60	.986
Racquetball	3.45	1.695	2.00	1.209	1.54	.951	1.45	.774	1.33	1.047
Swimming	3.45	1.753	2.26	1.483	2.29	1.346	2.36	1.545	2.33	1.397
Water Aerobics	2.27	1.555	1.85	1.231	2.24	1.428	2.17	1.397	1.67	1.175
Weight Lifting	4.09	1.136	3.04	1.315	3.24	1.410	2.38	1.496	2.13	1.598
Specific Sport	4.55	1.214	3.22	1.783	2.73	1.674	1.94	1.586	2.00	1.732

### ***Marital Status***

Table 3 displays the preference for exercise data by three categories of marital status: married, separated, and single. Walking remained the major choice of exercise for individuals in the three groups ( $M = 4.40$ ,  $4.25$ , and  $4.21$ , respectively). Interestingly, single and separated higher education employees ( $M = 3.00$  and  $M = 3.00$ , respectively) participated in a specific sport exercise more than did the married co-workers ( $M = 2.49$ ).

### ***Research Question 2: What reasons for exercising did higher education employees offer?***

The literature identified five reasons that adults exercise. The respondents were asked to rate each of the reasons. Based on the research, the researcher hypothesized that the reasons to exercise would differ based on the respondents' gender, age, and institutional position. Three hypotheses were established. Tables 4, 5, 6, and 7 display the percentages of respondents selection of reasons to exercise for the total sample, by gender, by age, and by institutional position, respectively. The results for each hypothesis follow the relevant table.

### ***Gender***

Two hundred thirty eight responses were recorded for this category. The total number exceeds the number of respondents ( $N = 202$ ) because some participants indicated more than one reason for exercising. The number of responses from employees indicating exercise for cardiovascular reasons was ( $N = 115$ ) or 48.32%. Those who indicated they choose to take part in strength training was ( $N = 34$ ) or 14.29%. Those who indicated they choose to take part in aerobics was ( $N = 12$ ) or 5.04%. The number of

Table 3

*Type of Exercise, by Marital Status*

<b>Exercise</b>	<b>Married Mean (N = 154)</b>	<b>Married sd</b>	<b>Separated Mean (N = 5)</b>	<b>Separated sd</b>	<b>Single Mean (N = 42)</b>	<b>Single sd</b>
Walking	4.40	.998	4.25	.957	4.21	1.101
Jogging	2.57	1.528	3.00	1.414	2.50	1.575
Biking	2.70	1.445	3.00	1.633	3.07	1.359
Aerobics	2.61	1.368	2.00	1.155	2.64	1.283
Tennis	1.92	1.141	1.50	1.000	1.86	1.044
Racquetball	1.74	1.148	1.71		1.24	1.213
Swimming	2.43	1.493	2.50	1.732	2.25	1.506
Water Aerobics	2.04	1.294	2.25	1.893	2.25	1.602
Weight Lifting	2.79	1.525	3.00	1.826	3.04	1.453
Specific Sport	2.49	1.764	3.00	2.309	3.00	1.785

Table 4

*Percentage of Responses per Reason to Exercise, Type of Exercise Training*

<b>Exercise</b>	<b>Overall N</b>	<b>Overall %</b>
Cardiovascular	115	48.32
Strength Training	34	14.29
Aerobics	12	5.04
Particular Sport	12	5.04
Other	43	18.07
Do Not Exercise	22	9.24
Total Number of responses	238	100.00

Note: Responses (n = 238) exceeds number of respondents due to multiple responses by individuals

Table 5

*Means and Standard Deviations for Reasons to Exercise, by Gender*

<b>Reasons to Exercise</b>	<b>Male Mean (N =77)</b>	<b>Female Mean (N = 122)</b>
Appearance/Weight Management	3.465	3.572
Mental/Emotional	3.106	2.909
Health Pressures	2.738	2.630
Challenge/Competition	2.429	1.994
Socialization	1.883	2.016

Table 6

*Means for Reasons to Exercise, by Age (N=201)*

	<b>20-30 Mean (N=13)</b>	<b>20-30 sd</b>	<b>31-40 Mean (N=38)</b>	<b>31-40 sd</b>	<b>41-50 Mean (N=54)</b>	<b>41-50 sd</b>	<b>51-60 Mean (N=81)</b>	<b>51-60 sd</b>	<b>61-70 Mean (N=15)</b>	<b>61-70 sd</b>
Challenge/ Competition	2.712	.9177	2.279	1.0433	1.981	.8549	2.195	.9393	1.845	.779
Appearance/Weight Management	3.564	.8152	3.548	.9259	3.725	1.1300	3.397	1.1323	3.256	1.185
Mental/Emotional	3.186	.6492	2.697	.9746	2.982	1.2550	3.138	1.1668	2.567	1.276
Health Pressures	2.692	.5847	2.246	1.0272	2.701	1.1278	2.905	1.1008	2.344	1.0128
Socialization	2.462	.9233	1.921	.9118	1.787	1.0352	2.0989	1.0441	1.600	.8701

Table 7

*Means for Reasons to Exercise, by Institutional Position (N=201)*

Reasons to Exercise	Administrator Mean (N = 17)	Faculty Mean (N = 64)	Exempt Staff (salaried staff) Mean (N = 69)	Non-exempt Staff (hourly staff) Mean (N = 51)
Appearance/Weight Management	3.053	3.465	3.688	3.494
Mental/Emotional	2.745	3.152	2.995	2.794
Health Pressures	2.490	2.607	2.790	2.647
Challenge/Competition	1.951	2.328	2.117	2.079
Socialization	1.618	1.914	1.993	2.118



responses from employees indicating involvement in a particular sport was ( $N = 12$ ) or 5.04%. The number of responses indicating taking part in other exercises than those listed was ( $N = 43$ ) or 18.7%. The number of responses indicating no exercise was ( $N = 22$ ) or 9.24%.

Male higher education employees indicated the top two reasons they exercised was to improve or maintain appearance and weight management ( $M = 3.465$ ) and to receive the mental and emotional relief that exercise provides ( $M = 3.106$ ). Female higher education employees indicated the top two reasons they exercised were also to improve or maintain appearance and weight management ( $M = 3.572$ ) and to receive the mental and emotional relief exercise provides ( $M = 2.909$ ).

$H_1$  There were significant differences in mean scores on five reasons to exercise between male and female higher education employees.

Significance was found between males and females with regard to exercising for challenge/ competition. The mean score for male employees who indicated they participate in exercise for challenge/competition was ( $M = 2.429$ ), and the mean score for female employees who indicated they participate in exercise for challenge and competition was ( $M = 1.994$ ). Using a non-parametric Mann-Whitney test, the male median quality rating was 2.4000 ( $IQR = 1.0-4.83$ ), and the female median quality rating was 1.9167 ( $IQR = 1.00-5.00$ ). As hypothesized, male higher education employees exercise for the challenge/competition more than did female employees ( $U = 4496.000$ ,  $p = .602$ ) ( $N = 199$ ).

### *Age*

H<sub>2</sub> There were significant differences among the mean scores for reasons to exercise, when categorized by age, in 10-year intervals.

A Kruskal-Wallis analysis found significant difference among the means for health pressures ( $X^2(4) = 11.193$ ,  $p = .024$ ). This analysis required a follow-up a series of Mann-Whitney tests, with a corrected alpha of  $p = .005$  (.05/10 possible comparisons). Significance was found specifically between the age categories of 31-40 and 51-60 ( $U = 1020.500$ ,  $p = .003$ ). A non-parametric Kruskal-Wallis test found significant difference among the means for socialization, ( $X^2(4) = 10.548$ ,  $p = .032$ ). This analysis required a follow-up series of Mann-Whitney tests, with a corrected alpha of  $p = .005$ . No significance was found between any of the age categories with the corrected alpha, however the age categories of 20-30 and 41-50 ( $U = 196.500$ ,  $p = .011$ ) and the age categories of 20-30 and 61-70 ( $U = 43.500$ ,  $p = .011$ ) did demonstrate notable differences.

### *Institutional Position*

H<sub>3</sub> There were significant difference in mean scores on five reasons to exercise for higher education employees when mean scores were categorized by institutional position.

There were no significant differences among the means; therefore the null hypothesis was accepted. Nevertheless, there were notable differences upon which to comment. The highest mean scores for all categories of employment were in the area of Appearance and Weight Management, and the second highest set of means indicated that all categories of higher education employees exercised for the mental and emotional benefits. The mean score for faculty was the highest of all the groups ( $M = 3.152$ ). The

mean score for administrators who exercise for the mental and emotional benefits was ( $M = 2.745$ ), for exempt staff who exercise for the mental and emotional benefits was ( $M = 2.995$ ), and for non-exempt staff who exercise for the mental and emotional benefits was ( $M = 2.794$ ).

***Research Question 3: What barriers did higher education employees face that inhibit exercise?***

Mean scores and rankings were used to determine the answer to Research Question Two. Responses to nine barriers were categorized by total sample and five demographic categories: gender, age, home responsibilities, marital status, and institutional position. The analysis provided a snapshot of the importance attributed to specific barriers to exercise as perceived by higher education employees. As a whole, the employees at the Midwestern university found lack of time ( $M = 2.777$ ,  $SD = 1.037$ ) to be the biggest barrier to exercise. The five tables that follow present means and standard deviations by demographic category.

***Gender***

The mean scores were higher for female higher education employees than for male higher education employees in all categories. Thus, female higher education employees perceived that all listed items were greater barriers than those same listed barriers were for male co-workers. The mean scores were very close in the category of time, but females reported  $M = 2.8167$ , and males reported  $M = 2.7333$ .

The barriers reported by men in rank order from “more likely to be a barrier” to “least likely to be a barrier” were lack of time, lack of employer support, lack of finances, lack of motivation, lack of social involvement, lack of self-confidence, lack of social

Table 8

*Barriers to Exercise, by Total Sample and by Gender*

<b>Barriers</b>	<b>Total (N = 199) Mean</b>	<b>Total sd</b>	<b>Male (N = 77) Mean</b>	<b>Male sd</b>	<b>Female (N = 122) Mean</b>	<b>Female sd</b>
Lack of Time	2.777	1.037	2.733	1.099	2.817	1.607
Lack of Employer Support	2.568	1.545	2.107	1.341	2.850	1.017
Lack of Finances	2.151	1.232	1.938	1.165	2.297	1.267
Lack of Motivation	2.140	0/903	1.875	.851	2.288	.899
Lack of Social Involvement	1.884	1.083	1.607	.909	2.050	1.066
Lack of Self- confidence	1.993	1.024	1.503	.709	2.277	1.158
Lack of Social Support	1.480	0.785	1.440	.767	1.504	.854
Lack of Facility – safe/convenient	1.667	0.802	1.372	.574	1.838	.806
Lack of Health Education	1.364	0.619	1.227	.456	1.446	.691

support, lack of facility and lack of health education. The barriers for women, ranked again by descending mean value, were lack of employer support, lack of time, lack of finances, lack of motivation, lack of self-confidence, lack of social involvement, lack of facility, lack of social support, and lack of health education.

Table 9 presents the differences in descending order of differences between men and women's perceptions of barriers to exercise. The most notable difference between mean scores was in the category of "lack of self-confidence." The next highest difference

Table 9  
*Differences in Perceptions of Barriers, by Gender*

Barrier	Mean Score Differences between Genders
Lack of Self-confidence	.7738
Lack of Employer Support	.7433
Lack of Facility – safe/convenient	.4653
Lack of Social Involvement	.4433
Lack of Motivation	.4135
Lack of Finances	.3594
Lack of Health Education	.2094
Lack of Time	.0834
Lack of Social Support	.0642

was in the category of “lack of employer support.” The least amount of difference was in the category of “lack of social support.”

### *Age Categories*

Table 10 displays the data related to perceptions of barriers to exercise by age, partitioned into ten-year increments, from age 20 to 70. Older higher education employees indicated that they perceived the lack of health education as a barrier to exercise more than did younger employees.

Employees identified lack of time (means ranging from 3.088 to 2.500 across age categories) and lack of employer support (means ranging from 2.615 to 2.526 across age categories) as higher barriers to exercise. Among younger employees (age categories 20 - 30 and 30- 40, in particular) the mean scores indicated that lack of finances served as a barrier to exercise.

Table 10

*Barriers to Exercise, by Age (N=201)*

<b>Barriers</b>	<b>20-30 Mean (N = 13)</b>	<b>20-30 sd</b>	<b>31-40 Mean (N = 38)</b>	<b>31-40 sd</b>	<b>41-50 Mean (N = 54)</b>	<b>41-50 sd</b>	<b>51-60 Mean (N = 81)</b>	<b>51-60 sd</b>	<b>61-70 Mean (N = 15)</b>	<b>61-70 sd</b>
Lack of Self-confidence	1.750	.835	1.908	.985	2.023	1.075	2.112	1.031	1.518	.9065
Lack of Health Education	1.410	.722	1.237	.519	1.284	.478	1.517	.734	1.095	.356
Lack of Motivation	2.154	.869	2.237	.985	2.115	.877	2.177	.944	1.786	.574
Lack of Finances	2.590	1.334	2.500	1.321	2.191	1.356	2.013	1.111	1.548	.687
Lack of Facility	1.558	.873	1.750	.762	1.658	.799	1.733	.858	1.268	.454
Lack of Time	2.615	.718	3.088	1.053	2.735	.957	2.752	1.053	2.500	1.425
Lack of Employer Support	2.615	1.660	2.526	1.538	2.574	1.549	2.590	1.566	2.571	1.651
Lack of social Support	1.462	.660	1.355	.625	1.417	.699	1.628	.955	1.250	.427
Lack of Social Involvement	1.692	.947	1.829	1.048	1.89	1.102	2.006	1.112	1.57	1.158

The literature suggested that lack of health education might contribute to less participation in exercise. The mean scores for higher education employees who indicated lack of health education was a barrier to exercising were:  $M = 1.410$  for ages 20-30,  $M = 1.237$  for ages 31-40,  $M = 1.284$  for ages 41-50,  $M = 1.517$  for ages 51-60, and  $M = 1.095$  for ages 61-70. Furthermore, the mean score was the highest in the age category of 51-60, the lowest mean score was in the age category of 61-70.

### ***Home Responsibilities***

Table 11 displays the data related to perceptions of barriers to exercise by home responsibility categories.

The literature suggested that employees with greater amounts of home responsibilities recognized time as a barrier to exercise. This too appeared to be true for higher education employees at this Midwestern university. The mean score for higher education employees with children in the home who indicated time as a barrier to exercising was  $M = 3.118$ . The mean score for higher education employees with children no longer in the home who indicated time as a barrier to exercising was  $M = 2.602$ . The mean score for higher education employees with no children who indicated time as a barrier to exercising was  $M = 2.452$ .

### ***Marital Status***

The total number of responses for this category was 201, 75% of whom were married. Table 12 displays the data related to perceptions of barriers to exercise for three marital status categories.

The mean score for married higher education employees who indicated time as a barrier to exercising was  $M = 2.867$ . The mean score for separated higher education

Table 11

*Barriers to Exercise, by Home Responsibility (N=201)*

<b>Barriers</b>	<b>Children in home Mean (N = 83)</b>	<b>Children in home sd</b>	<b>Children-not in home Mean (N = 76)</b>	<b>Children- not in home sd</b>	<b>No Children Mean (N = 42)</b>	<b>No Children sd</b>
Lack of Self-confidence	1.933	.966	2.0925	1.113	1.887	.952
Lack of Health Education	1.362	.591	1.4018	.709	1.294	.506
Lack of Motivation	2.193	.944	2.1151	.884	2.091	.884
Lack of Finances	2.364	1.400	2.002	1.143	2.040	.986
Lack of Facility	1.656	.783	1.746	.908	1.57	.645
Lack of Time	3.118	.968	2.603	1.090	2.455	.928
Lack of Employer Support	2.622	1.471	2.616	1.630	2.405	1.594
Lack of social Support	1.445	.720	1.473	.786	1.560	.919
Lack of Social Involvement	1.762	.960	2.014	1.136	1.9177	1.224



Table 12

*Barriers to Exercise, by Marital Status (N=201)*

<b>Barriers</b>	<b>Married Mean (N = 154)</b>	<b>Married sd</b>	<b>Separated Mean (N = 5)</b>	<b>Separated sd</b>	<b>Single Mean (N = 42)</b>	<b>Single sd</b>
Lack of Self-confidence	1.923	1.006	2.000	.884	2.191	1.073
Lack of Health Education	1.329	.525	1.600	1.011	1.452	.845
Lack of Motivation	2.124	.905	2.240	1.081	2.195	.910
Lack of Finances	2.146	1.289	2.133	.869	2.218	1.076
Lack of Facility	1.641	.812	1.900	.652	1.7361	.802
Lack of Time	2.867	1.065	2.600	.4351	2.516	.972
Lack of Employer Support	2.600	1.567	2.400	1.673	2.500	1.518
Lack of social Support	1.397	.707	1.500	.500	1.774	1.019
Lack of Social Involvement	1.827	.998	1.400	.894	2.167	1.351

employees who indicated time as a barrier to exercising was  $M = 2.600$ . The mean score for single higher education employees who indicated time a barrier to exercising was  $M = 2.516$ . The mean scores were very close for all marital statuses.

### ***Institutional Position***

Table 13 displays the data related to perceptions of barriers to exercise, categorized by institutional position.

Time constraints were considered in the literature to be deterrents to regular exercise. The mean score for administrators who indicated time as a barrier to exercising was  $M = 2.824$ . The mean score for faculty who indicated time as a barrier to exercising was  $M = 2.847$ ,. The mean score for exempt staff who indicated time a barrier to exercising was  $M = 2.768$ ,. The mean score for non-exempt staff who indicated time as a barrier to exercise was  $M = 2.720$ .

### ***Research Question 4: What motivated higher education employees to exercise?***

H<sub>4</sub> There were significant differences in mean scores on eight assessments of motivation, when categorized by five demographic categories associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

Before discussing the results of Research Question Three, the researcher iterates three descriptions related to the differences in motivation according to Markland, 2006: amotivation, intrinsic motivation, and extrinsic motivation.

Amotivated refers to the state of having no motivation, internally or externally, to engage in a behavior.

Table 13

*Barriers to Exercise, by Institutional Position (N=201)*

<b>Barriers</b>	<b>Administrator Mean (N = 17)</b>	<b>Administrator sd</b>	<b>Faculty Mean (N = 64)</b>	<b>Faculty sd</b>	<b>Exempt Staff Mean (N = 69)</b>	<b>Exempt Staff sd</b>	<b>Non-exempt Staff Mean (N = 51)</b>	<b>Non-exempt Staff sd</b>
Lack of Self- confidence	1.691	.721	1.816	1.045	1.996	1.048	2.265	.988
Lack of Health Education	1.314	.433	1.306	.639	1.296	.609	1.540	.646
Lack of Motivation	2.024	.655	1.941	.793	2.134	.992	2.444	.927
Lack of Finances	1.90	1.457	1.795	.902	2.164	1.363	2.690	1.139
Lack of Facility	1.427	.630	1.499	.571	1.591	.879	2.065	.873
Lack of Time	2.824	1.042	2.847	1.121	2.768	1.132	2.720	.812
Lack of Employer Support	2.647	1.455	2.082	1.358	2.696	1.556	2.980	1.684
Lack of social Support	1.647	1.042	1.426	.774	1.449	.782	1.530	.724
Lack of Social Involvement	1.616	.993	1.738	1.192	1.833	.991	2.240	1.056

Intrinsic motivation, a general term used to describe motivation through internal factors, is subdivided into positive intrinsic motivation and negative intrinsic motivation. Positive intrinsic motivation means to take part in an activity because of the enjoyment of that activity. The activity (a) may be engaged in to reach a personal goal (identified regulation), (b) may be selected in a willing manner (integrated regulation), or (c) may be engaged in because of positive internal pressures placed on oneself (introjected regulation). The negative forms of intrinsic motivation are identified regulation and introjected regulation when the internal pressures are negative.

General extrinsic motivation is a term used to describe motivation channeled through external factors. External regulation is a type of external motivation in which a person only engages in a behavior because someone, usually in authority, has said to do so. Extrinsic motivation (social) refers to motivation in which a person is motivated to engage in a behavior due to the social aspect of the activity.

With regard to exercise, motivation is categorized as intrinsic and extrinsic. Intrinsic motivation focuses on internal factors that encourage individuals to engage in exercise programs or activities. Some of these motivators may include increased energy, improved health, improved feelings toward self, increased competence, and decreased stress. Internal motivators produce long-term faithfulness to exercise programs, because internally motivated individuals look inward to determine the real meaning of exercise for themselves (DiNardio, 2005). External motivators are what we hear the most about when people try to begin an exercise program. These include getting in better shape, developing big muscles, losing weight, looking better, and being more appealing to the opposite gender. External motivators usually work to get people started on an exercise

program, but they are seldom what keeps them continuing with the program. For example, when results are not observed over the long term, such as with weight loss, people may get discouraged, determine that they do not want to keep working so hard for “nothing, ” and cease engaging in the behavior (DiNardo, 2005).

In order to answer Research Question Three, data were gathered through eight assessments of motivation. Data from the eight assessments were independently analyzed relative to five demographic categories associated with the respondents. Three demographic areas presented significant differences in means: gender, institutional position and age. The results of those analyses are presented, by demographic category. First a table of means and standard deviations is displayed; the results of either the parametric one-way ANOVA or the nonparametric Mann-Whitney U then are presented.

### ***Gender***

Table 14 presents the means and standard deviations for the categories of motivation by gender.

An initial observation of the descriptive data indicated differences in mean values for men and women. However, no significant differences were found for six of the eight measures of motivation. No differences were found for intrinsic motivation to exercise. No differences were found between men and women for measures of amotivation. Of the four measures of extrinsic motivation, two were found for differences between men and women. The two measures – external regulation and general extrinsic motivation – showed significant differences between the mean scores associated with male and female respondents.

Table 14

*Means and Standard Deviations for Motivation Factors, by Gender (N=199)*

<b>Motivation</b>	<b>Male Mean (N = 77)</b>	<b>Male sd</b>	<b>Female Mean (N = 122)</b>	<b>Female sd</b>
Intrinsic (+)	3.828	.836	3.647	1.036
Intrinsic (+)	3.606	.758	3.486	.813
Intrinsic (-)	2.827	.786	2.862	.840
Intrinsic (-)	2.071	.677	2.221	.765
Extrinsic (Social)	1.913	.886	2.005	.839
Extrinsic (External Regulation)	1.673	.774	1.450	.668
Extrinsic (General)	2.359	.772	2.883	.912
Amotivation	1.338	.716	1.373	.677
Amotivation	2.026	.820	1.913	.771

The mean scores for *external regulation* (a type of extrinsic motivation) for male and female higher education employees were respectively  $M = 1.673$  and  $M = 1.450$ . External regulation means having little or no internal motivation and only engaging in a behavior because someone, usually in authority, has said to do so. The non-parametric Mann-Whitney test found significant differences between males and females reliance on external regulation as motivation to exercise ( $U = 3879.00$ ,  $p = .031$ ).

A second question on the survey measured general extrinsic motivation. The mean values for men and women were, respectively,  $M = 2.359$  and  $M = 2.883$ . A one-way ANOVA was conducted on this question and found that female higher education employees were significantly more extrinsically motivated than were male employees,  $F(1, 197) = 17.445$ ,  $Mse = .741$ ,  $p = .000$ .

### ***Age***

An observation of the means indicated differences in mean values, however, significant differences, were found for only one measure of motivation: extrinsic motivation, when categorized by age categories. The result follows.

Significance was found in extrinsic motivation based on age using a one-way ANOVA,  $F(4,196)=2.765$ ,  $Mse=.702$ ,  $p=.029$ . Pairwise comparisons using HSD revealed a more specific difference between the age groups of 20-30 year olds and 61-70 year olds with  $HSD=.029$  with a mean difference of .93504.

### ***Faculty Position***

An observation of the means in Table 16 for faculty positions indicated differences in mean values, however, significant differences were found for only four measures of motivation: social extrinsic motivation, general extrinsic motivation, intrinsic motivation and amotivation, when categorized by institutional position. The results for each follow.

A one-way ANOVA indicated significant differences in mean scores within socially extrinsic motivation, when categorized by position held at the university,  $F(3,197)=4.285$ ,  $Mse=.693$ ,  $p=.006$ . More specifically, significance was found between faculty and non-exempt staff with a pairwise comparison using HSD,  $p=.003$  with a mean difference of .54790.

A one-way ANOVA indicated significant differences in mean scores within general extrinsic motivation, when categorized by position held at the institution,  $F(3,197)=3.573$ ,  $Mse=.779$ ,  $p=.015$ . Specifically, significance was found between

Table 15

*Motivation Means and Standard Deviations, by Age Categories (N=201)*

	<b>20-30 Mean (N=13)</b>	<b>20-30 sd</b>	<b>31-40 Mean (N=38)</b>	<b>31-40 sd</b>	<b>41-50 Mean (N=54)</b>	<b>41-50 sd</b>	<b>51-60 Mean (N=81)</b>	<b>51-60 sd</b>	<b>61-70 Mean (N=15)</b>	<b>61-70 sd</b>
Intrinsic (+)	3.748	.720	3.423	.930	3.743	1.013	3.762	1.067	3.802	.719
Intrinsic (+)	3.564	.502	3.474	.778	3.553	.778	3.488	.909	3.611	.666
Intrinsic (-)	2.815	.8012	2.941	.837	2.915	.854	2.811	.813	2.627	.785
Intrinsic (-)	2.269	.746	2.832	.871	2.023	.619	2.219	.754	1.833	.532
Extrinsic (social)	2.513	1.274	1.132	.836	1.864	.808	1.951	.818	1.578	.541
Extrinsic (External Regulation)	1.712	.706	1.520	.878	1.41	.585	1.668	.806	1.300	.316
Extrinsic	3.154	.949	2.807	.833	2.704	.884	2.523	.916	2.578	.886
Amotivation	1.641	.897	1.360	.868	1.225	.431	1.457	.804	1.378	.616
Amotivation	2.026	.687	2.044	.881	1.901	.771	1.996	.802	1.733	.620



Table 16

*Means and Standard Deviations for Motivation Factors, by Faculty Position (N=201)*

<b>Motivation</b>	<b>Admin. Mean (N=17)</b>	<b>Admin. sd</b>	<b>Faculty Mean (N = 64)</b>	<b>Faculty sd</b>	<b>Exempt Staff Mean (N = 69)</b>	<b>Exempt Staff sd</b>	<b>Non-exempt Staff Mean (N = 51)</b>	<b>Non-exempt Staff sd</b>
Intrinsic (+)	3.508	.920	3.986	.766	3.642	1.076	3.462	1.060
Intrinsic (+)	3.647	.860	3.721	.726	3.493	.806	3.248	.829
Intrinsic (-)	2.541	.771	2.852	.860	2.925	.816	2.848	.798
Intrinsic (-)	2.044	.802	2.051	.795	2.163	.678	2.378	.702
Extrinsic (social)	1.863	.898	1.714	.774	2.019	.874	2.261	.823
Extrinsic (External Regulation)	1.441	.670	1.500	.733	1.624	.829	1.536	.647
Extrinsic	2.490	.875	2.413	.858	2.821	.843	2.856	.964
Amotivation	1.314	.478	1.287	.749	1.396	.815	1.507	.654
Amotivation	1.882	.666	1.766	.622	2.077	.918	2.078	.788

exempt staff and faculty using a pairwise comparison with HSD,  $p = .037$  with a mean difference of .41501, and between faculty and non-exempt staff with a pairwise comparison using HSD,  $p = .036$  with a mean difference of .44996.

A one-way ANOVA indicated significant differences in mean scores within intrinsic motivation, when categorized by position held at the institution,  $F(3,197) = 3.550$ ,  $Mse = .627$ ,  $p = .015$ . Specifically, significance was found between faculty and non-exempt staff using a pairwise comparison, HSD,  $p = .009$  with a mean difference of .47299.

A Kruskal-Wallis test indicated significant differences in mean scores within amotivation, when categorized by position held at the institution,  $(X^2(3) = 9.213, p = .027)$ . This was followed with a series of Mann-Whitney U tests, using a corrected alpha of .008 (.05/6 possible comparisons). Significance was found between faculty and non-exempt staff,  $(U = 1188.00, p = .003)$ .

***Research Question 5: Did participation of higher education employees in recommended weekly exercise (RWE) vary within demographic categories?***

For this research, participants who exercised less than 150 minutes each week were judged as not receiving the appropriate amount of weekly exercise to receive health benefits. Participants who exercised over 151 minutes each week were judged as receiving the appropriate amount of exercise to surpass the threshold of health benefits. Although not included in analyses, participants who exercised between 211 and 300 minutes each week would be expected to be receiving substantial health benefits from exercise. Participants who exercised over 300 minutes each week would be expected to be receiving exceptional benefits of exercise. Since these numbers fall into the category

of physical fitness for sport performance, any respondents in this category were likely training for a specific sport.

Research Question Five was analyzed from five perspectives: gender, age, marital status, home responsibilities, and institutional positions. Both parametric and non-parametric tests were applied to the data. The hypothesis tested was:

H<sub>5</sub> There were significant differences in percentages of respondents getting recommended weekly exercise (RWE), when percentages were categorized by five demographics associated with the respondents: gender, age, marital status, family (home) responsibilities, and institutional position.

A series of Pearson Chi-Square analyses determined differences in percentages of reported recommended daily exercise, when distributed by five demographic variables. For the whole sample of employees (N = 199), 73.87% (N = 147) did not receive the RWE (RWE), while 26.13% (N = 52) did receive the RWE.

No significant differences were found for RWE between any categories, when percentages were categorized by gender by gender ( $X^2(1) = 2.613$ ,  $p = .106$ ), by age ( $X^2(4) = 7.236$ ,  $p = .124$ ), by marital status ( $X^2(2) = .770$ ,  $p = .680$ ), by family (home) responsibilities ( $X^2(2) = .304$ ,  $p = .859$ ), nor by institutional position, ( $X^2(3) = 5.088$ ,  $p = .165$ ). Therefore, the null hypothesis of no difference among percentages, when categorized by demographics, was accepted.

Nevertheless, notable differences were observed for RWE by demographic variables and are listed below.

- In regard to age, the highest percentage (89.5%) of employees who did not receive the RWE were between the ages of 31 and 40 years old, while the

highest percentage (35.2%) of employees who received the RWE were between the ages of 41 and 50 years old.

- In regard to marital status the highest percentage (80%) of employees who did not receive the RWE were separated, while the highest percentage (31%) of those who did receive the recommended level of weekly exercise were single.
- Employees with children living in the home accounted for the highest percentage (75.9%) of employees who did not receive the RWE, while employees who did not have children accounted for the highest percentage (28.6%) of employees who received the recommended levels of weekly exercise.
- Non-exempt staff accounted for the highest percentage (80.4%) of employees who did not receive the RWE, and faculty accounted for the highest percentage (35.9%) of employees who received the RWE.

The following five tables display the number and percentages of respondents who did and did not receive RWE. Each table displays the distribution by a specific demographic: gender, age, marital status, home responsibilities or institutional position.

Table 17

*Recommended amount of daily exercise (RWE), by gender*

Gender	N	Mean	Number Receive RWE	Percent Received RWE	Number Did Not Receive RWE	Percent Did Not Receive RWE
Male	77	.32	25	32.5	52	67.5
Female	122	.22	27	22.1	95	77.9
Totals	199		52	26.13	147	73.87

The total number of female employees at the institution who responded to the survey was (N = 122) and the total number who received the recommended weekly exercise (RWE) was (N = 27) or 22.1%. The total number of male employees at the institution who responded to the survey was (N = 77) and the total number who received the RWE was (N = 25) or 32.5%. The total number of female employees who did not receive the RWE was (N = 95) or 77.9%, and the total number of male employees who did not receive the RWE was (N = 52) or 67.5%.

### *Age*

The percent of employees who did not receive RWE ranged from 64.8% to 89.5% across five age categories; employees in the age range of 31-40 had was the largest percentage of members that did not receive RWE.

Table 18

#### *Recommended Amount of Weekly Exercise, by Age Category*

Age Categories	N	Mean	Number Receive RWE	Percent Received RWE	Number Did Not Receive RWE	Percent Did Not Receive RWE
20 - 30	13	.23	3	23.1	10	76.9
31-40	38	.11	4	10.5	34	89.5
41-50	54	.35	19	35.2	35	64.8
51-60	81	.27	22	27.2	59	72.8
61-70	15	.27	4	26.7	11	73.3
Totals	201	.27	52	25.9	149	74.1

### ***Marital Status***

The total number of employees whose responses could be accounted for was (N = 201). The total number of married employees at the institution who responded to the survey was (N = 154) and the total number who received the RWE was (N = 38) or 24.7%. The total number of separated employees at the institution who responded to the survey was (N = 5) and the total number who received the RWE was (N = 1) or 20%. The total number of single employees at the institution who responded to the survey was (N = 42) and the total number who received the RWE was (N = 13) or 31%.

Table 19

*Percentage of Respondents Receiving and Not Receiving RWE, by Marital Status*

Marital Status	N	Mean	Number Receive RWE	Percent Received RWE	Number Did Not Receive RWE	Percent Did Not Receive RWE
Married	154	.25	38	24.7	116	75.3
Separated	5	.20	1	20	4	80
Single	42	.31	13	31	29	69
Totals	201		52	75.7	149	

The total number of married employees who did not receive the RWE was (N = 116) or 75.3%, and the total number of separated employees who did not receive the RWE was (N = 4) or 80%. The total number of single employees who did not receive the RWE was (N = 29) or 69%. According to the percentages, though they were close, single employees exercised more than married employees, therefore.

### ***Home Responsibilities***

The total number of employees categorized by home responsibilities whose responses could be accounted for was (N = 201). The total number of employees with children in the home who responded to the survey was (N = 83) and the total number who received the RWE was (N = 20) or 24.1%. The total number of employees with children not in the home who responded to the survey was (N = 76) and the total number who received the RWE was (N = 20) or 26.3%. The total number of employees who do not have children who responded to the survey was (N = 42) and the total number who received the RWE was (N = 12) or 28.6%.

Table 20

#### *Percentage of Respondents Receiving and Not Receiving RWE, by Home Responsibilities*

<b>Home Responsibilities</b>	<b>N</b>	<b>Mean</b>	<b>Number Receive RWE</b>	<b>Percent Received RWE</b>	<b>Number Did Not Receive RWE</b>	<b>Percent Did Not Receive RWE</b>
Children in home	83	.24	20	24.1	63	75.9
Children not in home	76	.26	20	26.3	56	73.7
Do not have children	42	.29	12	28.6	30	71.4
Totals	201		52		149	

The total number of employees with children in the home who did not receive the RWE was (N = 63) or 75.9%, and the total number of employees with children not in the home who did not receive the RWE was (N = 56) or 73.7%. The total number of employees who do not have children who did not receive the RWE was (N = 30) or

71.4%. According to the percentages, though they were close, employees with children in the home exercised less than employees with no children in the home.

### ***Institutional Position***

The total number of employees whose responses could be accounted for was (N = 201). The total number of administrators who responded to the survey was (N = 17) and the total number who received the RWE was (N = 4) or 23.5%. The total number of faculty who responded to the survey was (N = 64) and the total number who received the RWE was (N = 23) or 35.9%. The total number of exempt staff who responded to the survey was (N = 69) and the total number who received the RWE was (N = 15) or 21.7%. The total number of non-exempt staff who responded to the survey was (N = 51) and the total number who received the RWE was (N = 10) or 19.6%.

Table 21

*Percentage of Respondents Receiving and Not Receiving RWE, by Institutional Position*

Institutional Position	N	Mean	Number Receive RWE	Percent Received RWE	Number Did Not Receive RWE	Percent Did Not Receive RWE
Administrator	17	.24	4	23.5	13	76.5
Faculty	64	.36	23	35.9	41	64.1
Exempt Staff	69	.22	15	21.7	54	78.3
Non-Exempt	51	.20	10	19.6	41	80.4
Total	201		52		149	

The total number of administrators who did not receive the RWE was (N = 13) or 76.5%, and the total number of faculty who did not receive the RWE was (N = 41) or



64.1%. The total number of exempt staff who did not receive the RWE was (N = 54) or 78.3%, and the total number of non-exempt staff who did not receive the RWE was (N = 41) or 80.4%.

***RQ 6 What differences exist between motivational orientations and receiving the recommended weekly exercise (RWE)?***

H<sub>6</sub> Employees who received RWE scored higher on intrinsic motivation than on extrinsic motivation.

Significance was found with intrinsic motivation. Section one of the survey measured intrinsic motivation (positive), which is valuing the benefits of exercise and desiring a healthy well-being. This was measured using a non-parametric Mann-Whitney test and found to be significant, that is, intrinsically motivated employees differed significantly from extrinsically motivated employees with regard to receiving RWE, (U = 2241.000, p = .000) (N = 203) when measured on this variable, thus the null hypothesis of no difference was rejected.

Section two of the survey also measured intrinsic motivation (positive) using a parametric one-way ANOVA and was found to be significant, F(1, 201)= 22.547, Mse=.583, p = .000 (N = 203). Section two of the survey tested intrinsic motivation (negative) as well, also called introjected regulation, which is being motivated by internal pressure to look good and reach goals. This was tested using a parametric one-way ANOVA and found to be significant, F(1, 201)=5.523, Mse=.657, p = .020. (N = 203) The null hypothesis was rejected.

H<sub>7</sub> Employees who did not receive RWE scored higher on amotivation than on intrinsic or extrinsic motivation.

Amotivation was found to be significant using a non-parametric Mann-Whitney test, (3087.500,  $p = .002$ ) ( $N = 203$ ). That is, employees who did not receive RWE indicated a tendency to be amotivated. The null hypothesis was rejected.

***RQ7 How did higher education employees accommodate exercise sites and exercise times?***

Sub question 1: Where do higher education employees exercise?

Table 22

*Percent of Higher Education Employees Use of Exercise Sites*

Where Employees Exercise	N that use	% that use
At home	123	60.6
University Facility	36	17.7
University Facility & Fitness Club	1	.5
University Facility & at home	1	.5
Fitness club in community	20	9.9
Do Not Exercise	20	9.9
Total	201	99.1

The number of employee who indicated they do not exercise at all was ( $N = 20$ ) or 9.9%. Of those who did exercise, the total number of employees whose responses could be accounted for was  $N = 181$ . The number of employees who indicated they exercise at home was ( $N = 123$ ) or 60.6%. Thirty-six (17.7%) respondents indicated they

used only the university exercise facilities. Twenty (9.9%) used only a community fitness club. Two respondents indicated (1%) indicated use of multiple sites: one used both the university facilities and a fitness club; a second respondent used university facilities and a home site.. Because respondents provided more than one answer for this survey question, the results had to be expanded to account for all those who responded. Therefore a total of 30 (18.7%) employees indicated they used the university exercise facility at some point, and the total of 163 (80.4%) reported not using university exercise facilities at all.

Sub question 2: To what degree did higher education employees exercise outside work hours?

Table 23

*Exercising Outside of Work Hours*

Exercise Outside of Work Hours	N	%
Yes	170	83.7
No	15	7.4
Do Not Exercise	17	8.4
Total	202	99.5

The total number of employees whose responses could be accounted for was (N = 202). The number of employees who indicated they exercise outside of work hours was (N = 170) or 83.7%. The number of employees who indicated they do not exercise outside of work hours was (N = 15) or 7.4%, and the number of employees who indicated they do not exercise at all was (N = 17) or 8.4%.

Sub-question 3: To what degree did higher education employees exercise at work during breaks?

Table 24

*Exercise During Work Breaks*

Exercise During Breaks at Work	N	%
Yes	32	15.8
No	152	74.9
Do Not Exercise	18	8.9
Total	202	99.6

The total number of employees whose responses could be accounted for was (N = 202).

The number of employees who indicated they exercise at work during breaks was (N = 32) or 15.8%. The number of employees who indicated they do not exercise at work during breaks was (N = 152) or 74.9%, and the number of employees who indicated they do not exercise was (N = 18) or 8.9%.

Sub-question 4: Might you exercise if the institution provided time to do so?

The data in Table 25 provide the range of responses of all employees to the question.

One hundred thirty seven (66.5%) of the 202 respondents indicated they would exercise more if the institution provided time to do so. Twenty employees (9.9%) were undecided, and 42 ((20.7%) were unlikely to exercise even if the institution provided time to do so. One employee did not respond to this question.

Table 25

*Likelihood of Increased Exercise if Institution Provided Time*

Would exercise more if the institution provided the time to do so	Freq.	%	Valid %
Very Likely	77	37.9	38.7
Likely	60	29.6	30.2
Undecided	20	9.9	10.1
Unlikely	20	9.9	10.1
Very Unlikely	22	10.8	11.1
Sub total	199		100.0
Missing Data	4	2.0	
Total	203	100.1	

Sub-question 5: Might you exercise if an exercise program was implemented by the institution?

The data displayed in Table 26 provides the range of responses of employees to sub-question 5.

The number of higher education employees who indicated than an institution sponsored program would enhance their exercise N = 117 out of N = 202 for a percentage of 57.9%. The number of higher education employees who felt the institution did not need to implement an exercise program was N = 45 out of N = 202 for a percentage of 22.3%. The number of higher education employees who had no opinion was N = 40 out of N = 202 for a percentage of 19.7%. The mean score overall was M = 1.62, sd=.797.

Table 26

*Likelihood of Exercise if Institution Implemented Exercise Program*

Institution should implement an exercise program	Freq.	%	Valid %
Yes	117	57.6	57.9
No	45	22.2	22.3
No Option	40	19.7	19.8
Sub total	202	99.5	100.0
Missing Data	1	.5	
Total	203	100.0	

**Significance of Research**

According to Hoeger and Hoeger, (2004) physical inactivity is more common in older adults than younger adults, less affluent people than more affluent people, and more educated people than less education people. In addition, they found women to be less active than men. They also found the leading causes of death in the United States are lifestyle related, and obesity is the main impetus behind those causes of death. Obesity results from leading a sedentary, or inactive, lifestyle. Also according to Hoeger and Hoeger, (2004) Dr. Satcher, former U.S. Surgeon General, reported that individuals control as much as 84 percent of the decisions related to disease and quality of life.

Behavior modification seems to be the best way to improve health in the United States. This can begin on one university campus. However, it is important to determine what generally motivates people to do what they do each day. Hopefully exercise can become a part of their lifestyles. The researcher chose one aspect of a healthy lifestyle,

physical activity, and more specifically exercise, as the focus of this research study, because exercise requires a concerted effort by each person to plan and structure time for it during each day or week.

## **CHAPTER 5**

### **CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS**

The purpose of this study was threefold: (a) to determine exercise behaviors of higher education employees at a small Midwestern university, (b) to determine the barriers to exercise that higher education employees encounter, and (c) to determine that which motivates higher education employees to exercise. This chapter presents conclusions, implications and recommendations for action and for future research.

#### **Conclusions**

The total number of surveys sent out were 510, and 203 were returned for a return rate of 39.8%. The survey was divided into five sections. Section I of the survey consisted of 63 questions that, using a five-point Likert scale, measured how likely or unlikely the employees were to engage in physical activities, sport and exercise based on statements provided in the survey. Section II consisted of 21 questions that, using a five-point Likert scale, measured how likely or unlikely the employees were to take a certain action based on each situation provided in the survey. Section III of the survey consisted of 30 questions that were measured, using a five-point Likert scale, how likely or unlikely the barriers/constraints listed in the survey were barriers/constraints to exercise for the employees. Section IV of the survey consisted of 10 questions that were measured, using a five-point Likert scale, to determine how likely or unlikely the employees were to participate in a particular form of exercise. Section V of the survey consisted of 13 demographic questions.

The results were consistent with previous research. The data revealed that nearly 74% of the employees who responded did not receive the recommended weekly exercise



(RWE). Nearly 80% of the 122 females who responded did not receive RWE, and nearly 70% of the 77 males who responded did not receive RWE. Only 35% or less of employees in every age category did not receive RWE; the highest percentage of those who did not receive the RWE was 31-40 year olds at 90%.

After reviewing all marital status categories, 70-80% of employees did not receive RWE. After reviewing all home responsibilities categories, 71-76% did not receive RWE. The percentage of non-exempt staff that did not receive RWE was 80%, which was the highest percentage for any position at institution category. Faculty had the lowest percentage of employees who did not receive the RWE at 64%.

The lowest percentage of employees by marital status who received RWE was separated employees at only 20%. The highest percentage of employees by age category who did receive the RWE was 41-50 year olds at 35%. The highest percentage of employees by marital status who received RWE was single employees at 31%. All home responsibilities categories scored relatively closely with between 24% and 29% receiving the RWE. The percentage of non-exempt staff that did receive RWE was just under 20%, which was the lowest percentage for any position at institution category. Faculty had the highest percentage of employees who did receive the RWE at 36%.

Nearly 58% of employees indicated they would exercise more if the institution provided the time to do so, while 22% said they would not and about 20% had no opinion. Most employees exercised at home (60%), nearly 19% of employees indicated they exercised in the university fitness facility, and nearly 10% of employees exercised in a fitness club in the community. Over 80% of employees indicated that when they exercised, it was outside of work hours. Only 16% of employees indicated they exercised

at work during breaks, and 10% of the employees did not exercise. Nearly 60% of employees believed the institution should implement an exercise program, while just over 20% of employees did not believe the institution should implement an exercise program.

The highest percentage (57%) of employees engaged in cardiovascular exercise. Females engaged in cardiovascular exercise at a slightly higher percentage than males (60% to 53%), while males engaged in strength training exercise at a slightly higher percentage than females (21% to 15%). Cardiovascular exercise was the exercise of choice for all age categories except for the ages of 61-70, and those employees chose “other” exercise (60%) as their exercise of choice. Cardiovascular exercise was the exercise of choice for all marital status, home responsibilities, and position at institution categories.

The reasons employees gave for exercising the most were appearance and weight management in all categories, gender, age, marital status, home responsibilities and position at institution. Overall the second reason to exercise was to receive the mental/emotional benefits of exercise. The third reason to exercise was due to health pressures. Socialization and challenge/competition were the lowest ranking reasons to exercise among higher education employees.

The exercise preferred by most of the employees was walking with a male ( $M = 4.02$ ) and a female ( $M = 4.59$ ). Playing a specific sport and weight lifting as types of exercise scored pretty high for 20-30 year olds ( $M = 4.55$ ). Married employees ( $M = 4.4$ ) walked more than the single ( $M = 4.21$ ) and separated employees ( $M = 4.25$ ). Walking ranked high across all types of families; children in home ( $M = 4.26$ ), children not in home ( $M = 4.46$ ) and no children ( $M = 4.38$ ), but playing a specific sport ( $M = 3.66$ ) and

weightlifting ( $M = 3.53$ ) also ranked high for employees with no children. Walking ranked high for all types of employees based on position at the institution also; administrator ( $M = 4.42$ ), faculty ( $M = 4.27$ ), exempt staff ( $M = 4.36$ ) and non-exempt staff ( $M = 4.47$ ).

The mean scores were for intrinsic motivation for both males and females were high. Male means for the four questions asked on the survey were ( $M = 3.8279$ ), ( $M = 3.6061$ ), ( $M = 2.8273$ ), ( $M = 2.0714$ ). Female means for the four questions asked on the survey were ( $M = 3.6471$ ), ( $M = 3.4863$ ), ( $M = 2.8616$ ), and ( $M = 2.2213$ ).

Female mean scores for extrinsic motivation were slightly higher than the mean scores for men. Male means for the three questions asked on the survey were ( $M = 1.9134$ ), ( $M = 1.6732$ ) and ( $M = 2.3593$ ). Female means for the three questions asked on the survey were ( $M = 2.0055$ ), ( $M = 1.4495$ ) and ( $M = 2.8825$ ).

With a mean score of 3.0 or higher, all age, marital status, home responsibilities and position at institution categories were intrinsically motivated in a beneficial way. With a mean score of 3.0 or higher, 20-30 year olds reported being extrinsically motivated. Non-exempt staff reported slightly higher scores in extrinsic motivation than other employees.

The data regarding barriers to exercise were consistent with previous research. Lack of time ( $M = 2.85$ ) and lack of employer support ( $M = 2.8167$ ) ranked the highest in regard to barriers to exercising for female employees. Lack of time ( $M = 2.7333$ ) and lack of employer support ( $M = 2.1067$ ) ranked the highest in regard to barriers to exercising for male employees also, though the mean scores were not as high as the female scores. As expected, the overall female scores for barriers to exercising were

higher than the male scores in all categories. Lack of time and lack of employer support also ranked the highest in all most age categories. Lack of time for 31-40 year olds scored the highest of any barrier in any age category with a mean score of ( $M = 3.0877$ ). Lack of time ( $M = 2.8667$ ) for married employees scored the highest of any barrier in any marital status category. The lack of time mean scores for separated employees was ( $M = 2.6000$ ) and the mean score for single employees was ( $M = 2.5159$ ). Lack of time for employees with children in the home ( $M = 3.1179$ ) scored the highest of any barrier in any home responsibilities category. The lack of time mean scores for employees with children but not in the home was ( $M = 2.6027$ ) and the mean score for employees with no children was ( $M = 2.4524$ ). Lack of employer support for non-exempt staff ( $M = 2.98$ ) scored the highest of any barrier in any position at the institution category.

### **Implications**

One component of a healthy lifestyle is the physical aspect; another component is nutrition. This research study was undertaken due to the concern for the well-being of the individuals at the Midwestern university. The benefits to the university included the determination of whether higher education employees were living physically active lifestyles, which exercise activities employees preferred to participate, the reasons employees participated in exercise, what motivated employees to exercise, what barriers the employees faced, and what the institution could possibly do to encourage the employees to exercise.

The benefits of physical activity include not only physical wellness, such as reduced cholesterol levels, lower blood pressure, decreased resting heart rate, increased muscle mass, and increased muscular endurance, but there are also psychological and

emotional benefits as well. Physical activity leads to decreased stress and depression, and improved mental attitude. Another benefit from these results was determining which activities employees preferred to participate. A third benefit from this study was to determine employees' reasons to participate in exercise.

The results of this research provided the institution with a description of their employees' exercise habits, preferences, reasons to exercise and barriers to exercise, as well as motivation. The research provided the institution with an account of exercise facility usage and in what ways the wellness program can be improved. The results also provided the institution information on how to develop a more comprehensive wellness and exercise program directed specifically at their employees, as well as a focus in regard to marketing the program to their employees.

For instance, the institution could begin by encouraging employees to exercise anywhere at any time of the day, and the institution would establish a point system for exercise activities, as well as a reward system. Points would be allotted to each exercise based on the aerobic capacity and the amount of time spent in that activity. The reward, coupons that can be spent only in the community, would be based on the points earned. Employees would be encouraged to log the exercise and the number of hours exercised. They would then determine the number of points earned. At the end of the month the points would be submitted and the institution would give the "communitybucks," to the employees and recognize the participants by listing each one and the points earned on the institution's website.

Another suggestion is to offer a challenge once or twice a year that requires employees to form teams. These challenges could be built around a theme, and the institution could offer small incentives based on the theme.

Another suggestion is for the institution to establish exercise groups, such as walking, jogging, biking, aerobics and tennis. These groups could set a time and place to meet each day of the week.

The institution could establish a walking program for the entire campus. They would establish a destination and figure how many steps it would take to get there. Then they would provide each employee with a pedometer, and the employees would record the number of steps they took. This could be an individual effort or a campus-wide effort to reach the destination. Once the destination is reached, the institution could celebrate with a special party.

Nearly 75% of the employees did not receive the RWE, therefore, the institution's first concern is to figure out how to get employees to begin exercising. The institution could establish a variety of activity programs and groups, based on exercise interest, such as a walking group, a cycling group, and a basketball group. These groups could meet two to three times each week to participate in the activity they enjoy and receive the physical, emotional, psychological and even social benefits from it. This would make better use the campus facilities, and even improve relations on the university campus and promote interdisciplinary projects. To increase involvement in programs, the institution needs to improve the motivation of their employees. This can be accomplished through the use of incentives, although to maintain healthy exercise habits, the motivation needs

to be moved from external motivation to internal motivation. This results in a need for personal trainers who can educate and encourage employees.

Another benefit derived from this research project was identification of constraints that keep employees from participating in physical activities. If work is an issue, the results so indicate. This research results could also provide information on how employees are motivated, which could lead to the initiation of incentives to encourage exercise among employees.

The impact of this research is quite broad. Institutional policy may change, and administration may support this healthy lifestyle effort by implementing a comprehensive wellness program. As a result, not only may exercise opportunities increase, but employees may be led to improve in the other areas of health and wellness, such as nutrition, cessation of smoking, and drinking that may influence the administration to place more “healthy food” vending machines on campus. This can ultimately save lives.

An indirect impact of this research may be an improvement in lifestyles of students and their families (current or future). Faculty members are in contact with students on a daily basis, and when the students see and hear about the benefits their professors are receiving from healthy lifestyles, they will want the same. Another indirect impact from this research is that employees’ friends and families see the improved lifestyles of the employees, which will lead to improved health all over the university’s internal community, therefore, lower costs to the institution in healthcare and insurance. It will also lead to improved health throughout the university’s external community.

All of the impacts previously discussed may assist the university as a whole. Employees will be healthier which leads to increased productivity, decreased

absenteeism, improved morale, and reduced stress. This in turn will be financially beneficial for the institution. Healthier employees will lead to reduced costs of insurance, absenteeism, and doctor and hospital visits.

### **Recommendations**

Even though we have more availability and education on health and wellness, our population is still gaining weight; obesity needs to be addressed. According to Jeffery & Utter (2003), the solution will require environmental efforts, as well as efforts on the part of our entire society. Steps need to be developed to find a solution, and it is important that everyone works together. Educators, government, private and public businesses all need to be involved. These steps need to be researched, developed and implemented in a way that every sector of society will have the ability to be involved in and supportive of the results. The steps also need to be able to be incorporated into every sector of society.

Further research, both experimental and observational, needs to be undertaken on this topic, and the following are suggestions for areas to be studied.

- find better ways to measure environmental factors that influence nutrition and exercise, and then conceptualize those factors in relation to health behavior
- find more accurate ways to survey nutrition and exercise behaviors along with the environmental changes
- more specifically study environment and behavior and how they interact with weight
- study factors that may be leading to the obesity epidemic in the United States such as,
  - economics



- consumerism
  - social attitudes toward,
    - exercise and wellness
    - health education
    - personal gratification
- study the levels of self-esteem and self-actualization in the United States' population
- study the levels of desire for, commitment to, and discipline to achieve a healthy lifestyle
- conduct more pre-test and post-test studies on exercise programs at higher education institutions to include,
  - assessing overall health of the individual
  - job satisfaction
  - use of incentives
  - use of personal trainers
  - stage of readiness to exercise
  - motivation
  - exercise diversity
  - long-term exercise adherence
  - the return on investment for the institution
- conduct studies to compare groups using diet, exercise, and both, diet and exercise.
- assess the relevance of setting goals and the adherence to an exercise program

- ascertain why some people prefer certain activities over other activities and therefore maintain the activity
- study the relevance of peer motivation
- conduct studies to determine how exercising can become more of a priority in lives so as to overcome the barriers to exercise

This survey can be altered to be used in particular situations, such as,

- other organizations and higher education institutions to gather information on their employees
- other higher education institutions to gather information on the student population, in which student affairs and student health services could get involved
- other educational institutions, such as elementary schools and high schools to gather information on their students and employees

An improvement on this study would be the use of a more comprehensive questionnaire to include more specific demographics such as,

- height
- weight
- smoking habits
- drinking habits
- job satisfaction
- food consumption habits
- recent medical issues
- current use of free time

- current exercise behaviors
  - how much they currently exercise
  - how long exercise has been part of their lifestyle
- current health conditions
  - obesity
  - heart disease
  - high blood pressure
  - diabetes
- Other useful information to include on the survey is the institution's current use/availability of,
  - personal trainers
  - social exercise groups
  - incentives as a motivation to exercise

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## **Appendix A**

### **Health Benefits of a Comprehensive Wellness Program**

## **Health Benefits of a Comprehensive Wellness Program**

- **Physical Health Benefits**
  - **Cardiovascular**
    - Improves and strengthens the cardiorespiratory system
    - Increases resting metabolic rate
    - Improves functioning of the immune system
    - Improves heart function (cardiovascular)
    - Improves lung function (respiratory)
    - Reduces overall heart disease risk
    - Reduces risk for several types of cancers
    - Thins the blood so it doesn't clot as readily (thereby decreasing the risk for coronary heart disease and strokes)
    - Helps the body manage cholesterol levels more effectively
      - Reduces "bad" cholesterol levels
      - Raises "good" cholesterol levels
    - Prevents or delays the development of high blood pressure
    - Reduces blood pressure
    - Helps prevent and control diabetes
    - Reduces blood glucose levels
    - Improves insulin's ability to lower blood glucose levels
    - Lowers the risk for chronic diseases and illness
    - Decreases the mortality rate from chronic diseases
  - **Musculoskeletal**
    - Maintains better muscle tone, muscular strength and endurance
    - Improves muscular flexibility
    - Helps preserve lean body tissue
    - Improves posture
    - Helps achieve peak bone mass in young adults and maintain bone mass later in life, thereby decreasing the risk for osteoporosis
    - Helps prevent chronic back pain
  - **General**
    - Helps maintain recommended body weight
    - Enhances athletic performance
    - Improves the body's ability to use fat during physical activity
    - Improves physical appearance
    - Reduces abdominal fat, which is considered the most dangerous to health
    - Extends longevity and slows down the aging process
    - Speeds recovery time following physical exertion
    - Speeds recovery following injury or disease
    - Regulates and improves overall body functions
    - Improves physical stamina and counteracts chronic fatigue
- **Mental/Emotional Health Benefits**
  - Relieves tension and helps cope with life stresses
  - Reduces feelings of depression and anxiety
  - Promotes psychological well-being through better morale, self-image, and self-esteem
  - Improves mood
  - Raises levels of energy and job productivity
  - Improves sleep
  - Motivates toward positive lifestyle changes (improving nutrition, quitting smoking, controlling alcohol and drug use)
  - Enhances quality of life (feel better and live a healthier and happier life)
  - Helps to maintain independent living, especially in older adults

## **Appendix B**

### **Organizational Benefits of a Comprehensive Wellness Program**



## **Organizational Benefits of a Comprehensive Wellness Program**

Healthier employees result in:

- **Healthier Employees**
  - Decreased injuries
  - Decreased illnesses
  - Minimized hospital stays
  - Decreased absenteeism
  - Improved physical stamina
  - Increased energy levels
  - Improved quality of life for employees
  - Slower aging process for employees
  - Extends longevity of employees
- **Promotes psychological well-being**
  - Improved employee morale and outlook
  - Improved employee self-image
  - Improved self-esteem
  - Reduced feelings of depression
  - Reduced anxiety
  - Decreased stress and tension among employees
- **Improved work culture**
  - Improved employee motivation
  - Improved employee retention rates
  - Maintain empowered and motivated employees
  - Increased resourcefulness
  - Increased creativity
  - Increased loyalty of employees
  - Improved safety
- **Healthier organization**
  - Improved employee recruitment
  - Improved performance, morale and outlook
  - Transformation of employees, business and bottom line
  - Increased productivity
  - Reduced inefficiency
- **Improved financial situation**
  - Decreased health care and pharmaceutical claims and costs
  - Decreased health insurance claims and costs
  - Decreased long-term disability costs
  - Protected investment
  - Increased profit margin
  - Decreased medical costs
  - Decreased worker's compensation claims and costs
  - Decreased sick pay
  - Decreased short-term disability pay

## **Appendix C**

### **IRB Approval**



HUMAN RESEARCH PROTECTIONS  
Institutional Review Board

May 3, 2007

Ms. Michele Linder  
Dr. Barbara LaCost  
Ed Admin  
2506 Limestone Terr  
St. Joseph Missouri 64505

IRB# 2007-05-330 EX

TITLE OF PROJECT: **Analysis of Employee Exercise Behaviors at a Higher Education Institution.**

Dear Michele:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. This project has been approved by the Unit Review Committee from your college and sent to the IRB. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study. Your proposal seems to be in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as exempt.

Date of EX Review: 04/30/07

You are authorized to implement this study as of the Date of Final Approval: 05/01/07. This approval is Valid Until: 04/30/08.

1. You have received the IRB approved informed consent cover letters for this project. Please use these letters when making copies to distribute to your participants. If it is necessary to create new informed consent letters, please send us your original so that we may approve and stamp it before it is distributed to participants.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

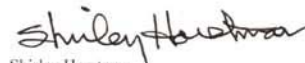
- Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board. For projects which continue beyond one year from the starting date, the IRB will request continuing review and update of the research project. Your study will be due for continuing review as indicated above. The investigator must also advise the Board when this study is finished or discontinued by completing the enclosed Protocol Final Report form and returning it to the Institutional Review Board.

If you have any questions, please contact Shirley Horstman, IRB Administrator, at 472-9417 or email at [shorstman1@unl.edu](mailto:shorstman1@unl.edu).

Sincerely,

  
Dan R. Hoyt, Chair  
for the IRB

  
Shirley Horstman  
IRB Administrator



**Missouri Western State University**  
 4525 Downs Drive • St. Joseph MO 64507  
[www.missouriwestern.edu](http://www.missouriwestern.edu)

***The Western Advantage***

Department of Health, Physical Education and Recreation  
 Looney Complex 214  
 (816) 271-4491  
 Fax (816) 271-5940

February 11, 2006

Dear MICHELE LINDER,

Your proposal to the CUHSR entitled ANALYSIS OF EMPLOYEE EXERCISE BEHAVIORS AT A HIGHER EDUCATION INSTITUTION has been granted expedited approval. You are now authorized to begin data collection.


When you are finished with the project, return to the CUHSR web site and submit a final status report. If your data collection takes longer than the 30 days that were approved, you will be required to file an extension.

Your proposal has been assigned proposal id 299. Please record this number.

PLEASE PRINT THIS EMAIL, SIGN IT, HAVE YOUR DEPARTMENT CHAIR SIGN IT, AND FORWARD IT TO THE CHAIR OF THE CUHSR

  
 Principle Investigator

  
 Department Chair or Designee

  
 Chair of the MWSC CUHSR

## **Appendix D**

### **Exercise Behaviors of Higher Education Employees**

## Exercise Behaviors of Higher Education Employees

### Section I

The researcher is interested in the reasons underlying peoples' decisions to engage in, or not engage in, physical activities, sports and exercise. Using the scale below, please indicate how likely it is that you currently engage in, or would engage in, physical activities, sports and exercise for each of the following reasons.

Please note that there are no right or wrong answers and no trick questions. The researcher simply wants to know how you personally feel about exercise. Please remember that your responses will be held in confidence. CIRCLE ONLY ONE NUMBER THAT INDICATES YOUR RESPONSE.

	Engaging in physical activities, sports and exercise	1 Very unlikely	2	3 Likely	4	5 Very likely
1	I exercise because I want to maintain my physical health and well-being.	1	2	3	4	5
2	I exercise to improve my endurance, stamina.	1	2	3	4	5
3	I exercise to improve my muscle tone.	1	2	3	4	5
4	I exercise to improve my overall health.	1	2	3	4	5
5	I exercise to help recover from an illness/injury.	1	2	3	4	5
6	I exercise to prevent health problems.	1	2	3	4	5
7	I engage in physical activities/sports because I like activities which are physically challenging.	1	2	3	4	5
8	I engage in physical activities/sports because I want to get better at my activity.	1	2	3	4	5
9	I engage in physical activities/sports because I enjoy physical competition.	1	2	3	4	5
10	I exercise to stay/become more agile.	1	2	3	4	5
11	I exercise to be slim.	1	2	3	4	5
12	I exercise because I want to improve my body shape.	1	2	3	4	5
13	I exercise to give me space to think.	1	2	3	4	5
14	I exercise to gain recognition for my accomplishments.	1	2	3	4	5
15	I exercise to spend time with friends.	1	2	3	4	5
16	I get pleasure and satisfaction from participating in exercise.	1	2	3	4	5
17	I get restless if I don't exercise regularly.	1	2	3	4	5
18	I feel like a failure when I haven't exercised in a while.	1	2	3	4	5
19	I feel under pressure from my friends/family to exercise.	1	2	3	4	5
20	I think exercising is a waste of time.	1	2	3	4	5
21	I exercise because I want to be physically fit.	1	2	3	4	5
22	I exercise because I want to improve my cardiovascular fitness.	1	2	3	4	5
23	I exercise because I want to maintain my physical strength to live a healthy life.	1	2	3	4	5
24	I exercise because I want to maintain good health.	1	2	3	4	5
25	I exercise to help prevent an illness that runs in my family.	1	2	3	4	5
26	I exercise to avoid heart disease.	1	2	3	4	5
27	I exercise to measure myself against personal standards.	1	2	3	4	5
28	I engage in physical activities/sports because I want to keep up my current skill level.	1	2	3	4	5
29	I engage in physical activities/sports because I enjoy competing.	1	2	3	4	5
30	I exercise to maintain flexibility.	1	2	3	4	5
31	I exercise to help control my weight.	1	2	3	4	5

	Engaging in physical activities, sports and exercise	1 Very unlikely	2	3 Likely	4	5 Very likely
32	I exercise to help me look younger.	1	2	3	4	5
33	I exercise to increase my energy levels.	1	2	3	4	5
34	I exercise to compare my abilities with other peoples.	1	2	3	4	5
35	I exercise because I like to be with others who are interested in this activity.	1	2	3	4	5
36	I enjoy my exercise sessions.	1	2	3	4	5
37	It's important to me to exercise regularly.	1	2	3	4	5
38	I feel ashamed when I miss an exercise session.	1	2	3	4	5
39	I exercise because others will not be pleased with me if I don't.	1	2	3	4	5
40	I don't see the point in exercising.	1	2	3	4	5
41	I exercise to get stronger.	1	2	3	4	5
42	I exercise to have a healthy body.	1	2	3	4	5
43	I exercise because my doctor advised me to exercise.	1	2	3	4	5
44	I exercise to increase my resistance to illness and disease.	1	2	3	4	5
45	I exercise to give me personal challenges to face.	1	2	3	4	5
46	I engage in physical activities/sports because I want to improve existing skills.	1	2	3	4	5
47	I engage in physical activities/sports because I like trying to win.	1	2	3	4	5
48	I exercise to improve my flexibility, coordination.	1	2	3	4	5
49	I exercise to lose weight.	1	2	3	4	5
50	I exercise because I will feel physically unattractive if I don't.	1	2	3	4	5
51	I exercise to improve my mood.	1	2	3	4	5
52	I exercise to show my worth to others.	1	2	3	4	5
53	I exercise to meet new people.	1	2	3	4	5
54	I exercise because it's fun.	1	2	3	4	5
55	I value the benefits of exercise.	1	2	3	4	5
56	I feel guilty when I don't exercise.	1	2	3	4	5
57	I exercise because other people say I should.	1	2	3	4	5
58	I don't see why I should have to exercise.	1	2	3	4	5
59	I exercise to give me goals to work towards.	1	2	3	4	5
60	I exercise because I want to obtain new skills.	1	2	3	4	5
61	I exercise because exercise helps me to burn calories.	1	2	3	4	5
62	I exercise to improve my appearance.	1	2	3	4	5
63	I exercise to cope with stress, anxiety.	1	2	3	4	5



## Section II

Below are a series of situations that people can find themselves in with regard to exercising. EACH SITUATION is followed by three responses that represent different ways in which people could react. Please imagine yourself in each situation and circle a number on the scale next to EACH response to indicate the extent to which EACH response would be characteristic of you in that situation. There are no right or wrong answers and no trick questions. The researcher simply wants to know the extent to which you think you would react in these different ways to each situation. CIRCLE ONLY ONE NUMBER THAT INDICATES YOUR RESPONSE.

	Situation	1 Very unlikely	2	3 Likely	4	5 Very likely
	<b>You are beginning a new exercise program. How likely is it that you would:</b>					
1	Attend a structured exercise class where an exercise leader is telling you what to do	1	2	3	4	5
2	Decide for yourself which type of exercise you would like to complete	1	2	3	4	5
3	Tag along with your friends and do what they do	1	2	3	4	5
	<b>You are asked to keep a record of all the weekly exercise you have completed in an exercise diary. How likely is it that you would view the diary:</b>					
4	As a reminder of how incapable you are at fulfilling the task	1	2	3	4	5
5	As a way to measure your progress and to feel proud of your achievements	1	2	3	4	5
6	As a way of pressuring yourself to exercise	1	2	3	4	5
	<b>In order to monitor how well you are doing in an exercise program how likely is it that you want to:</b>					
7	Be given a lot of praise and encouragement from others	1	2	3	4	5
8	Evaluate your own performance and provide yourself with positive feedback	1	2	3	4	5
9	Just hope that what you are doing is correct	1	2	3	4	5
	<b>You have been exercising regularly for 6 months, but recently you have been missing sessions and are finding it hard to get motivated to exercise. How likely is it that you would:</b>					
10	Approach someone to help motivate you	1	2	3	4	5
11	Ignore the problem, nothing can be done to improve your motivation	1	2	3	4	5
12	Employ your own strategies to motivate yourself	1	2	3	4	5
	<b>You have been told that setting goals is a good way to motivate yourself to exercise. How likely is it that you would:</b>					
13	Set your own realistic but challenging goals	1	2	3	4	5
14	Make someone important to you set goals for you to aim for	1	2	3	4	5
15	Not set goals because you may not be able to live up to them	1	2	3	4	5
	<b>During a discussion with an exercise counselor he/she presents many options on the best way for you to exercise to achieve fitness and health benefits. How likely is it that your first thought would be:</b>					
16	What do you (the exercise leader) think I should do?	1	2	3	4	5
17	What do I think is the best option for me?	1	2	3	4	5
18	What has everyone else done in the past?	1	2	3	4	5
	<b>During an exercise session how hard you are working out is likely to be governed by:</b>					
19	The intensity you have been told to exercise at	1	2	3	4	5
20	What everyone around you is doing	1	2	3	4	5
21	How you are feeling while exercising at the intensity you choose	1	2	3	4	5



### Section III

This section is intended to gather information on exercise constraints/barriers. These are reasons people cannot, or do not, exercise at all, or as much as they would like. Please indicate how likely each of the following reasons is likely to be a barrier/constraint to exercise for you. CIRCLE ONLY ONE NUMBER THAT INDICATES YOUR RESPONSE.

	Barriers/Constraints to Exercise	Likelihood to be a barrier				
		1 Very unlikely	2	3 Likely	4	5 Very likely
1	Time: I don't have enough time to exercise regularly due to family commitments.	1	2	3	4	5
2	Time: I don't have enough time to exercise regularly due to work related commitments	1	2	3	4	5
3	Time: I don't have time to exercise regularly due to extracurricular commitments	1	2	3	4	5
4	Time: I am not allowed to take time during my work day to exercise.	1	2	3	4	5
5	Finances: I can't afford to pay for a membership to a health club	1	2	3	4	5
6	Finances: I can't afford to buy exercise equipment	1	2	3	4	5
7	Finances: I can't afford to pay daycare while exercising	1	2	3	4	5
8	Facilities: I don't have a convenient place to exercise	1	2	3	4	5
9	Facilities: I don't have a safe place to exercise	1	2	3	4	5
10	Facilities: I can't find a facility open during the hours I can exercise	1	2	3	4	5
11	Facilities: I don't know how to use the facilities	1	2	3	4	5
12	Facilities: I don't have access to a professional to help me with an exercise program	1	2	3	4	5
13	Facilities: I don't feel comfortable exercising in front of others.	1	2	3	4	5
14	Facilities: I feel inferior to others around me when working out.	1	2	3	4	5
15	Support: My friends do not support my efforts to exercise regularly.	1	2	3	4	5
16	Support: My family does not support my efforts to exercise regularly.	1	2	3	4	5
17	Support: I do not have anyone else to exercise with	1	2	3	4	5
18	Support: I do not have anyone to motivate me to exercise	1	2	3	4	5
19	Self-conscious: I don't like the way I look when I exercise.	1	2	3	4	5
20	Self-conscious: I don't have workout gear/clothing	1	2	3	4	5
21	Education: I'm not athletic so I don't feel competent	1	2	3	4	5
22	Education: I'm afraid I will hurt myself	1	2	3	4	5
23	Education: I'm too old to start exercising	1	2	3	4	5
24	Education: I am not healthy enough to start exercising	1	2	3	4	5
25	Education: To get results you have to do strenuous exercise, and I don't want to do that	1	2	3	4	5
26	Education: I don't see exercise as a priority in my life right now	1	2	3	4	5
27	Lack of Energy: I don't feel like exercising after working all day.	1	2	3	4	5
28	Exercise is boring: It gets monotonous doing the same thing every day.	1	2	3	4	5
29	I have failed in the past: I have tried before, but I can't stay with an exercise program.	1	2	3	4	5
30	I just don't want to exercise.	1	2	3	4	5

## Section IV

This section is intended to gather information on employees' likeliness of taking part in exercise. Please indicate how likely it is that you are taking part in, or would take part in, the following exercise activities. CIRCLE ONLY ONE NUMBER THAT INDICATES YOUR RESPONSE.

	Exercise Activity	Likeliness to spend time in exercise				
		1 Very unlikely	2	3 Likely	4	5 Very likely
1	Walking	1	2	3	4	5
2	Jogging	1	2	3	4	5
3	Biking	1	2	3	4	5
4	Aerobics	1	2	3	4	5
5	Tennis	1	2	3	4	5
6	Racquetball	1	2	3	4	5
7	Swimming	1	2	3	4	5
8	Water aerobics	1	2	3	4	5
9	Weight lifting	1	2	3	4	5
10	Engage in a specific sport: Please indicate the sport:	1	2	3	4	5

## Section V

Below are demographic questions that will help the researcher better use the data collected. Please remember all information collected from this instrument will remain confidential. PLACE AN "X" NEXT TO THE APPROPRIATE RESPONSE. PLEASE MARK ONLY ONE ANSWER.

### 1. Gender

- ☐ Male
- ☐ Female

### 2. Age

- ☐ 20 – 30 years old
- ☐ 31 – 40 years old
- ☐ 41 – 50 years old
- ☐ 51 – 60 years old
- ☐ 61 – 70 years old
- ☐ +70 years old

### 3. Marital Status

- ☐ Married
- ☐ Separated
- ☐ Single

### 4. Family composition

- ☐ Have children living in my home
- ☐ Have children, but they are not living in my home
- ☐ Do not have children

### 5. Position held at institution

- ☐ Administrator
- ☐ Faculty
- ☐ Exempt staff (salaried staff)
- ☐ Non exempt staff (hourly staff)

6. On average, how many days during a week do you exercise? (Please select only one)

- ☐ 1 day
- ☐ 2 days
- ☐ 3 days
- ☐ 4 days
- ☐ 5 days
- ☐ 6 days
- ☐ 7 days
- ☐ Do not exercise

7. On average, how many minutes each day do you spend exercising?

- ☐ Up to 30 minutes (1/2 hour)
- ☐ 30-60 minutes (1/2 – 1 hour)
- ☐ 60 minutes to 90 minutes (1 hour – 1 ½ hour)
- ☐ 90 minutes to 120 minutes (1 ½ hour – 2 hours)
- ☐ More than 120 minutes (more than 2 hours)
- ☐ Do not exercise

8. Typically what type of exercise do you currently take part in most of the time?

- ☐ Cardiovascular exercise
- ☐ Strength training
- ☐ Aerobics
- ☐ Engage in a particular sport
- ☐ Other \_\_\_\_\_
- ☐ Do not exercise

9. Do you exercise at work during breaks?

- ☐ Yes
- ☐ No
- ☐ Do not exercise

10. Do you exercise outside of work hours?

- ☐ Yes
- ☐ No
- ☐ Do not exercise

11. Where do you exercise most of the time? (Please select only one)

- ☐ University facilities
- ☐ Fitness club in the community
- ☐ At home
- ☐ Do not exercise

12. In your opinion, should the university implement a campus wide policy that allows employees time to exercise during the work day?

- ☐ Yes
- ☐ No
- ☐ No opinion

Comments:

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13. How likely would it be that you would exercise if the institution provided time to do so, during the work day?

- ☐ Very likely
- ☐ Likely
- ☐ Undecided
- ☐ Unlikely
- ☐ Very unlikely

Comments:

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Thank you for your participation in this study. If you are interested in the results of the study, e-mail me a message at [mnforever@hotmail.com](mailto:mnforever@hotmail.com) indicating your name, address and where you want them sent.