

THE PHYSICAL AND PSYCHOLOGICAL BENEFITS OF MARTIAL ARTS  
TRAINING FOR INDIVIDUALS WITH DISABILITIES

By

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**ABSTRACT**

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The purpose of this study was to determine the physical and emotional benefits of martial arts training for persons with disabilities. Three specific research questions were asked: Does participation in martial arts training lead to a reduction in the functional limitations caused by an individual's disability? Does participation in martial arts improve self-esteem, and instill confidence in people with cognitive, developmental, and/or physical disabilities? Can martial arts improve an individual's perceived quality of life through the development of physical and mental fitness? A survey questionnaire was used to gather relevant information. Results suggested that martial arts training does help improve physical functioning, especially in the areas of increased strength, balance, and stamina. In addition, survey respondents reported an increased sense of well-

being and overall improvement in quality of life. Implication for inclusion of individuals with disabilities in martial arts training was discussed.

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## CHAPTER 1

## Introduction

The human body thrives on movement, which brings pleasure and stimulates creativity (Elrick, 1996). According to Elrick, physical exercise stimulates blood flow and tissue growth in muscle and bone. Exercise should be considered an important tool for the prevention and treatment of disease. However, the capacity for free, comfortable movement is a foundation of well being that most healthy people take for granted (Buckwalter, 1997).

Living in today's society, it is hard to see the need for exercise. The increasing uses of the computer for work and communication, the labor market shift from blue to white collar jobs, and the ease of transportation have taken away the need for most manual labor and decreased the desire for physical leisure activity (Paffenbarger & Lee, 1996). Research has shown that physical activity leads to improved physiological fitness and extends longevity. This alone should encourage society to become more active rather than sedentary. Physical activity protects against the development of health problems, such as coronary heart disease, stroke, hypertension, obesity, non-insulin-dependent diabetes mellitus, osteoporosis, certain cancers, and clinical depression. In addition, it improves functional capacity and delays age-related disabling conditions.

It is recommended that all healthy adults exercise regularly. It is also important to find a program that is both time-efficient and safe. According to

Bryant & Peterson (1999), "The apparently healthy population is generally characterized as being both symptom-free and able to engage in relatively routine physical activity without undue cardiovascular or orthopedic risk" (p. 29). The exercise programs may vary in terms of mode, frequency, duration, and intensity. Each person will react and progress differently to an exercise program based on physical activity prior to the start of the program. A person must be able to adjust the level of exercise based on the needs of their own body. If used properly, exercise can play a major role in maintaining good health and physical ability.

The health benefits of regular exercise extend not only to physical well being, but also emotional well being. According to Fontaine (2000), people worldwide are affected by Mental Health disorders such as depression and anxiety. This increase in the number of people diagnosed with these disorders contributes to the higher cost of health care. Although therapeutic modalities like pharmacotherapy and psychotherapy are effective in the treatment of these disorders, it appears that physical activity also has a positive impact. Not only does physical activity improve the symptoms of depression and anxiety, it also increases a person's perceived energy level, self-esteem, and mood. It is important for physicians to educate their patients about the importance and benefits of physical activity, including the importance of making it part of a daily

routine. The type of exercise routine selected is not as important as selecting a routine that can be performed on a regular basis without difficulty.

As people get older, the need and importance for continued exercise increases. When a person loses the ability to work and enjoy leisure activities, their self-image may suffer, sleep quality deteriorates, and mood may be lowered. A reduction in mobility in an older person may lead to a decline in financial status and quality of life. The inability to exercise can cause a strain on diverse organ systems, increasing the risk of heart disease, stroke, diabetes, and colon cancer (Buckwalter, 1997). The longer a person goes without activity, the harder it is to regain mobility, which in turn creates myriad problems with activities of daily living. A person may lose the ability to attend to personal hygiene needs like dressing, cleaning, preparing meals, and shopping. A loss of mobility not only leads to mental deterioration and cardiovascular disease, but ultimately to the loss of independence.

Martial arts can play an important role in maintaining a healthy body, benefiting people in good health as well as those who suffer from cognitive, developmental, and physical disabilities. The martial arts date back to 2,000 B.C., where evidence of its use was seen in India and China (Lawler, 1996). For centuries, the martial arts were the "warrior's way", a system used to defend one's family and country. In China, certain martial arts were known as Healing Arts, and have been used for centuries to improve physical and emotional health, and

enhance quality of life. The twentieth century brought the martial arts to America and the beginning of commercialization.

There are currently a number of styles of martial arts. A listing of martial arts terms is located in Appendix A. While each is different, they all work from the same principles, but change to meet the needs of the consumer. There is a martial arts style for everyone; there are programs designed strictly to teach personal defense, tournament competition, traditional forms, use of weapons, and healing. Classes can be specialized just for children or designed for the whole family to train together. The martial arts are divided into two styles, hard and soft. This doesn't refer to the complexity of the style, but rather the way a person uses their energy in training (Lawler, 1996). This allows people the choice of the type of training that will fit their needs.

Training in the martial arts has many benefits that are not always obvious to others. One area that has received little attention is the benefit of training in the martial arts by people with disabilities. The martial arts have benefits for people of all ages and health levels. The fact that a person has a disability should not limit or prevent them from training in the martial arts, but rather should motivate them to train. For example Tai Chi is a martial art that is noted for its therapeutic effects (Cerrato, 1999). Cerrato stated that Tai Chi is a gentle repetitive exercise that keeps the hands, wrists, elbows, knees, hips, and ankles in continuous motion. Accompanied by deep, diaphragmatic breathing, the exercises can improve

flexibility, range of motion, muscle strength, and balance. It has also been shown to enhance attention and concentration, skills that can carry over into other areas of a person's life. Vockell and Kwak (1990) describe how the skills, discipline, and training learned in the Dojo (practice hall) helped a young boy with a learning disability overcome the problems he was having in school. Teachers who understand what is taught in the Dojo (training hall) can help the student carry the same lessons into the classroom.

#### *Statement of the Problem*

The purpose of this study is to examine the perceived benefits of martial arts training for people with cognitive, developmental, and/or physical disabilities. Martial Arts have been proven to be useful and beneficial for people who are not disabled. Although not proven, it is hypothesized that people with disabilities would experience the same benefits as their non-disabled peers. If for no other reason, martial arts will improve wellness simply by engaging in physical activity. A person who stays physically and mentally active will have an increased opportunity to enjoy life to its fullest. People who look good and feel good may have a better self-image and present themselves in a better light to others. The newly developed confidence may also boost the self-esteem.

#### *Research Objectives*

A survey was used for data collection and distributed to participants via the World Wide Web. The survey participants include individuals in the martial

arts in the United States and Abroad. Individuals with disabilities were surveyed about their use of the martial arts

The survey was designed to answer the following research questions:

1. Does participation in martial arts training lead to a reduction in the functional limitations caused by an individual's disability?
2. Does participation in martial arts improve self-esteem, and instill confidence in people with cognitive, developmental, and/or physical disabilities?
3. Can martial arts improve an individual's perceived quality of life through the development of physical and mental fitness?

## CHAPTER 2

### Review of Literature

#### *Introduction*

This chapter will present information about the benefits and importance of exercise, including types of exercise that benefit people in good health as well as those that have cognitive, developmental, and physical disabilities. In addition, the physical and emotional benefits derived from martial arts training will also be discussed.

#### *Physical Activity*

Evidence shows that people around the world are getting healthier. There is less tobacco consumption, people are eating healthier, and more people are physically active. Despite this increase in healthier people, there is still a large number of people in the world who continue to experience morbid diseases such as ischaemic heart disease, coronary heart disease, obesity, depression, diabetes, or hypertension. These individuals continue to rely on their physicians for a medical cure. Even those who are not physically ill are not living up to their potential (Akande, Vanwyk, & Osagie, 2000).

According to Akande, Vanwyk, and Osagie (2000), exercise makes the human body stronger by increasing the blood flow to the brain. Evidence suggests that remaining physically fit will help people maintain their cognitive abilities as they age. In addition, exercise and good nutrition may enhance

treatment for those with even the most severe mental disorders. There are also physiological benefits to be gained from regular exercise. Benefits are gained from regular activities like aerobic dance, cycling, walking stairs instead of using the elevator, and most importantly brisk walking. Any of these exercises done briskly will help ease stress, tension, and rejuvenating the body and spirit (Akande, Vanwyk, & Osagie, 2000).

People with psychiatric disabilities have a need for basic health services that are often neglected. There are approximately 1.7 to 2.4 million people in the United States who have a severe psychiatric disability (Unger & Skrinar, 1992). People who experience psychiatric disorders not only have mental illness to contend with, they also struggle with poor physical fitness; including weight problems; poor sleep habits; poor cardiovascular fitness; low energy; poor body image; and low self-esteem. For those who have psychiatric disabilities and wish to return to the work force or improve their quality of life, these conditions may make the rehabilitation process difficult (Unger & Skrinar, 1992). If people with psychiatric disabilities hope to achieve vocational success and/or personal independence, they should maintain a positive outlook and improve physical stamina. A higher activity level has been shown to enhance self-esteem, improve physical appearance, and increase energy. According to Unger and Skrinar, increased physical activity often leads to an increase in successful outcomes for people with chronic mental illness. Lack of activity is more often associated with

substance abuse or acting out to handle the frustrations related to their inability to set and meet goals.

Another group of individuals with disabilities who would benefit from activities are those with cognitive and developmental impairments, such as mental retardation. Adults with profound mental retardation and additional disabilities who live in residential or care facilities tend to be largely sedentary and inactive (Lancioni, Gigante, O'Reilly, & Oliva, 2000). This inactivity is believed to be the result of a low level or lack of independence. The limited availability of staff to supervise or assist with activity is also a problem. Continued inactivity may reduce sensory-vestibular input and adaptive responding and can worsen ambulatory and postural disorders, bone demineralization, and obesity. A study by Lancioni et al., (2000) examined the effects of mild exercise, which consisted of walking and simple activities with individuals with profound multiple disabilities involving Mental Retardation. The results of the study indicated that even mild exercise led to improvements in the participants' posture and ambulatory condition. The researchers further suggested that improvements may be related to an increase in confidence and may indicate an increase in participant's muscle strength.

A person that suffers from a disabling disease such as Arthritis could benefit from structured exercise. According to McKinney and Andersen (2000), arthritis affects approximately 59 million people in the United States.

Osteoarthritis is the most common form of this joint disease, which affects weight-bearing joints and leads to a breakdown in joint tissue. Until recently, the only know treatment for osteoarthritis was weight control. However, recent research has found that exercise yields improvements in pain and overall functioning of patients with osteoarthritis. McKinney and Andersen reported that people who are physically active reported less knee pain than their sedentary counterparts. "Different elements of exercise that employ stretching, range-of-motion, isometric, and isotonic techniques have been used successfully by patients with knee osteoarthritis" (p. 71).

### *Martial Arts*

Asian martial arts have become popular sport activities in North America in recent times. Columbus and Rice (1998) looked at phenomenological analysis of written narratives to evaluate how people viewed martial arts training as a meaningful endeavor. Their study identified four major factors: criminal victimization, growth and discovery, life transition, and task performance. In victimization, there is a concern with an actual or possible physical or sexual assault. In growth and discovery, people look toward themselves and try to overcome self-imposed limits. Life transitions refer to the fact that people feel undisciplined and out of control. According to the authors, in each of the four situations, martial arts participation was valuable when it helped an individual's adaptation to everyday life circumstances. Thus, the martial arts provide structure

for coping and a sense of control. Task performance, uses lessons learned in the Dojo to be successful in everyday tasks.

In light of the present findings, martial arts practice may be understood partly as motivation toward competence, adequacy, and self-efficacy, thus supporting views of the martial arts as exercise in self-help

Personality and motivational factors may also influence the selection of a martial art as a sport and fitness endeavor, according to Anyanjour, Knoblauch, & Finkenherg, (cited in Columbus & Rice, 1998). Expressed reasons for initiating martial arts training include self-defense, health and exercise, and discipline. Training in martial arts has been shown to alter experiences of control and vulnerability, self-esteem, self-concept, fitness, confidence, and relaxation. As a result, some researchers characterize martial arts practice as a form of self-help (Columbus & Rice, 1998).

As the Baby Boomers grow older, holistic interventions that prevent falls and their debilitating injuries are in great demand. With increased age, elderly people typically experience a decrease in muscle mass and strength (Ross, Bohannon, Davis, & Gurchiek, 1999). Tai Chi is one form of martial art that may be of special interest to older persons. It is not a vigorous type of exercise and can be an excellent choice for an individual who lacks physical conditioning or the self-confidence required by more traditional exercise programs. Tai Chi exercise may benefit older individuals because the exercise incorporates elements

of strengthening, balance, postural alignment, and concentration. All four of these factors are essential to prevent falls. Although Tai Chi is a relaxing and enjoyable exercise that older persons do for physical benefits, continued practice may lead to improvements in self-esteem, self-confidence, sleep, and depression.

In his article, "Tai Chi: Martial Art Turns Therapeutic", Cerrato (1999) described the benefits of learning Tai Chi. Incorporating Tai Chi into regular activity can improve balance and muscle strength among elderly patients with osteoarthritis. In studies of patients with osteo- and rheumatoid arthritis, investigators discovered that, unlike certain types of exercise, Tai Chi did not make joints more tender and increase the number of swollen or damaged joints, nor did it cause any further bone deterioration (Lumsden; Baccala; & Martire; cited in Cerrato, 1999).

Martial arts have also been shown to provide psychotherapeutic benefits as well as physical ones (Weiser and Kutz 1995). Researchers compared the benefits of martial arts training to dance therapy, art therapy, psychodrama, and meditation, all of which provide active and physical routes for the discovery and expression of emotion. Results of the study indicated that there is growing appreciation for the martial arts as a viable choice to promote health, both physical and mental. According to Weiser & Kutz (1995), "They have come to be seen as inculcating physical and mental relaxation and control of mind and body, which are associated with increase in self-confidence and esteem" (p. 118). The

disciplines teach the values of directness and honesty in communication, assertiveness, ability to empathize, courage, humility, perseverance, gentleness, respect for others, responsibility, and self-improvement. As a result of this, they are now seen less as methods of aggression, and more as methods of self-defense, which can be of therapeutic value. It should be noted that learning and mastering of the martial arts are a complex and long-term process, which may not produce immediate benefits. Moreover, the benefits from the martial arts are manifested slowly over a period of time so that those who have practiced longest show the highest self-esteem.

Explanations in the literature regarding the psychic benefits of martial arts focus on the provision of physical activity and group experience, the positive role model of the instructor, and the emphasis in martial arts training on values such as respect, humility, responsibility, perseverance, and honor Weiser and Kutz (1995). These attitudes and values become a model for the student, which can then be generalized to many arenas of living.

## CHAPTER 3

### Methodology

The purpose of this study was to determine the physical and emotional benefits of martial arts training for persons with disabilities. This chapter describes the methodology used to complete the present study. Information is provided on the identification, recruitment, and selection of research subjects. In addition, a description of the survey instrument is included. A rationale is provided for the development of a new survey instrument, as well as use of specific survey questions. Finally, this chapter describes the procedures that were used for data collection and data analysis.

#### *Subjects*

Subjects for the study were selected based on the criteria of participation in martial arts training and having a documented disability. A disabling condition was defined as any type of congenital or acquired physical, cognitive, or sensory impairment. No parameters were placed on the severity of disability, but it must have been considered long term or permanent by diagnosis. The subject pool was drawn from regions across the United States and Europe.

#### *Instrumentation*

Data was gathered using a self-report method. A review of the literature was conducted in an attempt to identify existing survey tools on this topic. No relevant tools were located; therefore a new survey instrument was developed for

the present study. A sixteen-item questionnaire was developed to answer the following research questions.

1. Does participation in martial arts training lead to a reduction in the functional limitations caused by an individual's disability?
2. Does participation in martial arts improve self-esteem, and instill confidence in people with cognitive, developmental, and/or physical disabilities?
3. Can martial arts improve an individual's perceived quality of life through the development of physical and mental fitness?

In order to address the above questions, the survey asked for reflection on physical and emotional status prior to training and after training for a period of time. Noted changes in self-esteem, physical capacity, and acquired training in self-defense were also requested. In addition, the survey included questions about the type of martial arts practiced and length of training (in months and years). Demographic information was collected on each subject, including age, gender, and type and severity of disability. A copy of the survey instrument is located in Appendix B.

### *Procedures*

Recruitment of subjects was conducted by contacting martial arts schools that advertised their inclusion of persons with disabilities into their programs. One hundred individual sites were identified as potential sources of recruitment.

It was estimated that approximately two hundred subjects would qualify for participation in this survey, based on preliminary discussions with participating martial arts programs.

The survey was placed on the Internet to increase access and accommodations for respondents with disabilities. A web site was created through the research services of the University of Wisconsin-Stout. The site was designed to ensure accessibility, and was approved using Bobby Worldwide accessibility guidelines ([www.cast.org/bobby](http://www.cast.org/bobby)).

Letters were sent to martial arts instructors at schools that advertised specialized training for persons with disabilities. Additionally, e-mail messages were sent to web sites that were designed for persons with disabilities in the martial arts to communicate with other disabled martial artist, and also to organizations that worked with disabled martial artists. The letters and e-mails explained the purpose of the research and solicited participation by qualifying program members. Web site information and the researchers e-mail address was provided so people could contact the researcher with questions. It was anticipated that the survey information would be passed on to other disabled martial artists within the network.

#### *Data Analysis*

Data was analyzed using the Statistical Program for Social Sciences, version 10.0 (SPSS, 2002). Descriptive statistics were used to report research

findings. Measure of central tendency and variability were utilized to determine consistencies among participants' responses. Sample size was determined by the number of survey responses, and was unknown at the beginning of the study.

Unknown subject size dictated the use of descriptive rather than inferential statistics.

## CHAPTER 4

### Results

The purpose of this descriptive study was to determine the benefits of martial arts training for persons with disabilities. Subjects for the study were selected based on their participation in martial arts training and having a documented disability. The survey was placed on the Internet to increase access and accommodations for respondents with disabilities. Recruitment of subjects was conducted by contacting martial arts schools that advertised their inclusion of persons with disabilities in their programs. Additionally, e-mail messages were sent to web sites that were designed for persons with disabilities in the martial arts to communicate with other disabled martial artist, and also to organizations that worked with disabled martial artist. The questions on the sixteen-item survey were designed to answer the three research questions of this study.

1. Does participation in martial arts training lead to a reduction in the functional limitations caused by an individual's disability?
2. Does participation in martial arts improve self-esteem, and instill confidence in people with cognitive, developmental, and/or physical disabilities?
3. Can martial arts improve an individual's perceived quality of life through the development of physical and mental fitness?

*Survey Respondents*

During the first sixty days the survey was posted on the Internet, fifteen completed surveys were obtained. A second contact was made to participating organizations, and the survey was extended for another thirty days to solicit additional support. With the extended time, five more respondents completed the survey. Therefore, a total sample size of twenty was obtained. This resulted in a ten percent response rate for the survey, which was considerably lower than expected.

*Demographic Information*

Information was collected on participants' age, gender, and type and severity of disability. Age of respondents ranged from 15 to 54, with a mean age of 38. Eleven respondents were male (55%) and nine were female (45%), showing a fairly even distribution between genders. Nine individuals (45%) indicated that they had a congenital disability, and the remaining 11 respondents (55%) reported that their disability had existed for a number of years. The largest proportion of respondents identified themselves as having a physical disability, followed by cognitive and then sensory disabilities. Additionally, the highest proportion of respondents identified themselves as having a moderately severe disability. A summary of disabling conditions is listed in Table 1.

Table 1.

Type and Severity of Disability of Respondents

		Severity of Disability		
		Mild	Moderate	Severe
Type of	Physical	4 (20%)	8 (40%)	2 (10%)
Disability	Cognitive	1 (5%)	3 (15%)	0 (0%)
	Sensory	0 (0%)	1 (5%)	1 (5%)

All respondents indicated that they had been training for at least one year. Ten respondents (50%) reported that they have been training in the martial arts between one and five years. The other ten respondents (50%) had trained for more than six years. Twelve individuals (60%) typically train one to two times per week, and 8 (40%) trained three or more times per week. A total of 8 respondents (40%) held the rank of Black Belt, while the remaining 12 (60%) did not. Table 2 provides a breakdown of the type of martial arts practiced and proportion of respondents who participated in each.

Table 2.

Type of Martial Arts Training and Level of Experience

		Level of Experience			
		Beginner	Intermediate	Advanced	Black Belt
Type of Martial Art	Tae Kwon Do	1 (5%)	1 (5%)	2 (10%)	2 (10%)
	Karate	0 (0%)	5 (25%)	0 (0%)	4 (20%)
	Kung Fu	1 (5%)	0 (0%)	0 (0%)	1 (5%)
	Tai Chi	2 (10%)	0 (0%)	0 (0%)	0 (0%)
	Other	0 (0%)	0 (0%)	0 (0%)	1 (5%)

The majority of respondents (90%) indicated that their training was integrated in classes with non-disabled students. However, most required some form of modification in their training methods. Four individuals (20%) reported that they practiced from a chair or seated position, one individual (5%) used crutches or a cane during training, ten people (50%) needed to modify their forms

(Kata), and 9 individuals (45%) used or developed other methods of accommodations.

The remaining survey questions were directly related to the research questions of interest. Research question one was: Does participation in martial arts training lead to a reduction in the functional limitations caused by an individual's disability? To answer this question, respondents were asked about their limitations both prior to and after the start of their martial arts training. Respondents were asked to list their functional limitations prior to the start of their martial arts training. These included: (a) balance (60%); (b) mobility (40%); (c) breathing (20%); (d) walking (35%); (e) speaking (25%); (f) stamina (45%); (g) standing (15%); (h) sitting (5%); (i) seeing (5%); (j) hearing (15%); and (k) blood pressure (30%). Respondents were then asked to list the areas that they felt were improved as a result of their training. These included: (a) balance (65%); (b) mobility (45%); (c) breathing (45%); (d) walking (25%); (e) stamina (70%); (f) standing (20%); (g) sitting (15%); (h) strength (70%); (i) flexibility (50%); (j) concentration (40%); (k) blood pressure (15%); and (l) environmental awareness (45%).

The second question asked: Does participation in martial arts improve self-esteem, and instill confidence in people with cognitive, developmental, and/or physical disabilities? Specific questions were asked about personal attributes that have been shown to correlate strongly with self-esteem. Sixteen

respondents (80%) indicated that they felt more confident as a result of their participation in martial arts training. Eight individuals (40%) indicated that they could do things as well as individuals without disabilities, and 14 individuals (70%) reported an increased sense of self-worth. Overall, 18 respondents (90%) indicated that they had a more positive attitude toward themselves after participating in the martial arts.

The final research question addressed individuals' perceived quality of life through the development of physical and mental fitness. All 20 respondents reported increases in their quality of life as a result of their martial arts training. Four individuals (20%) felt that their quality of life was somewhat improved while the remaining 16 respondents (80%) indicated that their quality of life was greatly improved as a result of their martial arts training.

## Chapter 5

### Discussion

The purpose of this study was to determine the benefits of martial arts training for persons with disabilities including, a reduction in functional limitations and perceived changes in self-esteem and quality of life. Subjects for the study were recruited by contacting martial arts schools that advertised their inclusion of persons with disabilities into their programs. One hundred sites were identified as potential sources of recruitment, and were contacted individually to solicit participation of members. It was estimated that approximately two hundred subjects would qualify for participation in this survey. The survey was placed on the World Wide Web to increase availability and accessibility for subjects. Twenty surveys were completed within a ninety-day period, resulting in a ten percent response rate. The extremely low rate of response significantly impacts the interpretation of results and limits generalizability of the study. Thus, all concluding information must be made with caution.

### *Conclusions*

The majority of participants reportedly benefited from their participation in the martial arts. Interestingly enough, the type of martial art practiced did not influence the perceived benefits of training. The study did not examine the relationship between length of time in training and perceived level of benefit due to an inadequate sample size. However, length of training time reported by

respondents tentatively suggests that greater benefit is achieved the longer one is engaged in martial arts training.

Although it was hypothesized that more men would respond to the study than women, this did not occur. The martial arts have traditionally been thought of as a male dominated activity, but as more information is published on the long term benefits of martial arts training, increased numbers of women have taken an interest in learning the arts.

Another important outcome of the study was the reported improvements in functional limitations, especially in the areas of balance, strength, and stamina. The majority of individuals in the sample identified a physical impairment as their primary disabling condition. This may have lead to the noted improvements in areas of physical functioning. It may be possible that if more individuals with cognitive and/or emotional impairments responded to the survey, there would have been increased reports of improvements in areas such as concentration and environmental awareness.

Perhaps the most salient conclusions of this study relate to the perceived changes in self-perception and quality of life. A majority of respondents reported that they felt more confident, had greater respect for themselves, were more capable individuals, and that their overall quality of life has been improved as a result of the martial arts. This has important implications for people with disabilities and supports previous research that suggests use of the martial arts can

increase one's internal locus of control and adaptation to everyday life stressors (Columbus & Rice, 1998; Weiser & Kutz, 1995). Again caution in interpretation must be made due to the small sample size.

*Limitations of the Study*

Clearly, the greatest limitation to the study was the extremely poor response rate. A 10% rate of response is generally not considered adequate for data analysis and significantly limits interpretation of the results. There are several possible reasons why this may have occurred. The first problem was in only contacting program instructors that trained people with disabilities, rather than contacting individual participants directly. In general, more time should have been spent on contacting individuals. Second, by limiting responses to an Internet survey, computer compatibility was not taken into account. Several people noted that they could not open the survey on their computer. Third, the time frame that the survey was on line might have been too short; a person without access to a computer would have a problem.

Structure and wording of the survey may have also limited individuals' willingness to respond. Another limitation was caused by use of a sample of convenience. Participants who self-selected for inclusion in this study may have had stronger motivations for participation in the martial arts, and/or may have achieved greater benefit from martial arts practice than non-respondents. Because of the use of a survey of convenience, the results of this study are neither

considered to be representative of all individuals with disabilities who practice martial arts nor can the results be generalized to other situations.

*Recommendations for Future Research*

Replication of the present study is strongly encouraged, as there is limited information on the benefits of martial arts training for people with disabilities. Moreover, the results have potential to increase awareness of the needs of people with disabilities and create greater opportunities for inclusion into the martial arts. The following suggestions are made to improve future research efforts.

1. Survey questions should be revised to reduce redundancy and expand upon the functional limitations of the respondent.
2. Future investigation may be enhanced by restricting the scope of the study to one or two areas of martial arts training. In its attempt to be broad based, the present study may have sacrificed specificity of responses.
3. Distribution of the survey should not be limited to just an electronic survey, but should also include traditional paper formats.
4. More time should be allocated for data collection

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Appendixes

## Appendix A

### *Definitions of Terms*

Dojo: A Japanese term that means training hall or gymnasium for practicing martial arts (Lawler, 1996).

Hard Style: A style of martial art that directs energy outward and meet energy with energy. This style emphasizes blocking and counterstriking. Examples of hard styles include Karate, Tae Kwon Do, Muay Thai, and Savate (Lawler, 1996).

Martial Arts: Any fighting style, with or without weapons, to train and develop control of oneself and one's conduct for self-improvement. Martial Arts consists of three key words - control, conduct, and self. A martial artist must train hard to develop discipline (control), behavior (conduct), and character (self) (Lawler, 1996).

Soft Style: A style of martial arts that redirects energy, channeling and diverting momentum to unbalance an opponent. They tend to use less force and are less likely to be unbalanced. Examples are Tai Chi, Aikido, and Ninjutsu (Lawler, 1996).

Tai Chi: Training emphasizes rooting, or connecting one's chi (internal energy) with the earth. It consists of slow connected movements that are practiced to reduce tension, to slow breathing, and to clear the mind. The name Tai Chi means "Grand ultimate fist" (Lawler, 1996).

## Appendix B

### *Participant Consent Form*

#### **Introduction**

I am a graduate student at the University of Wisconsin-Stout, and am conducting a research study on the use of Martial Arts (MA) among people with disabilities. The purpose of this study is to determine and document the perceived benefits of MA training for people with cognitive, developmental and/or physical disabilities. Martial Arts has been proven to be useful and beneficial to people who are not disabled. A person who stays physically and mentally active will have the opportunity to enjoy life to its fullest. People who look good and feel good will have a better self-image and present themselves in a better light to others.

I am looking for individuals with disabilities who have participated in some form of Martial Arts to complete a brief questionnaire about their experiences. Your participation is strictly voluntary and will require less than ten minutes of your time. Information will be coded to protect the identity of participants. However, if you wish to have access to the results of this study and the information gathered or to even ask questions, you may submit your email address for follow-up.

There are a number of benefits to completing this survey. The information gathered will lead to continued research and the development of a curriculum to work with persons with disabilities.

In any type of research, there are inherent risks. Although the risks associated with this particular study are minimal, it is important that you are aware of them. When answering questions on the survey, you may experience discomfort. It is important to remember that your participation in this study is voluntary and that you have the right to choose not to answer any questions that are too personal or make you feel uncomfortable.

#### **Consent Form**

I understand that by completing this questionnaire, I am giving my informed consent as a participating volunteer in this study. I understand the basic nature of the study and agree that any potential risks are exceedingly small. I also understand the potential benefits that might be realized from the successful completion of this study. I am aware that the information is being sought in a specific manner so that no identifiers are needed and so that confidentiality is

guaranteed. I realize that I have the right to refuse to participate and that my right to withdraw from participation at any time during the study will be respected with no coercion or prejudice.

Note: Questions or concerns about participation in the research or subsequent complaints may be addressed to the researcher Richard Martin at: martinri@post.uwstout.edu or (920) 746-0128 or the research advisor Dr. Kathleen Deery at deeryk@uwstout.edu or (715) 232-2233. You may also contact Dr. Janice Coker, Chair, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research at cokerj@uwstout.edu or (715) 232- 2239.

Appendix C

*Survey Questionnaire*

The survey is an effort to answer the following research questions.

1. Does Martial Arts improve self-esteem, and instill confidence in people with cognitive, developmental, and/or physical disabilities?
2. Can Martial Arts improve quality of life by the development of physical and mental fitness?

**Martial Arts Questionnaire**

1. Age:
2. Sex: M  F
3. Type of Disability (Check all that apply):  
 Physical  Cognitive  Sensory Impairment  Hearing  
 Vision
4. Severity of Disability:  
 Mild  Moderate  Severe
5. How long have you had this disability?  
 since birth  1 to 11 months  years
6. What type of martial art do you practice?  
 hard  soft  
 TKD  Karate  Judo  Aikido  Kung Fu  Tai Chi  
 Other
7. How long have you been training in the martial arts?  
 1 to 11 months  1 to 5 years  6 or more years

8. What level of experience have you obtained?  
 Beginner  Intermediate  Advanced
9. If Black Belt, what rank?  
 none  1st  2nd  3rd  4th  5th  6th  7th  
 8th
10. Where you integrated with non-disabled students?  
 Yes  No
11. How often do you train  
 1-2 classes per week  3 or more per week
12. What accommodations do you require to participate in Martial Arts class?  
 Work from a chair  Use crutches/cane  Modify forms (kata)  
 Other
13. What were your limitations prior to training in the Martial Arts?  
 Balance  Mobility  Breathing  Walking  Speaking  
 Stamina  Standing  Sitting  Seeing  Hearing  
 Blood Pressure
14. How have your abilities improved as a result of participation in Martial Arts?  
(Check all that apply)  
 Balance  Mobility  Breathing  Walking  
 Stamina  Standing  Sitting  Strength  Flexibility  
 Concentration  Blood Pressure  Environmental Awareness
15. As a result of my participation in Martial Arts training, I feel: (check

all that apply)

- More confident
- Feel like a person of worth
- Able to do things as well as others
- Positive attitude toward self
- More respect for self
- Other

16. In your opinion, how has your quality of life changed as a result of your participation in Martial Arts?

- Not at all     Somewhat improved     Greatly improved

Reset	Submit
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