

Psychosocial Benefits of the Martial Arts: Myth or Reality?

A Literature Review

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(New research articles from 1999-2007 in an [Addendum](#))

Introduction

There is often controversy about whether or not the practice of martial arts leads to positive or negative psychological changes in the participants. There are many who claim that practicing the martial arts develops beneficial psychological changes and encourages good moral and ethical development. Some martial arts, such as judo, were developed with this goal in mind. In contrast, some claim that participating in socially sanctioned, combative activities facilitates violence and aggression. Most images of the martial arts in popular movies and television shows probably help spread this second claim. Certainly the popularity of pay-for-view, no-holds-barred, martial arts tournaments gives the general public a one-sided view of the martial arts and a cause to rally around for legislative regulation related to these arts. The changes in Asian martial arts through history could support either view. While the Asian martial arts grew out of an environment where one killed or was killed, in more recent, peaceful times the goals of many martial arts have changed to address more diverse goals such as personal growth and self-discipline.

If martial artists are concerned with becoming better people and reducing violence in themselves and in society, it is important to know which of these claims is true. They should also be prepared to defend their ability to practice the martial arts against social pressures and legislative bans or limitations. While there is substantial anecdotal evidence to support the positive and negative aspects of practicing the martial arts, it is important to assess whether scientific research substantiates one claim or the other. A primary goal of this paper is to summarize the empirical evidence in this area of research. Several other important questions that will be addressed include: a) Are the psychosocial changes gained from participation in the martial arts different from those gained from other activities? b) What specific aspects of martial arts training affect psychosocial changes? c) If martial arts practice is psychologically beneficial, is it an effective means for psychological treatment?

Are the Martial Arts Beneficial for Us?

It is likely that there are both short-term and long-term psychosocial changes from practicing a martial art. There are only a few studies assessing the short-term effects of martial arts practice. In one study, a single session of jogging or weight lifting led to reduced tension,

anxiety, depression, and anger-hostility in subjects immediately after exercise. However, a single session of karate led to no changes in these measurements. It was noted that the activity level of the karate students in the study was less than that of the other groups (McGowan et al., 1991). This suggests a minimum level of activity is necessary for these changes to occur. In contrast, a single session of taijiquan helped reduce stress levels immediately after a stressful experience (Jin, 1989; 1992). Much more research in this area is required before any conclusions can be drawn about the short-term effects of martial arts training.

In contrast to the lack of research on the short-term effects of martial arts training, there is a growing body of literature about the longer-term effects of martial arts practice. The findings of most of these studies show that the practice of martial arts leads to positive psychosocial changes in the participants. Many studies on this subject are cross-sectional in design¹ looking at martial artists with different belt rank or time of participation. These studies used a variety of methodologies to examine students of jujitsu (Nosanchuk and MacNeil, 1989; Daniels and Thornton, 1990; 1992), karate (Kroll and Carlson, 1967; Reiter, 1975; Duthie et al., 1978; Nosanchuk, 1981; Konzak and Bourdeau, 1984; Richman and Rehberg, 1986; Layton, 1988, 1990; Nosanchuk and MacNeil, 1989; Daniels and Thornton, 1990; 1992; Foster, 1997; Guthrie, 1995; 1997) and tae kwon do (Duthie et al., 1978; Rothpearl, 1980; Nosanchuk, 1981; Nosanchuk and MacNeil, 1989; Skelton et al., 1991; Kurian et al., 1993; 1994). In general, there is an inverse relationship between belt rank or length of time practicing a martial art and anxiety (Reiter, 1975; Layton, 1990; Kurian et al., 1993), aggression, hostility (Rothpearl, 1980; Nosanchuk, 1981; Nosanchuk and MacNeil, 1989; Skelton et al., 1991; Daniels and Thornton, 1990; 1992), and neuroticism (Layton, 1988). There is a positive correlation between length of time practicing or belt rank and self-confidence (Duthie et al., 1978; Konzak and Bourdeau, 1984), independence, self-reliance (Konzak and Bourdeau, 1984; Kurian et al., 1994), and self-esteem (Richman and Rehberg, 1986).

While these results are encouraging to those who practice the martial arts, most of these cross-sectional studies do not control for self-selection and attrition over time. The positive traits seen in higher ranked and more experienced groups could be due to the students who had negative traits dropping out of the activity. Also, there were no control groups in these studies making it difficult to infer causality. One cross-sectional study by Nosanchuk and MacNeil (1989) controlled for self-selection and attrition by studying both current and former students of karate, tae kwon do or jujitsu. They found an inverse relationship between rank and aggression in students studying in "traditional" settings. Former students also had these lower measures of aggression. This suggests a decrease in aggression can be attributed to training, not attrition.

A number of longitudinal studies looking at students of hapkido (Spear, 1989), judo (Pyecha, 1970), jujitsu (Daniels and Thornton, 1992), karate (Daniels and Thornton, 1992; Foster, 1997), tae kwon do (Finkenberg, 1990), and taijiquan (Brown et al., 1995) support the findings of the cross-sectional studies summarized above. Martial arts practice cultivates decreases in hostility (Daniels and Thornton, 1992), anger (Brown et al., 1995), and feeling vulnerable to attack (Madden, 1990; 1995). They also lead to more easygoing and warmhearted individuals (Pyecha, 1970) and increases in self-confidence (Spear, 1989), self-esteem (Finkenberg, 1990; Brown et al., 1995), and self-control (Brown et al., 1995). The style of martial art may be relevant. In a study by Foster (1997), karate students, but not aikido students, showed a decrease in trait-

anxiety. This study will have to be replicated because subjects were not randomly assigned. Nevertheless, it suggests that certain martial arts might lead to changes more quickly than others. If this is true, one hypothesis is that the more complex movements and foreign concepts involved in some martial arts produce changes more slowly.

It should be pointed out that some studies find no effects of martial arts training. In a cross-sectional study, Kroll and Carlson (1967) found no correlation between length of time studying karate and personality traits. This is in contrast to the large number of cross-sectional studies carried out subsequently. In a longitudinal study, children who trained in aikido for 2 ½ weeks showed no changes in self-control as reported by their teachers (Delva-Tauilili, 1995). It will be interesting to see this study repeated over a longer period of time and with better controls to see if aikido training yields measurable changes.

Are the Benefits from Martial Arts Practice Different From Other Activities?

Asian martial arts have much in common with other physical activities (such as exercise and Western sports) including: physical activity, physical fitness, skills acquisition, and social activity. However, there are also points where they differ. Many Western sports tend to emphasize competition and winning while Asian martial arts have traditionally emphasized self-knowledge, self-improvement, and self-control. Unlike Western sports, Asian martial arts usually: teach self-defense, involve philosophical and ethical teachings to be applied to life, have a high degree of ceremony and ritual, emphasize the integration of mind and body, and have a meditative component. While exercise and physical fitness has a role in producing psychological benefits (Husman, 1955; Nouri and Beer, 1989; Leith and Taylor, 1990; McGowan et al., 1991), it is likely that the non-physical aspects of the martial arts have a unique influence on the long-term, psychosocial changes seen in participants.

A number of longitudinal studies support the hypothesis that the benefits from martial arts training are different from other activities. Judo training led to more easygoing, warmhearted, and participating individuals than did a variety of Western sports (Pyecha, 1970). Judo also led to lower rates of violence in youths than did two sports programs (Paul, 1979). Taijiquan training, but not control activities, led to positive changes in overall life-satisfaction (Kutner et al., 1997), reduced the incidence of nightmares (Slater and Hunt, 1997), and led to greater decreases in anger and mood disturbances (Brown et al., 1995). Hapkido training for military trainees was more effective at improving individual self-confidence and group morale than other forms of training including fitness training, resistance training, and obstacle course training (Spear, 1989). When assessed one year after they finished a one semester class, martial arts students showed an increase in their scores for feelings of self-control and lower scores for feelings of vulnerability and likelihood of attack. Physical fitness students showed no changes in these measures (Madden, 1995). One semester of tae kwon do increased self-esteem which was not observed in the control subjects (Finkenberg, 1990). A limitation of the last two studies is that the subjects were not randomly assigned. In a cross-sectional study, Daniels and Thornton (1992) found that martial artists had a larger decrease in hostility with time than participants in badminton or rugby.

While these studies show differences between martial arts and other activities, not all psychosocial changes seem to be unique to the martial arts. Taijiquan practice, as well as a number of other physical activities, led to expanded social interactions by subjects with physical disabilities (Blinde and McClung, 1997). Both taijiquan and moderate intensity walking led to increases in self-esteem (Brown et al., 1995). Taijiquan, as well as a number of other activities, decreased levels of stress after a stressful experience (Jin, 1992) and both martial arts training and weight training led to increases in general mental health (Egan, 1993).

It is likely that some of the psychosocial benefits from martial arts practice originate from the physical activity since exercise in many forms can promote psychological well-being (Leith and Taylor, 1990; Simono, 1991; Weiser et al., 1995). Nonetheless, research directly comparing the practice of martial arts with other physical activities suggests that martial arts training produces positive psychosocial changes that are greater in magnitude and diversity than those produced by many other physical activities. These changes may have different etiology and it is likely that other, non-exercise-related, aspects of martial arts training are important.

How do the Martial Arts Lead to these Changes?

In order to apply these results to one's own practice, it is important to understand how martial arts training might lead to these positive changes. It is also important to know if these changes occur with all styles of martial arts and all styles of instruction. It can be argued that what we get out of the martial arts is what we bring into the practice. Nonetheless, there is also the possibility that martial arts training makes us grow beyond what we bring. Some studies have tried to demonstrate the importance of class content on the changes observed in subjects.

Nosanchuk and MacNeil (1989) examined the aggressive tendencies of participants at 7 schools offering karate, tae kwon do, or jujitsu. At each school, they evaluated the relative importance of meditation in the class, the amount of respect the students showed towards the sensei, the dojo, and each other, the level of contact allowed to vital areas of the body, and the relative importance of kata. Based on this evaluation, they classified 4 of the schools as "traditional" (more meditation, respect and kata, less contact to vital areas) and 3 of them as "modern". To control for self-selection and attrition skewing the results, the authors also evaluated students who had quit these schools and students who had moved from one school to another. Beginning students in both traditional and modern schools had similar scores. More advanced students in the traditional schools showed lower scores for aggression than beginning students. There was no change in the scores of the students at the schools with the "modern" emphasis. Both Trulson (1986) and Regets (1990) obtained similar results. In contrast, Egan (1993) found that both traditional and modern styles of training led to improvements in general mental health. However, the traditional martial arts students showed significant increases in scores for self-acceptance which were not reported for the students with a modern emphasis in training. Most research supports the hypothesis that it is the training environment and style of instruction influencing these differences.

One study, however, showed that college boxers, who probably had none of these attributes in their training, became less aggressive with training (Husman, 1955). This suggests other factor(s) may also influence reductions in aggression. One possibility is that the sensei or coach acts as a

role-model and "leads by example". Regets (1990) reported a positive correlation between an instructor's aggressiveness and his/her student's aggressiveness. Conversely, a negative correlation between an instructor's traditional characteristics and his/her student's aggressiveness was observed. One interpretation of this is that the instructor influences the student's behavior through modeling. This is similar to the sentiments expressed by Musashi: "the teacher is as a needle, the disciple is as thread".²

At this time, it would be premature to rule out the other components of traditional training environments since it is likely that more traditional instructors would self-select into traditional environments and less traditional instructors into less traditional environments. These findings suggest that martial arts should be much more than just kicks, punches, and throws. The training environment or the instructor or both influences whether or not positive psychosocial changes occur in martial artists. Therefore, it is impossible to assume that martial arts training will foster positive psychosocial changes because there are many differences between martial arts classes and instructors with respect to their emphasis on physical, mental, and spiritual components found within the Asian martial arts.

Are the Martial Arts Effective as a Means of Psychological Treatment?

Recreational and fitness activities have been shown to be helpful for various special needs populations (Van Andel and Austin, 1984; Maisto and Stephens, 1991). Since martial arts practice can have beneficial outcomes, a number of people are looking to the martial arts as a means to treat psychological problems. For instance, Guthrie (1997) found that women recovering from psycho-sexual abuse, eating disorders, substance abuse and growing up in dysfunctional families reported that karate training was helpful in their recovery. In a case study, Weiser et al. (1995) claim that Shotokan Karate helped a client achieve quicker results in verbal therapy.

One of the most cited studies in this area was conducted by Trulson (1986). Adolescents identified as juvenile delinquents were assigned to one of three groups. The first group received traditional tae kwon do training (involving meditation, warm-up exercises, brief lecture about tae kwon do, and the physical techniques of tae kwon do); the second group received modern tae kwon do training (only the physical techniques were taught); and the third received a program of increased physical activity not involving the martial arts. All groups were taught by the same instructor for the same amount of time and in the same room. At the end of six months, the students in the traditional tae kwon do group showed a decrease in aggressiveness and anxiety and an increase in self-esteem. In contrast, the modern tae kwon do group showed an increased tendency towards delinquency and an increase in aggressiveness. Students in the exercise group showed an increase in self-esteem, but no other significant changes.

Several groups have used other martial arts as a means of psychological treatment. Judo training, but not the control activities, led to an increase in the social adjustment scores for developmentally disabled subjects (Davis and Byrd, 1975) and modified judo training increased the psychosocial skills for blind, developmentally disabled children (Gleser et al., 1992). Aikido training for adolescents with behavioral problems led to larger increases in self-esteem than traditional treatment (Madenlian, 1979). Both judo (Greene, 1987) and karate (Gorbel, 1990)

have been useful in reducing dysfunctional behaviors in male, behaviorally disordered adolescents. Judo has also been found to be a useful adjunct to community programs for the treatment of pre-delinquent children (Fleisher et al., 1995). Aikido has been successfully used as an intervention strategy for middle and high school students with severe emotional disturbances (Edelman, 1994) and other research indicates that martial arts may help reduce behavioral problems in children (Gonzalez, 1989).

While these reports indicate a wide range of therapeutic applications for the martial arts, not all problems can be treated with the martial arts; aerobic exercise, but not aikido was found to be effective at reducing Type A patterns characterized by: hyper-alert, aggressive, explosive speech mannerisms, and hostile emotions (Jasnoski et al., 1987).

Perhaps the positive results should not come as a surprise. There appear to be a number of parallels between psychotherapy and the martial arts (Suler, 1993) including the concepts of energy (ki or chi), distance, timing, and positioning (Seitz et al., 1990). In addition, blending, centering and pre-empting (Saposnek, 1980) have a practical usage in mental health therapy. The concept of giving way (ju) to use the strength of your opponent is similar to concepts found in the writings of Erikson and others regarding methods of therapy (Gleser and Brown, 1988). One of the central goals of both psychotherapy and many martial arts is knowing oneself and the world around us. As Master Sun says, "know the enemy and know yourself; in a hundred battles you will never be in peril".³ These battles can be waged both inside and outside of ourselves.

Summary

Empirical evidence supports anecdotal reports about the positive psychosocial consequences of martial arts practice. Numerous investigations into this topic over three decades show that the practice of martial arts promotes positive psychosocial changes. Only three studies report no changes promoted by martial arts training. One of these studies links this lack of change to training that emphasizes the physical techniques of the arts without the ethical, moral, spiritual, or meditative components included. Three reports make a similar conclusion about martial arts students who develop negative traits. It is not entirely clear how the martial arts lead to positive psychosocial changes. The role of exercise and physical fitness from the martial arts on these changes has not been explored. Only one study reports the physical fitness benefits of martial arts training compared to other training regimes (Spear, 1989) and none of the studies measure activity levels during training. Nonetheless, it is likely that inclusion of the non-physical aspects of the martial arts during training or the instructor acting as a positive role model or both play a role in promoting long-term changes. A goal for future research will be to design experiments to determine which specific aspects of the martial arts affect these positive changes. Despite the unanswered questions about how these changes occur, the martial arts are finding a niche in the treatment of psychological disorders and will likely prove to be a useful complement to verbal therapy. It is gratifying to know that research is beginning to support the claims of the old masters: the martial arts can help develop both better bodies and better minds and may lead to a better, more peaceful society.

Footnotes 1) Cross Sectional studies examine subjects at one point in time while longitudinal studies assess subjects at multiple points in time. Longitudinal studies are more reliable for making correlations between an activity and changes in the subjects.

2) Musashi Miyamoto. (1974) *A Book of Five Rings*. Victor Harris, trans. The Overlook Press: Woodstock, N.Y. p. 41.

3) Sun Tzu. (1963) *The Art of War*. Samuel B. Griffith, trans. Oxford University Press: Oxford. p. 84

References

Blinde, E.M. and McClung, L.R. (1997) Enhancing the Physical and Social Self Through Recreational Activity: Accounts of Individuals with Physical Disabilities. *Adapted Physical Activity Quarterly* 14: 327-344.

Brown, D.R., Wang, Y., Ward, A., Ebbeling, C.B., Fortlage, L., Puleo, E., Benson, H. and Rippe, J.M. (1995) Chronic Psychological Effects of Exercise and Exercise Plus Cognitive Strategies. *Medicine and Science in Sports and Exercise* 27: 765-775.

Daniels, K. and Thornton, E.W. (1990) An Analysis of the Relationship Between Hostility and Training in the Martial Arts. *Journal of Sports Sciences* 8: 95-101.

Daniels, K. and Thornton, E. (1992) Length of Training, Hostility and the Martial Arts: A Comparison with Other Sporting Groups. *British Journal of Sports Medicine* 26: 118-120.

Davis, B. and Byrd, R.J. (1975) Effects of Judo on the Educable Mentally Retarded. *Journal of Sports Medicine* 15: 337-341.

Delva-Tautili, J. (1995) Does Brief Aikido Training Reduce Aggression of Youth? *Perceptual and Motor Skills* 80: 297-298.

Duthie, R.B., Hope, L. and Barker, D.G. (1978) Selected Personality Traits of Martial Artists as Measured by the Adjective Checklist. *Perceptual and Motor Skills* 47: 71-76.

Edelman, A.J. (1994) The Implementation of a Video-Enhanced Aikido-Based School Violence Prevention Training Program to Reduce Disruptive and Assaultive Behaviors Among Severely Emotionally Disturbed Adolescents. ERIC Document Reproduction Service No. ED384187.

Egan, M.A. (1993) The Effects of Martial Arts Training on Self-Acceptance and Anger Reactivity with Young Adults. ProQuest Dissertation Abstracts No. AAC 9239036.

Finkenber, M.E. (1990) Effect of Participation in Tae kwon do on College Women's Self-Concept. *Perceptual and Motor Skills* 71: 891-894.

Fleisher, S.J., Avelar, C., Latorre, S.E., Ramirez, J., Cubillos, S., Christiansen, H. and Blaufarb, H. (1995) Evaluation of a Judo/Community Organization Program to Treat Predelinquent Hispanic Immigrant Early Adolescents. *Hispanic Journal of Behavioral Sciences* 17: 237-248.

Foster, Y.A. (1997) Brief Aikido Training Versus Karate and Golf Training and University Students' Scores on Self-Esteem, Anxiety, and Expression of Anger. *Perceptual and Motor Skills* 84: 609-610.

Gleser, J. and Brown, P. (1988) Judo Principles and Practices: Applications to Conflict-Solving Strategies in Psychotherapy. *American Journal of Psychotherapy* 42: 437-447.

Gleser, J.M., Margulies, J.Y., Nyska, M., Porat, S. and Mendelberg, H. (1992) Physical and Psychosocial Benefits of Modified Judo Practice for Blind, Mentally Retarded Children: A Pilot Study. *Perceptual and Motor Skill* 74: 915-925.

Gonzalez, M.B. (1989) The Effects of Martial Arts Training on the Cognitive, Emotional, and Behavioral Functioning of Latency-Age Youth: Implications for the Prevention of Juvenile Delinquency. *ProQuest Abstracts AAC* 9008022.

Gorbel, L.B. (1990) The Martial Arts and Mental Health: Psychotherapeutic Effects of Modified Karate Training Upon Behaviorally Disordered Adolescents. *ProQuest Dissertation Abstracts. AAC* 9105812.

Green, J.R. (1987) A Comparison of the Effects of Two Recreational Interventions on Various Aspects of Adaptive Behavior and Self-Concept Among Male Adolescent Offenders with Mild Mental Retardation in Residential Treatment. *ProQuest Dissertation Abstracts. AAC* 8717644.

Guthrie, S.R. (1995) Liberating the Amazon: Feminism and the Martial Arts. *Women and Therapy* 16: 107-119.

Guthrie, S.R. (1997) Defending the Self- Martial Arts and Women's Self Esteem. *Women in Sport and Physical Activity Journal* 6: 1-28.

Husman, B.F. (1955) Aggression in Boxers and Wrestlers As Measured by Projective Techniques. *Research Quarterly* 26: 421-425.

Janoski, M.L., Corday, D.S., Houston, B.K., and Osness, W.H. (1987) Modification of Type A Behavior Through Aerobic Exercise. *Motivation and Emotion* 11: 1-17.

Jin, P. (1989) Changes in Heart Rate, Noradrenaline, Cortisol and Mood During Tai Chi. *Journal of Psychosomatic Research* 33: 197-206.

Jin, P. (1992) Efficacy of Tai Chi, Brisk Walking, Meditation, and Reading on Reducing Mental and Emotional Stress. *Journal of Psychosomatic Research* 36: 361-370.

- Konzak, B. and Bourdeau, F. (1984) Martial Arts Training and Mental Health: An Exercise in Self-Help. *Canada's Mental Health* 32: 2-8.
- Kroll, W. and Carlson, B.R. (1967) Discriminant Function and Hierarchical Grouping Analysis of Karate Participants' Personality Profiles. *Research Quarterly* 38: 405-411.
- Kurian, M., Caterino, L.C. and Kulhavy, R.W. (1993). Personality Characteristics and Duration of ATA Tae kwon do Training. *Perceptual and Motor Skills* 76: 363-366.
- Kurian, M., Verdi, M.P., Caterino, L.C. and Kulhavy, R.W. (1994) Relating Scales on the Children's Personality Questionnaire to Training Time and Belt Rank in ATA Tae kwon do. *Perceptual and Motor Skills* 79: 904-906.
- Kutner, N.G., Barnhart, H., Wolf, S.L., McNeely, E. and Xu, T. (1997) Self-Report Benefits of Tai Chi Practice by Older Adults. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 52B: P242-P246.
- Layton, C. (1988) The Personality of Black-Belt and Nonblack-belt Traditional Karateka. *Perceptual and Motor Skills* 67: 218.
- Layton, C. (1990) Anxiety in Black-Belt and Nonblack-Belt Traditional Karateka. *Perceptual and Motor Skills* 71: 905-906.
- Leith, L.M. and Taylor, A.H. (1990) Psychological Aspects of Exercise: A Decade Literature Review. *Journal of Sport Behavior*. 13: 219-239.
- Madden, M.E. (1990) Attributions of Control and Vulnerability at the Beginning and End of a Karate Course. *Perceptual and Motor Skills* 70: 787-794.
- Madden, M.E. (1995) Perceived Vulnerability and Control of Martial Arts and Physical Fitness Students. *Perceptual and Motor Skills* 80: 899-910.
- Madenlian, R.B. (1979) An Experimental Study of the Effect of Aikido Training on the Self-Concept of Adolescents with Behavioral Problems. *Dissertation Abstracts International* 40A: 760-761.
- Maisto, A.A. and Stephens, J.R. (1991) Mental Retardation and Recreational Fitness Programs. IN: *Psychology of Sports, Exercise, and Fitness: Social and Personal Issues*. (L. Diamant, ed.) Hemisphere Publishing Corporation: New York. pp. 261-269.
- McGowan, R.W., Pierce, E.F. and Jordan, D. (1991) Mood Alterations with a Single Bout of Physical Activity. *Perceptual and Motor Skills* 72: 1203-1209.
- Nosanchuk, T.A. (1981) The Way of the Warrior: The Effects of Traditional Martial Arts Training on Aggressiveness. *Human Relations* 34: 435-444.

- Nosanchuk, T.A. and MacNeil, M.L. (1989) Examination of the Effects of Traditional and Modern Martial Arts Training on Aggressiveness. *Aggressive Behavior* 15: 153-159.
- Nouri, S. and Beer, J. (1989) Relations of Moderate Physical Exercise to Scores on Hostility, Aggression, and Trait-Anxiety. *Perceptual and Motor Skills* 68: 1191-1194.
- Paul, W.W. (1979) Aggression, Control, and Non-Verbal Communication: Aspects of Asian Martial Arts. *Dissertation Abstracts International* 40B: 5873.
- Pyecha, J. (1970) Comparative Effects of Judo and Selected Physical Education Activities on Male University Freshman Personality Traits. *Research Quarterly* 41: 425-431.
- Regets, C.M. (1990) The Relationship Between Self-Actualization and Levels of Involvement in Aikido. *ProQuest Dissertation Abstracts*. AAC 9027839.
- Reiter, H. (1975) A Note on the Relationship Between Anxiety and Karate Participation. *Mankind Quarterly* 16: 127-128.
- Richman, C.L. and Rehberg, H. (1986) The Development of Self-Esteem Through the Martial Arts. *International Journal of Sport Psychology* 17: 234-239.
- Rothpearl, A. (1980) Personality Traits in Martial Artists: A Descriptive Approach. *Perceptual and Motor Skills* 50: 395-401.
- Saposnek, D.T. (1980) Aikido: A Model for Brief Strategic Therapy. *Family Process* 19: 227-238.
- Seitz, F.C., Olson, G.D., Locke, B. and Quam, R. (1990) The Martial Arts and Mental Health: The Challenge of Managing Energy. *Perceptual and Motor Skills* 70: 459-464.
- Simono, R.B. (1991) Anxiety Reduction and Stress Management Through Physical Fitness. IN: *Psychology of Sports, Exercise, and Fitness: Social and Personal Issues*. (L. Diamant, ed.) Hemisphere Publishing Corporation: New York. pp. 51-61.
- Skelton, D.L., Glynn, M.A. and Berta, S.M. (1991) Aggressive Behavior as a Function of Tae kwon do Ranking. *Perceptual and Motor Skills* 72: 179-182.
- Slater, J. and Hunt, H.T. (1997) Postural-Vestibular Integration and Forms of Dreaming: A Preliminary Report of the Effects of Brief T'ai Chi Chuan Training. *Perceptual and Motor Skills* 85: 97-98.
- Spear, R.K. (1989) Military Physical and Psychological Conditioning: Comparisons of Four Physical Training Systems. *Journal of the International Council for Health, Physical Education and Recreation*. 25: 30-32.

Suler, J.R. (1993) *Contemporary Psychoanalysis and Eastern Thought*. State University of New York Press: Albany. pp. 163-240.

Trulson, M.E. (1986) *Martial Arts Training: A Novel "Cure" for Juvenile Delinquency*. *Human Relations* 39: 1131-1140.

Van Andel, G.E. and Austin, D.R. (1984) *Physical Fitness and Mental Health: A Review of the Literature*. *Adapted Physical Activity Quarterly* 1: 207-220.

Weiser, M., Kutz, I., Kutz, S.J. and Weiser, D. (1995) *Psychotherapeutic Aspects of the Martial Arts*. *American Journal of Psychotherapy* 49: 118-127.

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