

**This is an electronic reprint of the original article.  
This reprint *may differ* from the original in pagination and typographic detail.**

**Author(s):** Kavoura, Anna; Ryba, Tatiana V.; Kokkonen, Marja

**Title:** Psychological Research on Martial Artists

**Year:** 2012

**Version:**

**Please cite the original version:**

Kavoura, A., Ryba, T. V., & Kokkonen, M. (2012). Psychological Research on Martial Artists. *Scandinavian Sport Studies Forum*, 3, 1-23.  
<http://sportstudies.org/2012/02/15/psychological-research-on-martial-artists-a-critical-view-from-a-cultural-praxis-framework/>

All material supplied via JYX is protected by copyright and other intellectual property rights, and duplication or sale of all or part of any of the repository collections is not permitted, except that material may be duplicated by you for your research use or educational purposes in electronic or print form. You must obtain permission for any other use. Electronic or print copies may not be offered, whether for sale or otherwise to anyone who is not an authorised user.

# Psychological Research on Martial Artists

## A Critical View from a Cultural Praxis Framework

### **Anna Kavoura**

University of Jyväskylä, Finland  
<anna.a.kavoura@student.jyu.fi>

### **Tatiana V. Ryba**

Aarhus University, Denmark  
<ryba@sport.au.dk >

### **Marja Kokkonen**

University of Jyväskylä, Finland  
<marja.kokkonen@jyu.fi>

### **Abstract**

In this article, we problematize sport psychology research on martial artists and offer some suggestions for advancing our knowledge in this area of research and practice. First, we review the previous research in the field. Then we introduce “cultural praxis” as a theoretical framework that will guide our analysis. Finally, we engage sociological studies of female fighters in conjunction with the adopted theoretical lens to outline the limitations of sport psychological research with regards to the experiences of women. It seems that the majority of the studies have used the male athlete as the norm, while research on the female athlete remains limited and focused on “differences”. Focusing persistently on gender differences, without drawing at all on gender theory reflects a gender bias, which seems to be engrained in sport psychology studies. Recent sociological studies have shed some light on the experiences of female martial artists, but have paid scant attention to the constantly changing locale in which female athletes operate. Here, we suggest “cultural praxis” as an intervention to gain insights into the behaviors, values, and emotions of the *other sex* athletes.

*Key words:* combat sports, martial arts, cultural praxis, female athletes, gender

Feminist researchers have argued that women's martial arts, similar to women's participation in other traditionally male sports, have not been taken seriously (Halbert, 1997), and have largely been hidden from history (Hargreaves, 1997). Although women have partaken in martial arts far longer than most people would ever suspect and female participation in combat sports has increased recently (Hargreaves, 1997; Macro, Viveiros, & Cipriano, 2009), research on this subject remains a relatively new field.

While sport psychology research on martial arts has been reviewed in the past (see Fuller's review, 1988; Martin, 2006, for a literature review on the psychological benefits of martial arts training; and Vertonghen & Theeboom, 2010, for a review on the psychological outcomes for youth of martial arts training), this paper is an attempt at an updated review of the existing research in the field, and an examination of the literature from the gender and cultural studies viewpoint. In this review, we use the terms combat sports and martial arts interchangeably to refer to all combat systems. Furthermore, this paper aims at advancing the arguments for a contextualised approach in sport psychology made by critical scholars of sport (e.g., Krane & Baird, 2005; Ryba & Wright, 2005; Stambulova & Alfermann, 2009; Thorpe, 2009). Following these aims, first we review the extant sport psychology research on martial artists. Then we introduce "cultural praxis" as a theoretical framework that will guide our analysis. Finally, we draw on sociological studies of female fighters in conjunction with the adopted theoretical lens to offer a critical gender analysis.

## Methods

We searched for relevant articles in the PsycInfo and SPORTDiscus with full text databases, using the key words of martial arts, combat sports, karate, judo, jiu jitsu, boxing, wrestling, taekwondo, gender, and psychology that appear either in the title, abstract or among identified key words. For reasons of accessibility, we limited our review to English language research articles published in international journals. We excluded non-scientific articles and research irrelevant to our topic, such as testing of athletes' physical fitness. Psychological research that used non-competitive forms of martial arts (e.g., tai chi, aikido) was also excluded, as our focus is on athletes and not on recreational participants. However, we

included studies that had a mixed sample of competitive and non-competitive martial artists. Sociological studies that emerged in our database search were included to critique the existing sport psychology research.

There were 38 psychological and sociological, refereed journal articles, published between 1980 and 2010, that met the established criteria. Adopting a “presentist” viewpoint, which entails the reflection of past research through the lens of present-day knowledge (Kontos, 2010), our analysis of the identified studies was guided by the following questions: What research questions do sport psychologists tend to investigate while studying female vs. male martial artists? What theories inform their research on gender? How are gender differences explained? What are the implications of the extant psychological research for how female and male athletes are constituted?

## Reviewing extant sport psychology research

### *Sport psychology studies on competitive martial artists*

In this section, we offer a brief summary of reviewed psychological research on men and women in combat sports. Based on the nature of the sample, we grouped the papers into two categories: 1) studies on competitive martial artists and 2) studies with mixed samples of competitive and non-competitive martial artists (see Tables 1 and 2). In this overview, we maintain language used by the authors of the reviewed articles.

The earliest published sport psychology research on competitive athletes, generated by our database search, is a paper by d’Arripe-Longueville, Fournier and Dubois (1998) examining coaches’ and athletes’ perceptions concerning their effective interactions. In-depth interviews of male coaches and female athletes of the French judo national team revealed that the coaches used an authoritarian interaction style. Coaches perceived strategies such as provoking athletes verbally, displaying indifference, entering into direct conflict, and showing preferences as effective, and believed that pushing athletes to their limits makes them mentally tougher. In their interactions with the coaches, female athletes (who could not question the coaches’ authority) implemented strategies of showing diplomacy, achieving exceptional performance, soliciting coaches directly, diversifying information sources, and bypassing conventional rules.

Table 1 Sport psychology studies on competitive martial artists

<i>Year</i>	<i>Author(s)</i>	<i>Sample (n)</i>	<i>Gender</i>	<i>Martial art</i>	<i>Research focus</i>
1998	d'Arrigo-Longueville et al.	9	F	Judo	Coach-athlete interaction
2001	Szabo & Parkin	21	M, F	Karate	Training deprivation
2004	Robazza et al.	10	M, F	Karate	Emotions
2004	Ruiz & Hanin	16	M, F	Karate	Emotions
2004	Ruiz & Hanin	43	M, F	Karate	Emotions
2004	Ruiz & Hanin	63	M, F	Karate	Emotions
2004	Gerrigon et al.	2	M	Judo	Achievement goals
2004	Mroczkowska	69	M, F	Fencing	Motivation
2005	Hill & Barton	–	M	Boxing, Taekwondo, Wrestling	Color effects
2005	Rowe et al.	–	M	Judo	Color effects
2007	Mroczkowska	82	F	Fencing, Judo	Motivation and "masculinity"
2008	Dijkstra & Preenen	–	M	Judo	Color effects
2009	Mroczkowska	70	M, F	Fencing	Perceptions of competence

*Note.* We indicate the gender of the participants using "F" for female and "M" for male. The symbol "–" is used to indicate that the study was based on the analysis of contest outcomes.

Examining the psychological impact of a one-week period of deprivation from training at brown and black belt levels in Shotokan karate, Szabo and Parkin (2001) found that advanced athletes experienced a severe mood disturbance during the one week of abstinence from training, irrespective of the individual's sex. Szabo and Parkin speculated that this 'surprising' finding might be due to the fact that the female athletes performed martial arts at an advanced level, and therefore developed particular traits or characteristics fostered by values and training practices at black belt level in martial arts.

Research of Hanin and colleagues stemmed from the *Individual Zones of Optimal Functioning* (IZOF) model and focused on the emotions of highly-skilled karateka (Robazza, Bortoli, & Hanin, 2004; Ruiz & Hanin, 2004a, 2004b, 2004c). Robazza and colleagues (2004) investigated the effectiveness of individual-oriented predictions of performance in Italian athletes. Specifically, the authors examined the practical utility of the in/out-of-zone notion as applied to the idiosyncratic intensity and content of emotions, bodily symptoms, and task-specific qualities in predicting performance assessed by individualised emotional profiles. Results showed that the emotions and bodily responses of the athletes differed between successful and average performances.

Ruiz and Hanin (2004a, 2004b, 2004c) extended the research on performance and athletes' subjective emotional experiences. Investigating the utility of integrating metaphor self-generation method and individualised emotion profiling in the description of performance states in elite Spanish karateka, Ruiz and Hanin (2004a) concluded that the content of metaphors that the athletes used to describe their emotional states was different prior to, during, and after performances as well as across best and worst competition. High action readiness was manifested in best performance situations, while low action readiness was reflected in worst performance situations. A follow-up further revealed that the original metaphors were retained, indicating that athletes' perception of performance situation remains stable over time. Athletes experienced anger more frequently after worst performances, although anger symptoms were present in both best and worst performances. The words that the athletes used to describe their anger states, as well as the intensity of anger in best and worst performances, varied considerably for each individual, indicating the highly idiosyncratic nature of anger descriptors and intensity, and the need for individualized measures and interventions (Ruiz & Hanin, 2004b). Ruiz and Hanin (2004c) further found that ka-

rate athletes' optimal states were characterized by both pleasant and unpleasant emotions, and were perceived as temporary and dynamic. This finding, according to the authors, indicates the need for self-regulation to maintain these states. Findings also revealed that athletes did use different strategies to produce these states, such as relaxation techniques and visualization.

Several scholars have focused on achievement goal orientations and motivational processes of martial art athletes. Gernigon, d'Arripe-Longueville, Delignières, and Ninot (2004) explored how states of involvement toward mastery, performance approach, and performance-avoidance goals were interrelated and activated during a practice of judo combat. In other words, authors explored whether athletes can experience more than one state (task and ego involvement) at a given moment. A judo training session was video recorded and the study was based on the combat between two male, national level judo athletes. The judokas were asked to watch the video and indicate their moment-to-moment levels of involvement toward each goal. Goal involvement states were subject to fast variations that could result in frequent changes in the dominant goal focus. The authors further concluded that states of mastery, performance-approach, and performance-avoidance involvement can be interrelated in all kinds of patterns.

Mrockowska (2004) investigated gender differences in motivation and success expectance in a group of fencers that was divided into four subgroups (women with high vs. low success expectance, men with high vs. low success expectance). Self-ratings revealed that men with lower success anticipation rate internal motives (such as friendship and enjoyment) significantly higher than men with high success expectance, who are strongly motivated by external motives (such as winning and social appreciation). No significant differences were found between the two subgroups of women; however, there was a tendency for women with strong self-confidence in their abilities to be prompt to follow internal motives.

More recently Mrockowska (2007) investigated whether women with dissimilar patterns of "masculinity" function differently when placed in rivalry situations. Particularly, the author studied professional female fencers and judokas, with regard to their cognitive-motivational structures of personality (motivation to achieve, sense of internal versus external control, and self-evaluation of own predispositions and chances of success in sport) after dividing them into two groups of high and low

expression of “masculine” pattern. Questionnaires revealed that the athletes with a strongly developed “maleness” perceived their future success with greater probability and rated their psychophysical features, efforts and capabilities in sport higher than did their poorly “masculine” counterparts. Furthermore, the female athletes with the weakly developed “masculine” pattern expressed a fearful motivation of achievements, which translates into perceiving threats rather than factors favoring arrival at the desired goal. The author concluded that “in a rivalry situation a woman without mental readiness to use the ‘masculine’ pattern fears much worse than her counterpart presenting with a pronounced willingness to enjoy the man-like repertoire of behaviors” (Mrockowska, 2007, p. 283).

In another study, Mrockowska’s (2009) comparison of the perceptions of competence and aspirations between female and male fencers revealed that “women’s perceptions of the high chance of sporting success was a much rarer phenomenon than in the case of men” (Mrockowska, 2009, p. 232). More than half of the female athletes estimated their chances of sporting success as average, while more than half of the male athletes estimated their probability of success as high. Moreover, women with high self-assessment of the chances of success were characterized by a strong task motivational orientation and high self-assessment of their own sporting abilities. In contrast, women with low self-assessment of chances of success were characterized by a strong ego motivational orientation and low self-assessment of their sporting predispositions.

A number of research papers focused on the effect of certain colours in contest outcomes. Hill and Barton (2005) analysed outcomes from the 2004 Olympic Games of the men divisions in boxing, taekwondo, Greco-Roman wrestling, and freestyle wrestling and found that wearing a red outfit was associated with a higher winning probability compared to wearing a blue outfit. Hill and Barton offered an explanation based on evolutionary psychology, arguing that red colour is a signal of male dominance in many animal species. Rowe, Harris and Roberts (2005) proposed that this effect is not unique for red coloration. After analysing outcomes of men’s judo contests in the 2004 Olympic Games, they found a significant winning bias for athletes wearing a blue outfit relative to those wearing a white outfit. They proposed that colour of the outfit might affect opponent’s visibility which is crucial for performance. However, Dijkstra and Preenen (2008) argued that there exists no winning bias for blue in judo and that findings by Rowe et al. were perplexing.



After re-analysing the outcomes of the 2004 men's Olympic Games, as well as additional contest outcomes of 71 major judo tournaments, authors concluded that athletes wearing blue are no more likely to win than those wearing white.

### *Sport psychology studies with mixed samples*

It seems that sport psychology research on mixed samples of competitive and non-competitive martial artists started much earlier than research focused exclusively on competitive athletes (see Table 2). As Gill and Kamphoff (2010) explain, this might be due to the strong emphasis on *applied* sport psychology during the 1990s that narrowed down the research focus to performance outcomes and elite sport.

The earliest published sport psychology research generated by our database search is a paper by Rothpearl (1980), examining personality traits of martial artists. Self-reports revealed that intermediate athletes showed a greater variety of hostile modes of expression than both beginner and advanced athletes. In general, the effects of martial arts training on aggressiveness have gathered great research attention. It seems that long-term martial arts training can reduce aggressiveness (Daniels & Thornton 1990, 1992; Lamarre & Nosanchuk, 1999; Nosanchuk, 1981; Skelton, Glynn, & Berta, 1991), especially when training includes elements from the traditional approaches to martial arts, such as kata (Nosanchuk & MacNeil, 1989). Specifically, Nosanchuk (1981) and later Lamarre and Nosanchuk (1999) focused on the effects of Asian martial arts training on aggressiveness, revealing a decrease in aggressiveness over the years of practice, which was independent of the participants' sex (Lamarre & Nosanchuk, 1999). Comparing self-reported data from male martial artists and athletes of other sports, Daniels and Thornton (1990, 1992) suggested that participation in the martial arts is associated, over time, with decreased feelings of assault and verbal hostility.

With regard to gender, some interesting results were found by Bjorkqvist and Varhama (2001), who investigated whether karatekas have more negative attitudes toward violent conflict resolution than wrestlers and boxers, noncontact athletes, and controls practicing no sports. The findings showed that male karateka held relatively negative attitudes toward violent conflict resolution, whereas the opposite was noted for female karateka. The attitude scores of female karateka were higher than those of other female groups, suggesting that they may be more prone to accept violent conflict resolution compared to other female participants.

Table 2 Sport psychology studies with mixed samples (competitive and non-competitive athletes)

Year	Author	Sample (n)	Gender	Martial art	Research focus
1980	Rothpearl	152	M, F	Tang Soo Do	Personality traits
1981	Nosanchuk	41	–	Karate, Taekwondo	Aggressiveness
1982	Miller et al.	48	F	Judo, Jiu-jitsu	Fearfulness
1989	Nosanchuk & MacNeil	38	M, F	Karate, Taekwondo, Jiu-jitsu	Aggressiveness
1990	Daniels & Thornton	90	–	Jiu-jitsu, Karate	Aggressiveness
1991	Skelton et al.	68	M, F	Taekwondo	Aggressiveness
1992	Daniels & Thornton	79	M	Karate, Jiu-jitsu	Aggressiveness
1995	Ripoll et al.	18	–	Boxing	Visual search activity
1998	Columbus & Rice	17	M, F	Karate, Taekwondo, Tai chi	Experiential dimensions
1999	Lamarre & Nosanchuk	51	M, F	Judo	Aggressiveness
1999	Williams & Elliott	16	M	Karate	Visual search activity
2000	Gernigon & Le Bars	164	–	Judo, Aikido	Achievement goals
2001	Bjorkqvist & Varhama	319	M, F	Karate, Wrestling, Boxing,	Attitudes toward violence
2005	Endresen & Olweus	477	M	Boxing, Wrestling, Oriental martial arts	Aggressiveness
2006	Rowold	186	M, F	Karate	Coach leadership styles
2010	Ko et al.	307	M, F	Various	Motivation for participation

*Note.* Some of these studied have used control groups of non-athletes or athletes from other sports, but we have not included this information in this table. For more information, please refer to the text or the original article. F = female, M = male, – = the gender of participants was not indicated in the reviewed article.

Authors assumed that women may associate karate with a right to defend themselves physically against assault, while men tend to associate karate with nonviolent defense.

Some additional question-marks remain regarding the psychological effects of martial arts training on children and youth. While research by Skelton et al. (1991) showed that high level of taekwondo training was associated with less aggressiveness, Endresen and Olweus (2005) found contradictory results, questioning the positive effects of martial arts training. Endresen and Olweus (2005) examined the relationship between participation in power or fight sports (boxing, wrestling, weight lifting, oriental martial arts) and violent and antisocial behaviour in young boys. Participation in these sports actually increased violent and antisocial behaviour.

Early work by Miller, Wagner, and Edwards (1982) focused on fearfulness. It would seem that this study did not contextualize martial arts as competitive sports. Investigating the psychological effects of practicing martial arts as a form of self-defense, Miller et.al (1982) studied whether women enrolled in beginner and advanced judo-jujitsu classes in a mid-west American city were more fearful than women enrolled in fitness or crafts classes. The authors reasoned that “as women increasingly enter domains previously perceived as male dominated, it seems likely that at least some are doing so as a reaction to threat, and the coping methods subsequently utilized take an added significance” (Miller et al., 1982, p. 341). In their survey, women in the beginner’s judo-jujitsu group perceived the world as more threatening than women in the advanced judo-jujitsu group, fitness group or crafts group. As it was only the beginner judo-jujitsu participants who exhibited significant fearfulness and bodily concern, the researchers suggested that the advanced group was more successful in managing perceived environmental threat due to their sporting achievements. Miller and colleagues concluded that results obtained, support the contention that “certain characteristics are peculiar to women who seek out a particular physical activity” (p. 342), thus implicating fearfulness and bodily concerns to be “peculiar” to women who enroll in martial arts.

Another topic that gathered research attention was visual search activity in martial arts. Ripoll, Kerlirzin, Stein, and Reine (1995) analyzed information processing, decision making, and visual search activity in French boxing. Six experts, six intermediate, and six novice athletes whose gender was not indicated were asked to solve different boxing

situations, in which a boxer, considered as an opponent, was video-recorded and the image projected into a screen. The participants had to respond to the attacks of the opponent by manipulating a joystick. The visual search activity of the athletes was recorded and analyzed, and results indicated that experts adopted a more efficient search pattern while they also focused on different display areas than novices. Continuing the research on visual search, Williams and Elliott (1999) examined the effects of cognitive anxiety on anticipation and visual search behavior, as well as the differences in anticipation and visual search strategy between expert and novice karatekas. Results indicated that there were no differences between groups in number of fixations, mean fixation duration, or total number of fixation locations per trial. However, increased search activity was more pronounced in novices, with fixations moving from central to peripheral body locations.

Columbus and Rice (1998) attempted to shed some light on the dimensions by which American martial artists describe martial arts participation as a meaningful endeavour. Authors argued that even though Asian martial arts grow in popularity in North America, little is known about everyday experiences of the American practitioners that might influence participation, which might differ a lot from the traditional Asian values attributed to martial arts. Phenomenological analysis of written narratives of karate, taekwondo, and tai chi practitioners revealed four contexts in which martial arts were considered as worthwhile activities for participants: criminal victimization, growth and discovery, life transition, and task performance. In each of the four contexts, martial arts participation was experienced as valuable when it helped an individual's adaptation to everyday life circumstances. Moreover, each of these contexts revealed distinct and meaningful relations between participants' body/self, others, feelings, situation outcome, and martial arts practice. Thus, authors suggested that benefits of martial arts training may transfer to everyday life situations.

Gernigon and Le Bars (2000) investigated whether achievement goal orientations (task and ego) of children and adult practitioners of judo and aikido might be affected by the type of martial art that is practiced (competitive: judo vs. non-competitive: aikido), the level of experience (beginner vs. experienced), and the gender of the athlete. Children practicing aikido proved to be generally more task-oriented than children practicing judo. Furthermore, in the children's group, experienced aikidokas were less ego-oriented than beginner aikidokas and experienced

judokas, whereas experienced judokas were more ego-oriented than beginner judokas. Regarding the adult group, experienced aikidokas were both less task- and ego-oriented than beginner aikidokas and experienced judokas. Regarding gender, no effects for task- and ego-orientations reached significance. According to the authors, this finding was in contrast to the hypotheses and to previous literature addressing gender differences in goal orientations. Gernigon and Le Bars hypothesized that the nature of the investigated activities could have levelled gender differences:

Aikido and judo are both fighting sports and could be considered as reflecting masculine values. Therefore, these activities could have fostered masculine goal orientations (i.e., low task and high ego orientations) or could have been more attractive for persons with such characteristics, thus resulting in more homogeneity in males and females' goal orientations. (p. 175)

Ko, Kim, and Valacich (2010) examined motivation factors that influence an individual's participation in martial arts in order to provide leaders of the industry with meaningful managerial implications. These martial arts participants appeared to be highly motivated by growth-related motivation (e.g., value, development and actualization). Motivation of martial arts practitioners varied across types of martial arts disciplines, competition orientation, and past experiences.

Rowold (2006) explored students' perceptions of coaches' leadership behaviours in a martial arts setting. The author aimed to test whether coaches' behaviours can be described by a broad range of transformational, transactional, and non-leadership behaviours, as well as to provide information about both the range and effectiveness of distinct leadership styles of sport coaches. Participants in this study were German karatekas. Results supported a nine-factor structure of the Multifactor Leadership Questionnaire. In addition, the hypothesis that transformational leadership scales accounted for unique variance in coaches' leadership effectiveness beyond that of transactional and leadership scales was confirmed.

In sum, sport psychology research on competitive martial artists, studied alone or together with non-competitive martial artists, has generally focused on emotions, achievement goal orientations and other motivational issues, and coaches' relationships with their athletes. Much of the psychological knowledge base in martial arts was developed by inference from positivistic research with white male athletes. Among the 29 sport

psychology studies that we reviewed above, only eight contributed to the body of literature on female athletes or examined gender as a factor in their research. Certain psychological issues, such as the effects of uniform colour on performance and visual search activity have been studied based only on male participants. Furthermore, some studies conducted with female athletes did not draw at all on gender theory. For example, d'Arripe-Longuevall et al.'s (1998) present the strategies that female athletes use in order to interact successfully with their male coaches without engaging any gender critique of institutionalised power. Moreover, some of the papers did not even indicate gender of the participants, naturalising the male fighters as normative and worthy subjects to study.

### “Cultural praxis” as a discursive framework

In this section we introduce “cultural praxis” (Ryba & Wright, 2005) as a theoretical framework to guide our analysis of the reviewed empirical literature. Cultural praxis is premised on a feminist assertion that sport is a field where men continue to have ideological dominance and power, while women are constrained by dominant ideologies and gender stereotypes (Gill, 2001; Hargreaves, 2000; Messner, 1988; Messner & Sabo, 1990; Sisjord, 1997). The cultural praxis framework, by virtue of drawing on a feminist poststructuralist perspective (Butler, 1997; Rail, 2002; Weedon, 1987, 1999), provides us with the understandings how gendered power relations are (re)produced and contested within the disciplinary research practices of sport psychology.

Problematizing the way mainstream sport psychology trails its research and practice, Ryba and Wright (2005) proposed cultural praxis as an approach to sport psychology that deals with issues of marginalization and representation. Considerable attention in Ryba and Wright's work is given to the articulation of sport psychology with cultural studies in an effort to open up the psychological study of sport to cultural modes of analyses of psyche and behavior. Within a dominant sport psychological discourse, addressing diversity tends to take the form of an “add-on” approach, where the *other* subjects are included in research studies merely to be tested against the normative white, male, heterosexual and often North American subjects (Ryba & Wright, 2010). Postcolonial scholars (Said, 1978; Smith, 1999; Spivak, 1988) have argued that the West constructs the Other as different and exotic through a variety of cultural rep-

representations—representations that “speak for” the homogenized Other without offering an understanding of the Other.

Informed by the feminist poststructuralist and postcolonial perspectives, cultural praxis problematizes the term “athlete” as never fixed due to the subject’s fragmented and multiple identifications with various (gendered, ethnicized and racialized) discourses. To grasp psychic realities of the female fighter, therefore, would require transgressing the binary logic of “either/or” and untangling the multiplicity of cultural meanings inscribed on the athlete’s embodied psyche, which are predicated on “the logic of neither, nor, and both” (Helstein, 2005, p. 4). It is important to note that within the cultural praxis framework, the focus is not merely on textual subjectivity but on materiality of psychic experiences as “revealed *through* the subjectival first person” (Ingham, Blissmer, & Davidson, 1999, p. 239). In this sense, the praxis component works in tandem with analytical components of theory and research to understand and reassert the emotional and (un)conscious psychic events of the subject as they acquire meaning within available discourses.

Indeed, female martial artists cannot be understood as a homogeneous group. Having been socialized into combat sporting systems in various cultures as well as being subjects of multiple discourses such as class, race, gender, sexuality, religion, and age, female athletes have different motives and goals for participation in martial arts. In addition, different styles of martial arts require different skills and knowledge, and are embedded in different philosophies with their own sets of values. Furthermore, each training club attempts to form a community with its unique culture. This communal *glocal* culture is shaped by the globalised culture of the sport in juxtaposition with the local culture of the region and is, moreover, understood in a unique way by the club members. As cultural praxis advocates situating psychological research and/or applied work in the glocal matrix of a sporting culture without losing sight of lived experiences of the “athlete,” there is no need to ignore or subjugate complexity of difference by bringing it to the common denominator of an “average” subject. Instead, attempts are made to understand psychic subjectivity, how psychological processes of the subject are enacted by the context, and what practices can be implemented to engender progressive change in female martial arts.

Ryba, Schinke, and Tenenbaum (2010) argue that in the age of global mobility, it is increasingly important for sport psychologists working with transnational athletes to recognize that psyche is cultural and politi-



cal, and not only a matter of neurological processes and cognition of the individual subject. Naturally, as we argue, psyche has an emotional side to it. At the moment, there is a scarcity of research that examines how psychological constructs acquire meaning and are manifested in various sports across cultures. It also would seem essential to understand the complex dynamics between global and local martial arts cultures and how female subjectivity is articulated in and through everyday cultural practices of these communities. While there are many theoretical perspectives on how to address these questions, we believe that “cultural praxis” offers a discursive space to account for difference, hybridity, disorder and multiplicity in sporting communities (on community of articulation, see Helstein, 2005), and for a more nuanced and critical examination of the culturally constituted psychological functions of female martial arts athletes.

## Critiquing the status quo

In this section, we analyse the reviewed sport psychology research through the adopted theoretical lens, in order to offer a gender critique. Furthermore, we substantiate our points drawing on sociological studies of female fighters that emerged in our search (see Table 3).

Feminist scholars have argued that in the male dominated world of sports, most often men are studied, and not women (Gill & Kamphoff, 2010; Krane, 1994; Ryba & Wright, 2005, 2010). This seems to be the case with research on martial arts as well. Moreover, it seems that different topics are researched when men are studied vs. when women are studied. In this paper we examined what research questions mainstream sport psychologists tend to investigate when studying female martial artists, and what questions they ask when studying their male equivalents. It appeared that research on men has focused on various psychological issues that usually deal with performance and competition, or with the psychological effects of martial arts training, while research on women has focused on “differences” and “similarities” by comparing female martial artists with their male equivalents or with women outside the martial art world. For example: Are female martial artists more fearless than other women? What are their attitudes toward violent conflict resolution compared to their male equivalents or to non-athlete women? What are their motives and their expectations of success compared to male martial



Table 3 Sociological/gender studies

Year	Author	Sample (n)	Gender	Marital art	Research focus	Summary of results
1997	Sisjord	7	F, M	Wrestling	Perceptions of physicality	Wrestling experiences are closely intertwined with the gender status and perceptions of physicality in the wrestling discourse.
1997	Halbert	12	F	Boxing	Experiences	Female athletes experience discrimination and stereotypes, and they use several strategies to manage their identity.
1997	Hargreaves	–	F	Boxing	Meanings and identities	Different meanings and discourses can be applied to women's boxing, but always a diverse shaping of the female body occurs.
1997	Young	60	F	Wrestling, Martial arts, Other sports	Sense of violence, injury and physicality	Internal contradiction and ambiguities in the way traditionally male-defined sports are lived and made sense of by women.
2000	Mennesson	12	F	Boxing	Identities	Women boxers challenging the gender order but in the same time displaying traditional modes of femininity.
2007	Guerandcl & Menneson	6	F, M	Judo	Gender relations/interactions	Judo framework conflicts with that of gender expression, whereas the competitors must position themselves as men or women but also be recognized as judokas.
2008	Sisjord & Kristiansen	8	F, M	Wrestling	Athletes' perceptions of media coverage	Athletes perceived media coverage to be limited, gender stereotyped, and focused on sensational aspects and scandals.
2009	Macro et al.	47	F	Wrestling	Experiences related to identity, body consciousness, sexuality, and femininity.	Female wrestlers were comfortable with their bodies and the public perception of their femininity and sexuality, and did not feel a gender-role conflict nor a necessity to engage in performing hegemonic femininity.
2009	Sisjord & Kristiansen	8	F, M	Wrestling	Experiences and enactment of the wrestler's role	Different ways in which female wrestlers perform femininity. Gender performativity appeared to be dependent on cultural capital of the competitive status.

Note. F = female, M = male, – = the study was based on literature

artists? Overall, and similar to other sports, the male martial artist appear to be the norm which the sport psychological knowledge is based on, while the female martial artist is examined later on, as being “similar” or “different” to the norm. Thus, many psychological issues have been studied based only on male participants. In addition, while rich research exists on the psychological impacts of martial arts training on boys (Endresen & Olweus, 2005, as well as Reynes & Lorant, 2002a, 2002b, 2004 that were not included in our review because of the non-competitive nature of their samples, but are worth mentioning here), almost nothing exists for girls (see Vertonghen and Theeboom, 2010, for a review of studies on youth).

Investigating what theories inform gender research on martial arts, it appeared that mainstream sport psychology has focused persistently on gender differences, without drawing at all on gender theory. Drawing mainly upon quantitative methods, most of the researchers were very surprised when they found no gender differences in their investigations (Gernigon & Le Bars, 2000; Lamarre & Nosanchuk, 1999; Szabo & Parkin, 2001). Trying to explain this lack of gender differences, they came to the conclusion that elite martial artists develop “masculine” traits. Only two studies found gender differences. Mrockowska (2009) suggested that women’s perceptions of high chance in sporting success is a much rarer phenomenon than in the case of men, while Bjorkqvist and Varhama (2001) suggested that women held relatively more positive attitudes toward violent conflict resolution.

The differentiation of topics and research questions when it comes to the study of women vs. men reflect a gender bias which seems to be engrained in sport psychology studies. This gender bias, in conjunction with a lack of gender/social theory underpinnings of the analyses of gender differences or similarities, is very problematic and has negative implications on how female athletes are constituted. Moreover, by comparing female competitive martial artists with female non-athletes or with male martial artists, many of the sport psychology studies cited above reinforce the stereotypes which suggest that female martial art athletes are somehow different from the so-called “normal” women, such as claims that certain characteristics are particular to women who seek out physical activities as martial arts (Miller et al., 1982), that elite martial artists develop “masculine” traits (Gernigon & Le Bars, 2000; Mrockowska, 2007; Szabo & Parkin, 2001), or that female martial artists may be more prone to accept violent conflict resolutions in contrast to other women

(Bjorkqvist & Varhama, 2001). Additionally, some studies reinforce the gender stereotypes that female martial art athletes are somehow “weaker” than their male counterparts, or that women’s perceptions of high chance in sporting success is a much rarer phenomenon than in the case of men (Mrockowska, 2009).

Approaches of this kind carry various limitations and fail to give insights into women’s experiences, instead presenting female martial artists as a homogenous group with similar personality characteristics and motives and reinforcing the social constitution of female martial artists as essentially different from male athletes or from female non-athletes. Several feminist scholars have pointed out the harmful effects of gender stereotyping on the psyche of the female martial artist (see for example, Halbert, 1997; Sisjord & Kristiansen, 2008). In contrast, regarding the constitution of the male martial artist, sport psychological scholarship seems to use ‘him’ as the norm, thereby preserving the male power and dominance in the domain of martial arts. For example, d’Arripe-Longuevill and colleagues (1998) overemphasize the “success” of the authoritative and patriarchal system of elite sports:

We discovered a system that, while most sport psychologists would consider it unhealthy and require change, has been remarkably successful. Conventional literature holds that such tough coaching styles could lead to negative outcomes for athletes’ personal development and, consequently, performance, specifically with the youngest athletes. The present study suggests that highly successful athletes have coping strategies and do not seem to be affected by coaches’ often unpleasant decisions and behaviors. (p. 330)

In contrast to the sport psychology studies that attempted to compare female martial artists with other groups, other scholars have followed a different approach (see Table 3). Drawing on qualitative methods these studies have shed some light on the experiences of the female athlete. In concluding this section, it is important to acknowledge the contribution of trailblazing psychological research to the study of male and female martial artists, which, to our delight, is internationally represented. Similar to a large percentage of works pertaining to sport psychology, however, the reviewed studies focus on male athletes and normalize the findings as universal. Moreover, the reviewed psychological studies are complacent in identifying statistically significant differences among various segments of the population (e.g., men vs. women; athletes vs. non-athletes) without systematic contextualisation of the findings in the

particular socio-historical, political, and cultural matrices of sports. In so doing, in the few studies that examined sex, the problematic framing of psychological findings reinforces rigid gender stereotypes of martial arts athletes, hence obscuring nuanced aspects of female embodiment and psyche from scientific insight and further research. In contrast, the sociological studies revealed complex social structures manifested in gender inequalities, clearly linked to how female martial artists experience one of men's 'last' cultural spaces. Despite this, a myriad of cultural meanings defining femininity and sexuality (among others), inextricably intertwined with female martial arts athletes' experiences of the self, remain uncharted.

## Concluding remarks

In a recent anthology entitled "The Cultural Turn in Sport Psychology", Ryba and Wright (2010) posed the following question for reflection: are female athletes essentially different from male athletes, or are they socially constituted as different, and hence exhibit different behavioral and emotional responses? Indeed, as Gill and Kamphoff (2010) concluded, it is "how people *think* males and females differ [that] is more important than how they actually differ" (p. 64).

The findings of our review illustrate that there is a need for further research focused on contextualized understanding of the experience of women martial artists, since few psychological studies have been conducted, and those few have neglected to examine the female athlete thoroughly. In addition, our review revealed that the use of "gender" in mainstream sport psychology scholarship has not changed over the time, even though scholars from cultural or/and feminist backgrounds have called persistently for a revision and expansion of the sport psychological knowledge base. While there are many ways to do psychological research on gender, in this article we have suggested "cultural praxis" as a suitable discursive framework for gaining insights into the experiences of women martial artists. Sport psychology as cultural praxis is capable of providing multilevel understandings of female subjectivity because it considers the broader cultural, social, and historical contexts in which female athletes live and construct their behaviors in sport. We contend that within the cultural praxis framework that locates psychological research in the glo-

cal matrix of a sporting culture, additional insights into articulated psychic realities of female fighters may be attained.

In conclusion, we aim to encourage scholars in the field of sport psychology to embrace gender and culture as integral components in their research. Re-formulating psychological questions through the lens of culturally constituted psyche is not merely a theoretical exercise. Psychological research that neglects psychic realities of human beings, predicated on the sociocultural context, is prone to misleading interpretations and explanations of scientific results. The risk of feeding misrepresentations into popular consciousness becomes higher at a time when most academics have added a task of translating research findings for public consumption to their job descriptions. Thus, without a critical analysis of social norms and cultural meanings underpinning psychological processes and behavioral manifestations of female martial artists, there is a danger of perpetuating gender myths and even triggering moral hysteria. As researchers, we are responsible for exposing the ways in which gender oppression manifests itself in everyday practices to instigate the progressive social change in martial arts cultures.

## Authors' Note

This project was supported partly by grants from Urheiluoopistosäätiö. We would like to acknowledge the contribution of Marija Riba who provided invaluable editing assistance on earlier drafts of the paper. We would also like to thank Dr. Stilian Chroni who has made available her support in a number of ways.

## References

- Bjorkqvist, K., & Varhama, L. (2001). Attitudes toward violent conflict resolution among male and female karateka in comparison with practitioners of other sports. *Perceptual & Motor Skills, 92*(2), 586-588.
- Butler, J. (1997). *The psychic life of power: Theories in subjection*. Palo Alto, CA: Stanford University Press.
- Columbus, P. J., & Rice, D. (1998). Phenomenological meanings of martial arts participation. *Journal of Sport Behavior, 21*(1), 16-29.
- Daniels, K., & Thornton, E. W. (1990). An analysis of the relationship between hostility and training in the martial arts. *Journal of Sport Science, 8*(2), 95-101.
- Daniels, K., & Thornton, E. W. (1992). Length of training, hostility and the martial arts: A comparison with other sporting groups. *British Journal of Sport Medicine, 26*(3), 118-120.

- d'Arripe-Longueville, F., Fournier, J. F., & Dubois, A. (1998). The perceived effectiveness of interactions between expert french judo coaches and elite female athletes. *The Sport Psychologist*, 12, 317-332.
- Dijkstra, P. D., & Preenen, P. T. Y. (2008). No effect of blue on winning contests in judo. *Proceedings of the Royal Society B*, 275, 1157-1162.
- Endresen, I. M., & Olweus, D. (2005). Participation in power sports and antisocial involvement in preadolescent and adolescent boys. *Journal of Child Psychology & Psychiatry*, 46 (5), 468-478.
- Fuller, J. R. (1988). Martial arts and psychological health. *British Journal of Medical Psychology*, 61(4), 317-328.
- Gernigon, C., d'Arripe-Longueville, F., Delignières, D., & Ninot, G. (2004). A dynamical systems perspective on goal involvement states in sport. *Journal of Sport & Exercise Psychology*, 26(4), 572-596.
- Gernigon, C., & Le Bars, H. (2000). Achievement goals in aikido and judo: A comparative study among beginner and experienced practitioners. *Journal of Applied Sport Psychology*, 12(2), 168-179.
- Gill, D. (1994). A feminist perspective on sport psychology practice. *The Sport Psychologist*, 8, 411-426.
- Gill, D. (2001). (Ed.). In search of feminist sport psychology: then, now, and always (Special Issue): *The Sport Psychologist*, 15(4).
- Gill, D. P. & Kamphoff, C. S. (2010). Sport psychology and representation. In Tatiana V. Ryba, Schinke, R. J., & Tenenbaum, G. (Eds.) *The cultural turn in sport psychology* (pp. 53-74). Morgantown, WV: Fitness Information Technology.
- Guerandel, C., & Mennesson, C. (2007). Gender construction in judo interactions. *International Review for the Sociology of Sport*, 42(2), 167-186.
- Halbert, C. (1997). Tough enough and woman enough: Stereotypes, discrimination, and impression management among women professional boxers. / suffisamment fortes et suffisamment féminines: Stereotypes, discrimination et perception concernant l'encadrement chez des boxeuses professionnelles. *Journal of Sport & Social Issues*, 21(1), 7-36.
- Hargreaves, J. (1997). Women's boxing and related activities: Introducing images and meanings. *Body and Society*, 3, 33.
- Hargreaves, J. (2000). *Heroines of sport: the politics of difference and identity*. London: Routledge.
- Helstein, M. (2005). Rethinking community: Introducing the 'whatever' female athlete. *Sociology of Sport Journal*, 21, 1-18.
- Hill, R. A., & Barton, R. A. (2005). Red enhances human performance in contests. *Nature*, 435, 293.
- Ingham, A. G., Blissmer, B. J., & Davidson, K. W. (1999). The expandable prolympic self: Going beyond the boundaries of the sociology and psychology of sport. *Sociology of Sport Journal*, 16, 236-268.
- Ko, Y. J., Kim, Y. K., & Valacich, J. (2010). Martial arts participation: Consumer motivation. *International Journal of Sports Marketing & Sponsorship*, 11(2), 105-123.
- Kontos, A. P. (2010). Historicizing sport psychology. In Tatiana V. Ryba, Schinke, R. J., & Tenenbaum, G. (Eds.) *The cultural turn in sport psychology* (pp. 29-52). Morgantown, WV: Fitness Information Technology.
- Krane, V. (1994). A feminist perspective on contemporary sport psychology research. *The Sport Psychologist*, 8 (4), 393-410.
- Krane, V., & Baird, S. M. (2005). Using ethnography in applied sport psychology. *Journal of Applied Sport Psychology*, 17(2), 87-107.
- Lamarre, B.W., & Nosanchuck, T.A. (1999). Judo – the gentle way: A replication of studies on martial arts and aggression. *Perceptual and Motor Skills*, 88(1), 992-996.
- Macro, E., Viveiros, J., & Cipriano, N. (2009). Wrestling with identity: An exploration of female wrestlers' perceptions. *Women in Sport & Physical Activity Journal*, 18(1), 42-53.



- Madden, M. E. (1990). Attributions of control and vulnerability at the beginning and end of a karate course. / attributions de controle et sentiment de vulnerabilite au debut et a la fin d ' en enseignement du karate. *Perceptual & Motor Skills*, 70(3), 787-794.
- Martin, D. (2006). The psychological benefits of martial art training: What most instructors know but can't articulate. *Greeting Line*. Retrieved from [http://www.southern-crossmartialarts.com/documents/10BENEFITS\\_OF\\_MA\\_ARTICLEv3.pdf](http://www.southern-crossmartialarts.com/documents/10BENEFITS_OF_MA_ARTICLEv3.pdf)
- Mennesson, C. (2000). 'Hard' women and 'soft' women: The social construction of identities among female boxers. / femmes 'dures' en femmes 'douces': La construction sociale des identites chez des femmes boxeuses. / 'harte' frauen und 'weiche' frauen: Die soziale konstruktion von identitaet bei boxerinnen. / mujeres 'duras' y mujeres 'blandas': La construccion social de las identidades entre las mujeres boxeadoras. *International Review for the Sociology of Sport*, 35(1), 21-33.
- Messner, D. D. (1988). Sports and male domination: The female athlete as contested ideological terrain. *Sociology of Sport Journal*, 5, 197-211.
- Miller, A., Wagner, E. E., & Edwards, V. (1982). Self-defense as an exoskeletal coping mechanism in women. *Journal of Personality Assessment*, 46 (4), 341-344.
- Mroczkowska, H. (2004). Male vs. female motivation for sport practice and success expectance. *Biology of Sport*, 21(3), 273-284.
- Mroczkowska, H. (2007). Conformity with the pattern of maleness and cognitive-motivational determinants of aspirations for success in women. *Biology of Sport*, 24(3), 275-284.
- Mroczkowska, H. (2009). The feminine auto perception of sporting competences and aspirations achievements. *Polish Journal of Sport & Tourism*, 16, 229-238.
- Noad, K., & James, K. (2003). Samurai of gentle power: An exploration of aikido in the lives of women aikidoka. *Annals of Leisure Research*, 6(2), 134-152.
- Nosanchuk, T. A. (1981). The way of the warrior: The effects of traditional martial arts training on aggressiveness. *Human Relations*, 34 (6), 435-444.
- Nosanchuk, T. A., & MacNeil, M. C. (1989). Examination of the effects of traditional and modern martial arts training on aggressiveness. *Aggressive Behavior*, 15(2), 153-159.
- Rail, G. (2002). Postmodernism and sport studies. In J. Maguire & K. Young (Eds.), *Perspectives in the sociology of sport* (pp. 179-207). London: Elsevier.
- Reynes, E., & Lorant, J. (2002). Effect of traditional judo training on aggressiveness among young boys. *Perceptual & Motor Skills*, 94, 21-25.
- Reynes, E., & Lorant, J. (2002). Karate and aggressiveness among eight-year-old boys. *Perceptual & Motor Skills*, 94, 1041-1042.
- Reynes, E., & Lorant, J. (2004). Competitive martial arts and aggressiveness: A 2-yr. longitudinal study among young boys. *Perceptual & Motor Skills*, 98, 103-115.
- Ripoll, H., Kerlirzin, Y., Stein, J. F., & Reine, B. (1995). Analysis of information processing, decision making, and visual strategies in complex problem solving sport situations. *Human Movement Science*, 14(3), 325-349.
- Robazza, C., Bortoli, L., & Hanin, Y. (2004). Precompetition emotions, bodily symptoms, and task-specific qualities as predictors of performance in high-level karate athletes. *Journal of Applied Sport Psychology*, 16(2), 151-165.
- Roper, E. A. (2002). Women working in the applied domain: Examining the gender bias in applied sport psychology. *Journal of Applied Sport Psychology*, 14, 53-66.
- Rothpearl, A. (1980). Personality traits in martial artists: A descriptive approach. *Perceptual & Motor Skills*, 50 (2), 395-401.
- Rowe, C., Harris, J. M., & Roberts S. C. (2005). Seeing red? Putting sportswear in context. *Nature*, 437, E10.
- Rowold, J. (2006). Transformational and transactional leadership in martial arts. *Journal of Applied Sport Psychology*, 18(4), 312-325.
- Ruiz, M. C., & Hanin, Y. L. (2004a). Metaphoric description and individualized emotion profiling of performance related states in high-level karate athletes. *Journal of Applied Sport Psychology*, 16(3), 258-273.

- Ruiz, M. C., & Hanin, Y. L. (2004b). Idiosyncratic description of anger states in skilled Spanishkarate athletes: An application of the IZOF model. *Revista de Psicología del Deporte*, 13 (1), 75-93.
- Ruiz, M. C., & Hanin, Y. L. (2004c). Athletes' self perceptions of optimal states in karate: An application of the IZOF model. *Revista de Psicología del Deporte*, 13(2), 229-244.
- Ryba, T. V., Schinke, R. J., & Tenenbaum, G. (Eds.). (2010). *The cultural turn in sport psychology*. Morgantown, WV: Fitness Information Technology.
- Ryba, T. V., & Wright, H. K. (2005). From mental game to cultural praxis: A cultural studies model's implications for the future of sport psychology. *Quest*, 57(2), 192-212.
- Ryba, T. V., & Wright, H. K. (2010). Sport psychology and the cultural turn: Notes toward cultural praxis. In Tatiana V. Ryba, Schinke, R. J., & Tenenbaum, G. (Eds.) *The cultural turn in sport psychology* (pp. 3-28). Morgantown, WV: Fitness Information Technology.
- Said, E. (1978). *Orientalism*. New York: Pantheon Books.
- Sisjord, M. K., (1997). Wrestling with gender: a study of young female and male wrestlers' experiences of physicality. / Lutte et identite sexuelle – Etude des experiences de la "physicalite" chez des lutteurs et lutteuses. *International Review for the Sociology of Sport*, 32(4), 433-438.
- Sisjord, M. K., & Kristiansen, E. (2008). Serious athletes or media clowns? Female and male wrestlers' perceptions of media constructions. *Sociology of Sport Journal*, 25(3), 350-368.
- Sisjord, M. K., & Kristiansen, E. (2009). Elite women wrestlers' muscles. *International Review for the Sociology of Sport*, 44(2), 231-246.
- Skelton, D. L., Glynn, M. A., & Berta, S. M. (1991). Aggressive behavior as a function of taekwondo ranking. *Perceptual & Motor Skills*, 72 (1), 179-182.
- Smith, L. T. (1999). *Decolonizing methodologies: Research and indigenous peoples*. Dunedin: University of Otago Press.
- Spivak, G.C. (1988). Can the subaltern speak? In P. Williams & L. Chrisman (Eds.), *Colonial discourse and post-colonial theory: A reader* (pp. 66-11). New York: Columbia University Press.
- Stambulova, N. B., & Alfermann, D. (2009). Putting culture into context: Cultural and cross-cultural perspectives in career development and transition research and practice. *International Journal of Sport and Exercise Psychology*, 7(3), 292-308.
- Szabo, A., & Parkin, A. M. (2001). The psychological impact of training deprivation in martial artists. *Psychology of Sport & Exercise*, 2(3), 187-199.
- Thorpe, H. (2009). Understanding 'alternative' sport experiences: A contextual approach for sport psychology. *International Journal of Sport and Exercise Psychology*, 7(3), 359-379.
- Vertonghen, J., & Theeboom, M. (2010). The social-psychological outcomes of martial arts practice among youth: A review. *Journal of Sport Science & Medicine*, 9(4), 528-537.
- Weedon, C. (1987). *Feminist practice and poststructuralist theory*. Oxford: Blackwell.
- Weedon, C. (1999). *Feminism, theory and the politics of difference*. Malden, MA: Blackwell.
- Whitson, D. (1990). Sport in the social construction of masculinity. In M. Messner and D. Sabo (eds.), *Sport, Men and the Gender Order* (pp. 19-30). Champaign, IL., Human Kinetics Books.
- Williams, A. M., & Elliott, D. (1999). Anxiety, expertise, and visual search strategy in karate. *Journal of Sport & Exercise Psychology*, 21(4), 362-375.
- Young, K. (1997). Women, sport and physicality: Preliminary findings from a Canadian study. *International Review for the Sociology of Sport*, 32(3), 297-305.



