



Maladaptive eating habits in judo athletes and psychological side effects: Case studies

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ARTICLE INFO

Edited by: Vicknasingam Balasingam Kasinather

Keywords:

Judo
Sport
Weight loss
Psychological distress
Mental health

ABSTRACT

Originating in 19th-century Japan, judo blends traditional martial arts with modern educational principles. As a martial art rooted in the Budo tradition, it embodies a philosophy focused on the harmony of mind and body. In the West, however, the discipline evolved with an emphasis on competition and athleticism, which has led to increased competitive pressures among athletes. We report here the case studies of two Italian judokas who retired due to the development of unhealthy eating habits, extreme exercise and other unwanted psychological distress. It will be argued that the prevalent practice of weight cutting in combat sports poses substantial physical and psychological risks, particularly for young athletes. Despite regulatory efforts to mitigate extreme weight loss methods, there remains a critical need for improved education on safe practices. It sheds light on the complex interplay between athletic success, physical and mental health, and cultural perceptions of Judo in contemporary society.

Introduction

Judo, a martial art originating in late 19th-century Japan, emerged during a time of social upheaval. It was founded by Jigoro Kano with the intention of blending traditional martial arts with modern education. The Kodokan Judo Institute was established in 1882, and Judo soon became a national pastime that fostered unity and identity. Judo is based on the principles of efficiency and mutual welfare, and it utilizes the strength of opponents, with an emphasis on throws, joint locks, and ground combat (Kano 1986; 2005). Judo, as a martial art rooted in the Budo tradition, embodies a philosophy that emphasizes the harmony of mind and body. While various forms of Budo are often regarded as sports, one key aspect that sets Budo apart from other sports is its focus on the mind and spirit, influenced in part by Zen Buddhist principles within the Japanese martial arts tradition. Judo seamlessly integrates physical skill with holistic mental and ethical development (Fujiwara et al., 2019). It promotes not only physical prowess but also mental and moral growth, nurturing values such as discipline, respect, humility, and perseverance. Moreover, Judo preserves cultural traditions that emphasize ethical advancement and has been incorporated into

educational systems to foster teamwork, leadership, and societal values (Kano, 1986; 2005).

In the 20th century, Judo was introduced to Italy, and it merged with local customs, focusing on fitness and well-being. While retaining Japanese principles, Judo in Italy and elsewhere in Western countries, tends to prioritize competition and athleticism over philosophy grounded on mind-body training. Cultural and historical factors shape this perception, with Judo seen as a sport for achieving success. However, this shift towards athleticism has been related to issues like eating disorders (EDs) and use of substances due to pressure for victory (Piacentino et al., 2017).

In combat sports, as Judo, athletes often engage in the practice of weight cutting to compete in the required weight classes (Crighton et al., 2015). This involves rapidly losing weight in the weeks leading up to the match, with the aim of reducing body mass before the competition. To compete in a desired weight category, judo athletes often engage in RWL through various methods such as active and passive dehydration, glycogen depletion, and gut content manipulation (Brito et al., 2012; Franchini et al., 2012; Lakicevic et al., 2020). Male judo athletes and those who started RWL at a young age tend to employ the most

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<https://doi.org/10.1016/j.etdah.2024.100163>

Received 9 September 2024; Received in revised form 26 November 2024; Accepted 26 November 2024

Available online 28 November 2024

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aggressive RWL methods to drop one or two weight classes and compete against lighter opponents (Maffulli, 2017). Besides the health issues that RWL might cause (for example, extreme dehydration can cause kidney hypovolemia, bone demineralization), it is important to consider the psychological effects that this practice could have on athletes, with a major concern for teenage judokas (Lakicevic et al., 2024).

Data indicate that the pressure to reduce weight and body fat can foster a culture conducive to ED, especially in weight-sensitive and judged sports. Recent prospective studies have shown that athletes who diet and desire leanness for performance improvement are at an increased risk of developing EDs. However, controlled longitudinal studies are crucial to fully comprehend the risks and triggers for ED development in sports (Sundog-Borgen et al., 2013). To support this statement, the Gold Medal Olympic Champion in Judo, Alice Bellandi recently discussed in an interview how she struggled to lose weight in the month leading up to an event. This struggle led to depression and severe eating disorders. She confessed to engaging in compulsive eating habits after competitions, despite feeling the need to vomit. This resulted in chaotic and unhealthy behavior, including a compromised immune system, amenorrhea, and ringworm (Cito, 2024).

These behaviors are part of maladaptive weight-management strategies and are directly linked to unhealthy dieting practices. Disordered eating, including dietary restraint and binge eating, is prevalent among athletes in combat sports and is also associated with psychological issues such as depression, anxiety, obsessive tendencies, and traits often linked to autism (Gonçalves et al., 2021). Utilizing Lazarus' Transactional Model of Stress (Lazarus, 1984), these studies reveal how cognitive appraisal and coping processes contribute to the development of eating disorders. This further connects with traits such as behavioral rigidity and obsessive focus, which are often associated with autism (Gonçalves et al., 2021). Moreover, stress from weight fluctuations plays a significant role; negative views on these changes, such as perceiving them as a threat, can heighten feelings of anxiety, sadness, and anger. In contrast, positive perspectives, such as viewing challenges as manageable, can increase feelings of excitement and happiness (Gonçalves et al., 2021).

Despite the extensive literature on rapid weight loss (RWL) and its implications for physical health, there is a notable gap in research regarding the long-term psychological effects and behavioral patterns that can arise from such practices, particularly among young athletes (Martinez-Aranda et al., 2023). Moreover, existing studies often generalize findings across various sports, with a particular emphasis on combat sports, overlooking the unique experiences and cultural aspects of judo (Karrer et al., 2020).

This study focuses on the physical and psychological risks associated with maladaptive weight management practices among judo athletes, specifically examining the experiences of two retired Italian judokas who faced significant challenges related to these issues. Through an in-depth analysis of their cases, the research aims to shed light on the complex relationship between competitive pressures, disordered eating behaviors, and mental health within the realm of judo.

Case studies

A 20-year-old male athlete (MA), since the age of 15, described how his daily routine revolved around monitoring his weight, restricting food intake, and engaging in daily exercise even if he was perfectly in shape. These topics dominated his thoughts, causing psychological stress and significantly impacting his daily activities. Similarly, a 23-year-old female athlete (FA) starting in high school, developed a daily obsession with calorie counting, constant weighing, and exercise. This behavior had a significant impact on her daily life, leading to restrictions on her social activities with friends and a decline in her academic performance.

Both athletes reveal that weight management, as suggested by their coaches, and training have become the central focus of their lives, overshadowing other important aspects. Initially, they perceived weight loss as a means of control and achievement, which masked the growing

psychological burden and reinforced a destructive cycle of behavior.

MA reports experiencing significant distress when he fails to achieve his pre-training weight loss targets, resulting in heightened stress and frustration. This emotional response is attributed to the considerable sacrifices he makes, including severe reductions in water and food intake, as well as maximizing physical exertion and perspiration during training sessions. Consequently, he intensifies his dietary restrictions and increases the intensity of his training regimen. But, after the match, he started eating excessively. This suggests that, despite the negative health effects, the act of eating provided temporary emotional relief. FA's testimony reveals how her weight management efforts were driven by a desire to fit in and feel comfortable in her body, even though these efforts led to unhealthy practices. For her, the initial success in weight loss might have provided a sense of achievement and control, masking the underlying stress and dissatisfaction with her body image, resulting in the reinforcement of her behavioral pattern.

Their post-competition behaviors reveal similar struggles. Both athletes resorted to excessive eating as a way to cope with the tension accumulated from restrictive practices, finding temporary relief in the process. However, this often led to feelings of guilt and a return to restrictive dietary habits, perpetuating a harmful cycle of bingeing and restriction. The psychological toll was compounded by physical symptoms; both athletes described feelings of exhaustion and noticeable physical decline during weight-cutting periods, resembling withdrawal-like states when their routines were interrupted.

Interpersonal conflicts played a significant role in their challenges. MA experienced strained relationships with family and peers who struggled to understand his obsessive focus on weight and training. Similarly, FA felt isolated from both her judo peers and schoolmates, who failed to grasp her difficulties. These conflicts not only affected their social relationships but also influenced their perceptions of judo, transforming the sport from a source of fulfillment into one of toxicity. Problematic dieting practices, involving extreme restriction and compensatory behaviors, have considerable negative consequences that extend beyond the individual, impacting social relationships and creating addiction-related issues. Such practices can alienate individuals from peers, disrupt familial bonds, and foster isolation.

Both athletes decided to stop practicing judo as competitors because they realized the unhealthy patterns they had with diet and exercise and the repercussions these habits had on their lives. Currently, MA, after being followed by an expert nutritionist, keeps doing some tournaments non-competitively, facing weight cutting differently, in a functional way rather than a destructive one. FA no longer practices judo but, after psychologist therapy, has adapted to a healthy lifestyle and now practices yoga solely for her well-being.

Discussion

This study explored the physical and psychological risks associated with unhealthy weight management practices among judo athletes. The two cases aimed a complex interplay between competitive pressures, disordered eating behaviors, and mental health within the world of judo. Furthermore, it emphasized the need for improved education on safe weight management practices and evidence-based interventions to support athletes' overall well-being, including personalized nutrition and mental health care plans.

The experiences provided illustrate the diverse experiences of athletes from different Italian regions and training environments. Both experiences highlight the physical and psychological toll that extreme exercise and weight cutting concerns can have on those practicing judo. It is peculiar to see how athlete experiences are quite similar, meaning that these maladaptive schemes are deeply rooted in the Judo scene regardless from their gender (Støving et al., 2011). In the case of judo, success is linked to conforming to a specific weight class, pressuring men to rapidly drop to a lighter weight class to incur a perceived physical advantage (Brown and Keel, 2023). In the case of females, studies show

that cadet (under 18 years old) and junior (under 21 years old) athletes are more likely to suffer from the psychological-related states associated to weight loss (Escobar-Molina et al., 2015). Moreover, both testimonies reveal that weight management practices began at a young age. The pressure to meet weight categories and the pursuit of competitive success can lead young athletes to engage in unhealthy behaviors, such as extreme dieting and excessive exercise. This early exposure to weight cutting sets the stage for long-term struggles with body image and disordered eating patterns.

It is worth noticing how the diet after competitions changes in these two athletes: from restrictions to binge. The stories provided by the two athletes resonate profoundly with empirical research on the deleterious psychological consequences associated with RWL among athletes. These accounts vividly illustrate the complex interplay between weight management practices and athletes' mental well-being, underscoring the formidable challenges posed to optimal competitive performance. The experiences delineated by these athletes mirror the psychological manifestations commonly attributed to RWL, including diminished cognitive faculties, compromised emotional states, and disruptions in social functioning (Franchini et al., 2012). These narratives emphasize the lasting psychological effects of these practices extending beyond the realm of sport to impact various aspects of athletes' lives, underline the need for ongoing mental health support and interventions tailored to athletes' specific needs.

Both athletes, instead of seeking guidance from nutritionists or mental health professionals, express a reliance on coaches. This highlights the need for a more evidence-based approach, including personalized care plans and evidence-based practices to address disordered eating and body image dissatisfaction.

When athletes blindly accept coaching expectations associated with their sport, it can lead to negative health consequences such as disordered eating behaviours and clinical eating disorders. Mediation analysis revealed that the coach-athlete relationship was a partial mediating variable between perceived coach pressures and disordered eating behaviours (Coker-Cranney and Reel, 2015).

Compounding these psychosocial challenges, a notable subset of athletes, evince heightened preoccupations regarding body mass and dietary practices, resorting to recurrent dieting or caloric restriction. Alarming, a substantial contingent report a diminished sense of control over their eating behaviors, emblematic of disordered eating pathology, particularly under the crucible of competitive stressors. Persistent preoccupation with body mass management engenders susceptibility to a spectrum of eating disorders, including binge eating, anorexia nervosa, and bulimia nervosa, with female athletes disproportionately vulnerable to such afflictions (Franchini et al., 2012).

Moreover, it is crucial not to underestimate the impact of the relationship with exercise, as it is frequently characterized as excessive and all-encompassing in these athletes' testimonies, potentially resulting in exercise addiction. Exercise addiction is a compulsive need to engage in excessive physical activity, often driven by appearance anxiety, leading to psychological and physical harm. The risks associated with it include physical injuries, psychological issues, body image disorders, and unsafe supplement use (Corazza et al., 2019).

Research highlights the need for tailored strategies to address the risks of excessive exercise linked to psychological factors across different sports. A key concern is the relationship between excessive exercise and the use of image and performance-enhancing drugs (IPEDs), which can result in "cross-addiction." This occurs when compulsive exercise and IPED use mutually reinforce each other, exacerbating problems such as doping practices. Understanding how this dynamic varies across sports is crucial, as certain disciplines may present higher risks (Shibata et al., 2021; Fujiwara and Shibata, 2023).

An important factor in mitigating these risks is self-compassion, which involves treating oneself with kindness, practicing mindfulness, and recognizing a shared sense of humanity. Higher scores on the Self-Compassion Scale have been linked to healthier attitudes toward

challenges, reducing the likelihood of both excessive exercise and IPED use. Disciplines like Budo and yoga, which emphasize an integrated mind-body approach, tend to report relatively high SCS scores compared to other sports (Shibata et al., 2021).

Despite some visible challenges, this sport offers numerous benefits. For example, a study investigated the impact of the A-Judo Programme on preventing bullying in schools and found promising results. When implemented by trained physical education teachers, the program significantly improved students' autonomy, competence, and sense of belonging, resulting in increased self-motivation and a stronger moral identity and respect for others (Montero-Carretero et al., 2021). These positive changes led to a noticeable decrease in bullying behavior, although the program had less effect on reducing victimization. These findings highlight the potential for sports like judo to promote positive social and moral development among students (Montero-Carretero et al., 2021).

Furthermore, Budo (martial arts) integrates physical training with mental discipline, enhancing motivation and emotional regulation through philosophical and meditative practices like Zazen (Kano, 1986; 2005). These methods foster self-compassion and mindfulness, mitigating risks associated with excessive performance enhancement and unsupervised IPED use. Such qualities are particularly valuable in high-intensity functional training sports, where participants with appearance anxiety or tendencies toward excessive exercise are especially vulnerable. Incorporating mind-body training elements across sports disciplines can encourage healthier exercise habits, improve mental health, and reduce reliance on harmful supplements (Fujiwara and Shibata, 2023; Fujiwara et al., 2019; Shibata et al., 2021).

Insights from these case studies highlight the importance of targeted interventions for athletes in weight-sensitive sports. Integrating mental health support and nutritional education into judo training programs can promote healthier practices. Sport psychology is crucial for addressing risks related to nutrition and performance by fostering coach-athlete relationships, dispelling misconceptions about weight, and emphasizing education on energy balance and athletic outcomes. Coaches should also be trained to recognize disordered eating signs and create supportive environments that prioritize athletes' well-being over competition.

One significant limitation of this study is the absence of a psychological intervention. It is recommended that future research incorporate such elements to enhance the comprehensiveness of the findings. Additionally, this study is constrained by its focus on only two case studies, which may not fully represent the diverse range of experiences among judo athletes. Furthermore, it primarily examines the perspectives of retired athletes, thus omitting insights related to the ongoing experiences of active competitors. Future research would benefit from including larger sample sizes and longitudinal designs to better understand the progression of maladaptive behaviors. An exploration of the effectiveness of targeted interventions, such as mental health counseling and nutritionist-led programs, would provide valuable insights into strategies for mitigating the risks associated with unhealthy weight loss practices.

Conclusion

Both case studies provide valuable insights into the complex challenges and risks associated with weight management and excessive training in judo, particularly among young athletes. These accounts shed light on the intricate relationship between athletic performance, body image concerns, and mental health within sport.

The testimonies vividly depict the early onset of weight management practices among young athletes, highlighting the profound impact on their physical and psychological well-being. Negative consequences extend far beyond the competitive arena, permeating various aspects of athletes' lives.

The enduring psychological of these practices underscore the need

for comprehensive support systems tailored to athletes' holistic well-being. Existing coaching dynamics often perpetuate harmful practices, as athletes rely on coaches for guidance rather than seeking support from nutritionists or mental health professionals. Comprehensive athlete care, including personalized nutrition and mental health interventions, is essential for addressing disordered eating and body image dissatisfaction. To effectively tackle the challenges identified in this study, it is crucial to implement strategies that promote self-esteem and self-compassion among athletes, grounded in the principles of Budo philosophy. Mindfulness-based interventions and practices that prioritize mental health, such as self-awareness training and stress management techniques, can help athletes achieve a healthier balance between performance and personal well-being. Additionally, it is important to rethink coaching practices to emphasize positive reinforcement, individualized feedback, and collaborative goal-setting. Introducing educational programs for both athletes and coaches about the risks of disordered eating and the importance of mental health can help mitigate potential harms associated with Judo, while preserving its many benefits. Such initiatives are vital for promoting healthier and more sustainable participation in the sport.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

CRediT authorship contribution statement

Eleonora Zorzi: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Thomas Zandonai:** Writing – review & editing, Writing – original draft, Validation, Supervision, Project administration, Investigation, Conceptualization.

Declaration of competing interest

The author declares no competing interests.

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