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Off the Field, On the Mind: The Relationship Between Injury, Identity, and Eating Habits in Recreational Athletes

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Master's Thesis in Psychology

2026

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Abstract

This study examined differences between sport-specific and general eating behaviours in recreational athletes and investigated whether injury severity, athletic identity, and conformity to masculine norms predicted eating-related outcomes following sport injury. The original sample consisted of $N = 161$ recreational athletes; however, after applying the exclusion criteria and including only injured participants, the final sample comprised $N = 106$ recreational athletes (50 men, 56 women). Participants completed measures assessing sport-specific disordered eating (ADE), non-sport-specific eating behaviours (TFEQ-R21), athletic identity (EIS), masculinity norms (CMNI-22), and injury severity. Results showed significantly higher endorsement of sport-specific disordered eating behaviours compared to general eating behaviours, particularly among men ($d = 0.66$). Injury severity ($\beta = 0.41, p = 0.002$; $\beta = 0.40, p = 0.003$ for men and women respectively) emerged as the only consistent predictor of eating-related outcomes, with greater injury severity associated with higher sport-specific disordered eating attitudes across both gender groups. Athletic identity and conformity to masculine norms were not significant predictors. Gender comparisons further indicated that sport-specific disordered eating attitudes appeared more strongly associated with the examined predictors among men ($R^2 = 0.31$) than women ($R^2 = 0.18$), with male athletes also showing greater differences between sport-specific and general eating behaviours. The findings suggest that injury may represent a vulnerable period for maladaptive eating attitudes in recreational athletes and highlight the importance of sport-specific assessment tools in identifying disordered eating tendencies.

Keywords: disordered eating, recreational athletes, sport injury, athletic identity, masculinity norms

Acknowledgments

We would like to express our sincere gratitude to everyone who supported us throughout the process of writing this thesis. First, we want to thank our participants, whose contributions made this research possible. We are deeply thankful to our supervisor, Patric Nordbeck, for his guidance and creative, constructive feedback. We would also like to thank our partners, Markus and Kevin, for their careful proofreading and emotional support during this period. Finally, we extend our appreciation to our parents for enabling us to pursue our studies at Lund University. Your support has been invaluable.

Off the Field, On the Mind: The Relationship Between Injury, Identity, and Eating Habits in Recreational Athletes

Disordered eating among male athletes has received growing attention in recent years, but the majority of the literature remains disproportionately focused on female athletes. The sports environment appears to be a universal contributor to disordered eating habits, due to the immense performance pressure, strict rules around diet and perceived body and weight ideals (Freedman et al., 2021). Male athletes are still underrepresented in sport psychological research on disordered eating, despite evidence that sport-specific factors such as weight regulation practices, pressure to achieve particular body compositions, and performance-related expectations may contribute to disordered eating behaviours in this population (Freedman et al., 2021; Karrer et al., 2020). For male athletes, these pressures are often shaped by sport-specific ideals of discipline, control, and masculine embodiment.

Sport-related injury may represent a particularly vulnerable period within this context because it disrupts the physical routines and behavioural structures through which athletes normally regulate training, nutrition, and performance. Periods of reduced training and altered physical capacity can change nutritional needs and eating patterns, requiring athletes to adjust habits that are closely tied to athletic goals (Fatt et al., 2025). Some athletes may respond by restricting intake due to lower activity levels, whereas others may develop irregular eating patterns following the loss of daily structure.

Injury itself can also be understood as a major psychological and developmental disruption. Research conceptualises sport injuries as non-normative career transitions, that are unpredictable, difficult to prepare for and psychologically demanding (Ivarsson et al., 2016). Such transitions interrupt athletes' training structures, social environments and everyday routines and therefore create a period characterized by uncertainty, loss of control and increased emotional vulnerability, which can trigger complex psychological reactions (e.g., sadness, frustration and reduced coping efficiency), while also influencing the athlete's usual social support and their athletic identity (Ivarsson et al., 2016).

Therefore, the aim of the present study is to explore how eating habits change in male athletes following sport-related injury based on severity, and to examine the potential influence of athletic identity and masculinity in shaping these experiences. These disruptions can intensify already existing concerns about body composition, eating and performance, especially for athletes with pronounced athletic identities (Brewer et al., 1993). In this sense, injury does not only reduce physical capacity, but also destabilises behavioural patterns and

identity structures that normally regulate athletes' eating habits, making this period especially relevant for understanding the increase of disordered eating. Studies have found that injury can heighten vulnerability to disordered eating in female athletes, and that injury severity may further increase this risk (Gusfa et al., 2021). Previous research also indicates that injury can heighten vulnerability to disordered eating, particularly among female athletes (Gusfa et al., 2021). However, there is considerably less research on the male athletes, particularly regarding how injury status affects their perception of eating, dietary restrictions and nutrition topics. Research on eating habits often utilize self-reports through questionnaires such as the Three-Factor Eating Questionnaire (TFEQ-R21) which aims to capture disordered eating within general populations. However, athletes may appear non-disordered through questionnaires such as this, as their standards of eating differ in a perceived “healthy way”, although their habits may be disordered. Thus, using specialized rating scales, aiming to capture disordered eating within this specific population, such as the Athletic Disordered Eating Scale (ADE; Buckley et al., 2024c) may be required in order to properly assess disordered eating. In addition, the Conformity to Masculine Norms Inventory-22 (CMNI-22; Mahalik et al., 2003) and Exercise Identity Scale (EIS; Anderson & Cychosz, 1994) will be used to capture and analyse the effects of masculinity norms and athletic identity on disordered eating. The following hypotheses will be tested:

Hypothesis 1 (H1): Recreational athletes will score significantly higher on the ADE compared to the TFEQ-R21, as a result of their eating-related attitudes being shaped by their athletic identity rather than conventional dietary recommendations and regulations.

Hypothesis 2 (H2): Injury severity, athletic identity, and masculinity norms will significantly predict eating behaviour outcomes in recreational athletes.

An additional explorative hypothesis regarding gender differences in disordered eating behaviour amongst recreational athletes will also be analysed.

Masculine Body Ideals and Disordered Eating in Male Athletes

Athletes represent a unique population whose eating behaviours are shaped by performance demands, cultural expectations within sport, and psychological factors, such as athletic identity and perceived body ideals (Karrer et al., 2020; Petrie & Moore, 2023). Among male athletes, body satisfaction—specifically in terms of weight and leanness—tends to fluctuate in response to changes in their training or dietary regimens, influencing whether their relationship with food remains healthy (Petrie & Moore, 2023).

Disordered eating in a sports context exists along a continuum, ranging from rigid food rules and restrictive food intake to clinically diagnosable eating disorders (Fatt et al.,

2025) and is frequently motivated by the belief that becoming leaner will enhance performance (Fatt et al., 2025). Although disordered eating in men shares similarities with patterns observed in women, male athletes may experience these behaviours in ways that are more closely tied to muscularity-oriented body ideals, social and cultural norms surrounding masculinity, and also sport performance demands (Karrer et al., 2020). Research suggests that internalization of culturally dominant masculine body ideals plays a significant role in shaping men's eating-related attitudes and behaviors. In a sample of sexual minority men, Convertino et al. (2022) found that both thin- and muscular-ideal internalization were positively associated with cognitive restraint, dietary restriction, body dissatisfaction, and muscle dysmorphia symptoms. In particular, muscularity internalization remained strongly associated with mental fixation on size and functionality (Convertino et al., 2022). Although not conducted in athletes, these findings support the broader proposition that masculine body ideals influence men's relationships with food through appearance-based self-regulation. I.e., men may adjust eating behaviours based on internalized body standards.

Importantly, these body ideals interact in shaping body image concerns. Internalising both muscularity and thinness is associated with disordered eating and muscle dysmorphia in men (Convertino et al., 2022; Klimek et al., 2018). Notably, muscularity internalization shows the strongest connection to muscle dysmorphia when thinness was less emphasised, suggesting that men who primarily focus on muscularity may experience greater pressure to increase muscle size (Klimek et al., 2018).

However, while the male body ideal is typically characterized by muscularity, research suggests that not all male athletes pursue increased muscle mass. Instead, some athletes' eating behaviours are more strongly associated with thinness-oriented ideals (Klimek et al., 2018; Petrie & Moore, 2023).

Within athletic environments these appearance-based regulatory processes may become even more pronounced. This may be particularly relevant for athletes with a strong athletic identity, for whom maintaining a body perceived as optimal for performance, can become closely tied to their sense of self.

Athletic Identity and the Centrality of the Sporting Self

Athletic identity refers to the degree to which an individual identifies with the athlete role and incorporates it into their self-concept (Brewer et al., 1993). Individuals with a strong athletic identity tend to define themselves primarily through their involvement in sport, often prioritizing athletic success over other life domains.

Athletic Identity Theory (Brewer et al., 1993) proposes that strong identification with the athlete role can have both adaptive and maladaptive consequences. Positive outcomes include increased motivation, persistence and performance, while negative consequences include reduced coping flexibility and identity foreclosure. Moreover, when injury occurs, non-elite athletes may experience what has been described as identity disruption or “biographical disruption.” The concept of biographical disruption, developed by Michael Bury (1982), describes how chronic illness can fundamentally disrupt a person’s identity, life narrative, and expectations for the future. Illness, or in this case injury, becomes more than a medical condition, forcing individuals to reassess taken-for-granted routines and roles. It challenges self-identity, and requires the mobilisation of personal and social resources to adapt (Bury, 1982).

Because the body is central to athletic functioning, injury threatens not only performance but also the embodied self. From an athletic identity perspective, injury-related retirement challenges individuals, increasing psychological distress and maladaptive coping during transition (Brewer et al., 1993; Cosh et al., 2012). The athletic body becomes a central site through which competence, discipline, and achievement are demonstrated and evaluated. Consequently, when athletic identity is highly central, athletes may place greater emphasis on maintaining a body perceived as optimal for performance. Changes in body composition, weight, or physical appearance may be experienced not only as threats to performance (Fatt et al., 2025) but also to personal identity (Brewer et al., 1993).

Although much of the athletic identity literature has traditionally focused on elite athletes, research suggests that athletic identity processes are also relevant among recreational athletes (Lochbaum et al., 2022). While recreational athletes may not define themselves exclusively through sport to the same degree as elite athletes, sport participation can still represent an important part of their self-perception (Lamont-Mills & Christensen, 2006). Therefore, disruptions of training may still result in similar negative psychological consequences for recreational athletes as well (Lamont-Mills & Christensen, 2006).

Hegemonic Masculinity and the Construction of the Athletic Body

Psychological Reinforcement of Gender Norms in Training

Gender role norms function much like social norms, acting as a blueprint for "acceptable" masculine and feminine behavior. Individuals internalize these norms through three pathways: observing the common actions, receiving direct instruction on gender-appropriate behavior, and emulating role models (Mahalik et al., 2003).

The concept of hegemonic masculinity, which was firstly discussed in the 1980s, but revisited by Connell and Messerschmidt (2005), refers to the culturally dominant ideal of masculinity that legitimizes male dominance and privileges certain masculine traits. In Western sport culture, this ideal emphasizes muscularity, emotional restraint, toughness, self-discipline, dominance and competitiveness. In their findings, they also emphasize the importance of embodiment, showing how physical attributes such as strength and athleticism become culturally valued markers of masculine legitimacy.

Training has long functioned as a key way in which modern sport shapes and reinforces dominant forms of masculinity. Modern sports originated as “male practices,” developed within the nineteenth-century institutions to promote values such as toughness, discipline, emotional restraint and loyalty to male groups. (Kidd, 2013). These norms are still visible in modern training cultures, where ideals such as “no pain, no gain” encourage athletes to treat their bodies instrumentally and to value success over emotional awareness or well-being (Kidd, 2013).

Sport has traditionally been seen as a masculine sphere, promoting ideals of strength, competitiveness and emotional control. However, changing gender dynamics have begun to reshape how men approach training (Kidd, 2013; Spallacci, 2020). Traditional “jock culture,” associated with hyper-masculine values such as aggression, homophobia and the marginalization of women, has increasingly been complemented by orientations that emphasize self-care, health consciousness and attention to body image (Spallacci, 2020). As women’s participation in sport has grown and societal expectations have changed, training has become not only a site for reproducing hegemonic masculinity but also a space where more flexible masculine identities can emerge (Spallacci, 2020).

Results further indicate that gender-typed traits shape how athletes engage with training. Masculinity is linked to higher intrinsic motivation, whereas femininity in male athletes is associated with greater amotivation, showing that masculine traits align most closely with the motivational patterns reinforced in competitive sport (Bojkowski, 2022).

Masculinity and Eating Practices

Historically, “healthy eating” has been feminized in Western cultures, often associated with vanity, slimness, and appearance (Vandello et al., 2024). This association can create tension for men aiming to maintain hegemonic masculinity, which values rationality, authority, and self-control. However, contemporary media increasingly frames healthy eating in ways that align with masculine ideals, presenting it not as an aesthetic practice but as a way to enhance strength, discipline, and control rather than appearance (Jelicich & Braun, 2023).

As a result, dietary practices are often legitimised through science-based and responsibility-focused discourses, effectively reframing previously feminised behaviours (e.g., careful dietary regulation) into expressions of masculinity (Fidolini, 2021).

Food practices are also strongly gendered, with meat and high-calorie foods often perceived as masculine, while fruits, vegetables, and low-calorie diets are viewed as feminine (Vandello et al., 2024). As a result, men who adopt a “feminine” diet may experience a perceived threat to their masculinity and respond by reinforcing gender identity or engaging in stereotypically masculine behaviours (Vandello et al., 2024). Thus, while rebranding healthy eating may improve male engagement with health practices, it can simultaneously create restrictive norms where health becomes tied to control, discipline and performance (Fidolini, 2021). Within sport environments, these ideals are further reinforced through structured training practices, nutritional regulation, and performance expectations that emphasize discipline and bodily control (Heaney et al., 2008).

Masculinity and Discipline in Male Sport Culture

Male sport culture is traditionally shaped by ideals of strength, control or discipline, which strongly influence how male athletes approach food and nutrition. Healthy eating has historically been associated with femininity, creating tension for men who wish to regulate their diets without appearing less masculine. Research suggests that this tension is often resolved by reframing healthy eating as a way to enhance masculinity through sexual performance and physical dominance (Jelicich & Braun, 2023), rather than seeing it as a practice associated with pleasure or care.

This framing aligns with the broader disciplinary culture and media representations of male sport, where dietary regulations are legitimised through performance-oriented and masculine ideals (Jelicich & Braun, 2023). Consequently, structured eating practices among male athletes are often interpreted as a sign of commitment and athletic dedication, allowing behaviours that might be otherwise perceived feminised to remain consistent with dominant masculine norms (Jelicich & Braun, 2023).

The effect of these ideals can also show in other nutritional practices, such as supplement use. With research showing a frequent overconsumption of supplements among athletes (Maughan et al., 2004), the willingness to push limits, experiment and exceed recommendations for potential benefits, reflects traditional masculine norms, that values risk-taking and toughness even when evidence is limited.

Overall, masculinity plays a central role in shaping how athletes understand and practice nutritional discipline. The drive to perform is not culturally neutral, but rather shaped

by gendered expectations that connect control, optimisation and discipline with masculinity. This influences how athletes view nutrition and training, and reinforces a sport culture where discipline functions as a marker of masculine identity as well as a performance strategy.

Food as Performance Technology

Contemporary sports nutrition research frames food as a performance technology, encouraging precise manipulation of protein, carbohydrates, hydration and supplements for muscle adaptation, energy availability and recovery to achieve the “optimal” athletic body (Maughan & Shirreffs, 2011). The food as fuel ideology is one of the most pervasive narratives in sports, using the logic that food is mainly valued for its biomechanical use of supplying energy, preventing fatigue and sustaining high training loads, rather than a source of pleasure (Maughan et al., 2004). This framing encourages athletes to see nutrition more as a technical practice that needs to be optimized, monitored or corrected if needed and where their dietary choices can directly determine whether they succeed or fail (Fatt et al., 2025; Maughan et al., 2004).

This reflects a broader performance imperative in sports, where athletes are expected to optimize their bodies through nutrition and self-management. In these environments, nutritional practices are often seen as signs of the athlete’s commitment to performance expectations and career success (Fatt et al., 2025). This imperative is closely linked with gendered norms, particularly masculine ideals of discipline, rationality and self-control that shape how male athletes approach nutritional practices (Jelicich & Braun, 2023).

Psychological and Physiological Responses to Sport Injury

Physical Changes

Periods of reduced training load or complete immobilisation can trigger rapid physiological changes that directly affect athletes’ body composition, muscle function and perceived physical capacity. Injury disrupts the usual training stimulus that normally maintains a specific muscle mass, metabolic efficiency and conditioning and even shorter periods of inactivity can result in measurable declines. Research consistently shows that reduced training stimulus longer than 4 weeks result in significant decreases in maximal oxygen uptake, stroke volume and oxidative enzyme activity, as well as increased carbohydrate usage and earlier fatigue (Mujika & Padilla, 2000). Muscle loss, however, can already occur in the first 5-10 days of inactivity (Dirks et al., 2016). These changes reflect a wider decline in endurance capacity and rapid shifts in metabolism, which can make athletes feel out of shape even before the physical changes are visible. These perceived changes and losses in physical fitness or psychological control may also contribute to body-related

concerns and may result in more restrictive or compensatory eating patterns during injury, highlighting the importance of early recognition and adaptation.

From a career-development perspective, injuries are seen as non-normative transitions that disrupt athletes' physical routines, general lifestyle and embodied sense of capability (Ivarsson et al., 2016). Consequently, the physical changes (e.g., loss of strength, reduced conditioning and visible muscle loss) can be experienced not only as physiological decline, but also as a threat to athletic identity, perceived body image and readiness to return to sport.

Psychological Responses

Sport injuries represent a significant disruption in athletes' training routines, performance goals, and sense of identity (Ivarsson et al., 2016; Samuel & Tenenbaum, 2011). Injury may represent a particularly challenging context for male athletes because it disrupts culturally valued markers of masculinity such as strength, physical competence, and control over the body (Connell & Messerschmidt, 2005). Participation in sport, regardless of competitive level, can be unpredictable, with injury being a common reason for temporary—or in some cases permanent—withdrawal from sport and exercise (Samuel & Tenenbaum, 2011). Athletic retirement represents a distinct transition marked by numerous changes in nutrition-related behaviours, body-related experiences, and overall lifestyle patterns (Samuel & Tenenbaum, 2011). The aforementioned physiological changes, coupled with the loss of structured sport-related routines, can contribute to a strained relationship with food, a challenge that may be exacerbated by injury and involuntary retirement (Freedman et al., 2021). Additionally, forced retirement due to injury has been consistently associated with psychological distress, loss of athletic identity, and reduced perceived control (Cosh et al., 2012), which have been linked to emotionally driven eating patterns within athletic populations. Moreover, internalization of performance-related body ideals may be a key predictor of disordered eating, suggesting that these pressures may normalize restrictive eating behaviours within sport cultures (Fatt et al., 2025).

Athletes frequently report heightened concerns about body weight and shape, driven by performance expectations and societal ideals that emphasize leanness as central to athletic success (Heaney et al., 2008). When training loads decrease, such pressures can sustain restrictive eating behaviours, rather than adapting to new nutritional demands. Furthermore, in the absence of performance-oriented goals, persistent body image pressures may increase vulnerability to disordered or emotional eating. Fear of weight gain and the loss of the 'ideal' athletic physique can also contribute to uncertainty around appropriate energy intake during injury or post-retirement (Fatt et al., 2025; Heaney et al., 2008). Addressing these challenges

is essential for supporting athletes during periods of injury and transition, as nutrition-related difficulties often reflect broader identity shifts and adjustment to life (Heaney et al., 2008).

Changes Eating Behaviour

Disruption to regular sport participation due to injury is associated with heightened body dissatisfaction and maladaptive eating behaviours, particularly when negative body image and hyperfixation on nutrition are already present during active participation. This may contribute to the persistence and increase of disordered eating tendencies after disengagement from sport (Buckley et al., 2019; Thompson et al., 2020). The severity of the injury plays a crucial role, as more severe injuries may have a greater impact on athletes' routines, identity and eating behaviours (Fatt et al., 2025). In addition, disordered eating was associated with poorer performance over time, challenging the perception that restrictive or highly controlled eating behaviours enhance athletic success (Gusfa et al., 2021). Overall, these findings suggest that disordered eating may undermine physical resilience and athletic performance, potentially increasing vulnerability to injury and further decline in performance (Fatt et al., 2025).

Gender Differences

Previous research highlights differences between genders in how common disordered eating is in sport participants and also how the symptoms are displayed. Results consistently show that disordered eating is more prevalent and often more severe in females compared to male recreational athletes both in general and sport-specific contexts (Bratland-Sanda & Sundgot-Borgen, 2013; Kong & Harris, 2015), and some evidence suggests that experiencing an injury can increase this vulnerability even more (Gusfa et al., 2021). They also highlight that female athletes are more likely to experience stronger body dissatisfaction, and engage in pathological weight-loss methods (e.g., laxative use, vomiting and extreme dieting), than men (Bratland-Sanda & Sundgot-Borgen, 2013; Kong & Harris, 2015). On the other hand, disordered eating in men is frequently linked to muscularity-oriented goals and weight-class demands, rather than thin-ideal norms and pressures, and their body dissatisfaction is not necessarily linked to disordered eating, unlike in women, where dissatisfaction is a reliable predictor (Karrer et al., 2020).

These findings illustrate that there are gender differences in both prevalence and symptom presentation, which should be investigated in order to gain a deeper understanding of disordered eating and injury-related changes in eating behaviour patterns across genders.

Gap in the Literature

Despite the increase in using both general and sport-specific eating behaviour measures, there is currently a lack of research directly comparing measures of general and sport-specific eating behavior measurements—such as Athletic Disordered Eating Scale (Buckley et al., 2024c) and the Three-Factor Eating Questionnaire-R21 (Cappelleri et al., 2009)—within the same population. Consequently, it remains unclear whether athletic-specific instruments capture distinct or more pronounced behavioural patterns relative to non-sport specific eating behaviour scales. The present study aims to address this gap by examining the ADE and TFEQ-R21 scores within an athletic sample.

Method

Design

The present study employed a cross-sectional quantitative research design to examine how eating habits and attitudes among non-elite athletes identifying as men, are associated with injury severity, athletic identity, and conformity to masculine norms. Data was collected using a self-report online questionnaire consisting of validated scales of standardized psychological measures assessing eating behaviours, athletic identity and masculinity norms. In addition, the authors created five items to capture the impact of injury and injury severity.

Participants

Participants were recreational athletes, recruited from multiple European countries. In this study, recreational athletes refers to individuals who engage in sport or exercise independently of professional clubs or elite-level training. In other words, people who currently participate in sports or have done so regularly in the past. The sample consisted of participants who completed either the English ($N = 66$) or the Hungarian ($N = 89$) version.

Eligibility criteria required participants to be at least 18 years of age. Although the study primarily targeted athletes identifying as men, participants who identified as women were also eligible to participate, in order to conduct an exploratory analysis for potential gender differences.

To reduce potential confounding factors related to medical conditions affecting eating behaviours, individuals were excluded from the study if they reported having been diagnosed with an eating disorder, a chronic medical condition, a gastrointestinal disorder, or any other health condition requiring a medically prescribed diet. Participants who were currently pregnant or breastfeeding were also excluded.

Because the survey was administered in English and Hungarian, participants were required to report fluency in at least one of these languages to ensure adequate comprehension of the questionnaire items.

Materials

Data was collected using Qualtrics, an online survey platform. Eating-related attitudes and behaviours were assessed using the Athletic Disordered Eating Scale (ADE; Buckley et al., 2024c) and the Three-Factor Eating Questionnaire-R21 (TFEQ-R21; Cappelleri et al., 2009). Both instruments used a 5-point Likert scale response format. In the present study, a subset of items from both instruments were combined to differentiate between sport-specific and non-context dependent eating behaviours. A total of 6 ADE-items and 14 TFEQ-R21-items were included to differentiate between sport-related and non-sport-specific eating patterns. Internal consistency was acceptable, with Cronbach's $\alpha = 0.756$ for ADE and $\alpha = 0.836$ for TFEQ-R21. This approach allowed for the examination of everyday food-related behaviours across both general and sport-specific contexts, rather than clinical eating disorder pathology.

Athletic identity was measured using the Exercise Identity Scale (EIS; Anderson & Cychosz, 1994). The EIS assesses the extent to which individuals identify with the role of an exerciser or athlete as part of their self-concept. Conformity to masculine norms was assessed using the Conformity to Masculine Norms Inventory-22 (CMNI-22; Mahalik et al., 2003). The CMNI-22 is a shortened version of the original Conformity to Masculine Norms Inventory that measures the extent to which individuals endorse culturally dominant masculine norms, such as emotional control, self-reliance, and risk-taking.

Since the study aimed to reach both English- and Hungarian-speaking recreational athletes, the survey was developed in a bilingual format. The original English versions of the questionnaires were first translated to Hungarian using an AI software (Microsoft Copilot 2026). A separate tool (ChatGPT-5.3) was then used to translate the Hungarian versions back into English to allow for comparison with the original items. Both researchers, who are native Hungarian speakers with advanced English proficiency, independently reviewed all translated items to ensure semantic, conceptual and cultural equivalence.

The survey was distributed through the researchers' personal social media platforms and shared within their personal and professional networks. Participants completed the questionnaire anonymously and were not offered compensation. Upon completion, respondents were provided with contact information for the research team in case they had questions about the study.

Procedure

Participants accessed the study via a Qualtrics survey link. They first viewed an information sheet detailing the study's purpose, eligibility and ethics, and were required to

provide informed consent; those who did not consent were excluded from the survey.

Participants selected their preferred language, which directed them to the full set of self-report measures presented in a fixed order. First, they completed items assessing non-sport-specific and sport-specific eating behaviours and attitudes (curated selection of TFEQ-R21 and ADE-items). This was followed by EIS and the CMNI-22. Participants then reported their exercise habits (such as frequency of sport participation and type of sport), as well as their injury status, history, and severity (see Appendix). General demographic information, such as age and gender, was also collected. Completion time ranged from approximately 10 to 15 minutes.

Ethical Considerations

This study was conducted in accordance with the rules and regulations of the Swedish Research Council's ethics committee for research involving human participants. All participants were required to provide informed consent before completing the survey and were informed that participation is completely voluntary and they can withdraw any time without consequences. All collected data was anonymous, handled with confidentiality and only used for the purpose of this thesis. According to Lund University's ethical guidelines, formal ethical approval was not necessary, as the survey was conducted anonymously and did not contain any sensitive or potentially offensive content.

Data Preparation

Survey responses were exported from Qualtrics into two separate Excel files corresponding to the English and Hungarian versions of the questionnaire. After the translation of the Hungarian responses into their English equivalents, the two datasets were then merged into a single English-language dataset (initial $N = 161$).

The combined dataset was cleaned and screened for data quality. Six participants were excluded because of violation of inclusion criteria (did not consent: $N = 2$; underaged: $N = 1$; random response pattern: $N = 1$; unstated gender: $N = 2$), resulting in a final sample of $N = 155$ (71 men and 84 women). Because the aim of the study was to examine injured participants specifically, only individuals classified as injured were included in the final analyses. The final analytic sample therefore consisted of 106 injured participants, including 50 men and 56 women, with the mean age of 30.5 years. All categorical response labels (e.g., "Agree", "Definitely false") were re-coded into numerical values according to the scoring guidelines of each instrument. Dichotomous variables were coded as "Yes" = 1 and "No" = 0, and gender was coded as "Woman" = 1 and "Man" = 2. Reverse-scored items of the CMNI-22 were re-coded prior to the computation of total and subscale scores (see Appendix).

Analysis

To examine differences in questionnaire endorsement patterns between the Athlete Dieting Expectations scale and the Three-Factor Eating Questionnaire-R21, mean scores were first calculated for each scale to allow for comparison (see Analysis 1). After the normality check indicated no significant deviation ($p > 0.05$), two paired sample t-tests were performed to examine whether there was a statistically significant difference between sport-specific (ADE) and non-contextual, disordered eating behaviours (TFEQ-R21).

For our second hypothesis, four multiple linear regression analyses were conducted to examine predictors of sport-specific and non-sport-specific disordered eating behaviours, while also examining possible gender differences (Analysis 2). Predictor variables include athletic identity, conformity to masculine norms, and injury severity. Prior to conducting the linear regression, the data was screened for missing values, outliers and multicollinearity, which was assessed using variance inflation factor (VIF) and tolerance values, with thresholds of $VIF < 10$ and tolerance > 0.2 indicating acceptable levels. A Bonferroni-adjusted alpha level of $p < 0.0125$ was applied across the four regression analyses to reduce the risk of Type I error associated with conducting multiple tests.

Results

Analysis 1

ADE ($M = 2.41$, $SD = 0.661$) and TFEQ-R21 mean scores ($M = 2.03$, $SD = 0.56$) were assessed for normality using the Shapiro–Wilk tests, with results indicating no significant deviations from normality ($p > 0.05$). Skewness and kurtosis values were also within acceptable range. When testing the first hypothesis, the paired sample t-tests indicated that participants identifying as women reported greater endorsement of sport-specific disordered eating attitudes compared to more general eating-related behaviours, with a mean difference between scales of 0.18 ($SE = 0.06$), $t(83) = 2.92$, $p = 0.005$, indicating a small-to-moderate effect (Cohen's $d = 0.32$). A similar pattern was observed in participants identifying as men, with ADE scores also differing significantly from TFEQ-R21 scores, with a mean difference of 0.38 ($SE = 0.07$), $t(70) = 5.58$, $p < 0.001$, indicating a moderate-to-large effect (Cohen's $d = 0.66$). Overall, these results indicate similar patterns across gender groups, with higher scores observed on ADE in both cases, supporting the first hypothesis.

Analysis 2

To test the second hypothesis, a linear regression was conducted utilizing a model consisting of athletic identity, masculinity norms and injury severity, to predict non-sport-specific eating behaviour. The model was not statistically significant, $F(3, 46) =$

2.04, $p = 0.121$. Although injury severity showed a positive association with TFEQ-R21 scores, none of the predictors significantly contributed to the model (see Table 1) following Bonferroni correction.

In contrast, the ADE model was statistically significant, $F(3, 46) = 6.91, p < 0.001$, explaining 31.1% of the variance ($R^2 = 0.311$). Injury severity emerged as the only significant predictor of ADE scores, indicating that greater injury severity was associated with higher levels of sport-specific disordered eating behaviours among athletes identifying as men. Athletic identity and conformity to masculine norms were not significant predictors (see Table 2).

Table 1

Linear Regression Predicting TFEQ-21 Among Men (N = 50)

Predictor	B	SE	95% CI	t	p	β
Intercept	1.30062	0.56050	[0.172, 2.429]	2.32	0.025	-
Athletic Identity	-0.00358	0.01064	[-0.02500, 0.0178]	-0.336	0.738	-0.0525
Conformity to Masculine Norms	0.00831	0.00632	[-0.00441, 0.0210]	1.315	0.195	0.2041
Injury Severity	0.05909	0.03011	[-0.0151, 0.1197]	1.963	0.056	0.2752

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient.

Table 2

Linear Regression Predicting ADE Scores Among Men (N=50)

Predictor	B	SE	95% CI	t	p	β
Intercept	0.65801	0.54207	[-0.43313, 1.7429]	1.21	0.231	-
Athletic Identity	0.01666	0.01029	[-0.0406, 0.0374]	1.62	0.112	0.223
Conformity to Masculine Norms	0.00661	0.00611	[-0.00570, 0.0189]	1.08	0.285	0.148
Injury Severity	0.09651	0.02912	[0.03790, 0.1551]	3.31	0.002	0.411

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient

Further, the regression model predicting non-sport-specific eating behaviour among participants who identify as women was not statistically significant, $F(3, 52) = 2.45$, $p = 0.074$, indicating that athletic identity, conformity to masculine norms, and injury severity did not significantly predict TFEQ-R21 scores in this sample (see Table 3).

For the ADE model among women, the overall regression model was significant at the conventional alpha level, $F(3, 52) = 3.84$, $p = 0.015$, explaining 18.2% of the variance ($R^2 = 0.182$), although this did not remain significant following Bonferroni correction. Similarly to men participants, injury severity emerged as a significant positive predictor of sport-specific disordered eating behaviours. This effect remained significant following Bonferroni correction, whereas athletic identity and conformity to masculine norms were not significant predictors (see Table 4).

Table 3

Linear Regression Predicting TFEQ-21 Scores Among Women (N=56)

Predictor	B	SE	95% CI	t	p	β
Intercept	1.70162	0.59310	[0.5115, 2.8918]	2.87	0.006	-
Athletic Identity	0.00295	0.00708	[-0.0113, 0.0172]	0.42	0.678	0.0546
Conformity to Masculine Norms	-0.00219	0.00612	[-0.0145, 0.0101]	-0.36	0.722	-0.0467
Injury Severity	0.09532	0.03574	[0.0236, 0.1670]	2.67	0.010	0.3473

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient

Table 4

Linear Regression Predicting ADE Scores Among Women (N=56)

Predictor	B	SE	95% CI	t	p	β
Intercept	1.11308	0.67767	[-0.2468, 2.4729]	1.64	0.107	-
Athletic Identity	0.00110	0.00809	[-0.0151, 0.0173]	0.14	0.893	0.0171
Conformity to Masculine Norms	0.00914	0.00700	[-0.0049, 0.0232]	1.31	0.197	0.1648
Injury Severity	0.12870	0.04083	[0.0468, 0.2106]	3.15	0.003	0.3967

Note. B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient

When exploring the difference between gender groups, it is noticeable that the ADE model explained more variance among men ($R^2 = 0.311$) than women ($R^2 = 0.182$), suggesting that the included predictors may have been more strongly associated with sport-specific disordered eating attitudes among male participants. Additionally, the difference between ADE and TFEQ-R21 mean scores appeared larger among men ($d = 0.66$) than women ($d = 0.32$), further supporting the patterns observed in the regression model, in this sample.

Discussion

Aims and Hypotheses

The present study investigated whether disordered eating amongst athletes might not be captured by scales aimed at general populations, and whether injury severity, athletic identity and conformity to masculine norms predict these behaviours following sport injury. Using paired-samples t-tests and multiple regression analyses, both sport-specific (ADE), non-context dependent eating behaviours (TFEQ-R21), were examined separately for men and women. Two hypotheses were tested. The first being that recreational athletes would report higher sport specific disordered eating attitudes, and the second that injury severity, athletic identity and conformity to masculine norms would significantly predict eating-related outcomes. The findings partially supported these hypotheses as participants scored significantly higher on the ADE than on the TFEQ-R21, while injury severity emerged as the only consistent predictor across gender groups.

Performance Driven Disordered Eating

Previous research has shown that athletes often regulate nutrition through performance-driven norms, strict routines and expectations surrounding discipline and bodily control, which are reinforced by sport culture (Freedman et al., 2021; Heaney et al., 2008; Maughan & Shirreffs, 2011). In the present sample, recreational athletes reported significantly higher scores on the ADE scale compared to the TFEQ-R21. The larger difference in scores observed among men further suggests that male recreational athletes may be particularly likely to express disordered eating attitudes within sport-specific contexts rather than through more general eating behaviours. The patterns may reflect how masculine sport culture emphasises discipline and restriction as markers of both athletic competence and masculinity, (Connell & Messerschmidt, 2005; Jelicich & Braun, 2023), applying the "food as fuel" ideology (Maughan et al., 2004). Consequently, athletes may be more likely to endorse

restrictive or performance-focused eating within athletic settings (Karrer et al., 2020). This may explain why the disordered eating scores were higher on the ADE compared to the TFEQ-R21, which intends to capture disordered eating as a result of emotional regulation or lack of control (Fatt et al., 2025), instead of performance-driven disordered eating.

These findings support the use of sport-specific assessment tools, such as the ADE, as they appear more suited for capturing disordered eating attitudes linked to performance expectations and sport-cultural norms. The present study contributes to the limited literature directly comparing general and sport-specific eating behaviour measures within the same athletic population.

The Predictors

Beyond the comparison of non-contextual and sport-specific eating behaviours on an athletic sample, the study also hypothesised that eating behaviours would be significantly predicted by injury severity, athletic identity and conformity to masculine norms among recreational athletes, for both men and women. This hypothesis emerged given the well-documented gender differences in the prevalence and expression of disordered eating (Bratland-Sanda & Sundgot-Borgen, 2013; Karrer et al., 2020; Kong & Harris, 2015), and how athletes respond to injury-related disruptions (Gusfa et al., 2021). This was partially supported, with injury severity emerging as the only significant predictor across the regression models. Athletic identity and conformity to masculine norms were not associated with either general or sport-specific eating behaviours.

Injury Severity

The observed association between higher injury severity and increased sport-specific disordered eating attitudes among athletes is aligning with previous research conceptualising injury as a disruption to athletic functioning and perceived control (Ivarsson et al., 2016). Periods of reduced training are known to cause physiological changes, such as lower metabolic demands, muscle loss and reduced conditioning (Dirks et al., 2016; Mujika & Padilla, 2000). Such physiological changes may intensify body-related concerns and increase vulnerability to more performance-oriented or compensatory eating attitudes during injury and recovery (Freedman et al., 2021; Heaney et al., 2008), which could explain why injury severity was a robust predictor of sport-specific eating behaviours across the sample.

Athletic Identity

In contrast, athletic identity did not significantly predict eating behaviours, even though previous research showed that athletes with stronger athletic identities would be more sensitive to training disruptions and changes in exercise-related routines (Brewer et al., 1993).

One reason may be that recreational athletes could have a less centralised and more flexible athletic identity, reducing how much injury threatens their self-concept. Research shows that distress related to identity is higher, when sport serves as a central or exclusive role in an athlete's life (Brewer et al., 1993), which may not be true for most recreational athletes in the present sample.

Masculine Norms

Similarly, conformity to masculine norms did not significantly predict non-context dependent or sport-specific eating behaviours, despite theoretical expectations that masculine ideals surrounding discipline, control and body optimization would influence male sport participants' eating behaviours (Jellich & Braun, 2023; Mahalik et al., 2003). These norms are often embedded in sporting environments, where traditionally masculine traits, such as competitiveness, discipline and physical control are culturally reinforced and associated with success (Bojkowski, 2022; Kidd, 2013). Recreational sport environments, however, may place less emphasis on hyper-competitive and performance driven masculine norms than elite sport settings (Kidd, 2013; Spallacci, 2020). Therefore, masculinity-related expectations and pressures might be less influential on recreational athletes' eating behaviours or may operate indirectly instead of being direct predictors. It is also possible that the CMNI-22 measured broader, more traditional masculinity norms that were not specific enough to capture sport-related masculine ideals linked to eating and body regulation. For example, norms surrounding emotional control, dominance, or self-reliance may not directly reflect the performance-oriented body ideals and nutritional discipline emphasized within athletic environments, thus, the measure may not have fully captured the particular forms of masculinity most relevant to athletes' eating attitudes.

Conclusion

The analyses discussed above addressed the study's predefined hypotheses indicating that injury severity was the only consistent predictor of eating-related outcomes, while athletic identity and conformity to masculine norms were not significant. In addition, exploratory analyses were also conducted to examine potential gender differences. While the findings among participants identifying as women should be interpreted cautiously due to the statistical significance, injury severity appeared to emerge as a potentially relevant factor in relation to sport-specific disordered eating attitudes, which is consistent with previous research (Fatt et al., 2025; Gusfa et al., 2021). Additionally, the regression models explained more variance in sport-specific eating behaviours among men than women, and the difference between ADE and TFEQ-R21 scores was larger among men. Although exploratory, these

findings may suggest that sport-specific eating attitudes are more strongly connected to injury-related and psychological factors among male recreational athletes.

Overall, the findings of this paper suggest that eating attitudes among recreational athletes are shaped more strongly by sport-specific contexts and injury-related disruptions than by broader identity-related or gender normative factors. The study further highlights the importance of examining disordered or maladaptive patterns among recreational athletes, as these tendencies appeared to be more strongly expressed within sport-specific contexts. These insights contribute to a deeper understanding of eating attitudes and behaviours outside of elite settings, where most research in the topic has been conducted. Being injured, therefore, should be recognised as a potential vulnerable period for recreational athletes as well, during which additional support may be beneficial.

Limitations

A number of limitations should be considered when interpreting the findings of the study. First, despite using back-translation and native-speaker reviews, some translation bias might remain in the English-Hungarian survey. Subtle shifts in meaning for culturally embedded constructs—such as masculinity norms, eating attitudes, identity questions and body ideals—may affect interpretation. Therefore, full measurement equivalence cannot be guaranteed between the two surveys, potentially introducing measurement errors and limiting cross-cultural comparability.

Secondly, the study used a relatively small sample, due to reported injury status and missing data, which can reduce statistical power and limit generalisability. In addition, participants were recruited through social-media and personal networks, which might have introduced self-selection bias, potentially attracting participants with greater interest or education in sport, nutrition or injury-related topics. Additionally, injury severity was self-reported, which can be subjective and influenced by personal judgment rather than medical assessment.

Finally, although injury severity predicted ADE scores in this sample, the directionality of this relationship cannot be determined purely based on these results as the cross-sectional design of the study prevents causal inference. Research suggests that both directions are possible, as disordered eating has also been associated with a higher risk of musculoskeletal injuries, nutrient deficiencies and inadequate caloric intake relative to the energy demands of their sport (Rauh et al., 2010).

Future Directions

The present findings suggest several possible directions for future research. First, our results show that sport-specific eating behaviours differ from non-sport-specific eating patterns, supporting the need for creating and validating sport-specific eating behaviour measures in recreational athletes, not only elite populations. The use of longitudinal designs for future studies is also encouraged, to track and document how eating behaviours change across different phases of injury and recovery and to further investigate the directionality of this relationship. Qualitative methods could provide valuable insight into the lived experiences of injured athletes, to deepen the understanding of psychological variables that quantitative measures might overlook.

Beyond suggestions for future research, the present findings highlight practical implications for recreational sport settings. Recreational athletes often lack structured support systems, nutritional guidance and psychological resources usually available in professional sport settings. It may be beneficial to ensure accessibility to such infrastructure and services through sport-facilities or organisations in which recreational athletes engage, as a safeguard for both psychological and physiological well-being. Lastly, providing recreational athletes with educational resources, early-screening tools, and interventions, could prevent or mitigate maladaptive eating patterns, especially during disruptions like injury or sickness.

References

- Anderson, D. F., & Cychosz, C. M. (1994). Development of An Exercise Identity Scale. *Perceptual and Motor Skills*, 78(3), 747–751.
<https://doi.org/10.1177/003151259407800313>
- Bojkowski, Ł. (2022). Psychological Femininity and Masculinity and Motivation in Team Sports. *International Journal of Environmental Research and Public Health*, 19(23), 15767. <https://doi.org/10.3390/ijerph192315767>
- Bratland-Sanda, S., & Sundgot-Borgen, J. (2013). Eating disorders in athletes: Overview of prevalence, risk factors and recommendations for prevention and treatment. *European Journal of Sport Science*, 13(5), 499–508.
<https://doi.org/10.1080/17461391.2012.740504>
- Brewer, B. W., Van Raalte, J. L., & Linder, D. E. (1993). Athletic identity: Hercules' muscles or Achilles heel? *International Journal of Sport Psychology*, 24(2), 237–254.
- Buckley, G. L., Hall, L. E., Lassemillante, A.-C. M., Ackerman, K. E., & Belski, R. (2019). Retired Athletes and the Intersection of Food and Body: A Systematic Literature Review Exploring Compensatory Behaviours and Body Change. *Nutrients*, 11(6), 1395. <https://doi.org/10.3390/nu11061395>
- Buckley, G. L., Lassemillante, A.-C. M., Cooke, M. B., & Belski, R. (2024c). The Development and Validation of a Disordered Eating Screening Tool for Current and Former Athletes: The Athletic Disordered Eating (ADE) Screening Tool. *Nutrients*, 16(16), 2758. <https://doi.org/10.3390/nu16162758>
- Bury, M. (1982). Chronic Illness as Biographical Disruption. *Sociology of Health and Illness*, 4(2), 167–182. <https://doi.org/10.1111/1467-9566.ep11339939>
- Cappelleri, J. C., Bushmakina, A. G., Gerber, R. A., Leidy, N. K., Sexton, C. C., Lowe, M. R., & Karlsson, J. (2009). Psychometric analysis of the Three-Factor Eating Questionnaire-R21: results from a large diverse sample of obese and non-obese participants. *International Journal of Obesity*, 33(6), 611–620.
<https://doi.org/10.1038/ijo.2009.74>
- Connell, R. W., & Messerschmidt, J. W. (2005). Hegemonic Masculinity: Rethinking the Concept. *Gender & Society*, 19(6), 829–859.
<https://doi.org/10.1177/0891243205278639>
- Convertino, A. D., Elbe, C. I., Mendoza, R. R., Calzo, J. P., Brown, T. A., Siegel, J. A., Jun, H., Corliss, H. L., & Blashill, A. J. (2022). Internalization of muscularity and thinness ideals: Associations with body dissatisfaction, eating disorder symptoms, and muscle

- dysmorphic symptoms in at risk sexual minority men. *International Journal of Eating Disorders*, 55(12), 1765–1776. <https://doi.org/10.1002/eat.23829>
- Cosh, S., Crabb, S., & LeCouteur, A. (2012). Elite athletes and retirement: Identity, choice, and agency. *Australian Journal of Psychology*, 65(2), 89–97. <https://doi.org/10.1111/j.1742-9536.2012.00060.x>
- Dirks, M. L., Wall, B. T., van de Valk, B., Holloway, T. M., Holloway, G. P., Chabowski, A., Goossens, G. H., & van Loon, L. J. C. (2016). One Week of Bed Rest Leads to Substantial Muscle Atrophy and Induces Whole-Body Insulin Resistance in the Absence of Skeletal Muscle Lipid Accumulation. *Diabetes*, 65(10), 2862–2875. <https://doi.org/10.2337/db15-1661>
- Fatt, S. J., Hay, P., George, E., Jeacocke, N., Rogers, K., & Mitchison, D. (2025). A longitudinal investigation of performance and injury outcomes associated with disordered eating in elite athletes. *Sports Medicine - Open*, 11(1), 122. <https://doi.org/10.1186/s40798-025-00927-5>
- Fidolini, V. (2021). Eating like a man. Food, masculinities and self-care behavior. *Food, Culture & Society*, 25(2), 1–14. <https://doi.org/10.1080/15528014.2021.1882795>
- Freedman, J., Hage, S., & Quatromoni, P. A. (2021). Eating Disorders in Male Athletes: Factors Associated With Onset and Maintenance. *Journal of Clinical Sport Psychology*, 15(3), 227–248. <https://doi.org/10.1123/jcsp.2020-0039>
- Gusfa, D., Mancine, R., Kennedy, S., Bashir, D. A., & Saffarian, M. (2021). The relationship between disordered eating behaviors and injury rates in adolescent athletes. *International Journal of Eating Disorders*, 55(1). <https://doi.org/10.1002/eat.23642>
- Ivarsson, A., Stambulova, N., & Johnson, U. (2016). Injury as a career transition: Experiences of a Swedish elite handball player. *International Journal of Sport and Exercise Psychology*, 16(4), 365–381. <https://doi.org/10.1080/1612197x.2016.1242149>
- Jelicich, R., & Braun, V. (2023). “Your Diet Defines Who You Are, Especially as a Man”: Masculinity in Online Media Focused on Healthy Eating for Men. *American Journal of Men’s Health*, 17(6), 15579883231213588. <https://doi.org/10.1177/15579883231213588>
- Karrer, Y., Halioua, R., Mötteli, S., Iff, S., Seifritz, E., Jäger, M., & Claussen, M. C. (2020). Disordered eating and eating disorders in male elite athletes: a scoping review. *BMJ Open Sport & Exercise Medicine*, 6(1), e000801. <https://doi.org/10.1136/bmjsem-2020-000801>

- Kidd, B. (2013). Sports and masculinity. *Sport in Society, 16*(4), 553–564.
<https://doi.org/10.1080/17430437.2013.785757>
- Klimek, P., Murray, S. B., Brown, T., Gonzales IV, M., & Blashill, A. J. (2018). Thinness and muscularity internalization: Associations with disordered eating and muscle dysmorphia in men. *International Journal of Eating Disorders, 51*(4), 352–357.
<https://doi.org/10.1002/eat.22844>
- Kong, P., & Harris, L. M. (2015). The sporting body: body image and eating disorder symptomatology among female athletes from leanness focused and nonleanness focused sports. *The Journal of Psychology, 149*(1-2), 141–160.
<https://doi.org/10.1080/00223980.2013.846291>
- Lamont-Mills, A., & Christensen, S. A. (2006). Athletic identity and its relationship to sport participation levels. *Journal of Science and Medicine in Sport, 9*(6), 472–478.
<https://doi.org/10.1016/j.jsams.2006.04.004>
- Lochbaum, M., Cooper, S., & Limp, S. (2022). The Athletic Identity Measurement Scale: A Systematic Review with Meta-Analysis from 1993 to 2021. *European Journal of Investigation in Health, Psychology and Education, 12*(9), 1391–1414.
<https://doi.org/10.3390/ejihpe12090097>
- Mahalik, J. R., Locke, B. D., Ludlow, L. H., Diemer, M. A., Scott, R. P. J., Gottfried, M., & Freitas, G. (2003). Development of the Conformity to Masculine Norms Inventory. *Psychology of Men & Masculinity, 4*(1), 3–25.
<https://doi.org/10.1037/1524-9220.4.1.3>
- Maughan, R. J., King, D. S., & Lea, T. (2004). Dietary supplements. *Journal of Sports Sciences, 22*(1), 95–113. <https://doi.org/10.1080/0264041031000140581>
- Maughan, R. J., & Shirreffs, S. M. (2011). Nutrition for sports performance: issues and opportunities. *Proceedings of the Nutrition Society, 71*(1), 112–119.
<https://doi.org/10.1017/s0029665111003211>
- Mujika, I., & Padilla, S. (2000). Detraining: Loss of Training-Induced Physiological and Performance Adaptations. Part I. *Sports Medicine, 30*(2), 79–87.
<https://link.springer.com/article/10.2165/00007256-200030020-00002>
- Petrie, T. A., & Moore, W. G. (2023). Body satisfaction and disordered eating among male collegiate athletes: From point-prevalence to prediction. *Eating Behaviors, 50*, 101783–101783. <https://doi.org/10.1016/j.eatbeh.2023.101783>
- Rauh, M. J., Nichols, J. F., & Barrack, M. T. (2010). Relationships among injury and disordered eating, menstrual dysfunction, and low bone mineral density in high school

- athletes: A prospective study. *Journal of Athletic Training*, 45, 3.
<https://doi.org/10.4085/1062-6050-45.3.243>
- Samuel, R. D., & Tenenbaum, G. (2011). The Role of Change in Athletes' Careers: A Scheme of Change for Sport Psychology Practice. *The Sport Psychologist*, 25(2), 233–252.
<https://doi.org/10.1123/tsp.25.2.233>
- Spallacci, A. (2020). Sport, masculinity and gender relations. *Baltic Journal of Health and Physical Activity*, 12(Special Issue 1), 12–21.
<https://doi.org/10.29359/bjhpa.12.spec.iss1.02>
- Thompson, A., Petrie, T., Balcom, K., Tackett, B., & Edward Watkins, C. (2020). Psychosocial predictors of eating classification in female athletes: From collegiate sport to retirement. *International Journal of Eating Disorders*.
<https://doi.org/10.1002/eat.23456>
- Vandello, J. A., Bosson, J. K., Caswell, T. A., & Cummings, J. R. (2024). Healthful eating as a manhood threat. *Journal of Men's Health*, 20(1), 42.
<https://doi.org/10.22514/jomh.2024.007>

CRedit statement

Luca Németh and Karola Tankó designed the study and supervised data collection. The literature review was conducted together. Luca prepared the dataset for analysis and created all tables. Karola conducted the statistical analyses, following the discussion which was written by both authors.

All authors contributed to and have approved the final manuscript.

Appendix

Survey on Injury Severity, Masculinity Norms, Athletic Identity and eating habits

The following section includes the survey used in our study, including the Athletic Disordered Eating Scale (ADE), the Three-Factor Eating Questionnaire-R21 (TFEQ-R21), the Exercise Identity Scale and the Conformity to Masculine Norms Inventory–22 (CMNI-22), alongside questions referring to injury type and severity.

Introduction To Survey

Thank you for participating in this study! This survey is part of a Master's thesis project conducted at Lund University.

In this survey, you will be asked questions about your exercise habits, experiences of injuries, perceptions related to masculinity and food-related habits.

Although we ask about your eating habits in this survey, your responses cannot be used as an indication of any kind of eating disorder. This project is not intended as a diagnostic tool.

Your participation is voluntary and you may withdraw at any time without any consequences. You may also skip any questions that you prefer not to answer. All responses are anonymous and confidential and will only be used for research purposes. The survey takes approximately 10 minutes to complete.

If you have any questions about the study, please contact the responsible researchers (Luca Németh, Lund University, e-mail: lu1120ne-s@student.lu.se OR Karola Tankó, Lund University, e-mail: ka6645ta-s@student.lu.se).

The same introduction was used in Hungarian.

Köszönjük, hogy részt vesz a kutatásunkban! Ez a kérdőív a Lundi Egyetem Pszichológia Mesterképzésén írt szakdolgozatunk része.

A kérdőívben a sportolási szokásaira, sérülésekkel kapcsolatos tapasztalataira, a maszkulinitással kapcsolatos észleléseire, valamint étkezési szokásaira vonatkozó kérdéseket fogunk feltenni.

Bár a kérdőívben rákérdezzünk bizonyos étkezési szokásokra, válaszai semmilyen módon nem használhatók étkezési zavar diagnosztizálására. A kutatás nem diagnosztikai célú.

A részvétel önkéntes, és bármikor következmények nélkül megszakítható. Bármely kérdést kihagyhat, amelyre nem kíván válaszolni. Minden válasz anonim és bizalmasan kezelt,

és kizárólag kutatási célra kerül felhasználásra. A kérdőív kitöltése körülbelül 10 percet vesz igénybe.

Amennyiben kérdése merülne fel a kutatással kapcsolatban, kérjük keresse fel a kutatásért felelős személyeket

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Exercise Identity Scale (EIS)

Item	Mean	Median	SD	α
I consider myself an exerciser.	5.79	6.00	1.23	0.897
Olyan embernek tartom magam, aki rendszeresen mozog / sportol.	5.85	6.00	1.41	0.921
When I describe myself to others, I usually include my involvement in exercise.	4.76	5.00	1.62	0.906
Amikor bemutatom magam másoknak, általában megemlítem, hogy sportolok / mozgok.	4.42	4.00	1.80	0.936
I have numerous goals related to exercising.	5.22	6.00	1.68	0.893
Számos, testmozgással kapcsolatos célom van.	5.52	6.00	1.39	0.924
Physical exercise is a central factor to my self-concept.	4.99	5.00	1.61	0.893
A testmozgás központi része a magamról alkotott képemnek.	5.38	6.00	1.55	0.917
I need to exercise to feel good about myself.	5.29	6.00	1.56	0.904
Szükségem van a testmozgásra ahhoz, hogy jól érezzem magam a bőrömben.	6.11	7.00	1.28	0.923
For me, being an exerciser means more than just exercising.	4.60	5.00	1.89	0.910
Számomra a "sportos embernek lenni" többet jelent, mint egyszerűen sportolni.	5.34	6.00	1.56	0.918
Others see me as someone who exercises regularly.	4.93	5.00	1.65	0.899
Mások olyan embernek tartanak, aki rendszeresen sportol / mozog.	5.01	5.00	1.53	0.925
I would feel a real loss if I were forced to give up exercising.	5.74	6.00	1.43	0.893
Igazi veszteségként élném meg, ha kénytelen lennék abbahagyni a sportolást / testmozgást.	5.76	6.00	1.68	0.921

Exercising is something I think about often.	5.24	5.50	1.62	0.898
A testmozgás olyan dolog, amire gyakran gondolok.	5.71	6.00	1.36	0.923

Three-Factor Eating Questionnaire-R21 (TFEQ-R21)

Item	Mean	Median	SD	α
I deliberately take small helpings to control my weight.	1.94	2.00	0.99	0.886
Szándékosan keveset eszem egyszerre, hogy kordában tartsam a testsúlyomat.	2.12	2.00	0.90	0.869
I start to eat when I feel anxious.	2.28	2.00	0.99	0.874
Amikor szorongok, enni kezdek.	2.17	2.00	1.03	0.847
When I feel sad, I eat too much.	2.19	2.00	1.05	0.863
Amikor szomorú vagyok, gyakran túl sokat eszem.	2.09	2.00	1.00	0.845
I don't eat some foods because they make me fat.	2.06	2.00	1.08	0.880
Bizonyos ételeket azért nem eszem, mert hizlálnak.	2.31	2.00	1.12	0.871
Being with someone who is eating often makes me want to also eat.	2.56	3.00	1.04	0.877
Ha olyan valakivel vagyok együtt, aki eszik, gyakran engem is arra készítenek, hogy egyek.	2.62	3.00	1.01	0.860
I often get so hungry that my stomach feels like a bottomless pit.	1.99	2.00	1.04	0.866
Gyakran annyira éhes vagyok, hogy feneketlen űrt érzek a gyomrom helyén.	2.10	2.00	0.99	0.858
I'm always so hungry that it's hard to stop eating before finishing all the food.	2.00	2.00	1.16	0.868
Mindig annyira éhes vagyok, hogy nehezemre esik abbahagyni az evést.	1.90	2.00	0.84	0.852

When I feel lonely, I console myself by eating.	2.03	2.00	0.96	0.871
Amikor magányos vagyok, evéssel vigasztalódom.	1.84	2.00	0.90	0.850
I consciously hold back on how much I eat to avoid gaining weight.	2.01	2.00	1.03	0.872
Tudatosan korlátozom, hogy mennyit eszem, hogy elkerüljem a hízást.	2.37	2.00	1.00	0.861
When I smell or see appetizing food, I find it hard not to eat.	1.85	2.00	1.01	0.873
Amikor étvágygerjesztő ételt látok vagy érzek, nehezen állom meg, hogy ne egyek.	2.24	2.00	0.78	0.858
I am always hungry enough to eat at any time.	2.06	2.00	1.10	0.868
Mindig elég éhes vagyok ahhoz, hogy bármikor tudjak enni.	2.20	2.00	0.91	0.859
If I feel nervous, I try to calm down by eating.	1.78	1.50	0.88	0.869
Amikor ideges vagyok, evéssel próbálom megnyugtatni magam.	1.81	2.00	0.89	0.848
When I see something delicious, I often get so hungry I must eat immediately.	2.01	2.00	0.94	0.869
Amikor valami finomat látok, gyakran azonnal ennem kell.	2.01	2.00	0.76	0.852
When I feel depressed, I want to eat.	2.18	2.00	0.96	0.869
Amikor levert vagyok, enni akarok.	1.85	2.00	0.91	0.853

Athletic Disordered Eating (ADE)

Item	Mean	Median	SD	α
I am dissatisfied with my body size or shape.	2.43	2.50	1.06	0.789

Elégedetlen vagyok a testem méretével vagy formájával.	2.33	2.00	0.91	0.731
I fear fat gain or muscle loss.	2.75	3.00	1.08	0.790
Félek a zsírfelhalmozódástól vagy az izomtömeg csökkenésétől.	2.80	3.00	0.93	0.671
I will perform extra exercise to influence my body shape.	2.78	3.00	1.02	0.789
Többletmozgást végzek azért, hogy befolyásoljam a testalkatomat.	2.30	2.00	0.93	0.682
If I have not exercised that day, I will limit my food.	1.78	1.00	0.94	0.824
Ha egy nap nem edzettem, korlátozom az étkezésemet.	1.66	2.00	0.72	0.697
I think about the calories/kilojoules I am burning when I train or exercise.	2.09	2.00	1.10	0.792
Edzés vagy sportolás közben az elégetett kalóriákra/kilojoule-okra gondolok.	1.76	2.00	0.88	0.690
I compare my body to others or to my former self.	3.24	3.00	0.90	0.790
Összehasonlítom a testemet másokéval vagy a korábbi önmagaméval.	2.74	3.00	0.99	0,728

Conformity to Masculine Norms Inventory (CMNI-22)

Item	Mean	Median	SD	α
My work is the most important part of my life.	3.32	3.00	1.72	0.823
A munkám az életem legfontosabb része.	3.74	4.00	1.52	0.766
I make sure people do as I say.	3.31	3.00	1.45	0.801
Gondoskodom róla, hogy az emberek azt tegyék, amit mondok.	3.61	4.00	1.62	0.761
In general, I do not like risky situations.	3.81	3.00	1.53	0.808
Általában nem szeretem a kockázatos	3.78	3.00	1.59	0.769

helyzeteket.

It would be awful if someone thought I was gay.	2.76	2.00	1.83	0.802
Szörnyű lenne, ha valaki azt hinné rólam, hogy meleg vagyok.	3.79	4.00	2.05	0.774
I love it when men are in charge of women.	2.00	1.00	1.56	0.797
Tetszik, amikor a férfiak irányítják a nőket.	2.91	3.00	1.72	0.762
I like to talk about my feelings.	3.29	3.00	1.74	0.805
Szeretek az érzéseimről beszélni.	3.44	3.00	1.60	0.767
I would feel good if I had many sexual partners.	3.13	3.00	1.92	0.811
Jól érezném magam, ha sok szexuális partnerem lenne.	2.36	2.00	1.45	0.768
It is important to me that people think I am heterosexual.	2.91	2.00	1.74	0.806
Fontos számomra, hogy az emberek heteroszexuálisnak gondoljanak.	4.06	4.00	1.86	0.770
I believe that violence is never justified.	3.76	4.00	1.93	0.812
Úgy gondolom, hogy az erőszak soha nem igazolható.	3.04	2.00	2.07	0.791
I tend to share my feelings.	3.12	3.00	1.70	0.800
Hajlamos vagyok megosztani az érzéseimet.	3.20	3.00	1.42	0.774
I should be in charge.	4.03	4.00	1.36	0.810
Nekem kellene irányítanom.	3.87	4.00	1.41	0.770
I would hate to be important.	5.66	6.00	1.31	0.808
Utálnám, ha fontos személy lennék.	4.96	5.00	1.53	0.768
Sometimes violent action is necessary.	4.00	4.50	1.77	0.812
Néha szükség van erőszakos cselekedetre.	2.65	2.00	1.82	0.772
I don't like giving all my attention to work.	3.19	3.00	1.61	0.811
Nem szeretem, ha minden figyelmemet a munkára kell fordítanom.	3.18	3.00	1.51	0.782
More often than not, losing does not bother	4.28	4.00	1.66	0.807

me.

Többnyire nem zavar, ha veszítek.	4.06	4.00	1.77	0.782
If I could, I would frequently change sexual partners.	2.47	2.00	1.63	0.807
Ha tehetném, gyakran váltanám a szexuális partnereimet.	1.93	1.00	1.30	0.771
I never do things to be an important person.	4.94	5.00	1.35	0.813
Sosem teszek azért, hogy fontos ember legyek.	4.78	5.00	1.51	0.786
I never ask for help.	3.03	2.00	1.67	0.811
Sosem kérek segítséget.	3.07	3.00	1.44	0.770
I enjoy taking risks.	3.90	4.00	1.74	0.810
Élvezem a kockázatvállalást.	3.69	3.00	1.61	0.765
Men and women should respect each other as equals.	1.47	1.00	1.06	0.817
A férfiaknak és a nőknek egyenlőként kellene tisztelniük egymást.	1.55	1.00	0.89	0.775
Winning isn't everything, it's the only thing.	2.78	2.00	1.53	0.804
A győzelem nemcsak fontos, hanem az egyetlen, ami számít.	2.60	2.00	1.43	0.763
It bothers me when I have to ask for help.	3.82	4.00	1.74	0.810
Zavar, amikor segítséget kell kérnem.	3.97	4.00	1.69	0.774

Questions about injury and sport participation

- Are you currently, or have you been actively participating in any sport in the past 12 months? (Yes / No)
- Jelenleg, vagy az elmúlt 12 hónapban vett részt rendszeresen valamilyen sporttevékenységben? (Igen / Nem)
- If yes, what type of sport(s) are you practicing?
- Ha igen, milyen sportág(ak)ban vesz / vett részt?

- Have you experienced any sports- or exercise-related injuries in the past 12 months?
(Yes / No)
- Volt az elmúlt 12 hónapban bármilyen sporttal vagy testmozgással kapcsolatos sérülése? (Igen / Nem)

- What was your most recent injury?
- Mi volt a legutóbbi sérülése?

- When did your most recent injury occur? (e.g., 2 weeks ago / three months ago)
- Mikor történt a legutóbbi sérülése? (pl. két hete / három hónapja)

- How severe was your most recent injury? / Mennyire volt súlyos a legutóbbi sérülése?

Item	N	Mean	Median	SD
How severe was your most recent injury?	36	5.25	4.00	2.57
Mennyire volt súlyos a legutóbbi sérülése?	30	4.83	5.00	2.61

- Are you currently recovering from an injury? (Yes / No)
- Jelenleg felépülésben van valamilyen sérülésből? (Igen / Nem)

Thank you. Your response has been recorded.

A válaszát rögzítettük, köszönjük.