Journal of
Clinical Medicine

MDPI

Article

Disordered Eating Risk in Competitive Athletes and Its Associations with Functional Versus Aesthetic Body Image in a Cross-Sectional Study Across Sports Disciplines

Aleksandra Budzisz [1,2]

[1] Institute of Psychology, Jagiellonian University, 30-060 Krakow, Poland; aleksandra.budzisz@uj.edu.pl
[2] Humanistic Foundations of Physical Culture, The Jerzy Kukuczka Academy of Physical Education in Katowice, 40-065 Katowice, Poland

Abstract

Background/Objectives: Disordered-eating risk among athletes may be associated with demographic and sport-related characteristics as well as with how athletes evaluate the appearance and functionality of their bodies. This study examined the prevalence and correlates of disordered eating risk and investigated the associations of functional and aesthetic body-image dimensions with eating attitudes in competitive athletes. **Methods**: The sample comprised 739 competitive athletes representing 20 sports or track-and-field event groups. Participants completed the Eating Attitudes Test-26 and the Embodied Image Scale. Differences according to sport and training characteristics were examined using multivariate analyses, while hierarchical linear and logistic regression models assessed associations between body-image dimensions and continuous EAT-26 scores and positive screening status. **Results**: Overall, 17.6% of athletes were identified as being at risk of disordered eating (95% CI [15.0%, 20.5%]). Positive screening was more frequent among women and younger athletes but did not differ across sports disciplines or training characteristics. Sport discipline differentiated primarily functional investment and functional satisfaction, with the observed effects concentrated largely in the basketball subgroup. The final linear regression model explained 8.6% of the variance in EAT-26 scores, with body-image dimensions contributing an additional 6.4% beyond age and sex. Greater aesthetic value and investment were associated with higher EAT-26 scores, whereas greater aesthetic satisfaction was associated with lower scores. A similar pattern was observed for positive screening status; functional investment was additionally inversely associated with screening risk. **Conclusions**: Disordered-eating risk was present across diverse sports rather than concentrated within particular disciplines. Aesthetic body-image dimensions were more consistently associated with eating attitudes than functional dimensions, supporting the relevance of multidimensional body-image assessment in athlete screening and prevention.

Keywords: athletes; disordered eating; body image

Check for updates

Academic Editor:
Dominika Wilczyńska

Received: 25 September 2026
Revised: 1 November 2026
Accepted: 9 November 2026
Published: 13 November 2026

Copyright: © 2026 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license.

1. Introduction

Recent evidence suggests that approximately one in five athletes may be at risk of disordered eating. A meta-analysis of 177 studies involving 70,957 athletes estimated the pooled prevalence of positive self-report screening results at 19.23% [1]. Studies conducted in specific athletic populations have reported lower, yet still clinically significant, rates of risk for disordered eating. These rates have been found to be 6.9% among adult female athletes, 14.6% among adolescent female athletes, 15.8% among adolescent athletes, and 11.0%

among ultra-endurance athletes [2–4]. These findings illustrate the substantial variation in screening prevalence across athlete populations. Disordered eating is particularly relevant in athletic populations because inadequate or inflexible nutritional practices may compromise health, psychological well-being, recovery and sporting performance [5]. Disordered-eating symptoms are commonly assessed using the Eating Attitudes Test-26 (EAT-26), a widely used self-report screening instrument [2–4,6,7]. An EAT-26 score of 20 or above indicates an increased risk of disordered eating and the need for further clinical assessment.

Body image represents a potentially important factor in understanding disordered-eating risk among athletes. It is a multidimensional construct comprising cognitive, behavioural and affective components: beliefs about and the importance assigned to the body, the attention and effort devoted to monitoring or modifying it, and the degree of satisfaction or dissatisfaction with it, respectively [8]. Lower body satisfaction has been consistently associated with restrictive eating, weight-control behaviours and other symptoms of disordered eating [9,10]. Among female athletes, lower body satisfaction has also been associated with an increased likelihood of a positive eating-disorder-risk screen, particularly during adolescence [2].

The athletic context also requires a distinction between the aesthetic and functional dimensions of body image. Aesthetic body image concerns appearance and the evaluation of the body relative to personal or sociocultural standards. Functional body image refers to what the body can do and encompasses physical capacity, competence and performance [11–13]. Athletic participation may strengthen awareness and appreciation of bodily functionality [11–13]. At the same time, athletes may be exposed to general appearance ideals and sport-specific expectations regarding leanness, body composition and physique [9,10]. Recent evidence indicates that sport-specific weight pressures and the drive for leanness to improve performance are associated with disordered-eating symptoms independently of general appearance-related pressures and, in part, body dissatisfaction [14]. A favourable functional body image may therefore coexist with substantial aesthetic investment or dissatisfaction.

The Embodied Image Scale (EIS) is particularly well-suited to examining these relationships because it distinguishes between functional and aesthetic body image, assessing three components within each domain: value, investment, and satisfaction [12]. These components represent complementary aspects of body image. Value reflects the cognitive importance assigned to a body dimension, investment captures the behavioural attention and effort devoted to monitoring or modifying it, and satisfaction represents its affective and evaluative component. Examining these components separately may clarify which aspects of body image are most strongly associated with disordered-eating symptomatology. It may also establish whether these associations primarily concern appearance-related or functional evaluations of the body.

The prevalence of disordered-eating risk and the characteristics of body image may vary across athlete groups. Sex, age and body mass index have been associated with positive screening outcomes [1], whereas evidence concerning differences between sports remains inconsistent. For example, elevated risk has been reported among adolescent female athletes participating in lean non-aesthetic sports [2], while higher rates of disordered-eating risk have been observed among adolescent individual-sport athletes compared with team-sport athletes [4]. Conversely, a recent study of elite athletes did not confirm differences between lean and non-lean sports [14]. This inconsistency may partly reflect heterogeneous classifications of sports and the frequent focus on women, aesthetic sports or individual disciplines. Training frequency, session duration and training experience may also differentiate athletes' perceptions of their bodies, although their associations with disordered-eating risk remain unclear. Training environment may also be relevant,

as physical activity undertaken in natural outdoor settings has been associated with more favourable psychological outcomes, while greater exposure to nature has been linked to higher body appreciation and a more positive body image [15,16]. Among Polish elite athletes, body appreciation differed according to sex, individual versus team participation, training frequency, competition format and sport environment, indicating that body image may be shaped by more specific characteristics than broad sport classifications alone [17]. Previous research nevertheless indicates that participation in sport and the characteristics of a discipline may differentiate functional and aesthetic body image [11,13].

Relatively few studies have simultaneously examined demographic, anthropometric, training and sport-related differences in disordered-eating risk and multidimensional body image. Such an approach may determine whether body-image dimensions account for meaningful variation in disordered-eating symptomatology and identify the components most relevant to athlete screening and prevention.

Accordingly, the present study aimed to examine the prevalence and correlates of disordered-eating risk and the characteristics of body image in a large and diverse sample of competitive athletes.

To address the aim, four research questions were formulated:

RQ1. What is the prevalence of disordered eating risk, and which demographic, anthropometric, and sport-related characteristics are associated with it?

RQ2. Do functional and aesthetic body-image dimensions and eating attitudes differ according to training and sport-related characteristics?

RQ3. Are functional and aesthetic body-image dimensions independently associated with eating attitudes?

RQ4. Are functional and aesthetic body-image dimensions associated with the likelihood of being at risk of disordered eating?

By distinguishing between functional and aesthetic body image, as well as their cognitive, behavioural, and affective components, the present study sought to provide a more nuanced and sport-relevant understanding of disordered-eating risk.

2. Materials and Methods

The study was conducted in accordance with the Declaration of Helsinki and received approval from the Bioethics Committee of the Jerzy Kukuczka Academy of Physical Education in Katowice (approval No. KB/16/2016).

2.1. Participants

Participants were recruited between September 2017 and May 2019 during training camps held at four Olympic Preparation Centres in Poland: Spała, Zakopane, Szczyrk and Wałcz. These publicly funded national training facilities provide specialist infrastructure and support for competitive athletes at national and international levels. A purposive sampling strategy was used to recruit athletes representing a high level of sporting performance.

Eligibility criteria included: (1) at least 18 years old; (2) voluntary informed consent to participate; (3) membership of a sports club; (4) regular participation in organised training; and (5) participation in national-level competition, as indicated by an officially classified sporting level or sports class. Thus, participants were considered competitive athletes rather than solely on the basis of self-reported physical activity. Eligible competitive athletes received information about the purpose and procedure of the study. After providing written informed consent, they completed a questionnaire assessing demographic, anthropometric, sport- and training-related characteristics, body image and eating attitudes. Participation was voluntary, and respondents could withdraw from the study without providing a reason.

2.2. Measures

2.2.1. EAT—Eating Attitudes

Eating attitudes and behaviours were assessed using the Eating Attitudes Test-26 (EAT-26) [18] in its Polish adaptation [19]. The EAT-26 is a widely used 26-item self-report screening instrument designed to assess attitudes, behaviours and symptoms associated with disordered eating. Items are rated using a six-point response scale ranging from never to always and scored according to the standard EAT-26 scoring procedure. Item scores are summed to produce a total score, with higher scores indicating greater severity of disordered-eating symptomatology. In the original English-language study, the EAT-26 demonstrated high internal consistency, with Cronbach's α values of 0.90 in the anorexia nervosa group and 0.83 in the female comparison group [18].

Two EAT-26 outcomes were used in the present study: the continuous total score and a binary screening-status variable. The continuous total score was used in analyses of disordered-eating symptom severity. For prevalence estimates and binary analyses, participants scoring below 20 were classified as having screened negative, whereas those scoring 20 or above were classified as being at risk of disordered eating [18]. The additional behavioural questions included in the EAT-26 were administered but were not included in either outcome; screening status was determined exclusively from the 26-item symptom score.

2.2.2. EIS—Body Image Dimensions

Functional and aesthetic body image were assessed using the Embodied Image Scale (EIS) developed by Abbott and Barber [11–13]. As no validated Polish version was available, the scale was translated into Polish. The EIS comprises 17 self-report items rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument conceptualises body image in terms of two domains—aesthetic and functional—and three complementary components: value, behavioural investment and satisfaction. In an earlier English-language study, the internal consistency of the six EIS subscales was adequate, with Cronbach's α values ranging from 0.70 to 0.92 [11].

The EIS therefore provides six subscale scores: functional value, functional behavioural investment, functional satisfaction, aesthetic value, aesthetic behavioural investment and aesthetic satisfaction. Value reflects the cognitive importance assigned to the functional or aesthetic characteristics of the body; behavioural investment captures the attention and effort devoted to developing, maintaining or modifying these characteristics; and satisfaction represents the affective evaluation of each body-image domain. Scores were calculated separately for each subscale, with higher scores indicating greater value, behavioural investment or satisfaction within the corresponding functional or aesthetic domain.

2.3. Sport Characteristics

Athletes representing the following disciplines were enrolled: volleyball, football, basketball, field hockey, judo, sumo, wrestling, fencing, swimming, canoeing, rowing, speed skating, athletics, weightlifting and powerlifting. These disciplines provided variation in characteristics potentially relevant to body image and disordered-eating risk, including individual versus team participation, contact versus non-contact competition, and training environment (indoor, outdoor or water-based).

Competitive level was recorded using the formal Polish sports-classification system: Class IV, Class III, Class II, Class I, master class (M), and international master class (MM). A separate squad category ("Squad") was used for athletes in team sports for whom the individual sports-classification categories were not directly applicable [basketball, football, volleyball, field hockey].

Training experience was recorded as the number of years for which participants had trained in their principal discipline. Participants also reported the average duration of a single training session and their average number of training sessions per week.

2.4. Data Analysis

Statistical analyses were conducted using IBM SPSS Statistics, version 31.0.1.0 (49). Statistical significance was set at $p < 0.05$, and all tests were two-tailed.

RQ1. Prevalence and correlates of a positive EAT-26 screening result

The prevalence of a positive EAT-26 screening result was calculated using the recommended cut-off score of ≥20. Pearson's chi-square tests were initially used to examine whether the proportion of athletes with a positive screen differed according to categorical demographic, anthropometric and sport-related characteristics (including sex, age, BMI, sport discipline and training volume characteristics). Fisher's exact test was used when expected cell frequencies were insufficient.

A multivariable binary logistic regression was subsequently conducted, with a positive EAT-26 screening result coded as 1 and a score below 20 coded as 0. Only variables significantly associated with screening status in the preliminary chi-square analyses ($p < 0.05$) were entered into the regression model. Results are reported as odds ratios (ORs) with 95% confidence intervals.

RQ2. Differences in body image and eating attitudes

Group differences in body image and disordered-eating symptomatology were examined using multivariate analyses of variance (MANOVAs). The six body image subscale scores—functional value, functional investment, functional satisfaction, aesthetic value, aesthetic investment and aesthetic satisfaction—and the total EAT-26 score were included as dependent variables. Five sport-related characteristics were examined: sport discipline, competitive level, training experience, training duration and weekly training frequency.

Overall multivariate effects were evaluated using Pillai's trace. Significant multivariate effects were followed by univariate analyses for the individual body image subscales and the EAT-26 score. Partial eta squared (η^2p) was reported as a measure of effect size. Where a factor comprised more than two groups, pairwise comparisons with Bonferroni correction were conducted to identify the groups that differed.

Additional sensitivity analyses were conducted to assess the robustness of the observed associations. If any of the significant between-group differences involved a specific subgroup, the analyses were repeated after excluding this subgroup. Additional covariate-adjusted analyses were also performed if needed. These analyses were treated as exploratory and were used to support the interpretation of the primary findings.

RQ3. Associations between EIS dimensions and continuous EAT-26 scores

To address RQ3, a hierarchical multiple linear regression was performed with the total EAT-26 score as the continuous outcome. Age and sex were entered in the first block, followed by the six body image dimensions in the second block. The contribution of the body image dimensions beyond age and sex was assessed using the change in R^2 and the corresponding F-change test. Unstandardised regression coefficients, standard errors, standardised coefficients, and *p*-values were reported.

RQ4. Associations between EIS dimensions and positive screening status

To address RQ4, a hierarchical binary logistic regression was conducted with being at risk of disordered eating as the outcome. Age and sex were entered in the first block, followed by the six EIS dimensions in the second block. Improvement in model fit was evaluated using the likelihood-ratio chi-square change test. Odds ratios and their 95% confidence intervals were reported for individual predictors. Overall model performance was evaluated using Cox-Snell and Nagelkerke pseudo-R^2, and discrimination was assessed

using the area under the receiver operating characteristic curve. Men served as the reference category for sex in both analyses.

3. Results

3.1. Participant Characteristics

The study included 739 athletes: 358 women (48.4%) and 381 men (51.6%). The mean age of the participants was 20.65 years (SD = 3.78), with an age range of 18–40 years (Table 1). The age distribution also differed markedly across specific disciplines; the basketball subgroup was particularly distinctive: 45 of the 53 basketball players (84.9%) were younger than mean age, as compared with 157 of the 739 athletes (21.2%) in the total sample.

Table 1. Demographic, anthropometric, training, body-image, and eating-attitude characteristics of the sample.

Characteristic	Value
Age, years, M (SD)	20.65 (3.78)
Height, cm, M (SD)	176.47 (10.51)
Body mass, kg, M (SD)	70.31 (16.26)
BMI, kg/m^2, M (SD)	22.39 (3.74)
Women, n (%)	358 (48.4)
Men, n (%)	381 (51.6)
Training experience, years, median (IQR)	7.0 (5.0–10.5)
Training sessions per week, median (IQR)	6.0 (5.0–9.0)
Training-session duration, min, median (IQR)	120 (90–120)
Functional value, M (SD)	3.88 (0.67)
Functional investment, M (SD)	4.42 (0.62)
Functional satisfaction, M (SD)	3.95 (0.63)
Aesthetic value, M (SD)	3.50 (0.77)
Aesthetic investment, M (SD)	3.59 (0.91)
Aesthetic satisfaction, M (SD)	3.73 (0.85)
Total EAT-26 score, median (IQR)	10.0 (6.0–16.0)
Positive EAT-26 screening result, n (%)	130 (17.6)

Note. N = 739. BMI = body mass index; EAT-26 = Eating Attitudes Test-26; IQR = interquartile range. A positive EAT-26 screening result was defined as a total score ≥ 20.

The athletes represented 20 sports or track-and-field event groups. The largest groups comprised canoeing athletes (n = 91; 12.3%), track-and-field sprinters (n = 68; 9.2%), volleyball players (n = 58; 7.8%), basketball players (n = 53; 7.2%) and judo athletes (n = 50; 6.8%). Other track-and-field groups included jumping events (n = 46; 6.2%), middle-distance running (n = 44; 6.0%), throwing events (n = 38; 5.1%), combined events (n = 24; 3.2%) and hurdles (n = 19; 2.6%). The remaining participants represented swimming (n = 38; 5.1%), football (n = 36; 4.9%), field hockey (n = 31; 4.2%), speed skating (n = 31; 4.2%), powerlifting (n = 23; 3.1%), weightlifting (n = 22; 3.0%), rowing (n = 19; 2.6%), fencing (n = 18; 2.4%), wrestling (n = 18; 2.4%) and sumo (n = 12; 1.6%).

Although the overall sex distribution was balanced, it varied across disciplines. All weightlifting athletes were women, whereas all fencing and wrestling athletes were men. Women also constituted the majority of rowers (78.9%) and middle-distance runners

(68.2%). Men predominated in throwing events and swimming (65.8% in both groups), as well as in speed skating (64.5%). The remaining disciplines included athletes of both sexes in more comparable proportions. Participant distribution across sports is presented in Supplementary Files.

3.2. RQ1: Prevalence and Correlates of a Positive EAT-26 Screening Result

Overall, 130 of the 739 athletes were identified as being at risk of disordered eating (17.6%, with a 95% confidence interval of [15.0%, 20.5%]). Pearson's chi-square tests were conducted to examine differences in prevalence according to sport-related, anthropometric and demographic characteristics.

The proportion of athletes with a positive eating-disorder screening result did not differ significantly across sports disciplines, $\chi^2(19, N = 739) = 14.65$, $p = 0.744$, Cramér's $V = 0.141$. No statistically significant association between sports discipline and positive EAT-26 screening status was detected in the present sample.

Training experience was not significantly associated with being at risk of disordered eating, $\chi^2(2) = 4.06$, $p = 0.131$. Positive screening results were observed in 20.4% of athletes with the shortest training experience, 18.2% of those in the intermediate category and 11.1% of those with the longest training experience. Although the prevalence was descriptively lower among the most experienced athletes, the overall difference was not statistically significant.

Average training-session duration was not significantly associated with being at risk of disordered eating, $\chi^2(2) = 0.85$, $p = 0.655$, Cramér's $V = 0.034$. Positive screening results were observed in 20.5% of athletes whose average training session lasted less than 90 min, 16.9% of those training for 90–120 min and 17.7% of those training for more than 120 min.

Weekly training frequency was not significantly associated with being at risk of disordered eating, $\chi^2(2) = 3.95$, $p = 0.139$, Cramér's $V = 0.073$. Positive screening results were observed in 17.8% of athletes completing fewer than five training sessions per week, 15.6% of those completing five to nine sessions and 22.5% of those completing more than nine sessions per week. Although the highest prevalence was observed among athletes in the highest training-frequency category, the overall difference was not statistically significant.

BMI category was not significantly associated with being at risk of disordered eating, $\chi^2(3) = 4.85$, *p* = 0.184, Cramér's *V* = 0.081. Positive screening results were observed in 17.9% of athletes with underweight, 17.9% of those with normal weight, 21.6% of those with overweight and 5.3% of those with obesity. These descriptive differences were not statistically significant.

No significant differences were identified according to sport type, training experience, mean training-session duration, weekly training frequency or BMI category (all $p \geq 0.131$; see Supplementary Files).

A greater proportion of women than men were identified as being at risk of disordered eating (21.2% vs. 14.2%), $\chi^2(1, N = 739) = 6.34$, $p = 0.012$, $\varphi = 0.093$. The prevalence of disordered-eating risk also differed significantly across age groups, $\chi^2(2, N = 739) = 9.48$, $p = 0.009$, Cramér's $V = 0.113$. Positive screening results were observed in 19.7% of athletes aged <19 years, 19.8% of those aged 19–23 years and 9.2% of those aged >23 years. Both associations were small in magnitude.

Sex and age were entered simultaneously into a multivariable binary logistic regression model predicting a positive eating-disorder screening result. The overall model was statistically significant, $\chi^2(2) = 11.03$, $p = 0.004$, although its explanatory power was modest (Cox-Snell $R^2 = 0.015$; Nagelkerke $R^2 = 0.024$).

Women had 58.4% higher odds of obtaining a positive eating-disorder screening result than men (OR = 1.58, 95% CI [1.08, 2.33], $p = 0.019$). Each additional year of age was

associated with a 5.8% reduction in the odds of a positive result (OR = 0.942, 95% CI [0.891, 0.996], $p = 0.037$), corresponding to approximately 45% lower odds for an athlete who was 10 years older (OR = 0.55).

3.3. RQ2: Differences in Body Image and Eating Attitudes

3.3.1. Sport Disciplines

An overall multivariate effect of sport discipline was observed across the six body image dimensions and eating attitudes, Pillai's V = 0.354, $F(133, 5033) = 2.01$, $p < 0.001$, $\eta p^2 = 0.051$. Sports discipline significantly differentiated functional investment, $F(19, 719) = 6.23$, $p < 0.001$, $\eta p^2 = 0.141$, functional satisfaction, $F(19, 719) = 3.13$, $p < 0.001$, $\eta p^2 = 0.076$, and aesthetic satisfaction, $F(19, 719) = 1.63$, $p = 0.043$, $\eta p^2 = 0.041$. These effects were large, medium, and small, respectively. No significant differences between sports disciplines were observed for functional value, $F(19, 719) = 1.38$, $p = 0.129$, $\eta p^2 = 0.035$, aesthetic value, $F(19, 719) = 0.98$, $p = 0.486$, $\eta p^2 = 0.025$, aesthetic investment, $F(19, 719) = 1.17$, $p = 0.274$, $\eta p^2 = 0.030$, or the total EAT score, $F(19, 719) = 1.22$, $p = 0.233$, $\eta p^2 = 0.031$.

Bonferroni-adjusted post hoc comparisons indicated that the differences in functional investment were almost entirely associated with the comparatively low scores among basketball players. Basketball players reported lower functional investment than athletes from 18 of the remaining 19 disciplines (all adjusted ps ≤ 0.020), with fencing being the only discipline that did not differ significantly from basketball. The largest differences were observed between basketball and rowing, combined events, and middle-distance running.

Basketball players also reported lower functional satisfaction than canoeing athletes ($p < 0.001$), middle-distance runners ($p < 0.001$), athletes competing in jumping events ($p = 0.014$), sprinters ($p < 0.001$), combined-event athletes ($p < 0.001$), weightlifters ($p = 0.001$), and volleyball players ($p = 0.013$).

For aesthetic satisfaction, basketball players obtained lower scores than wrestlers ($p = 0.007$). Volleyball players also reported lower aesthetic satisfaction than wrestlers ($p = 0.008$). No other pairwise differences in aesthetic satisfaction remained significant after the Bonferroni correction. Thus, volleyball players differed from basketball players by reporting greater functional investment and functional satisfaction, but they did not differ from basketball players in aesthetic satisfaction; instead, both groups scored lower than wrestlers on this dimension.

Because nearly all significant comparisons involved basketball players, a series of sensitivity analyses was conducted to determine whether the results reflected a broader effect of sports discipline or the specific characteristics of the basketball subgroup. Basketball players were substantially younger than participants from most other disciplines: 45 of the 53 basketball players (84.9%) were just above 18 years, compared with 21.2% of the total sample. First, the analyses were repeated after excluding basketball players. The previously observed differences between the remaining disciplines were no longer statistically significant, indicating that the initial effects were largely driven by this particular subgroup.

Second, it was examined whether the differences involving basketball players could be explained by age or anthropometric characteristics. After adjustment for age, height, and body mass, sports discipline remained significantly associated with functional investment, $F(19, 716) = 5.56$, $p < 0.001$, $\eta p^2 = 0.128$, functional satisfaction, $F(19, 716) = 2.89$, $p < 0.001$, $\eta p^2 = 0.071$, and aesthetic satisfaction, $F(19, 716) = 2.30$, $p = 0.001$, $\eta p^2 = 0.057$. Thus, although the effects were concentrated primarily in the basketball subgroup, they could not be attributed solely to the younger age or different body size of these athletes. The covariates showed only limited associations with the outcomes. Age was associated with aesthetic investment, $F(1, 716) = 5.19$, $p = 0.023$, $\eta p^2 = 0.007$, and the total EAT score, $F(1, 716) = 8.92$, $p = 0.003$, $\eta p^2 = 0.012$. Height was associated with aesthetic satisfaction, $F(1, 716) = 28.43$,

$p < 0.001$, $\eta p^2 = 0.038$, while body mass showed a smaller association with the same outcome, $F(1, 716) = 4.12$, $p = 0.043$, $\eta p^2 = 0.006$. These effects were small and did not account for the between-discipline differences in functional investment or functional satisfaction.

Finally, because the proportions of women and men differed across disciplines, an additional sensitivity analysis examined the role of sex. Sex was associated primarily with functional satisfaction, $F(1, 699) = 16.54$, $p < 0.001$, $\eta p^2 = 0.023$, and aesthetic satisfaction, $F(1, 699) = 39.68$, $p < 0.001$, $\eta p^2 = 0.054$, with smaller associations observed for functional value, $F(1, 699) = 5.72$, $p = 0.017$, $\eta p^2 = 0.008$, and aesthetic value, $F(1, 699) = 4.48$, $p = 0.035$, $\eta p^2 = 0.006$. After sex was taken into account, sports discipline remained significantly associated with functional investment, $F(19, 699) = 5.43$, $p < 0.001$, $\eta p^2 = 0.129$, and functional satisfaction, $F(19, 699) = 3.21$, $p < 0.001$, $\eta p^2 = 0.080$. In contrast, the effect of discipline on aesthetic satisfaction was no longer significant, $F(19, 699) = 1.28$, $p = 0.188$, $\eta p^2 = 0.034$. This suggests that the initial differences in aesthetic satisfaction were at least partly related to the different sex composition of the disciplines. Given the uneven representation of women and men across several disciplines, this result should be interpreted cautiously.

Overall, the sensitivity analyses consistently indicated that the differences in functional investment and functional satisfaction were driven primarily by the distinctive basketball subgroup but could not be explained solely by its age, anthropometric characteristics, or sex composition. By contrast, the comparatively small effect of sports discipline on aesthetic satisfaction was less robust and disappeared after sex was taken into account.

3.3.2. Training Experience

A significant multivariate effect of training experience was observed across the six EIS dimensions and total EAT-26 score, Pillai's $V = 0.045$, $F(14, 1462) = 2.39$, $p = 0.003$, $\eta p^2 = 0.022$. Follow-up univariate analyses showed significant differences between training-experience groups in functional value, $F(2, 736) = 5.61$, $p = 0.004$, $\eta p^2 = 0.015$, functional satisfaction, $F(2, 736) = 7.07$, $p < 0.001$, $\eta p^2 = 0.019$, and aesthetic satisfaction, $F(2, 736) = 8.07$, $p < 0.001$, $\eta p^2 = 0.021$. Training-experience groups did not differ significantly in functional investment, aesthetic value, aesthetic investment or total EAT-26 score (all $p \geq 0.119$).

Bonferroni-adjusted pairwise comparisons indicated that athletes with less than four years of training experience reported higher functional value than those with 4–13 years of experience. Functional satisfaction was lower among athletes with 4–13 years of experience than among both those with less than four years and those with more than 13 years of experience. Athletes with more than 13 years of experience also reported higher aesthetic satisfaction than those with 4–13 years of experience. All observed effects were small, and training experience was not significantly associated with eating attitudes (Table 2).

Table 2. Significant Bonferroni-adjusted comparisons between training-experience groups.

Outcome	Group I	Group J	Mean Difference (I − J)	SE	*p*	95% CI
Functional value	<4 years	4–13 years	0.204	0.062	0.003	[0.056, 0.353]
Functional satisfaction	<4 years	4–13 years	0.173	0.059	0.010	[0.033, 0.314]
Functional satisfaction	4–13 years	>13 years	−0.194	0.067	0.012	[−0.355, −0.033]
Aesthetic satisfaction	4–13 years	>13 years	−0.339	0.089	<0.001	[−0.553, −0.125]

Note. Mean differences were calculated as Group I minus Group J. Only statistically significant Bonferroni-adjusted pairwise comparisons are presented. CI = confidence interval.

3.3.3. Training Session Duration

A significant multivariate effect of average training-session duration was observed across the six body image dimensions and eating attitudes, Pillai's $V = 0.059$, $F(14, 1462) = 3.16$, $p < 0.001$, $\eta p^2 = 0.029$. Follow-up univariate analyses showed significant differences between

training-duration groups in functional value, $F(2, 736) = 3.80$, $p = 0.023$, $\eta p^2 = 0.010$, functional investment, $F(2, 736) = 14.49$, $p < 0.001$, $\eta p^2 = 0.038$, functional satisfaction, $F(2, 736) = 4.50$, $p = 0.011$, $\eta p^2 = 0.012$, and aesthetic value, $F(2, 736) = 3.92$, $p = 0.020$, $\eta p^2 = 0.011$. No significant differences were found in aesthetic investment, aesthetic satisfaction or total EAT-26 score (all $p \geq 0.396$).

Bonferroni-adjusted pairwise comparisons indicated that athletes whose average training sessions lasted more than 120 min reported higher functional value than those training for 90–120 min. Athletes training for less than 90 min reported lower functional investment than both groups with longer training sessions and lower functional satisfaction than those training for more than 120 min. Athletes training for more than 120 min also reported higher aesthetic value than those training for 90–120 min. All significant effects were small (Table 3).

Table 3. Significant Bonferroni-adjusted comparisons between average training-session duration groups.

Outcome	Group I	Group J	Mean Difference (I − J)	SE	*p*	95% CI
Functional value	90–120 min	>120 min	−0.164	0.064	0.030	[−0.317, −0.011]
Functional investment	<90 min	90–120 min	−0.296	0.064	<0.001	[−0.448, −0.143]
Functional investment	<90 min	>120 min	−0.395	0.077	<0.001	[−0.579, −0.211]
Functional satisfaction	<90 min	>120 min	−0.239	0.080	0.009	[−0.431, −0.047]
Aesthetic value	90–120 min	>120 min	−0.206	0.074	0.016	[−0.383, −0.029]

Note. Mean differences were calculated as Group I minus Group J. Only statistically significant Bonferroni-adjusted pairwise comparisons are presented. CI = confidence interval.

3.3.4. Weekly Training Frequency

A significant multivariate effect of weekly training frequency was observed across the six body image dimensions and eating attitudes, Pillai's $V = 0.117$, $F(14, 1462) = 6.47$, $p < 0.001$, $\eta p^2 = 0.058$. Follow-up univariate analyses showed significant differences between weekly training-frequency groups in functional value, $F(2, 736) = 5.61$, $p = 0.004$, $\eta p^2 = 0.015$, functional investment, $F(2, 736) = 43.02$, $p < 0.001$, $\eta p^2 = 0.105$, and functional satisfaction, $F(2, 736) = 11.34$, $p < 0.001$, $\eta p^2 = 0.030$. No significant differences were found in aesthetic value, aesthetic investment, aesthetic satisfaction or total EAT-26 score (all $p \geq 0.053$).

Bonferroni-adjusted pairwise comparisons indicated that athletes completing fewer than five training sessions per week reported lower functional value, functional investment and functional satisfaction than athletes completing either five to nine or more than nine sessions per week. No significant differences were observed between the two groups with higher weekly training frequencies. The effects were small for functional value and functional satisfaction and moderate for functional investment (Table 4).

Table 4. Significant Bonferroni-adjusted comparisons between weekly training-frequency groups.

Outcome	Group I	Group J	Mean Difference (I − J)	SE	*p*	95% CI
Functional value	<5/week	5–9/week	−0.215	0.067	0.004	[−0.375, −0.055]
Functional value	<5/week	>9/week	−0.217	0.078	0.016	[−0.404, −0.031]
Functional investment	<5/week	5–9/week	−0.519	0.059	<0.001	[−0.660, −0.378]
Functional investment	<5/week	>9/week	−0.544	0.068	<0.001	[−0.708, −0.380]
Functional satisfaction	<5/week	5–9/week	−0.289	0.063	<0.001	[−0.440, −0.139]
Functional satisfaction	<5/week	>9/week	−0.286	0.073	<0.001	[−0.462, −0.111]

Note. Mean differences were calculated as Group I minus Group J. Only statistically significant Bonferroni-adjusted pairwise comparisons for outcomes with a significant omnibus effect are presented. CI = confidence interval.

3.3.5. Sport-Performance Level

A significant multivariate effect of sport-performance level was observed across the six body image dimensions and eating attitudes, Pillai's V = 0.097, $F(42, 4386) = 1.71$, $p = 0.003$, $\eta p^2 = 0.016$. Follow-up univariate analyses showed significant differences between sport-performance levels in functional value, $F(6, 732) = 2.50$, $p = 0.021$, $\eta p^2 = 0.020$, functional investment, $F(6, 732) = 4.00$, $p < 0.001$, $\eta p^2 = 0.032$, functional satisfaction, $F(6, 732) = 3.39$, $p = 0.003$, $\eta p^2 = 0.027$, and aesthetic satisfaction, $F(6, 732) = 2.94$, $p = 0.008$, $\eta p^2 = 0.024$. No significant differences were found in aesthetic value, aesthetic investment or eating attitudes (all $p \geq 0.061$).

Bonferroni-adjusted pairwise comparisons in the full sample indicated that athletes at level IV reported higher functional value than athletes in the team-sport squad category. Functional investment was lower in the team-sport squad category than at level II and in the master class. Athletes in the team-sport squad category also reported lower functional satisfaction than athletes holding the master or international master class and lower aesthetic satisfaction than athletes holding the master class (Table 5).

Table 5. Significant Bonferroni-adjusted pairwise comparisons between self-reported sport-performance levels in the full sample.

Outcome	Group I	Group J	Mean Difference (I − J)	SE	*p*	95% CI
Functional value	Class IV	Squad	0.474	0.140	0.015	[0.048, 0.899]
Functional investment	Class II	National-level	0.246	0.078	0.038	[0.006, 0.485]
Functional investment	Squad	Master class	−0.267	0.066	0.001	[−0.466, −0.067]
Functional satisfaction	Squad	Master class	−0.254	0.067	0.004	[−0.459, −0.048]
Functional satisfaction	Squad	International class	−0.259	0.084	0.044	[−0.514, −0.003]
Aesthetic satisfaction	Squad	Master class	−0.358	0.090	0.002	[−0.633, −0.084]

Note. Mean differences were calculated as Group I minus Group J. Only statistically significant Bonferroni-adjusted pairwise comparisons for outcomes with a significant omnibus effect are presented. CI = confidence interval. Squad category comprised athletes participating in team sports, including basketball, football, volleyball and field hockey.

3.3.6. Summary

As summarised in Table 6, sport and training characteristics were associated primarily with the functional body image dimensions, particularly functional satisfaction and functional investment. The largest effect was observed for the association between sports discipline and functional investment. Medium effects were also found for sports discipline in relation to functional satisfaction and for weekly training frequency in relation to functional investment. Associations with the aesthetic dimensions were less consistent and generally small. None of the examined sport or training characteristics significantly differentiated the eating attitudes.

Table 6. Summary of significant effects of sport and training characteristics on EIS dimensions and total EAT-26 score.

Outcome	Sport Discipline	Training Experience	Training-Session Duration	Weekly Training Frequency	Sport-Performance Level
Functional value	-	$p = 0.004$; $\eta p^2 = 0.015$ †	$p = 0.023$; $\eta p^2 = 0.010$ †	$p = 0.004$; $\eta p^2 = 0.015$ †	$p = 0.021$; $\eta p^2 = 0.020$ †
Functional investment	$p < 0.001$; $\eta p^2 = 0.141$ §	-	$p < 0.001$; $\eta p^2 = 0.038$ †	$p < 0.001$; $\eta p^2 = 0.105$ ‡	$p < 0.001$; $\eta p^2 = 0.032$ †

Table 6. *Cont.*

Outcome	Sport Discipline	Training Experience	Training-Session Duration	Weekly Training Frequency	Sport-Performance Level
Functional satisfaction	$p < 0.001$; $\eta p^2 = 0.076$ ‡	$p < 0.001$; $\eta p^2 = 0.019$ †	$p = 0.011$; $\eta p^2 = 0.012$ †	$p < 0.001$; $\eta p^2 = 0.030$ †	$p = 0.003$; $\eta p^2 = 0.027$ †
Aesthetic value	-	-	$p = 0.020$; $\eta p^2 = 0.011$ †	-	-
Aesthetic investment	-	-	-	-	-
Aesthetic satisfaction	$p = 0.043$; $\eta p^2 = 0.041$ †	$p < 0.001$; $\eta p^2 = 0.021$ †	-	-	$p = 0.008$; $\eta p^2 = 0.024$ †
Total EAT-26 score	-	-	-	-	-

Note. Only statistically significant omnibus univariate effects are presented; dashes indicate non-significant effects. Effect-size categories for partial eta squared were defined as follows: † small effect ($0.01 \leq \eta p^2 < 0.06$), ‡ medium effect ($0.06 \leq \eta p^2 < 0.14$), and § large effect ($\eta p^2 \geq 0.14$). ηp^2 = partial eta squared; EIS = Embodied Image Scale; EAT-26 = Eating Attitudes Test-26. Each sport or training characteristic was examined in a separate multivariate model without sex as an additional factor.

3.4. RQ3: Associations with Continuous EAT-26 Scores

RQ3 proposed that the body image dimensions would account for a significant additional proportion of variance in eating attitudes beyond age and sex, with the aesthetic dimensions expected to show the strongest independent associations. A hierarchical multiple linear regression analysis was conducted. Age and sex were entered in the first block, followed by all six body image dimensions in the second block.

The first block was statistically significant, $F(2, 736) = 8.34$, $p < 0.001$, and accounted for 2.2% of the variance in eating attitudes ($R^2 = 0.022$; adjusted $R^2 = 0.019$). Adding the body image dimensions significantly improved the model, $\Delta F(6, 730) = 8.47$, $p < 0.001$, explaining an additional 6.4% of the variance. The final model was statistically significant, $F(8, 730) = 8.56$, $p < 0.001$, and accounted for 8.6% of the variance in eating attitudes ($R^2 = 0.086$; adjusted $R^2 = 0.076$).

All three aesthetic dimensions were independently associated with eating attitudes. Greater aesthetic value ($B = 1.98$, $SE = 0.53$, $\beta = 0.152$, $p < 0.001$) and aesthetic investment ($B = 1.27$, $SE = 0.46$, $\beta = 0.114$, $p = 0.006$) were associated with higher EAT-26 scores, whereas greater aesthetic satisfaction was associated with lower scores ($B = -1.02$, $SE = 0.52$, $\beta = -0.086$, $p = 0.047$). None of the functional dimensions was independently associated with EAT-26 scores (all ps ≥ 0.085). In the final model, neither age ($p = 0.051$) nor sex ($p = 0.099$) remained statistically significant (Table 7).

Table 7. Hierarchical multiple linear regression predicting total EAT-26 scores.

Predictor	B	SE	β	t	*p*
Constant	10.92	3.67	-	2.98	0.003
Age	−0.19	0.10	−0.071	−1.95	0.051
Female sex	1.24	0.75	0.062	1.65	0.099
Functional value	0.80	0.68	0.053	1.17	0.241
Functional investment	−1.13	0.66	−0.070	−1.73	0.085
Functional satisfaction	−0.14	0.81	−0.009	−0.17	0.868
Aesthetic value	1.98	0.53	0.152	3.70	<0.001

Table 7. *Cont.*

Predictor	B	SE	β	t	*p*
Aesthetic investment	1.27	0.46	0.114	2.75	0.006
Aesthetic satisfaction	−1.02	0.52	−0.086	−1.99	0.047

Note. N = 739. The outcome variable was the total EAT-26 score. Age and sex were entered in Block 1, followed by the six EIS dimensions in Block 2. Men were the reference category for sex. Block 1: $R^2 = 0.022$, adjusted $R^2 = 0.019$, $F(2, 736) = 8.34$, $p < 0.001$. Final model: $R^2 = 0.086$, adjusted $R^2 = 0.076$, $F(8, 730) = 8.56$, $p < 0.001$; $\Delta R^2 = 0.064$, $\Delta F(6, 730) = 8.47$, $p < 0.001$. B = unstandardised regression coefficient; SE = standard error; β = standardised regression coefficient; EIS = Embodied Image Scale; EAT-26 = Eating Attitudes Test-26.

3.5. RQ4: Associations with Disordered Eating Risk

RQ4 assessed whether greater aesthetic value and aesthetic investment, together with lower aesthetic satisfaction, would be associated with higher odds of being at risk of disordered eating, independently of age and sex. A hierarchical binary logistic regression analysis was conducted.

The first block, which included age and sex, was statistically significant, $\chi^2(2) = 11.03$, $p = 0.004$, although its explanatory power was modest (Cox-Snell $R^2 = 0.015$; Nagelkerke $R^2 = 0.024$). Adding the six body image dimensions significantly improved model fit, $\Delta\chi^2(6) = 48.66$, $p < 0.001$. The final model was statistically significant, $\chi^2(8) = 59.69$, $p < 0.001$, and accounted for 7.8–12.8% of the variation in screening status (Cox-Snell $R^2 = 0.078$; Nagelkerke $R^2 = 0.128$). The model showed acceptable discrimination, AUC = 0.712.

Consistent with RQ4, greater aesthetic value was associated with higher odds of a positive screening result, OR = 1.60, 95% CI [1.16, 2.20], $p = 0.004$, as was greater aesthetic investment, OR = 1.51, 95% CI [1.14, 2.01], $p = 0.004$. Greater aesthetic satisfaction was associated with lower odds, OR = 0.75, 95% CI [0.57, 0.98], $p = 0.037$ (Table 8).

Table 8. Hierarchical binary logistic regression predicting a positive EAT-26 screening result.

Predictor	B	SE	χ^2	OR	95% CI for OR	*p*
Constant	−2.30	1.05	4.84	0.10	[0.01, 0.78]	0.028
Age	−0.04	0.03	1.68	0.96	[0.90, 1.02]	0.196
Female sex	0.28	0.22	1.69	1.33	[0.87, 2.03]	0.193
Functional value	0.31	0.20	2.35	1.36	[0.92, 2.01]	0.126
Functional investment	−0.47	0.18	6.82	0.62	[0.44, 0.89]	0.009
Functional satisfaction	0.02	0.23	0.01	1.02	[0.65, 1.60]	0.926
Aesthetic value	0.47	0.16	8.41	1.60	[1.16, 2.20]	0.004
Aesthetic investment	0.42	0.14	8.30	1.51	[1.14, 2.01]	0.004
Aesthetic satisfaction	−0.29	0.14	4.34	0.75	[0.57, 0.98]	0.037

Note. N = 739. A positive screening result was defined as a total EAT-26 score ≥ 20 and coded as 1; scores < 20 were coded as 0. Age and sex were entered in Block 1, followed by the six EIS dimensions in Block 2. Men were the reference category for sex. Block 1: $\chi^2(2) = 11.03$, $p = 0.004$, Cox-Snell $R^2 = 0.015$, Nagelkerke $R^2 = 0.024$. Final model: $\chi^2(8) = 59.69$, $p < 0.001$, Cox-Snell $R^2 = 0.078$, Nagelkerke $R^2 = 0.128$, AUC = 0.712. Addition of the EIS dimensions: $\Delta\chi^2(6) = 48.66$, $p < 0.001$. OR = odds ratio; CI = confidence interval; EAT-26 = Eating Attitudes Test-26.

Greater functional investment was additionally associated with lower odds of a positive screening result, OR = 0.62, 95% CI [0.44, 0.89], $p = 0.009$. Age, sex, functional value, and functional satisfaction were not independently associated with screening status (all *p*s ≥ 0.126).

4. Discussion

The present study showed that 17.6% of competitive athletes were identified as being at risk of disordered eating. Although eating attitudes were not significantly differentiated by sports discipline or training characteristics, women and younger athletes were more likely to obtain a positive screening result. In contrast, body-image dimensions—particularly functional investment and satisfaction—varied across disciplines and training profiles, while the regression analyses indicated that eating attitudes were associated primarily with the aesthetic rather than functional domain of body image.

Almost one in six athletes were identified as being at risk of disordered eating. This proportion was higher than the rates of 6.9% among adult and 14.6% among adolescent female athletes reported by Borowiec et al. (2023) [2], as well as the 12.73% based on the threshold observed among Polish contact-karate athletes reported by Dobkowska-Szefer et al. (2025) [6]. At the same time, the present estimate was close to the pooled prevalence of 19.2% found in a recent meta-analysis of self-reported disordered eating among athletes [1]. Nevertheless, the finding indicates that potentially concerning eating-related attitudes or behaviours are relatively common even among formally registered athletes competing at a high level. This is broadly consistent with earlier evidence suggesting that athletes may be at greater risk of eating problems than non-athletes, particularly women, younger athletes, and athletes participating in sports that emphasise leanness, weight control, or appearance [20,21]. However, although the risk was higher among women, the present findings indicate that it was observed in both women and men and was not confined to any specific sports discipline.

The likelihood of being at risk of disordered eating did not differ significantly across the 20 sports represented in the study. Similarly, neither sports discipline nor training experience, weekly training frequency, session duration, or sport-performance level differentiated the total EAT-26 score. Within the present sample, no significant differences were obsrved in positive screening status or total EAT-26 scores across sports disciplines or training characteristics. However, the composition of the discipline groups may affect the strength of conclusions regarding the absence of between-sport differences. This finding differs from studies reporting greater risk in sports emphasising leanness, weight control, or appearance [2,21], and suggests that screening should not be limited to traditionally weight-sensitive or aesthetic sports. Broad sport classifications may fail to capture individual pressures associated with coaching practices, team culture, body-related expectations, social media, or the athlete's personal psychological characteristics.

Demographic factors were more informative than sports discipline. Women had approximately 58% higher odds of being at risk of disordered eating than men, while each additional year of age was associated with an approximately 6% reduction in the odds. The higher risk among women is consistent with the broader athlete literature, including studies showing greater disordered-eating prevalence among female athletes [1,21,22]. The association with younger age corresponds with the higher prevalence among adolescent than adult athletes reported by Borowiec et al. (2023) [2], although age-related findings across the broader literature are not entirely consistent. Indeed, Ghazzawi et al. (2024) [1] found higher prevalence estimates with increasing age at the study level. Age and sex explained only a small proportion of screening status in the present study, indicating that they function as general vulnerability markers rather than sufficient explanations of individual risk.

Sports discipline was more clearly associated with body image than with eating attitudes. The most pronounced differences concerned functional investment, followed by functional satisfaction, whereas differences in aesthetic satisfaction were limited. Contrary to the expectation that participation in sports centred on bodily competence would be

uniformly associated with a more positive functional body image [11,13], basketball players reported the lowest functional-investment scores. They scored lower than athletes from 18 of the remaining 19 disciplines, with fencing being the only nonsignificant comparison, and also reported lower functional satisfaction than several other groups. The comparison between basketball and volleyball is also very informative—although both are ball-oriented team sports, volleyball players reported greater functional investment and satisfaction than basketball players. This suggests that broad classifications based on functionality, appearance, leanness, or team participation may conceal meaningful differences between individual disciplines. Such differences may reflect athletes' developmental characteristics, selection procedures, coaching practices, competitive demands, or team culture rather than the general type of sport alone. Differences in the aesthetic domain were considerably less extensive: basketball and volleyball players reported lower aesthetic satisfaction than wrestlers, with no other pairwise comparisons remaining significant. One possible contextual explanation is that both basketball and volleyball are predominantly practised indoors. Previous research has associated exposure to natural and outdoor environments with more positive body image, potentially through reduced appearance-focused attention and greater appreciation of bodily functioning [16,23]. However, the present study did not directly assess training environment, and wrestling is also predominantly an indoor sport. Consequently, the results do not support an indoor-outdoor explanation on their own. Training setting may instead be considered a hypothesis for future research alongside coaching climate, sport-specific body ideals, uniforms, and social comparison within teams. The sensitivity analyses provided complementary information. The disappearance of the effects after excluding basketball players indicated that the overall differences between disciplines were primarily driven by this distinctive subgroup. At the same time, adjustment for age, height, and body mass did not eliminate the associations, suggesting that the findings could not be attributed solely to the younger age or anthropometric characteristics of basketball players. Other unmeasured characteristics of this group may therefore have contributed to the observed differences.

Training characteristics were also associated primarily with the functional dimensions of body image. More frequent and longer training was generally related to greater functional investment and satisfaction, whereas training experience and sport-performance level showed more selective and sometimes non-linear associations. Most of these effects were small, with the clearest association observed between weekly training frequency and functional investment. This pattern is consistent with the possibility that sustained engagement in training may strengthen attention to bodily capability and performance. However, the generally small effects may suggest that training exposure alone is unlikely to determine athletes' body image. Individual and group composition should therefore be considered alongside the amount or level of training.

Both regression analyses consistently showed that the aesthetic dimensions of body image were more closely associated with eating attitudes than the functional dimensions. The final model explained 8.6% of the variance in continuous EAT-26 scores, with the body-image dimensions accounting for an additional 6.4% beyond age and sex. Greater aesthetic value and aesthetic investment were associated with less favourable eating attitudes, whereas greater aesthetic satisfaction was associated with more favourable outcomes. None of the functional dimensions independently predicted the continuous EAT-26 score after the aesthetic body image dimensions had been considered.

A similar pattern emerged when risk of disordered eating was examined. The model including age, sex, and the body image dimensions explained approximately 7.8–12.8% of variation in screening risk and showed acceptable discrimination. Greater aesthetic value and investment were associated with higher odds of being at risk of disordered eating,

whereas greater aesthetic satisfaction was associated with lower odds. Functional investment was inversely associated with positive screening status but was not significantly associated with continuous EAT-26 scores. Because the association emerged only for the dichotomised outcome, it could be considered preliminary evidence of a potentially protective role of functional investment.

In the present models, appearance-related evaluations showed more consistent associations with eating attitudes than did broad classifications of sports. However, the modest explanatory performance of the models indicates that these dimensions should not be regarded as stand-alone screening indicators. Body image should therefore be considered as one of several potentially relevant correlates of disordered-eating symptoms, alongside sociocultural pressures, psychological distress, dietary practices, coaching and peer environments, and other factors not assessed in the present study.

A major strength of the study was its large and diverse competitive athlete sample. With 739 women and men representing 20 disciplines, the study combined the EAT-26 with a multidimensional assessment that explicitly distinguishes functional and aesthetic body image. Although larger epidemiological studies of athletes exist, comparable studies directly combining eating-attitude and body-image measures have generally included smaller athlete samples, such as those reported by [17,22,24–26]. A further strength was the inclusion of formally registered competitive athletes recruited from organised sports clubs, all of whom trained at least twice per week and had a median training experience of seven years.

5. Limitations

Several limitations should be considered. The cross-sectional design precludes causal interpretation, and all data were obtained using self-report measures. The EAT-26 identifies elevated screening risk rather than a clinically diagnosed eating disorder. The unequal sizes and demographic composition of the discipline groups and small samples in some sports limit the generalisability of the findings and the strength of conclusions regarding between-sport differences. Dietary supplement use, use of other relevant substances, gender identity, and sexual orientation were not assessed and could not be examined as potential correlates.

6. Conclusions

A positive EAT-26 screening result was observed in 17.6% of competitive athletes and was not concentrated within a specific sports discipline or training profile. Sport and training characteristics were associated primarily with functional aspects of body image, whereas eating attitudes and positive screening status were more consistently associated with the aesthetic domain. Greater aesthetic value and investment were related to less adaptive eating outcomes, while greater aesthetic satisfaction was associated with more favourable outcomes. These findings suggest that screening and preventive interventions should not be restricted to traditionally aesthetic or weight-sensitive sports and should consider athletes' individual appearance-related evaluations. Because the observed associations were modest and the study was cross-sectional, body image should be regarded as one of several factors potentially relevant to disordered-eating risk.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/jcm15228902/s1, Content of the Supplementary File: Table S1. Distribution of participants by sport discipline and sex; Table S2. Classification of the included sport disciplines and event groups; Table S3. Prevalence of positive EAT-26 screening results across sport-type categories; Table S4. Training experience and positive EAT-26 screening results; Table S5.

Average training-session duration; Table S6. Weekly training frequency and positive EAT-26 screening results; Table S7. BMI category and positive EAT-26 screening results; Table S8. Age group and positive EAT-26 screening results; Table S9. Sex and positive EAT-26 screening results.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and the opinion from the bioethics committee of the Academy of Physical Education was obtained (protocol code: KB/16/2016 and date of approval: 10 May 2016).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors on request.

Acknowledgments: The author has reviewed and edited the output and take full responsibility for the content of this publication.

Conflicts of Interest: The author declares no conflicts of interest.

Abbreviations

The following abbreviations are used in this manuscript:

BMI	Body mass index
CI	Confidence interval
EAT-26	Eating Attitudes Test-26
EIS	Embodied Image Scale
OR	Odds ratio
ROC	Receiver operating characteristic
SE	Standard error
M	master class
MM	international master class

References

1. Ghazzawi, H.A.; Nimer, L.S.; Haddad, A.J.; Alhaj, O.A.; Amawi, A.T.; Pandi-Perumal, S.R.; Trabelsi, K.; Seeman, M.V.; Jahrami, H. A Systematic Review, Meta-Analysis, and Meta-Regression of the Prevalence of Self-Reported Disordered Eating and Associated Factors among Athletes Worldwide. *J. Eat. Disord.* **2024**, *12*, 24. [CrossRef] [PubMed]
2. Borowiec, J.; Banio-Krajnik, A.; Malchrowicz-Mośko, E.; Kantanista, A. Eating Disorder Risk in Adolescent and Adult Female Athletes: The Role of Body Satisfaction, Sport Type, BMI, Level of Competition, and Training Background. *BMC Sports Sci. Med. Rehabil.* **2023**, *15*, 91. [CrossRef] [PubMed]
3. Colangelo, J.; Smith, A.; Bitterlich, N.; Buadze, A.; Liebrenz, M. Risks for Eating Disorder in Ultra-Endurance Athletes and the Role of Training Volume: A Cross-Sectional Study. *Front. Sports Act. Living* **2025**, *7*, 1708869. [CrossRef] [PubMed]
4. Urhan, M.; Karataş, E.; Akder, R.N.; Akanalçi, C.; Nalçakan, M. Evaluation of nutrition knowledge level and eating attitude in adolescent athletes: Cross-sectional study. *Med. Sport* **2025**, *78*, 145–152. [CrossRef]
5. Mountjoy, M.; Ackerman, K.E.; Bailey, D.M.; Burke, L.M.; Constantini, N.; Hackney, A.C.; Heikura, I.A.; Melin, A.; Pensgaard, A.M.; Stellingwerff, T.; et al. 2023 International Olympic Committee's (IOC) Consensus Statement on Relative Energy Deficiency in Sport (REDs). *Br. J. Sports Med.* **2023**, *57*, 1073–1097. [CrossRef] [PubMed]
6. Dobkowska-Szefer, D.; Staśkiewicz-Bartecka, W.; Kiciak, A.; Kardas, M. Eating Disorders Risk Assessment and Body Esteem among Elite Polish Contact Karate Athletes. *Front. Nutr.* **2025**, *12*, 1704743. [CrossRef] [PubMed]
7. Efthyvoulou, L.; Dergez, T.; Koushiou, M.; Argyrides, M. Disordered Eating Attitudes in Hungarian Adults: Body Image, Sociocultural Media Pressures, and the Cross-Gender Athletic Ideal. *Nutrients* **2026**, *18*, 2506. [CrossRef] [PubMed]
8. Cash, T.F. Cognitive-Behavioral Perspectives on Body Image. In *Body Image: A Handbook of Science, Practice, and Prevention*, 2nd ed.; Guilford Press: New York, NY, USA, 2011; pp. 39–47. ISBN 978-1-60918-182-6.
9. Krentz, E.M.; Warschburger, P. Sports-Related Correlates of Disordered Eating in Aesthetic Sports. *Psychol. Sport Exerc.* **2011**, *12*, 375–382. [CrossRef]
10. Li, Q.; Li, H.; Zhang, G.; Cao, Y.; Li, Y. Athlete Body Image and Eating Disorders: A Systematic Review of Their Association and Influencing Factors. *Nutrients* **2024**, *16*, 2686. [CrossRef] [PubMed]

11. Abbott, B.D.; Barber, B.L. Differences in Functional and Aesthetic Body Image between Sedentary Girls and Girls Involved in Sports and Physical Activity: Does Sport Type Make a Difference? *Psychol. Sport Exerc.* **2011**, *12*, 333–342. [CrossRef]
12. Abbott, B.D.; Barber, B.L. Embodied Image: Gender Differences in Functional and Aesthetic Body Image among Australian Adolescents. *Body Image* **2010**, *7*, 22–31. [CrossRef] [PubMed]
13. Abbott, B.D.; Barber, B.L.; Dziurawiec, S. What Difference Can a Year Make? Changes in Functional and Aesthetic Body Satisfaction Among Male and Female Adolescents Over a Year. *Aust. Psychol.* **2012**, *47*, 224–231. [CrossRef]
14. Fatt, S.J.; George, E.; Hay, P.; Jeacocke, N.; Mitchison, D. Comparing Population-General and Sport-Specific Correlates of Disordered Eating Amongst Elite Athletes: A Cross-Sectional Study. *Sports Med. Open* **2024**, *10*, 123. [CrossRef] [PubMed]
15. Swami, V.; Barron, D.; Todd, J.; Horne, G.; Furnham, A. Nature Exposure and Positive Body Image: (Re-)Examining the Mediating Roles of Connectedness to Nature and Trait Mindfulness. *Body Image* **2020**, *34*, 201–208. [CrossRef] [PubMed]
16. Wicks, C.; Barton, J.; Orbell, S.; Andrews, L. Psychological Benefits of Outdoor Physical Activity in Natural versus Urban Environments: A Systematic Review and Meta-Analysis of Experimental Studies. *Appl. Psychol. Health Well-Being* **2022**, *14*, 1037–1061. [CrossRef] [PubMed]
17. Budzisz, A.; Sas-Nowosielski, K. Positive Body Image among Polish Elite Athletes. *Balt. J. Health Phys. Act.* **2022**, *13*, 9–17. [CrossRef]
18. Garner, D.M.; Olmsted, M.P.; Bohr, Y.; Garfinkel, P.E. The Eating Attitudes Test: Psychometric Features and Clinical Correlates. *Psychol. Med.* **1982**, *12*, 871–878. [CrossRef] [PubMed]
19. Rogoza, R.; Brytek-Matera, A.; Garner, D. Analysis of the EAT-26 in a Non-Clinical Sample. *Arch. Psychiatry Psychother.* **2016**, *18*, 54–58. [CrossRef]
20. Smolak, L.; Murnen, S.K.; Ruble, A.E. Female Athletes and Eating Problems: A Meta-Analysis. *Int. J. Eat. Disord.* **2000**, *27*, 371–380. [CrossRef]
21. Sundgot-Borgen, J.; Torstveit, M.K. Prevalence of Eating Disorders in Elite Athletes Is Higher than in the General Population. *Clin. J. Sport Med.* **2004**, *14*, 25–32. [CrossRef] [PubMed]
22. Rosendahl, J.; Bormann, B.; Aschenbrenner, K.; Aschenbrenner, F.; Strauss, B. Dieting and Disordered Eating in German High School Athletes and Non-Athletes. *Scand. J. Med. Sci. Sports* **2009**, *19*, 731–739. [CrossRef] [PubMed]
23. Swami, V.; von Nordheim, L.; Barron, D. Self-Esteem Mediates the Relationship between Connectedness to Nature and Body Appreciation in Women, but Not Men. *Body Image* **2016**, *16*, 41–44. [CrossRef] [PubMed]
24. Anderson, L.M.; Reilly, E.E.; Gorrell, S.; Anderson, D.A. Running to Win or to Be Thin? An Evaluation of Body Dissatisfaction and Eating Disorder Symptoms among Adult Runners. *Body Image* **2016**, *17*, 43–47. [CrossRef] [PubMed]
25. Biedroń, M.; Jaruga-Sękowska, S.; Kłoda, M.; Staśkiewicz-Bartecka, W.; Woźniak-Holecka, J. Assessment of Eating Attitudes and Body Image Among 17–20-Year-Olds Engaged in Regular Sports Activity. *Nutrients* **2025**, *17*, 3482. [CrossRef] [PubMed]
26. Prnjak, K.; Jukic, I.; Tufano, J.J. Perfectionism, Body Satisfaction and Dieting in Athletes: The Role of Gender and Sport Type. *Sports* **2019**, *7*, 181. [CrossRef] [PubMed]

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.