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## Eating Behavior and Reasons for Exercise Among Competitive Collegiate Male Athletes

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### Abstract

**Purpose:** Research concerning eating disorders among adolescent and young adult male athletes is limited compared with female counterparts, but increasing evidence indicates they may be at unique risk for unhealthy exercise and eating behavior. The current study aimed to characterize unhealthy exercise and eating behavior according to competitive athlete status, as well as per sport type.

**Method:** Collegiate male athletes ( $N=611$ ), each affiliated with one of 10 National College Athletics Association (NCAA) Division I schools in the United States, completed an online survey, reporting on eating and extreme weight control behaviors, and reasons for exercise.

**Results:** Competitive athletes endorsed increased driven exercise and exercising when sick. Baseball players, Cyclists, and Wrestlers emerged as the sports with the most players reporting elevated Eating Disorder Examination-Questionnaire scores in a clinical range, and Basketball players reported the highest rates of binge eating. Overall, Baseball players, Cyclists, Rowers and

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Level II: Evidence obtained from well-designed controlled trials without randomization.

Wrestlers appeared to demonstrate the greatest vulnerability for unhealthy eating and exercise behavior.

**Conclusion:** Findings revealed differences between competitive and non-competitive male athletes. Among competitive athletes, results identified unique risk for unhealthy eating and exercise behavior across a variety of sport categories and support continued examination of these attitudes and behaviors in a nuanced manner.

### Keywords

Male athletes; adolescent male; eating disorders; compulsive exercise; competitive male athletes

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## Introduction

Eating disorders (EDs) are debilitating illnesses with significant impairment and high mortality rates [1]. Interest in the study of ED with sport and exercise has increased over the past three decades, but investigation of athletes has largely focused on female samples, leaving a comparative void in the literature in males [2]. However, national survey evidence indicates that males comprise approximately one in four presentations of bulimia nervosa and anorexia nervosa [3]. Studies specific to male athletes suggest unique risk for both leanness and muscularity concerns [5] which may increase vulnerability for ED [6]. Accordingly, recent meta-analysis of literature on ED in male athletes underscores the notion that males should be investigated separately and according to specific sport environments [7].

Some research indicates elevated ED pathology among athletes compared to non-athletes [9–10] whereas other studies do not show significant differences in ED scores between these groups [7–8]. Equivocal findings can be partially explained by varying competition levels [11–12], as elite status has been shown to increase ED risk in athletes as compared to the general population [9–10], and to less competitive athletes [13]. Perhaps as a result of sport-specific body dissatisfaction [15], consistent research evidence indicates that athletes participating in leanness-dependent sports (e.g., distance running) report elevated ED pathology as compared with non-leanness sport counterparts [9–11, 16]. Other work has determined increased ED risk among males who participate in weight class [11, 16–18] or aesthetic sports [5, 19–20].

While competitive status and sport type indicate associations with pathology, discrepant findings suggest that a more nuanced conceptualization of male athlete ED is necessary. Some research posits that males might be less focused on a drive for thinness, and more in pursuit of leanness/muscularity [6, 21]. Accordingly, drive for leanness/muscularity might encourage driven exercise behavior. Unhealthy exercise activity is now recognized as a key component in the development and maintenance of ED pathology [22], is more common in athletes than in non-athletes [23], and increases with the level of sport competition [24–25]. Male athletes may demonstrate a unique profile of ED pathology that includes the pivotal symptom of unhealthy exercise (e.g., [26]). For example, among male collegiate athletes, frequency of extreme weight control behaviors (EWCs) was low, but exercise (37%) and fasting/dieting (14.2%) were primary and secondary means for controlling weight [27].

Other work among male collegiate athletes also found that exercise and dieting were the most commonly reported weight control practices [17]. Taken together, these findings suggest that ED screening among competitive male athletes ought to include assessment of behavior and attitudes related to exercise, specific to sport type.

### Current study

With secondary data analysis, the current study aimed to identify possible differences in binge eating, EWCBs (i.e., purging, diet pill, diuretic, or laxative use), and exercise behavior in competitive vs. non-competitive male collegiate athletes. This study was also uniquely able to explore differences in eating and exercise behavior per sport type, over a broad range of sports. Based upon prior work [9–10], it was hypothesized that binge eating, EWCBs, and unhealthy exercise behaviors would be elevated among competitive athletes, as compared with non-competitive counterparts. Given the nascent evidence to date on nuanced behaviors by sport type, secondary hypotheses remained exploratory.

## Method

### Participants and Procedure

A detailed description of the sample and recruitment is included in prior reports (c.f., [28–30]). Briefly, male participants ( $N = 612$ ), aged 18–26 years, were affiliated with one of 10 top-ranked National College Athletics Association (NCAA) schools in the United States. Participants were recruited via a social networking website and invited to provide consent and complete an online survey examining athletic participation, eating and exercise behaviors. This study was conducted in compliance with the Stanford University Panel on Medical Research in Human Subjects and the NCAA.

### Measures

**Demographics.**—Participants reported basic information (e.g., age and ethnicity), and self-identified athletic status (competitive vs. non-competitive) and sport-specific participation.

**Eating Disorder Examination Questionnaire (EDE-Q; [31]).**—A 28-item self-report questionnaire, the EDE-Q assesses disordered eating attitudes and behaviors over the previous 28 days. The measure provides a global score and four subscale scores: *Restraint*, *Eating Concern*, *Shape Concern*, and *Weight Concern*. The EDE-Q has demonstrated excellent validity, reliability, and correlations with other ED measures (see [32] for review). Males were scored within a clinical range if they responded with scores > 85<sup>th</sup> percentile of male university student norms [4]. Participants also answered questions from Project EAT, a population-based study of eating patterns and weight concerns among adolescents [33]. These questions and items from the EDE-Q were used to determine engagement in binge eating, or EWCBs (i.e., purging, diet pill, diuretic, or laxative use) in the past month, or ever.

**Exercise Behavior.**—The EDE-Q has a single item corresponding to driven exercise (item 18: “Over the past 28 days, how many times have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat or to burn

*off calories?”*). This item was used as a categorical variable (individuals who endorsed this item for at least one day) along with 5 other single-item questions that queried the function of exercise behavior: 1) *In general, do you feel driven or compelled to exercise?* (Driven/Compelled) 2) *In general, do you feel guilty when you don't exercise?* (Guilty) 3) *In general, do you choose to exercise even when you are sick?* (When Sick) 4) *In general, do you ever exercise in secret, or not want people to know you have exercised?* (Secret) 5) *In general, do you exercise to improve your mood?* (Improve Mood).

## Analytic Plan

Athletes identified their first priority sport; those competing in more than one sport in the past year ( $n = 42$ ) were included in calculations for each sport. Sport types were included in analyses if the category represented  $> 5$  athletes, resulting in a total of 19 sports categories. Three main sets of analyses were conducted. First, the proportion of individuals reporting binge eating, EWCBs, and exercise behavior questions was calculated per athlete status (competitive vs. non-competitive); Bivariate correlations evaluated associations between athlete status and behaviors, and Pearson's Chi-Square tests evaluated between-group differences. Multivariate regression analyses examined relations between athlete status and specific exercise behaviors, adjusting for age and body mass index. Second, EDE-Q global and subscale score means were calculated according to sport type. The proportion of individuals who reported binge eating, each of the EWCBs and exercise behavior questions was also calculated per sport type. For EDE-Q subscale and global scores, determinations were made regarding whether the mean for each sport category fell within a clinical range. Third, to identify between-group differences between members of each sport category and the broader competitive athlete sample (i.e., all other competitive athletes, combined), Mann-Whitney U and Chi-squared testing was used to evaluate differences in EDE-Q global and subscale scores, EWCBs, and exercise behavior questions. Significance was defined by  $p < .05$  and SPSS v.25 was used for all analyses.

## Results

### Descriptive Statistics

Participants were aged 18–26 ( $M = 20.99$ ) years, reporting the following ethnicity: White (77.6%), Asian (9.0%), Hispanic/Latino (5.1%), Black/African-American (4.7%), Other (3.5%), American Indian/Alaskan native (.3%), and not reporting (.3%). Of the entire sample, 429 (70.1%) were competitive athletes (i.e., participating in competitive sports currently or in the past year). The comparison group ( $n = 183$ ; 30.0%) had not engaged in competitive athletics for at least one year but engaged in regular recreational exercise. Competitive athletes participating in each sport type were as follows: Swimming (55; 12.8%); Rugby (38; 8.9%); Rowing/Crew (35; 8.2%); Lacrosse (32; 7.5%); Football (32; 7.5%); Ultimate Frisbee (31; 7.3%); Soccer (24; 5.6%); Cycling (24; 5.6%); Wrestling (21; 4.9%); Ice Hockey (20; 4.7%); Triathlon (18; 4.2%); Basketball (16; 3.8%); Running/Cross Country/Track/Field (22; 5.2%); Volleyball (14; 3.3%); Fencing (13; 3.1%); Gymnastics (12; 2.8%); Cheerleading (10; 2.4%); Baseball (8; 1.9%); Water Polo (8; 1.9%).

## Primary Analyses

**Per Athlete Status (Competitive vs. Non-Competitive)**—Binge eating and EWCBs did not differ by athlete status (Table 1). Competitive athletes were significantly more likely to endorse exercising When Sick (43 vs. 31%,  $p = .004$ ) as compared with non-competitive counterparts. Bivariate correlations between athlete competitive status and exercise variables were significant for exercising When Sick ( $r = .12$ ,  $p < .05$ ); no other exercise behaviors demonstrated significant differences between, or correlations with athlete status (Appendix A). Using Pillai's Trace, results of MANCOVA analyses indicated a significant effect of athlete status (competitive v. non-competitive) on reported engagement in exercise behaviors,  $V = .04$ ,  $F(6, 569) = 3.86$ ,  $p = .001$ ,  $\eta^2 = .04$  when adjusting for age and body mass index. Specifically, after accounting for covariate effects, there was a significant effect of athlete status on Driven/compelled exercise  $p = .01$ ,  $\eta^2 = .01$ , and exercise When Sick,  $p = .005$ , partial  $\eta^2 = .01$  (Appendix B).

## Per Sport Type

Results for the second set of analyses are shown in Table 2. Baseball demonstrated the highest EDE-Q global scores ( $M = 1.46$ ), followed by Cycling ( $M = 1.09$ ) and Wrestling ( $M = 1.00$ ). Baseball had the highest *Restraint* subscale scores ( $M = 1.95$ ), followed by Wrestling ( $M = 1.88$ ) and Cycling ( $M = 1.49$ ). Baseball had the highest *Weight Concern* subscale scores ( $M = 1.78$ ), followed by Triathlon ( $M = 1.10$ ) and Cycling ( $M = 1.08$ ). Baseball demonstrated the highest *Shape Concern* subscale scores ( $M = 1.58$ ), followed by Triathlon ( $M = 1.42$ ). *Eating Concern* subscale scores were comparatively low across all sport categories.

Figure 1 illustrates clinical ranges of EDEQ scores by sport. As per the *a priori* clinical cut-off, 25% ( $n = 2$ ) of Baseball players reported clinical global scores; no other sport demonstrated clinical overall eating pathology in > 20% of athletes in a given category. Thirtyeight percent ( $n = 3$ ) of Baseball players, and 24% ( $n = 5$ ) of Wrestlers reported clinical restraint, and 20% ( $n = 2$ ) of Cheerleaders demonstrated clinical weight concern. Rates of binge eating in the last month were highest among Basketball players (50%), followed by Football (39%) and Running/Cross Country/Track/Field (38%) and Baseball (38%). Rates of EWCBs in the last month were relatively low, and Cheerleaders demonstrated the highest rates of ever engaging in EWCBs (20%).

The Driven/Compelled exercise item was endorsed by at least 57% of members of each sport category, except for Baseball, for which none of them reported this behavior. Cyclists demonstrated the greatest Guilt when not exercising (92%), followed by Running/Cross Country/Track/Field (77%). The categories most likely to report exercise When Sick were Rowing (66%), and Cycling (63%). Gymnasts were the most likely to report Secret exercise (50%), followed by Rowing (23%). All sport categories reported exercising to Improve Mood in > 50% of participants. Wrestlers were most likely to endorse driven exercise to influence weight or shape (i.e., EDE-Q item 18) (57%). Of note, all categories endorsed Driven/Compelled exercise more frequently than the more specific driven exercise to influence weight or shape, except Baseball, with 25% endorsing EDE-Q item 18 but not endorsing Driven/Compelled exercise in a broader fashion at all.

## Comparing Sport Type to the Broader Competitive Athlete Sample

Between-group differences in EDE-Q global and subscale scores between members of each sport category and the broader competitive athlete sample were demonstrated for 7 categories (Table 2): Baseball (Global:  $p = .02$ ; *Weight Concern*:  $p < .01$ ), Cycling (Global:  $p = .02$ ; *Restraint*:  $p = .02$ ; *Eating Concern*:  $p = .03$ ), Lacrosse (Global:  $p < .01$ ; *Restraint*:  $p < .01$ ; *Weight Concern*:  $p = .01$ ), Rowing (Global:  $p = .02$ ), Swimming (*Shape Concern*:  $p = .02$ ); Ultimate Frisbee (*Restraint*:  $p < .01$ ); and Wrestling (Global:  $p = .04$ ; *Restraint*:  $p < .001$ ; *Eating Concern*:  $p < .001$ ). For Baseball, Cycling, Rowing and Wrestling, scores were elevated as compared to the broader athlete sample, whereas for Lacrosse, Swimming, and Ultimate Frisbee, athlete reported lower scores than the broader sample.

Significant differences in EWCBs between sport category and the broader athlete sample were demonstrated in four categories: Basketball (Binge Eating:  $p = .02$ ), Rowing (ever EWCB:  $p = .03$ ), Running/Cross Country/Track/Field (EWCB in the last month:  $p < .001$ ) and Ultimate Frisbee (Binge Eating:  $p = .01$ ); with the exception of Ultimate Frisbee, all scores within sport category were comparatively elevated.

The only sport significantly more likely to endorse Driven/Compelled exercise than the broader competitive athlete sample was Volleyball ( $p = .03$ ); only Wrestlers were more likely to endorse driven exercise for the purpose of weight or shape more than other athletes ( $p < .001$ ). Cyclists were more likely to feel Guilty if they did not exercise ( $p < .01$ ) and exercise to Improve Mood ( $p = .03$ ), while Cyclists ( $p < .05$ ), Rowers ( $p < .01$ ), and Swimmers ( $p = .03$ ) were all more likely than other competitive athletes to exercise When Sick. Rowers ( $p < .01$ ) and Gymnasts ( $p < 0.001$ ) were more likely to endorse Secret exercise than other competitive athletes.

## Discussion

This study examined reported eating pathology and exercise behavior in a large sample of collegiate males, many of whom were currently (i.e., within the past year) participating in competitive athletics. Given a wide variety in athletic participation, this study was also uniquely able to examine sport-specific eating and exercise behavior among male athletes, over a broad range of sports. Competitive athletes did not demonstrate differences in binge eating or EWCBs; however, these athletes were more likely to endorse engagement in exercising when sick.

Baseball players, along with Cyclists and Wrestlers, emerged as the sports with the most players reporting EDE-Q scores in a clinical range and comparing to the broader athlete sample, these athletes along with Rowers demonstrated significantly elevated EDE-Q global scores. Basketball players reported the highest rates of binge eating in the past 28 days, and demonstrated significant differences in elevated binge eating as compared with the broader athlete sample. While rates of EWCBs were low overall, Runners/Cross Country/Track Field participants reported significantly more EWCBs in the last month, and Rowers reported significantly more EWCBs ever. Wrestlers were the only athletes who were significantly more likely to endorse driven exercise to influence weight or shape than the broader athlete

sample, and Gymnasts and Rowers were significantly more likely to report exercising in secret.

A unique feature of the current study was the ability to assess eating and exercise across a wide variety of sport types. Prior work has grouped sports by body type (i.e., weight class) and other qualifiers (i.e., endurance sports) within analyses; while these approaches were ostensibly hypothesis driven, evaluation of eating and exercise pathology in a more nuanced manner by sport is critical to fully understanding for whom ED risk may be elevated among the larger subgroup of collegiate male athletes, before accurately positing possible groupings. Underscoring this premise, findings in the current study identified the highest eating pathology among Baseball players, with significantly greater global and weight concern scores than the broader athlete sample. In the current study, the motivation for driven exercise was notable among Baseball players, where none of these players endorsed the general driven exercise item, but 25% endorsed EDE-Q item 18 (i.e., driven exercise to influence weight/shape).

This profile of risky behaviors identified in Baseball players reflects complexity in the constellation of disordered and exercise behaviors reported across the entire sample, where some distinct patterns emerged. In one such pattern, Wrestlers demonstrated significant and clinical levels of restraint; these athletes also endorsed significant global eating pathology, and eating concern as compared with the broader athlete sample. Wrestlers reported the highest percentage of driven exercise intended to influence weight and shape (57%) which was significant as compared with the broader athlete sample, a considerable number of individuals who felt guilty when not exercising (67%), and 10% who endorsed ever engaging in EWCBs. Taken together, these findings support prior evidence of Wrestling constituting a higher risk sport [14].

A second pattern emerged among Cyclists, for whom global eating pathology was significantly greater than other competitive athletes, and 17% reported EDE-Q global scores within a clinical range. Cyclists also reported significant levels of restraint and eating concern, 33% endorsed binge eating in the last month, 88% endorsed driven exercise, 92% felt guilty when not exercising (significant within the broader sample) and a significant number of individuals (63%) would exercise when sick. This combination of binge eating with excessive exercise suggests that these individuals may be at higher ED risk.

Exercising in secret was most endorsed among Gymnasts (50%), and was significant among both these athletes and Rowers, compared with the broader athlete sample. While Gymnasts endorsed elevated rates of unhealthy exercise behavior, their eating pathology scores, EWCBs and all exercise questions (aside from secret exercise) remained non-significant as compared with other athletes. Intuitively, secret exercise is maladaptive but not typically represented in standard ED assessments; future work might identify the sensitivity of this question in indicating increased risk. Finally, a higher incidence of binge eating appeared among athletes where larger body size is expected and/or required (e.g., Basketball, Football), underscoring a recommendation for including larger body type sports among those who may benefit from increased ED screening.

Considering all eating behavior and reasons for exercise, certain categories demonstrated increased proportions of athletes with clinical eating pathology, increased binge eating or EWCBs, and less healthy reasons for exercise. Summarily, it appears that the categories most at risk for overall eating pathology based on the EDE-Q are Baseball, Cycling, Rowing, and Wrestling. Considering additional reported EWCBs and reasons for exercise, Cyclists, Rowers, and Wrestlers remain the categories with the most combined risk for eating and unhealthy exercise behavior.

### Limitations and Future Directions

There are several limitations to note. First, as each sport category was limited to representation by > 5 athletes, this study did not include certain sports that may have increased ED risk based on required body type, such as diving ( $n = 3$ ), and equestrian ( $n = 3$ ). Findings should also be interpreted with caution, as they may also be considerably underpowered for the sports with small sample sizes ( $n = 8$ ). Further, 42 individuals participated in a secondary competitive sport, but it is possible that participation in one sport led to sport-specific body dissatisfaction differing from the body ideal of a secondary sport; future work may investigate these individuals separately. These analyses were secondary, and cross-sectional; therefore, findings cannot comment on the temporality of the development of these eating and exercise behaviors. Finally, measures were self-reported, which may reveal less information than if participants were queried in a clinical interview. Despite these limitations, the current study provides a unique opportunity to evaluate sport-specific risk for ED and exercise pathology among potentially vulnerable competitive collegiate male athletes.

### Conclusions

This study demonstrated differences in reasons for exercise between competitive and non-competitive male collegiate athletes; competitive athletes were more likely to exercise when driven/compelled, or sick. No differences in EWCBs were found between groups. Findings revealed overall greatest ED and exercise symptomatology among Baseball players, Cyclists, Wrestlers, and Rowers. Results support continued examination of these attitudes and behaviors in a nuanced manner, as findings demonstrated notable differences between sport categories.

### Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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## Author Declaration

On behalf of all identified authors, we wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

We confirm that the manuscript has been read and approved by all named authors and further confirm that the order of authors listed in the manuscript has been approved by all of us. The manuscript has not been published, and is not currently submitted elsewhere.

We further confirm that any aspect of the work covered in this manuscript that has involved human participants has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

## Appendix

### Appendix A.

#### Bivariate Correlations Between Athlete Status and Exercise Behavior

Variable	1	2	3	4	5	6	7	8	9	10
<b>1 Athlete Status</b>	-									
<b>2 Driven/Compelled</b>	.08	-								
<b>3 Guilty</b>	-.03	.31**	-							
<b>4 When Sick</b>	.12**	.28**	.20**	-						
<b>5 Secret</b>	-.03	.05	.11**	.12**	-					
<b>6 Improve Mood</b>	.04	.26**	.21**	.21**	.05	-				
<b>7 EDE-Q item 18</b>	-.08	.29**	.24**	.11**	.08	.13**	-			
<b>8 BMI</b>	.03	.09*	.04	.08*	-.06	-.08	.15**	-		
<b>9 Age</b>	-.008	-.07	.10*	.02	-.05	.03	-.03	.06	-	

Note:

\* Single asterisk =  $p < .05$

\*\* Double asterisk =  $p < .01$ ; Athlete status = competitive (1) v. non-competitive (0);

Athlete status = competitive (1) v. non-competitive (0);

Eating Disorder Examination - Questionnaire (EDE-Q) item 18: "Over the past 28 days, how many times have you exercised in a 'driven' or 'compulsive' way as a means of controlling your weight, shape or amount of fat or to bum off calories?"

BMI = Body Mass Index

### Appendix B.

#### Summary of Multivariate Regression Analyses for Associations Between Athlete Status and Exercise Behavior ( $N= 577$ )

Variable	<i>B</i>	<i>SE(B)</i>	$\beta$	<i>t</i>	<i>P</i>
<b>Driven/Compelled</b>	-.09	.04	-.10	-2.52	.01
<b>Guilty</b>	.04	.04	.04	.81	.42
<b>When Sick</b>	-.13	.04	-.12	-2.84	.005
<b>Secret</b>	.02	.03	.03	.69	.49
<b>Improve Mood</b>	-.06	.04	-.06	-1.35	.18
<b>EDE-Q item 18</b>	.07	.04	.08	1.95	.051

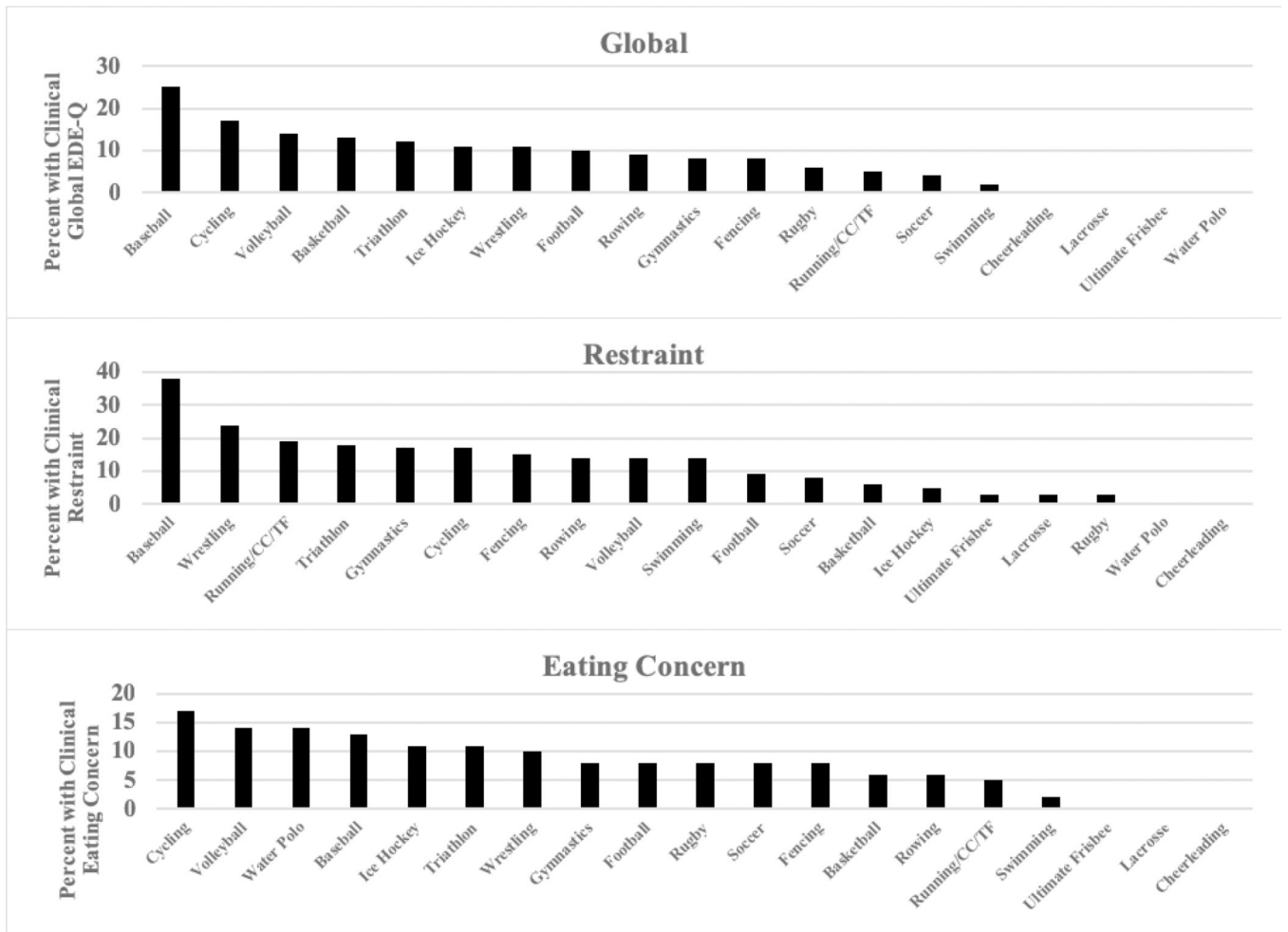
Variable	<i>B</i>	<i>SE(B)</i>	$\beta$	<i>t</i>	<i>P</i>
	$R^2 = .03$				
	Adjusted $R^2 = .02$				
	$V = .04, F(6, 569) = 3.86, p = .001, \eta^2 = .04$				

*Note:* Age and body mass index were entered as covariates in the model; Athlete status = competitive (1) v. non-competitive (0); Eating Disorder Examination - Questionnaire (EDE-Q) item 18: "Over the past 28 days, how many times have you exercised in a 'driven' or 'compulsive' way as a means of controlling your weight, shape or amount of fat or to bum off calories?"

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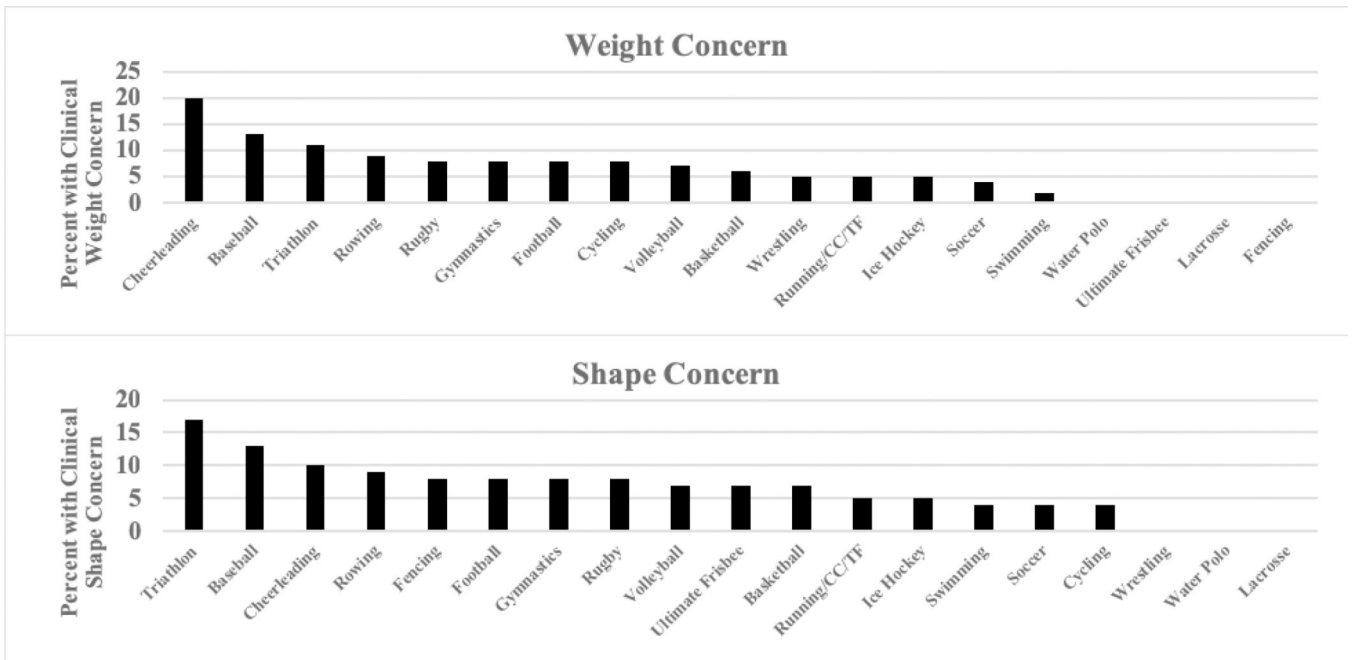


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**Figure 1.** Percent of Athletes with Clinical Range of EDE-Q Global and Subscale Scores  
 Note: EDE-Q = Eating Disorders Examination – Questionnaire; Clinical range refers to > 85<sup>th</sup> percentile of undergraduate male norms

**Table 1.**

## Eating Pathology and Exercise Behavior Per Athlete Status

Eating Behaviors	Competitive Athlete ( <i>n</i> = 429)	Non-Competitive Athlete ( <i>n</i> = 183)	$\chi^2$	<i>p</i>
	% ( <i>n</i> )	% ( <i>n</i> )		
Binge eating last month	27 (113)	35 (54)	.84	.36
EWCBs last month	3 (12)	4 (7)	.49	.48
EWCBs ever	6 (26)	7 (12)	.06	.80
<b>Exercise Behavior</b>				
Driven/Compelled	80 (343)	73 (133)	3.51	.06
Guilty	64 (273)	67 (122)	.65	.42
When Sick	43 (185)	31 (56)	8.17	.004
Secret	8 (35)	10 (18)	.48	.49
Improve Mood	68 (291)	64 (116)	.96	.34
EDE-Q item 18	20 (81)	26 (46)	3.29	.07

*Note:* EWCB = extreme weight control behavior (i.e., purging, diet pill, diuretic, or laxative use); Eating Disorder Examination - Questionnaire (EDE-Q) item 18: "Over the past 28 days, how many times have you exercised in a 'driven' or 'compulsive' way as a means of controlling your weight, shape or amount of fat or to burn off calories?"

**Table 2.**

Eating Pathology and Exercise Behavior Per Sport Type

Sport Type (n)	Swim (55)	Rug (38)	Row (35)	LaX (32)	Foot (32)	UF (31)	Soc (24)	Cyc (24)	Track/CC (22)	Wres (21)	Hock (20)	Tri (18)	Bask (16)	Voll (14)	Fence (13)	Gym (12)	Cheer (10)	Base (8)	WP (8)
<b>Eating Pathology</b>																			
<b>M(SD)</b>																			
EDE-Q Global	.60(.69)	.76(.69)	<b>.97*(.79)</b>	<b>.42<sup>†</sup>(.45)</b>	.82(.69)	.51(.51)	.56(.94)	<b>1.09*(.92)</b>	.76(.90)	<b>1.0 0*(.71)</b>	.70(.71)	.85(1.00)	.63(.76)	.74(1.21)	.77(.72)	.64(1.17)	.77(.71)	<b>1.46*(1.10)</b>	.46(.65)
Restrai	1.01	.91	1.3	<b>.48</b>	1.0	<b>.42</b>	.72	<b>1.4</b>	1.24	<b>1.8</b>	.88	1.0	.63	.66	.97	.73	.64	1.9	.60
<i>n</i>	(1.32)	(.96)	5(1.23)	<b>†(.79)</b>	8(1.09)	<b>†(.77)</b>	(.98)	<b>9*(1.22)</b>	(1.40)	<b>8*(1.18)</b>	(.91)	0(1.35)	(.83)	(1.06)	(1.19)	(1.32)	(.61)	5(1.60)	(1.00)
Eating Concer <i>n</i>	.14(.45)	.25(.65)	.30(.67)	.06(.14)	.19(.35)	.08(.15)	.24(.85)	<b>.54*(.98)</b>	.23(.44)	<b>.47*(.50)</b>	.28(.42)	.23(.43)	.28(.37)	.39(1.04)	.26(.67)	.38(1.08)	.20(.33)	.55(.85)	.17(.45)
Weight Concer <i>n</i>	.56(.80)	.86(1.13)	.96(1.09)	.37 <sup>†</sup> (.51)	.81(.89)	.54(.59)	.52(1.14)	1.08(1.05)	.67(.98)	.85(.81)	.58(.87)	1.10(1.27)	.64(.87)	.84(1.44)	.68(.69)	.55(1.10)	1.02(1.32)	<b>1.78*(1.32)</b>	.40(.66)
Shape Concer <i>n</i>	<b>.75<sup>†</sup>(.89)</b>	1.32(1.36)	1.28(1.11)	.76(.81)	1.19(1.11)	1.01(.94)	.78(1.24)	1.25(1.11)	.92(1.13)	.96(.83)	1.00(1.09)	1.42(1.54)	1.03(1.21)	1.08(1.53)	1.18(1.07)	.89(1.38)	1.20(1.16)	1.58(1.07)	.70(.77)
<b>Eating Behavior</b>																			
<b>%(<i>n</i>)</b>																			
Binge eating, last month	29(15)	27(10)	30(10)	20(6)	39(12)	<b>7<sup>†</sup>(2)</b>	22(5)	33(8)	38(8)	24(5)	20(4)	22(4)	<b>50*(8)</b>	21(3)	31(4)	17(2)	30(3)	38(3)	14(1)
EWCB s, last month	4(2)	0(0)	6(2)	0(0)	0(0)	3(1)	0(0)	0(0)	<b>14*(3)</b>	5(1)	0(0)	6(1)	6(1)	0(0)	0(0)	8(1)	10(1)	0(0)	0(0)
EWCB s, ever	4(2)	8(3)	<b>14*(5)</b>	0(0)	0(0)	7(2)	4(1)	4(1)	14(3)	10(2)	0(0)	11(2)	6(1)	0(0)	0(0)	8(1)	20(2)	13(1)	0(0)
<b>Exercise Behavior</b>																			
<b>%(<i>n</i>)</b>																			
Driven/Compelled	80(44)	79(30)	77(27)	81(26)	88(28)	77(24)	75(18)	88(21)	82(18)	91(19)	90(18)	83(15)	81(13)	<b>57*(8)</b>	62(8)	92(11)	90(9)	0(0)	88(7)
Guilty	56(31)	76(29)	66(23)	<b>47<sup>†</sup>(15)</b>	63(20)	68(21)	58(14)	<b>92*(22)</b>	77(17)	67(14)	65(13)	72(13)	56(9)	50(7)	69(9)	58(7)	40(4)	75(6)	50(4)
When Sick	<b>56*(31)</b>	37(14)	<b>66*(23)</b>	41(13)	56(18)	<b>23<sup>†</sup>(7)</b>	29(7)	<b>63*(15)</b>	55(12)	48(10)	30(6)	61(11)	50(8)	36(5)	<b>15<sup>†</sup>(2)</b>	58(7)	<b>10<sup>†</sup>(1)</b>	38(3)	50(4)
Secret	2(1)	3(1)	<b>23*(8)</b>	3(1)	13(4)	10(3)	4(1)	8(2)	9(2)	10(2)	0(0)	0(0)	13(2)	0(0)	8(1)	<b>50*(6)</b>	10(1)	13(1)	0(0)
Improv e Mood	66(36)	71(27)	77(27)	75(24)	<b>50<sup>†</sup>(16)</b>	61(19)	71(17)	<b>88*(21)</b>	77(17)	57(12)	65(13)	83(15)	69(11)	71(10)	54(7)	75(9)	50(5)	88(7)	63(5)
EDE-Q item 18	15(8)	8(3)	23(8)	17(5)	32(10)	7(2)	22(5)	21(5)	5(1)	<b>57*(12)</b>	20(4)	17(3)	38(6)	14(2)	15(2)	8(1)	40(4)	25(2)	0(0)

Note:

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\* **Bold** with asterisk represent scores that are significantly elevated in sport category vs. the broader competitive athlete sample

<sup>7</sup> **Bold** with cross represent scores that are significantly lower in sport category vs. the broader competitive athlete sample

EDE-Q = Eating Disorder Examination – Questionnaire; items in italics represent EDE-Q subscale; EWCB = extreme weight control behavior (i.e., purging, diet pill, diuretic, or laxative use); Rug = Rugby; LaX = Lacrosse; Foot = Football; UF = Ultimate Frisbee; Soc = Soccer; Cyc = Cycling; Track/CC = Running/Cross Country/Track/Field; Hock = Hockey; Tri = Triathlon; Bask = Basketball; Voll = Volleyball; Gym = Gymnastics; Base=Baseball; WP = Water Polo