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**Exercising for weight and shape reasons vs. health control reasons: The impact on eating disturbance and psychological functioning**

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### **Abstract**

The aim of this study was to determine the prevalence and correlates of exercise motivated by health and weight/shape reasons. In total, 301 participants (53.5% males) completed questionnaires assessing eating behaviors, affect, self-esteem and attitudes toward exercise. Almost 48% of the participants reported that their exercise is motivated by weight/shape reasons. These individuals were more likely to report eating problems and more positive affect after exercising. For both groups, gender, ideal weight, and the impact of weight gain on self-esteem significantly predict disordered eating. Body mass index, affect, and attitudes toward exercise also emerged as predictors for the health reasons group. Weight and shape control reasons for exercise participation were very common and related to eating disturbance.

**Keywords:** exercise; health reasons; weight and shape reasons; eating disturbance.

## **Exercising for weight and shape reasons vs. health control reasons: The impact on eating disturbance and psychological functioning**

The psychological and physiological benefits of exercise are well-known, and exercise participation is a positive experience for most people. However, this participation is also associated with body dissatisfaction (Silberstein, Striegel-Moore, Timko, & Rodin, 1988) as well as the development and maintenance of eating problems and eating disorders (Garner, Rosen, & Barry, 1998). One explanation for these negative effects is related to the motives people have for exercising, which can indicate whether individual participation in exercise is more or less autonomous and self-directed (Markland & Ingledew, 2007).

Thus, the study of motives for exercising is significant because motives and reasons can have an impact on exercise behavior and affect (Frederick-Recascino, 2002). At this level, research has demonstrated that the reasons or motives people report are often related to eating disorders (Cash, Novy, & Grant, 1994; Furnham, Badmin, & Seade, 2002; Hubbard, Gray, & Parker, 1998; Ingledwen & Sullivan, 2002; Maltby & Day, 2001; Markland & Ingledew, 2007; McDonald & Thompson, 1992; Strelan, Mehaffey, & Tiggermann, 2003; Tiggermann & Williamson, 2000).

Being so, the first aim of this study was to investigate the prevalence of exercise motivated by weight and shape control reasons compared to health reasons in exercisers at fitness centers. The second aim was to evaluate differences between these two groups in terms of eating patterns, affect, self-esteem, and attitudes toward exercise. The third aim was to evaluate which variables predict the development of disordered eating in both groups.

## Method

### Participants

In this study, 301 participants (161 males, 53.5%) between 14 and 79 years of age ( $M=25.8$ ;  $SD=8.89$ ) were recruited. They were all engaged in weight and fitness training at a fitness center, and none of them had competitive goals. Almost half of the participants ( $n=143$ , 47.5%) endorsed exercise motivated by weight and shape reasons, and 96 (31.9%) endorsed exercise motivated by health reasons (18.3% reported others reasons, and 2.3% did not report their reasons for exercising). It is important to note that groups didn't differed in terms of gender (Wald  $\chi^2=.025$ ,  $p=.875$ ,  $OR=1.04$ ), BMI ( $Z=-.180$ ,  $p=.857$ ), and age ( $Z=-1.34$ ,  $p=.179$ ).

### Measures

*Demographic and sport information.* Assesses personal (e.g., gender, age, weight, height, perception of ideal weight) and sport (e.g., type of exercise, exercise frequency, motivation for exercise) information. Participants were also asked to indicate if they were exercising in order to maintain, lose or increase weight.

*Eating Disorder Examination Questionnaire (EDE-Q;* Fairburn & Beglin, 1994; Portuguese adaptation by Machado, 2007). Assesses four subscales reflecting the severity of eating disorder symptoms over the past 28 days: i) restraint ( $\alpha=.74$ ); ii) eating concern ( $\alpha=.74$ ); iii) shape concern ( $\alpha=.86$ ); and iv) weight concern ( $\alpha=.75$ ). The EDE-Q also included six items assessing specific behaviors related to eating disorders, with four of these items evaluating binge-eating and compensatory behaviors over the past 28 days.

*The Positive and Negative Affect Schedule* (PANAS; Watson, Clark, & Tellegen, 1988; Portuguese adaptation by Galinha & Pais-Ribeiro, 2005). Assesses negative ( $\alpha=.87$ ) and positive ( $\alpha=.80$ ) affect by asking participants how they felt "immediately after exercising".

*The Weight Influenced Self-Esteem Questionnaire* (WISE-Q; Trottier, McFarlane, Olmsted, & McCabe, 2007; Portuguese adaptation by Bastos & Machado, 2008). In this case, respondents were instructed to imagine that they stepped onto a scale and saw that they had gained 5 lbs. Answers were then coded on two subscales of self-esteem: i) expected subscale, which measures the impact of weight gain in closely related areas such as appearance, self-control, physical fitness, and attractiveness ( $\alpha=.92$ ), and ii) generalized subscale, which measures the impact of weight gain in areas that are usually unrelated to weight, such as relationship, performance, morality, and personality ( $\alpha=.97$ ).

*Attitudes toward Exercise* (AE; Fishbein & Ajzen, 2010; Portuguese adaptation by Cruz et al., 2008). Assesses attitudes toward exercise using a 7-point bipolar adjective scale. The statement that precedes the adjective was "For me, practicing regular exercise is...". We established 12 pairs of adjectives (e.g., "useful-useless") that measured cognitive ( $\alpha=.83$ ), affective ( $\alpha=.72$ ), and behavioral ( $\alpha=.77$ ) dimensions of attitudes.

## **Procedure**

This study was approved by the University of Minho and followed ethical procedures as outlined in the Declaration of Helsinki. Being so, an initial request explaining the research goals and data collection procedures was sent to the fitness

centers. After approval from fitness center managers, participants were invited to take part in the study and were assured that their data would remain anonymous and confidential. Only participants who agreed to these conditions were included in the study, and all they provided written informed consent before participating.

## Results

### Disordered eating and exercise behavior

With eating disorder behaviors coded as either present or absent over the previous four weeks, logistic regression analysis revealed that participants in the weight and shape reasons group were significantly more likely to have a binge-eating episode and to report excessive exercising. Sixty-three (27.3%) individuals in the weight and shape reasons group reported experiencing a binge-eating episode over the past four weeks, compared to only 23 (10%) in the health reasons group (Wald  $\chi^2=9.54$ ,  $p<.05$ ; OR=2.49). Thirty-seven (16.1%) participants in the weight and shape reasons group reported excessive exercise over the past four weeks, while only 11 (4.8%) in the health reasons group reported exercising excessively (Wald  $\chi^2=7.03$ ,  $p<.01$ ; OR=2.70). There were no significant differences in self-induced vomiting (Wald  $\chi^2=.04$ ,  $p=n.s.$ ; OR=.860) and laxative use (Wald  $\chi^2=.09$ ,  $p=n.s.$ ; OR=.812).

Significant differences in the four dimensions of the Eating Disorder Examination Questionnaire (EDE-Q) were found, Wilks'  $\lambda=.92$ ,  $F(4, 230) = 4.87$ ,  $p<.01$ ,  $\eta^2=.08$ . Univariate tests showed that the weight and shape reasons group had higher scores on all the dimensions of EDE-Q. Likewise, this group scored higher on the EDE-Q global score,  $F(1, 234) = 15.32$ ;  $p<.001$ ,  $\eta^2=.06$ . All significant results from these analyses can be found in Table 1.

Table 1

**Differences between the groups in eating disorder behaviors and the psychological dimensions**

	<u>Weight/shape group</u>	<u>Health group</u>	
	(n=142) M (SD)	(n=93) M (SD)	<b>F</b> (1,233)
EDE-Q: Restraint	1.54 (1.32)	.94 (1.17)	12.66***
EDE-Q: Eating concern	.48 (.80)	.26 (.48)	5.69*
EDE-Q: Shape concern	1.81 (1.46)	1.20 (1.11)	12.06**
EDE-Q: Weight concern	1.91 (1.57)	1.17 (1.20)	15.12***
	(n=142) M (SD)	(n=94) M (SD)	<b>F</b> (1,234)
EDE-Q: Global score	1.47 (1.10)	.94 (.87)	15.32***
	(n=141) M (SD)	(n=96) M (SD)	<b>F</b> (1,235)
PANAS: Positive	3.49 (.67)	3.31 (.73)	3.98*
	(n=126) M (SD)	(n=82) M (SD)	<b>F</b> (1,206)
WISQ: Expected	2.38 (1.10)	2.08 (1.00)	3.95*

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

**Differences between the groups in other psychological dimensions**

There were no significant differences between the groups on the PANAS, Wilks'  $\lambda = .98$ ,  $F(2, 234) = 2.00$ ,  $p = .138$ ,  $\eta^2 = .02$ . However, univariate tests indicated that the weight and shape reasons group reported more positive affect after exercise (see Table 1). In terms of the WISQ subscales, there were no significant multivariate differences between the groups, Wilks'  $\lambda = .98$ ,  $F(2, 205) = 2.33$ ,  $p = .10$ ,  $\eta^2 = .02$ . However, univariate tests revealed that the weight and shape reasons group scored significantly higher on the WISQ-Expected scale (see Table 1). However, this result should be interpreted with caution because the underlying population distribution was not assumed to be normal



and the corresponding non-parametric test only revealed a marginally significant difference (Mann-Whitney U Test=.053).

### **Predictors of disordered eating behavior**

Regarding the prediction of disordered eating behavior in both groups of participants, we applied a regression analysis with blocked entry procedures, controlling for three personal variables (gender, BMI, and perception of ideal weight) and introducing psychological variables in the final block.

Starting with the weight and shape reasons group (see Table 2), we controlled participants' gender in the first block and found that female participants reported higher disordered eating behavior. In the second block, the BMI regressions coefficients were not significant. In block three, participants with an ideal weight lower than their current one reported more disordered eating behaviors. The inclusion of psychological dimensions in the final block resulted in a significant model accounting for 58% of the final variance in disordered eating behavior. In this case, more eating disorder behavior was predicted by a higher expected impact of weight gain on self-esteem.

For the health reasons group (see Table 2), we controlled for participants' gender in the first block and found that female participants reported higher disordered eating behavior. In the second block, it was added BMI being found that overweight participants reported higher eating disorder behavior. In block three, participants with an ideal weight lower than their current one reported more disordered eating behaviors. The inclusion of psychological dimensions in the final block resulted in a significant model accounting for 57% of the final variance in disordered eating behavior. In this case, more eating disorder behavior was predicted by higher positive affect, expected

impact of weight gain on self-esteem, and a more affective attitude toward exercise and, inversely, by lower behavioral attitudes toward exercise.

Table 2  
Regression model for the prediction of EDE-Q global score

<b>Weight and shape reasons group</b>				
	$R^2$ ( <i>Adj. R^2</i> )	$F$	$\beta$	$t$
<b>Block 1 - Gender<sup>a</sup></b>	.29 (.28)	(1, 111)=44.78***	-.54	-6.69***
<b>Block 2 - BMI<sup>b</sup></b>	.30 (.28)	(2, 110)=23.03***	.09	1.10 n.s.
<b>Block 3 - Perception of ideal weight<sup>c</sup></b>	.40 (.38)	(3, 109)=23.89***	-.43	-4.28***
<b>Block 4 - Psychological dimensions</b>	.61 (.58)	(10, 102)=16.17***		
WISQ: Expected			.50	4.44***
<b>Health reasons group</b>				
	$R^2$ ( <i>Adj. R^2</i> )	$F$	$\beta$	$t$
<b>Block 1 - Gender<sup>a</sup></b>	.09 (.07)	(1, 66)=6.21*	-.29	-2.49*
<b>Block 2 - BMI<sup>b</sup></b>	.19 (.17)	(2, 65)=7.73**	.33	2.92**
<b>Block 3 - Perception of ideal weight<sup>c</sup></b>	.28 (.25)	(3, 64)=8.40***	-.36	-2.84**
<b>Block 4 - Psychological dimensions</b>	.63 (.57)	(10, 57)=9.75***		
PANAS: Positive affect			.22	2.38*
WISQ: Expected			.29	2.23*
AE: Affective			.24	2.24*
AE: Behavioral			-.31	-3.02**

<sup>a</sup>**Gender:** 0-Female; 1-Male; <sup>b</sup>**BMI:** 0-Normal weight; 1-Overweight; <sup>c</sup>**Perception of Ideal Weight:** 0-Lower than the current weight; 1-Same or higher than current weight

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; n.s.=not significant

## Discussion

Results of this study suggest that weight and shape control reasons for exercise participation are very common in people exercising at fitness centers. In fact, almost half of the participants in this study reported these motives for exercise engagement.

However, contrary to other studies, no significant gender differences were found for sport and exercise participation motives (Silberstein et al., 1988; Tiggerman & Williamson, 2000).

The group with weight and shape reasons was at a greater risk of having experienced a binge-eating episode and having exercised excessively. In addition, this group had significantly higher scores on all subscales of the EDE-Q. Other studies have also found the relation between eating disturbance and weight/shape motives for engaging in exercise and sports (Furnham et al., 2002; Hubbard et al., 1998; Mond et al., 2005; Strelan et al., 2003). In the other psychological dimensions, this group experienced more positive affect after exercising and also reported a higher impact of weight gain on expected self-esteem domains. However, a nonsignificant difference between groups on the Generalized subscale of the WISE-Q could mean that they do not differ in core weight-related self-esteem beliefs (McFarlane, Olmsted, & Trottier, 2008). These results are important because groups did not differ in body mass index or age.

Results of the regression analysis revealed the importance of personal variables for both groups and of BMI for the health reasons group. More specifically, women in both groups were at a greater risk of eating problems, being this result consistent with other studies (Adkins & Kee, 2005; Mond, Hay, Rodgers, & Owen, 2006). Also, the desire to weigh less predicted eating disturbance in both groups, being this result remarkable if we take into account that more than half of participants had a normal weight. At least, having a higher BMI was associated with eating disturbance for the health reasons group. This finding is consistent with other studies showing that obesity is strongly associated with the development of bulimia nervosa and eating problems (Fairburn, Welch, Doll, Davies & O'Connor, 1997; Nishimura et al., 2008). Regarding

the psychological dimensions, expected self-esteem emerged as a significant predictor of EDE-Q global score in both groups, and eating behavior disturbance was also significantly explained by affect and attitudes in the health reasons group. Importantly, regression models for both groups explained a significant proportion of variance in disordered eating behavior (58% for the weight/shape group and 57% for the health reasons group).

In conclusion, this study reveals an interesting relationship between eating disturbance and psychological variables among people with different reasons for exercising. Besides, personal variables also interfere in the relationship between eating disordered behavior and reasons for exercise. It is important that researchers and clinicians be also aware that exercise related to weight and shape reasons is not always a health-promoting behavior.

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