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# Body image dissatisfaction and aesthetic exercise in adolescents: Are they related?

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## Abstract

This study investigated if boys and girls who practice exercises with aesthetic propose report higher levels of body dissatisfaction compared to their inactive peers. A total of 199 adolescents (89 boys), mean age 16.1 years, completed measures of body dissatisfaction and psychological commitment to exercise. Results demonstrated that active boys presented lower dissatisfaction than their inactive peers; and active girls were significantly more dissatisfied than inactive ones. Active boys were more satisfied than active girls. The majority of active girls reported a desire for a slimmer silhouette; while active boys were equally divided between those who desired a heavier silhouette and those who were satisfied. Psychological commitment to exercise did not differ between satisfied and dissatisfied active adolescents. Thus, girls who practice aesthetic exercises must be looked at as a high risk population to the development of health harmful behaviors and eating disorders.

**Keywords:** body image; perception; exercise; esthetics; adolescent.

## Resumo

*Insatisfação com a imagem corporal e exercício estético em adolescentes: Eles estão relacionados?* Este estudo investigou se adolescentes que praticam exercícios com finalidades estéticas reportam maiores índices de insatisfação comparados a adolescentes inativos. Um total de 199 adolescentes (89 meninos), idade média de 16,1 anos, completaram medidas de insatisfação corporal e comprometimento psicológico com o exercício. Os resultados demonstraram que meninos ativos apresentaram menor insatisfação que meninos inativos e meninas ativas foram mais insatisfeitas que as inativas. Meninos ativos foram mais satisfeitos que as meninas ativas. A maioria das meninas ativas deseja uma silhueta menor, enquanto meninos ativos foram igualmente divididos entre aqueles que desejaram pesar mais e os que estavam satisfeitos. O grau de comprometimento psicológico com o exercício não foi diferente entre os adolescentes ativos satisfeitos e insatisfeitos. Portanto, adolescentes, especialmente as meninas, que praticam exercícios com finalidades estéticas são extremamente insatisfeitos e devem ser considerados uma população de risco para o desenvolvimento de comportamentos prejudiciais à saúde e transtornos alimentares.

**Palavras-chave:** imagem corporal; percepção; exercício; estética; adolescente.

## Resumen

*Insatisfacción con la imagen del cuerpo y el ejercicio estético en adolescentes: ¿Están relacionados?* Este estudio investigó si los adolescentes que hacen ejercicio con fines estéticos reportan mayores niveles de insatisfacción en comparación con los inactivos. Un total de 199 adolescentes (89 niños), edad de media de 16,1 años completaron lo estudio. Los resultados mostraron que los niños más activos eran menos insatisfechos que los inactivos; y que las niñas activas fueron más insatisfechas que las inactivas. Los niños activos fueron más satisfechos que las niñas activas. Las niñas activas deseaban una silueta más pequeña, mientras que los niños activos se dividen por igual entre los que deseaban llegar a pesar más y los que estaban satisfechos. El grado de compromiso psicológico con el ejercicio no fue diferente entre activos satisfechos e insatisfechos. Por lo tanto, las niñas que hacen ejercicio con fines estéticos se consideran como población de riesgo para el desarrollo de conductas no saludables y los trastornos alimentarios.

**Palabras clave:** imagen corporal; percepción; ejercicio; estética; adolescente.

Many researches on body image have focused on adolescents, who have been extensively studied in this area because, during this time, body satisfaction has a central role as risk factor for several psychopathologies, including eating disorders (Jones & Crawford, 2005). Recent studies have demonstrated that, in Brazil, 60-80% of adolescents are dissatisfied with some aspect of their bodies (Adami, Frainer, Santos, Fernandes, & De-Oliveira, 2008; Corseuil, Pelegrini, Beck, & Petroski, 2009; Petroski, Pelegrini, & Glaner, 2009). It is known that body image (dis)satisfaction derives substantially from the degree of discrepancy/congruence between one's self-perceived body and the personally valued body ideal (Cash, 2011). Thus, if the ideal body were correspondent to an unattainable silhouette by the majority of people, dissatisfaction is a likely consequence.

Nearly all researches agree that the female ideal body in a vast range of Western societies (e. g. USA, England, Australia, Canada) is an unrealistically thin silhouette; while male's ideal body is exemplified as a muscular mesomorphic shape (Grogan, 2010; Forbes et al., 2012). In this same direction, the standard of beauty for girls/women in Brazil is also an imitation of foreign models, that is, a non-curvaceous body (Goldenberg, 2010). For boys/men, it is suggested that a normal weight body (or even slight overweight), but defined and toned, is considered ideal to Brazilians (Laus, 2012).

The most used theory to explain the influence of these ideals in body image disturbances is the Tripartite Influence Model proposed by Thompson, Heinberg, Altabe and Tantleff-Dunn (1999). According to these authors, the sociocultural standard of beauty is transmitted by the family, peers and media and its impact is mediated through internalization of this ideal figure and social comparison with it. So, an individual who believes that the body propagated by the media/society as ideal is, in fact, the goal to be achieved, tend to compare his/her own silhouette with these superior others, and the discrepancy between the images leads to the dissatisfaction.

Frequent researches with adolescent girls have explored body dissatisfaction related to weight and shape distresses (Wertheim & Paxton, 2012), and it has been seen that the majority of girls report a desire to be thinner (Banitt et al., 2008; Schneider et al., 2013); inclusive in Brazil (Pereira, Graup, Lopes, Borgatto, & Daronco, 2009; Petroski et al., 2009), even when they are under/normal weight (Banitt et al., 2008; Corseuil et al., 2009; Laus, Braga Costa, & Almeida 2011).

Traditionally, the higher extent of dissatisfaction among girls has been explained by the fact that they respond with greater intensity to the imposition of the body ideals than boys (Knauss, Paxton, & Alsaker, 2007; Lawer & Nixon, 2011). However, while beauty has typically been a woman's prerogative and responsibility in Western societies, a recent body of evidence suggests that sociocultural attitudes toward the male body are changing over the past 20 years. Men are moving further than ever before along a continuum of 'bodily concern' and are reporting a greater degree of negative body image than in previous generations (Garner, 1997).

Among boys, data reveal that body dissatisfaction is reflected in a desire by some to lose weight, and a desire by others to gain

weight (Laus et al., 2011; Banitt et al., 2008). This division is probably due to the relationship between body dissatisfaction and Body Mass Index (BMI) in males. As Jones and Crawford (2006, p. 258) affirmed, "...at the same time, there is reason to be concerned about being either underweight or overweight for boys", probably because in both conditions, they are less likely to approach the sociocultural ideal body. Moreover, Jones and Crawford (2005) highlight that it is important to consider that body dissatisfaction in males has two different aspects, weight and muscular build. The results found by these authors in their study about weight and muscularity concerns in 128 adolescent boys, demonstrated that elevate adiposity was linearly related to body dissatisfaction and preoccupation with weight; and that the boys who were concerned with muscularity were not those with elevated BMI, but the ones with lower BMIs, who wanted to improved their muscular build. Therefore, it is undeniable that understanding body dissatisfaction among males is more complex than among females.

The high prevalence of boys and girls wishing a different silhouette is preoccupying. In general, the current state of knowledge shows that body dissatisfaction represents an important risk factor for body change strategies such as skipping meals, dieting, and exercising excessively (Schneider et al., 2013). Indeed, a longitudinal study conducted with 593 girls (9-20-year-old) by Westerberg-Jacobson, Edlund and Ghaderi, (2010), concluded that girls who wished to be thinner dieted and skipped meals more often and thought that they would be more popular if they were thinner. Moreover, they were 4 times more likely to develop disturbed eating attitudes over a five-year period than girls without such a wish. As well as for girls, the increasing rates of body dissatisfaction among boys are motive of concern, due to its relation to unhealthy weight-control behaviors, disordered eating, and decreased self-esteem in males (Grogan, 2008).

Thus, what is agreed by nearly all researchers is that the pressure to accomplished the beauty standard for girls and boys has been resulting in people's attempts to manipulate their body size and shape, which are difficult to achieve without dieting, exercise, or both (Hausenblas & Fallon, 2006). Hence, it is not surprising that body image management is a strong motivator of physical activity and that there is a plethora of research examining the relationship between exercise and body image (Kirkcaldy, Shephard, & Siefen, 2002).

Physical activity has been recognized as an important component of physiological and psychological health (Slater & Tiggemann, 2011). Nevertheless, the body of research examining its relationship to body image is less conclusive (Slater & Tiggemann, 2006). On the one hand, many studies report a significant inverse relationship between physical activity and body image dissatisfaction, showing that exercisers have a better body image than nonexercisers (Gillison, Standage, & Skevington, 2011; Matias, Rolim, Kretzer, Schmoelz, & Andrade, 2010). A meta-analytic review conducted by Hausenblas & Fallon (2006) found that exercise was associated with a more positive body image, possible because exercisers more closely resemble the aesthetic ideal physique than nonexercisers. Additionally, this finding may also be due to

the fact that participation in physical activity is associated with increases in perceived physical self-efficacy (Gini & Basset, 2012) and psychological well-being, which are related to a positive body image (Landers & Arent, 2001).

However, not all activities are positively related to a better body image. Often, aesthetic exercises are viewed as a way to achieve the sociocultural ideal body for both males and females. Even though Schneider et al. (2013) have found that participating in an esthetic sport was correlated with a significantly lower body dissatisfaction in girls, some researchers have found that participation in sports and activities that have a strong focus on appearance is related to higher levels of body image concern (Slater & Tiggemann, 2011; Tiggemann & Williamson, 2000).

Past work suggests that adolescent boys and girls differ in terms of motivation to exercising. Although boys are significantly less likely than girls to be motivated to exercise for appearance reasons, a significant proportion of males use exercise to try to change the way that they look (Grogan, 2008). Moreover, some authors affirm that exercise may be more of a necessity to achieving a desired body shape for boys than it is for girls (Gillison et al., 2011). Contrarily, Grogan, Conner and Smithson (2006) found that women are more likely than men to exercise to improve their appearance in general.

An important consideration to be done regarding the relations between exercise and body image is that the sociocultural pressure suffer by boys and girls to achieved the ideal body can persuade these adolescents to develop an exacerbate commitment to exercise, also known as exercise dependence. Gini and Basset (2012) argue that the strong emphasis given to appearance nowadays is leading non-clinical populations to exercise too much, what is rarely criticized in contemporary societies.

In sum, research about the relationship between body image dissatisfaction and exercise is still extremely controversial. Are active boys and girls who practice aesthetic exercises less satisfied with their bodies than their inactive peers? Are these girls more dissatisfied with their silhouettes than these boys? Do these girls want to be thinner? Do these boys want to be heavier? All these questions remain unanswered, thus, assuming that the pursuit for exercises may be motivated by appearance concerns, we asked whether or not adolescents who practice physical activities that have strong emphasis in appearance are more dissatisfied with the size of their bodies than sedentary adolescents. The aim of this article is not to establish causal links between dissatisfaction and exercise practice, but to evaluate body image patterns in a population that has been neglected in terms of research and strategies of intervention. There is no study in Brazil that had explored any aspect of this important construct in a sample of non-clinical and non-athletic adolescents who practice physical activities that are known by their prominence in aesthetical features.

Given previous international findings with respect to boys/girls' motivations to exercising, we hypothesize that: (1) adolescents who participate in aesthetic exercises will report higher levels of dissatisfaction with their silhouettes when compared to their inactive peers; (2) dissatisfaction will be exhibited in a higher extent among active girls when compared

to active boys; (3) active girls will present a desire for a thinner silhouette, while active boys will prefer a heavier figure; and (4) active adolescents satisfied with their silhouettes will be less psychologically committed to exercise than their dissatisfied peers.

## Method

### Participants

A total of 199 adolescents (89 boys and 110 girls) agreed to participate in this cross-sectional study. Of these, 100 (52 boys and 48 girls) performed aesthetic exercises, which were defined as those that have a strong emphasis on appearance or thinness (e.g. gymnastics, aerobics and doing weights), at eight fitness centers representing a variety of socio-economic and geographic areas in the city of Ribeirao Preto, SP. The remaining 99 (37 boys and 62 girls) did not practice any kind of physical activity. To ensure the inclusion of subjects from all socioeconomic strata, five public schools and five private schools were selected in the city. Subjects were randomly recruited to voluntarily participate in the study and there were no refusals during data collection. Participants ranged in age from 14 and 18 years ( $M = 16.1$ ,  $SD = 0.1$ ). Inclusion criteria were to be older than 14 and younger than 18 years old, had present the informed consent assigned by the parents/responsible, and be regularly enrolled in the school/fitness center. Exclusion criteria were physical deficiency and pregnancy.

Anthropometric characteristics of the sample are presented in Table 1. Note that there was no homogeneity among groups of nutritional status. Taking into account the importance of BMI in aspects related to body image, this index was assumed as a covariate in all analysis performed subsequently.

Table 1  
*Descriptive Anthropometric Characteristics of the Sample, by Gender and Group*

Analytical categories	Boys		Girls	
	Active	Inactive	Active	Inactive
n	52	37	48	62
Weight <sup>†</sup> (kg)	67.9 ± 1.7	62.3 ± 2.3	59.9 ± 1.8	55.9 ± 1.1
Height <sup>†</sup> (cm)	173.9 ± 1.0	170.9 ± 0.9	160.5 ± 0.8	160.9 ± 0.7
Nutritional status <sup>‡</sup>				
Underweight	3.8	2.8	0.0	0.0
Normal Weight	75.1	72.9	72.9	85.5
Risk of Overweight	17.3	16.2	18.8	9.7
Overweight	3.8	8.1	8.3	4.8
Total	100	100	100	100

<sup>†</sup>Data are reported in kg/m<sup>2</sup> as mean ± Standard Error. <sup>‡</sup>Data are reported in percentage.

### Measures

**Body Mass Index (BMI).** Quetelet's Body Mass Index (BMI) was calculated as the ratio of weight (kg) to height (m)

squared. Participants were clothed but shoes were removed prior to measuring height and weight. Weight was measured using an electronic calibrated scale (Kratos-Cas, Brazil) and height was measured using a portable anthropometer (Kratos-Cas, Brazil) set against the wall, ensuring accurate subject posture before reading the fixed marker. Nutritional status was defined by the age- and sex-specific percentile of BMI based on Ministry of Health (Brazil, 2007) parameters. Weight and height data were processed with the EpiInfo<sup>®</sup> software, which classified each individual according to the percentile limits as follows: underweight  $P < 3$ ; normal weight  $P3 - P < 85$ ; overweight  $\geq P85 - P < 97$ , and obesity  $P \geq 97$ .

*The Figure Rating Scale (FRS).* Body dissatisfaction was evaluated using a Figure Rating Scale (FRS), developed and validated to the Brazilian population by Kakeshita (2008). The instrument comprises a set of fifteen figure drawings of each gender presented on separate cards showing escalating measures, from leaner to wider drawings. Each figure corresponds to a mean BMI ranging from  $12.5 \text{ kg/m}^2$  (thinnest) to  $47.5 \text{ kg/m}^2$  (heaviest), with constant increment of  $2.5 \text{ kg/m}^2$  between each one. The scale was presented in ascending order and participants had to indicate the figures that best represented their choices for each of the following instructions: "Which figure describes better the size of your body" (Current), and "Which figure describes better the silhouette that you would like to have" (Desired).

Body dissatisfaction was assessed by comparing the figures selected as "Desired" and "Current". In case of selection of the same figures, participants were classified as satisfied with their silhouette. When the figure "Desired" was higher than the one chosen as "Current", it was considered that participants wanted to increase their body size, and when it was smaller, there were a desire to decrease it. These data were analyzed as a percentage. To interpret the degree of extent of dissatisfaction, Kakeshita (2008) proposed the evaluation of data as continuous variables. Dissatisfaction was represented as the discrepancy between current and desired BMI (Desired BMI – Current BMI). In this case, results are given as mean (Standard Error), and the closer to zero the lower is the dissatisfaction. Negative results indicate a desire for a smaller silhouette, while positive results indicate a desire for a larger silhouette.

The scale had its reliability tested in a sample of 112 adolescents (55 boys and 57 girls), aged between 14 and 17 years old, with a 1-month interval (Laus, Murarole, Braga Costa, & Almeida, 2013). Results of this first step of the adaptation process demonstrated values of  $r_{\text{icc}} = .977$  for boys,  $.962$  for girls and  $.971$  for the total sample ( $p < .01$  in all analysis).

*The commitment to exercise scale (CES).* This is an eight-item questionnaire created by Davis, Brewer and Ratusny (1993) to assess an individual's psychological commitment to the activity of exercising and assesses the degree to which feelings of well-being are influenced by exercising, the degree to which adherence to exercise is maintained in the presence of various adverse conditions, and the extent to which one's exercise regimen interferes with social commitments. Below each item there is a horizontal line (155 mm) with appropriate bipolar adjectives placed at each end (e.g., "never", "always"), and subjects were asked to mark the point which best described

their position on the continuum. The distance from the beginning of the line to the point marked constitutes the score for each item.

Initially, the CES was translated to the Brazilian Portuguese by Assunção, Cordás and Araújo (2002), but did not have its psychometric characteristics tested. However, later, Teixeira, Hearst, Matsudo, Cordás and Conti (2011) tested it in a sample of undergraduates. The results of this recent study demonstrated that the instrument presented an excellent index of verbal comprehension, a Cronbach's alfa value of  $.79$  and good degree of concordance in its content validation analysis. Thus, according to the authors, the satisfactory results of the adaptation process permit the recommendation of the CES Brazilian version. Although this version were not tested in adolescents, it has been used by some authors in non-clinical samples of boys and girls between 10 and 19 years old and the internal consistency found within this range of age was  $.85$  (Fortes, Miranda, Amaral, & Ferreira, 2012).

### Procedure

This project was approved by the Institutional Ethics Committee (Process CEP-FFCLRP No. 236/2005 – 2005.1.1869.59.7). Data collection was carried out in rooms provided by the schools and fitness centers and comprised the application of the FRS, weight and height measurements and self-administration of the CES. All data were collected in 2008 by one investigator trained in the use of the instruments. Written informed consent was obtained from all subjects and from their parents.

## Results

It is suggested that some kind of exercises (e.g. aesthetic exercises) has been associated with negative body image in regular exercisers. In order to test if adolescents who participate in these types of activities would report higher levels of dissatisfaction with their silhouettes when compared to their inactive peers, we performed a Qui-square test (Table 2). Among boys, prevalence of participants that were satisfied with their bodies or that chosen as desired a smaller/larger silhouette when compared to their current figures was not different between active and inactive groups. Additionally, only a third of active boys selected as desired the same silhouette chosen as current. On the other hand, a significant difference in prevalence of girls who desired a heavier silhouette was found between the groups. To test if the extent of (dis)satisfaction would be different between active and inactive boys and girls, we conducted a one-way ANCOVA, using the BMI as covariate (Table 3). Results demonstrated that active boys presented a mean dissatisfaction significantly lower when compared to their inactive peers; while active girls were significantly more dissatisfied than inactive ones. Note that these data confirm only partially our first hypothesis.

There is no consensus in literature about the relationship between exercise and body image in males and females. Thus, considering that norms related to appearance are more rigid for women, we hypothesized that dissatisfaction would be exhibited in a higher extent among active girls when compared to active



Table 2

*Absolute and Relative Frequencies of Desired Body Silhouette, According to the Figure Rating Scale, by Gender and Group*

Analytical categories	Boys				Differences			Girls				Differences		
	Active		Inactive		$\chi^2$	df	p	Active		Inactive		$\chi^2$	df	p
	n	%	n	%				n	%	n	%			
Slimmer	13	25.00	15	40.54	1.66	1	.198	39	81.25	35	56.45	2.47	1	.116
Same	19	36.54	9	24.32	1.02	1	.311	8	16.67	11	17.74	0.02	1	.893
Heavier	20	38.46	13	35.14	0.06	1	.799	1	2.08	16	25.81	9.86	1	.002

a = .05

Table 3

*Mean (SE) of Real BMI, Mean (SE) BMI Chosen as Current and Desired (in kg/m<sup>2</sup>) and Correspondent Figure in the FRS, Mean (SE) for Body Image Dissatisfaction (kg/m<sup>2</sup>) and Commitment to Exercise (CES), by Gender and Group*

Analytical categories	Boys				Differences <sup>+</sup>			Girls				Differences <sup>+</sup>		
	Active	Figure	Inactive	Figure	F	df	p	Active	Figure	Inactive	Figure	F	df	p
BMI*														
Mean	22.43		22.30					23.21		21.60				
SE	0.51		0.64					0.64		0.41				
IC	21.41 – 23.45	5	20.82 – 23.77	5	0.02	1	.876	21.92 – 24.49	5	20.77 – 22.43	4	4.79	1	.031
Min-Max	15.12 – 39.40		16.00 – 35.61					17.65 – 37.42		17.33 – 32.91				
Current														
Mean	24.50 <sup>a</sup>		25.31 <sup>a</sup>					27.29 <sup>b</sup>		26.89 <sup>b</sup>				
SE	0.48		0.57					0.50		0.44				
IC	23.08 – 26.14	6	23.01 – 27.52	6	1.87	1	.175	26.91 – 29.75	7	24.46 – 27.54	7	0.65	1	.421
Min-Max	12.50 – 47.50		12.50 – 42.50					20.00 – 40.00		12.50 – 42.50				
Desired														
Mean	24.93		23.93					22.86		24.29				
SE	0.48		0.62					0.55		0.48				
IC	23.83 – 26.08	6	22.73 – 25.10	6	1.53	1	.219	21.82 – 24.22	5	23.22 – 25.07	6	5.41	1	.022
Min-Max	12.50 – 35.00		12.50 – 30.00					12.50 – 32.50		17.50 – 32.50				
Dissatisfaction														
Mean	0.43 <sup>a,c</sup>		-1.39 <sup>a</sup>					-4.43 <sup>b,d</sup>		-2.59 <sup>b</sup>				
SE	0.60		0.71					0.63		0.55				
IC	-0.75 – 1.61	-	-2.79 – 0.01	-	5.61	1	.020	-5.67 – -3.19	-	-3.68 – -1.50	-	6.51	1	.012
Min-Max	-22.50 – 12.50		-20.00 – 10.00					-20.00 – 2.50		-17.50 – 7.50				
CES														
Mean	74.27 <sup>x</sup>		42.73 <sup>y</sup>					83.84 <sup>x</sup>		37.09 <sup>y</sup>				
SE	3.25		3.85					3.40		2.99				
IC	67.86 – 80.69	-	35.12 – 50.33	-	33.66	1	.000	77.12 – 90.56	-	31.18 – 43.00	-		1	.000
Min-Max	29.25 – 137.75		0.00 – 91.40					20.70 – 140.37		5.30 – 100.70				

Means with the different subscript are significantly different, using an ANCOVA test and sequential Bonferroni corrections to maintain a family-wise alpha level of .05. \*One-way ANOVA (between active and inactive groups within the same gender); \*One-way ANCOVA (between active and inactive groups within the same gender); <sup>a,b</sup>Two-way MANCOVA (gender x group): [ $F_{(1,194)} = 18.99$ ;  $p < .001$ ]. a = .05

boys. A two-way ANCOVA was performed, again, using the BMI as covariate. Results in Table 3 demonstrate that dissatisfaction was significantly higher between all females, and also that active boys were more satisfied than active girls. According to these data, our second hypothesis was confirmed.

The current standard of beauty socioculturally imposed by a variety of vehicles is an extremely thin body for girls and a normal/overweight defined body for boys. In this sense, we hypothesized that active girls would present a desire for a thinner silhouette, while active boys would prefer a heavier figure. In fact, it can be seen in Table 3 that the majority of girls who were engaged in exercise practice reported a desire for a slimmer silhouette; however, active boys were equally divided between those who desired a heavier silhouette and those who were satisfied. Interestingly, results in Table 3 demonstrate that the mean BMI chosen as current and desired by active boys corresponded to the figure number 6 of the scale, whereas mean

BMI chosen as current by active girls (figure 7) was much heavier than the figure that corresponded to their desired body (figure 5). So, our third hypothesis was confirmed only in part.

Commitment to exercise is known as a factor related to body image disturbances. To verify whether or not active adolescents satisfied with their silhouettes would be less psychologically committed to exercise than their dissatisfied peers, we conducted a one-way ANCOVA using the classification of body dissatisfaction as independent variable, the BMI as co-variable and the mean score on the CES as dependent variable. It can be seen in Table 4 that no differences were found among the groups, fact that contradict our fourth hypothesis.

## Discussion

Here we investigated whether or not adolescents who practice physical activities that have strong emphasis in

Table 4  
*Mean (SE) of the CES by Desired Silhouette Classification in Active Boys and Girls*

Analytical categories	Desired Silhouette			Differences*		
	Slimmer	Same	Heavier	<i>F</i>	<i>df</i>	<i>p</i>
Boys						
Mean	77.32	73.27	73.23	0.522	2	.596
SE	6.73	7.60	4.45			
IC	62.67 – 91.98	57.29 – 89.26	63.91 – 82.56			
Min - Max	36.25 – 122.50	29.75 – 137.80	29.30 – 109.00			
Girls						
Mean	82.28	89.78	95.80	0.389	2	.680
SE	3.61	7.45	-			
IC	73.69 – 90.87	72.16 – 107.40	-			
Min - Max	20.70 – 140.37	62.80 – 126.00	-			

\*One-way ANCOVA (between active and inactive groups within the same gender).  $\alpha = .05$

appearance are more dissatisfied with the size of their bodies than sedentary adolescents. First, results demonstrated that active boys experienced lower extent of body dissatisfaction when compared to their inactive peers; while active girls were significantly more dissatisfied than inactive ones. There are some possible explanations to why active boys presented lower means of body dissatisfaction, even though only 36.54% of them were classified as satisfied. First, although not statically different, there was almost twice the number of active boys classified as satisfied when compared to sedentary ones; thus, by having such a higher prevalence of individuals that scored 0 (zero) in the scale, their mean were lower. Second, although their real mean BMI was 22.43 kg/m<sup>2</sup>, they perceived themselves as having a mean BMI of 24.50 kg/m<sup>2</sup>, and desired a mean BMI equal to 24.93 kg/m<sup>2</sup>. Thus, the misperception of their real body size may bring them to closer to their ideal silhouette, fact also observed earlier by other authors (Fallon & Rozin, 1985; Zellner, Harner & Adler, 1989). Contrarily, sedentary boys selected as desired a lower mean BMI than the one chosen as their current. Still, it is also even possible that they are dissatisfied in a lower extent because of the exercise per se, since some authors have found

that boys who exercise report higher levels of body satisfaction, which is positively associated with the maintenance of exercise participation (Gillison et al., 2011).

Concerning to girls, our hypothesis was confirmed. Although only about 1/6 of all females were satisfied with their silhouette, a great proportion of active girls wished to be thinner and only one chosen a heavier figure as desired. Moreover, the extent of dissatisfaction was significantly higher among those who practiced some kind of exercise. It is possible that, as supposed by Slater and Tiggemann (2011), many features that may elevate body dissatisfaction in girls are contained in fitness center environment (e.g. mirrors, images of ideal female bodies, wearing of tight and revealing exercise clothing). Moreover, it is also considerable to assume that these girls were already dissatisfied with their bodies in such a high extent that they started an exercise program as a weight management attempt (Slater & Tiggemann, 2006).

We also were interested in comparing the extent of dissatisfaction between active boys and girls. Data reveal that active boys were more satisfied than active girls, confirming our second hypothesis. The extent to which girls experience

body dissatisfaction may be explained by the period of life. Contrarily to boys, whose changes observed at the onset of puberty include body mass gain; girls experience an increase in body fat, what take them far away from the idealized slim female figure (McCabe & Ricciardelli, 2006). Alternatively, differences in motivations to exercise might be a plausible explanation. Although these factors were not investigated in the present study, intuitive explanations make sense. Even though some authors have found that boys also exercise by appearance reasons (Grogan, 2008; Gillison et al., 2011) such motivation are unquestionable among females. Past and recent studies have demonstrated that concerns about achieving or maintaining a slim body shape motivated participation in physical activities among young girls (Allender, Cowburn, & Foster, 2006; Gillison, Sebire, & Standage, 2012).

We hypothesized that active girls would present a desire for a thinner silhouette, while active boys would prefer a heavier figure. In fact, the majority of girls who were engaged in exercise practice reported a desire for a slimmer silhouette; however, active boys were equally divided between those who desired a heavier silhouette and those who were satisfied. For girls, this result was expected due to the high pressure they suffer to achieve a thin body. For boys, on the other hand, the duality observed in the core of dissatisfaction may help to understand this result. As was previously mentioned, the desire to develop muscularity and also the desire to control weight are considered as important issues associated with male body satisfaction (Jones & Crawford, 2005; van den Berg, 2012). Importantly, the FRS used in the present study is able to assess specifically individuals' opinions and desires regarding thinness/heaviness. Thus, any supposition raised by us will be restricted to this. It seems that a great part of the boys was concern about their weight. One quarter of those who were engaged in aesthetic exercises reported a desire to be thinner, while almost 40% wished a heavier silhouette. Considering that only two participants were classified as underweight, it is plausible to assume that among those who desired a heavier silhouette, the majority was eutrophic. Additionally, eleven participants were classified as overweight what leaded us to assume that these are the ones that chosen a smaller silhouette.

Finally, it was hypothesized that active adolescents satisfied with their silhouettes would be less psychologically committed to exercise than their dissatisfied peers. We found no differences in mean scores of the CES between satisfied and dissatisfied active boys and girls; and no significant correlations between the two measures. Our hypothesis was based in the idea that adolescents who are dissatisfied tend to engage more frequently in weight-control behaviors, including exercise (Grogan, 2008; Schneider et al., 2013); thus, they would pay more importance to exercising them their satisfied peers. Some studies have also investigated the relationship between body satisfaction and commitment to exercise, and our findings agree with data obtained from other non-clinical Brazilian samples, which likewise found no relationship between exercise commitment and body dissatisfaction (Fortes et al., 2012; Nunes, Lopes, Damasceno, Miranda, & Bara Filho, 2007).

We are aware of the limitations of the study. First, we evaluated body dissatisfaction using a FRS, which does not accomplish muscularity questions about males' body image. Thus, it is possible that a number of boys did not find in the scale the silhouette that best represent their desired body. Second, the lack of homogeneity of BMI classes did not allow us to examine possible differences in body image disturbances among the groups. Finally, by being a cross-sectional study, cause-effect relationship between body image and exercise cannot be determined by our data. Some authors have considered dissatisfaction as a cause by identifying pressure to conform to popular ideals of beauty as important reasons for adolescents being physically active (Allender et al., 2006); and also by believing that it is quite possible that girls with increased body image concerns choose to engage in particular types of exercise in an attempt to change their weight or shape (Slater & Tiggemann, 2011). However, is also possible to presume dissatisfaction as a consequence by affirming that participation in exercise at the gym leads to elevated body image concerns; and also that perhaps dissatisfaction is experienced by young women as result from a disappointment by not achieve the desired body (Davis & Cowles, 1991). Anyhow, assumptions of a causal relationship require further research; and longitudinal studies are essential to examine and understand the temporal relationships between physical activity and body image during the period of adolescence (Slater & Tiggemann, 2011).

Nonetheless, FRS has long been used to evaluate dissatisfaction with weight; and the importance that BMI plays in body image aspects, especially among boys (Ricciardelli, 2012), attests the legitimacy and significance of researches about the theme. Our data are of great importance and adds to the raising state of knowledge on the theme by demonstrating that adolescents, specially females, who practice exercises with strong emphasis in appearance present extremely high rates of body dissatisfaction and must be looked at as a high risk population to the development of harmful behaviors to lose/control weight and eating disorders.

## Conclusion

In sum, this study sought to investigate if boys and girls who practice exercises with aesthetic propose report higher levels of body dissatisfaction compared to their inactive peers. Results demonstrated that active boys presented a mean dissatisfaction significantly lower when compared to their inactive peers and active girls were significantly more dissatisfied than inactive ones. Dissatisfaction was significantly higher between all females, and active boys were more satisfied than active girls. The majority of girls who were engaged in exercise practice reported a desire for a slimmer silhouette; while boys were equally divided between those who desired a heavier silhouette and those who were satisfied. Psychological commitment to exercise was not different between satisfied and dissatisfied active adolescents. These data generate evidences of the necessity of establishing interventions strategies to reduce the prevalence of these risk factors within this population.



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