

Sports Involvement on Body Image Perception and Ideals

Subjects: **Public, Environmental & Occupational Health**

Contributor: Luciana Zaccagni , Emanuela Gualdi-Russo

Concerns about body image may affect athletes, mainly because of specific sports models to achieve successful performance.

body dissatisfaction

body image

athletes

1. Introduction

Any form of physical activity can be beneficial to the physical and mental health of youth and adults when undertaken regularly and with sufficient duration and intensity ^{[1][2]}. These recommendations are highly relevant since there is simultaneously a worldwide prevalence of physical inactivity and obesity. Indeed, the current sedentary lifestyle is one of the main causes of overweight/obesity ^{[3][4]}, and this results in a high prevalence of dissatisfaction with the perceived body image (BI) because of the ideal of body thinness prevalent in Western societies ^[5].

Sports make an important, though underused, contribution to the physical activity of persons of every age ^[1]. Athletes are engaged in structured and planned physical activity with prominent influences on their physical and mental health. Generally, a positive BI is associated with increased participation in physical activity and sports ^[6]. BI is considered a multidimensional construct focused on the appearance and function of the body ^[6]. Body dissatisfaction with an individual's own physical appearance and body size, as well as discrepancies between actual and ideal dimensions, are cognitive, affective, and perceptual indicators of a negative BI ^[7]. In essence, a negative or positive BI is shown through the perceptual dimension (how I see myself), and cognitive and affective dimensions (how I think and feel about my physical appearance) ^[7].

In a sports context, a more favorable BI would depend on actual physical changes resulting from the sport practiced (e.g., body shape), perceived changes in the physique, and building self-efficacy and confidence. However, this relationship is by no means simple: while physical activity practice contributes to raising self-confidence through a number of discernible physical changes (e.g., an increase in fat-free-mass) resulting in improved BI satisfaction, BI may, in turn, induce motivation or dissuasion for physical activity and sports participation ^[6]. Thus, for example, exercise addiction arises from a misperception of BI ^[8] and can also result in decreased performance owing to overload and physical burnout ^[9].

An important aspect to consider is whether dissatisfaction is influenced by the type of exercise practiced. Some differences in body dissatisfaction recorded among practitioners of different sports [10] might depend on the importance of body weight and body thinness within that sport [11]. A particular relevance of physical appearance can be found in aesthetic sports, such as rhythmic gymnastics. In this case, the assessment of the athlete considers his/her morpho-kinetic abilities based on well-coded aesthetic requirements. Therefore, in addition to performance, the athlete's physical appearance strongly contributes to the judgment, so much so that a prevalence of dissatisfaction among athletes involved in aesthetic sports has been reported in several studies [12][13]. With particular reference to the female gender, a higher risk of body concerns was observed in gymnastics than in swimming and long-distance running [14]. However, in these cases, it is important to distinguish the "sport" body image dissatisfaction (sport-BID = perceived discrepancy between current and ideal body size for sport) from the general body image dissatisfaction (BID) [15][16]. Indeed, the literature [15] shows that athletes, especially in aesthetic sports, would not be driven toward dieting and pathological weight control because of general BID, but because of the specific needs of the sport they play. Greenleaf [17] distinguished the BI of the athlete within an athletic context from a social BI that relates to the context of everyday life. Satisfaction/dissatisfaction with one's body image will therefore depend not only on one's physical appearance, but also on the social or sports environment of reference. Although athletes tend to be more satisfied than non-athletes in the social environment [18], in the sports environment, athletes often are under pressure from coaches and athletic trainers to achieve and retain a body that is favorable to their respective sport [19]. Regarding aesthetic sports, for example, it has been found that the ideal sports figure of the female gymnast does not coincide with the ideal figure in everyday life, being leaner [16].

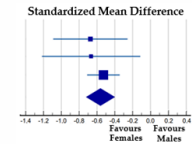
According to previous literature reviews, athletes have a more positive BI than non-athletes both considering studies published between 1975 and 2000 [18] and between 2000 and 2012 [14]. Although both reviews made this comparison taking into account age and competitive level, no gender comparisons were made in either the first review (which reports a small percentage of males) or the second review (focused exclusively on females). The majority of studies in this field concern eating disorders, showing a higher incidence of disordered eating in athletes, particularly in aesthetic and weight-class-dependent sports [20]. De Bruin et al. [15] analyzed the role of BI in athletes' disordered eating, showing that the athletic BI contributes greatly to this symptomatology. To date, research has focused primarily on the impact of negative BI on the athlete or pathological aspects without thoroughly considering the framework [21].

2. BID by Gender

Four studies (27%) included in the review analyzed athletes of both genders, but Krentz and Warschburger [22], Cardoso et al. [23], and Da Silva et al. [24] did not consider BID, so only the study (7%) of Francisco et al. [25] reported the necessary data to calculate the effect size. They reported the number, mean, and SD of male and female elite aesthetic athletes, non-elite aesthetic athletes, and non-aesthetic athletes (**Table 1**).

Table 1. BID by gender: results of the meta-analysis.

Subgroup	Females			Males			%		SMD [95% CI]
	N	Mean	SD	N	Mean	SD	Weight		
Elite aesthetic athletes [25]	101	−0.88	1.21	30	−0.11	0.83	14.86		−0.67 [−1.09, −0.26]
Non-elite aesthetic athletes [25]	99	−0.51	1.19	15	0.27	0.96	8.51		−0.67 [−1.22, −0.14]
Non-aesthetic athletes [25]	253	−0.81	1.31	227	−0.17	1.09	76.64		−0.53 [−0.71, −0.35]
Total (random effects)	453		2	272			100.00	2	−0.56 [−0.72, −0.40]



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3. BID by Type of Sports: Aesthetic Sports vs. Non-Aesthetic Sports

4. NCD Risk Factor Collaboration (NCD-RisC). Heterogeneous contributions of change in population distribution of body mass index to change in obesity and underweight. *eLife* 2021, 10, e60060. [DOI: 10.7554/eLife.60060](#)

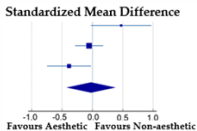
5. Guadagni-Russo, E.; Rinaldi, N.; Masotti, S.; Bramanti, B.; Zaccagnini, L. Sex Differences in Body

2). Image Perception and Ideals: Analysis of Possible Determinants. *Int. J. Environ. Res. Public Health* 2022, 19, 2745.

Table 2. BID by type of sports in female athletes.

6. Sabiston, C.M.; Pila, E.; Vani, M.; Thogersen-Ntoumani, C. Body image, physical activity, and

Study	Aesthetic Sports			Non-Aesthetic Sports			%		SMD [95% CI]
	N	Mean	SD	N	Mean	SD	Weight		
Borrione et al. [26]	20	−0.5	0.8	80	−1.0	1.1	26.91		0.47 [−0.02, 0.97]
Francisco et al. [25]	101	−0.88	1.21	253	−0.81	1.31	39.76		−0.05 [−0.29, 0.18]
Kong and Harris [27]	80	−1.34	1.09	48	−0.94	0.93	33.33		−0.39 [−0.75, −0.23]
Total (random effects)	201		2	381			100.00	2	−0.02 [−0.42, 0.37]



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1. Normal-weight and overweight boys involved in individual and team sports. *J. Sports Sci.* 2011, 29, 355–362.

Young elite dancers and gymnasts perspectives. *Span. J. Psychol.* 2012, 15, 265–274.

		Elite Level			Non-Elite Level			%			
Study	N	Mean	SD	N	Mean	SD	Weight	SMD [95% CI]			
Borrione et al. [26]	20	-0.5	0.8	61	-0.7	0.9	20.93	0.23 [-0.28, 0.74]			
Francisco et al. [25]	101	-0.88	1.21	99	-0.51	1.19	43.39	-0.31 [-0.59, -0.03]			
Kong and Harris. [27]	80	-1.34	1.09	59	-1.15	1.32	35.68	-0.16 [-0.50, 0.18]			
Total (random effects)	201			219			100.00	-0.14 [-0.41, 0.12]			

5. **BID by Weight Status: Underweight Athletes vs. Normal-Weight Athletes**
 19. Brown D. D. *Body Image and Eating Disorders: Psychological Responses to, and Recovery From, Body Image Social-Evaluative Threats*. Am. J. Men's Health 2023, 17, 15579883231155089.

category, while the controls (athletes practicing basketball, volleyball, taekwondo) mean BMI values fell into the
21 or below weight category. As a result, we can conclude that the athletes who were in the positive group had the
weight damage, BPO with no confidence flow state, and subjective performance more negative despite the test and
the former athlete's body aesthetic (2019, p. 28, 98-100) sports non-focused on leanness. The Cochran's Q test ($\chi^2 =$

23. Cardoso, A.A.; Reis, N.M.; Toledo-Filho, D.; Bragatto, A.; Resende, R.; de Azevedo Guimarães, A.C. Body Image Dissatisfaction, Eating Disorders, and Associated Factors

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2	UW (international RG) vs. NW (controls) [26]	20	−0.5	0.8	80	−1.0	1.1	31.55	0.47 [−0.02, 0.97]	nent of sord.
	UW (national RG) vs NW (controls) [26]	61	−0.8	0.9	80	−1.0	1.1	68.45	0.29 [−0.04, 0.63]	
2	Total (random effects)	81			160			100.00	0.35 [0.07, 0.63]	Cagno, Med.

27. Kong, P.; Harris, L.M. The sporting body: Body image and eating disorder symptomatology among female athletes from leanness focused and nonleanness focused sports. *J. Psychol.* 2015, 149, 141–160.

6. Sport-BID by Gender

Four studies (27%) provided information about the influence of gender on sport-BID: a meta-analysis was performed based on a total of 501 participants (413 females and 88 males), all engaged in aesthetic sports at an elite level. Voelker et al. [28] reported data for female figure skaters and Voelker et al. [29] reported data for male figure skaters. The meta-analysis revealed a moderate and significant effect of gender on sport-BID: female athletes are more dissatisfied about their actual body size concerning their ideal sport-practiced body size compared to the males (SMD = −0.74, $p < 0.001$). The Cochran's Q test ($\chi^2 = 3.935$, $DF = 3$, $p = 0.269$) and I^2 statistics (23.76%) revealed no heterogeneity among the studies considered (Table 5).

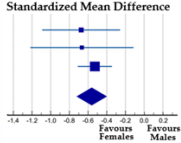
28. Voelker, D.K.; Gould, D.; Reel, J.J. Prevalence and correlates of disordered eating in female figure skaters. *Psychol. Sport Exerc.* 2014, 15, 698–704.

29. Voelker, D.K.; Trent, A.P.; Reel, J.J.; Gould, D. Frequency and psychosocial correlates of eating disorder symptomatology in male figure skaters. *J. Appl. Sport Psychol.* 2017, 30, 119–126.

30. Francisco, R.; Narciso, I.; Alarcão, M. Specific predictors of disordered eating among elite and non-elite gymnasts and ballet dancers. *Int. J. Sport Psychol.* 2012, 43, 479–502.

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Table 5. Effect of gender on Sport-BID in elite aesthetic athletes.

Subgroup	Females			Males			Weight%	SMD [95% CI]	
	N	Mean	SD	N	Mean	SD			
Elite dancers [30]	53	−1.45	1.32	13	0.08	0.95	17.05	−1.20 [−1.85, −0.56]	
Elite gymnasts [30]	50	−1.20	1.04	19	−0.58	1.02	22.66	−0.59 [−1.13, −0.05]	
Elite figure skaters [28][29]	272	−1.00	1.48	29	−0.26	0.77	36.18	−0.52 [−0.90, −0.13]	
Elite aesthetic sports [22]	38	−0.80	1.00	27	0.00	0.70	24.10	−0.89 [−1.41, −0.37]	
Total (random effects)	413			88			100.00	−0.74 [−1.03,	

-0.46]