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Body Image and Self-Concept in Bodybuilders (A Comparative Study (between Bodybuilders and Freestylers

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Abstract

This study examined at how self-concept and body image perception related among 107 male athletes (60 bodybuilders and 47 freestyle athletes) from the Tlemcen and Tipaza areas of Algeria. Participants in a descriptive research design answered the Tennessee Self-Concept Scale, Second Edition (TSCS-2) and the Body Image Scale Shakir (2002, الشكير). Independent samples t-tests, correlation analysis, and multivariate analysis of variance (MANOVA) were among the statistical analyses. While self-concept variations between groups were not statistically significant ($t = 1.29$, $p = 0.200$), results showed much better body image scores among freestyle athletes than bodybuilders ($t = -5.31$, $p = 0.001$). Over the whole sample, body image and self-concept showed a modest positive correlation ($r = 0.317$, $p = 0.001$). Sport type explained 25.9% of the variance in self-concept but only 1.6% of the variance in body image according MANOVA results. These results underline the need of sport-specific approaches to mental health support for athletes since they imply that different sport modalities may affect psychological well-being through different routes. The study helps us to better grasp how various kinds of athletic participation could affect people's impressions of their bodies and their general self.

Keywords: body image; self-concept; bodybuilding; freestyle.

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1. INTRODUCTION

Psychological well-being and social identity of a person are much influenced by their physical appearance and self-perception (Cash & Pruszinski, 2002). Training approaches, personal goals, and sociocultural expectations all help to shape body image and self-concept among athletes—especially bodybuilders and freestyle athletes. While freestyle athletes, engaging in disciplines like gymnastics, parkour, and functional training, emphasise agility, endurance, and overall fitness, bodybuilders, mostly focused on muscular hypertrophy and aesthetic appeal (Pope, Phillips, & Olivardia, 2000). These different training approaches might help to produce different ideas of self-concept and body image. With an eye towards statistically significant differences between bodybuilders and freestyle athletes, this study investigates the psychological aspects of body image and self-concept among these groups. Previous studies indicate that athletes whose sports stress aesthetics and muscularity have more body image issues (Griffiths, Murray, & Krug, 2018). Moreover, we look at possible variations in self-concept—that is, self-evaluations in several spheres of life, including personal, social, and physical ones (Marsh & Shavelson, 1985). Understanding these differences helps one to grasp how various sports affect athletes' psychological structures.

We also investigate in both groups the possible correlation between body image and self-concept. While positive body image is typically associated with increased self-confidence and mental well-being, prior studies show that body image discontent can lead to declining self-esteem and negative psychological outcomes (Vartanian, 2012). It is crucial to determine whether the relationship between body image and self-concept differs among various athletic populations given the different physical ideals pushed by freestyle sports and bodybuilding. At last, this work tackles the more general question of how sport discipline shapes body image and self-concept. By means of a comparison between these two groups, we hope to shed light on the psychological consequences of various training programs and related sociocultural views. Our results could guide coaches, sportsmen, and mental health experts on how particular sport type shapes mental health and self-concept. The following research

questions are answered in this work:
Do mean body image scale scores for freestyle athletes and bodybuilders differ statistically significantly?
Are mean scores on the self-concept scale statistically significantly different between freestyle athletes and bodybuilders?
Within both bodybuilders and freestyle athletes, does body image and self-concept show a statistically significant correlation?
How does sport type influence both self-concept and body image?

2.Study

Hypotheses:

H1: There are statistically significant differences in mean body image scores between bodybuilders and freestyle athletes.
H2: There are statistically significant differences in mean self-concept scores between bodybuilders and freestyle athletes.
H3: There is a statistically significant correlation between body image and self-concept within both bodybuilders and freestyle athletes.
H4: Sport type (bodybuilding vs. freestyle) significantly predicts both body image and self-concept, with bodybuilders expected to exhibit higher mean body image scores, but potentially different mean self-concept scores, compared to freestyle athletes.

3.Study

Objectives:

Objective 1: To compare body image perceptions between bodybuilders and freestyle athletes.
Objective 2: To compare self-concept between bodybuilders and freestyle athletes.
Objective 3: To examine the relationship (correlation) between body image and self-concept within both bodybuilders and freestyle athletes.
Objective 4: To determine the predictive influence of sport type (bodybuilding vs. freestyle) on both body image and self-concept, specifically testing if bodybuilders have higher body image scores than freestyle athletes, and if the two groups differ regarding self-concept scores.

4.Importance of the Topic:

The study of body image and self-concept among bodybuilders and freestyle athletes is crucial for understanding the psychological well-being of these distinct athletic populations. It addresses the impact of sport-specific training, societal pressures, and personal goals on mental health, revealing how these factors influence self-perception and performance. By identifying



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potential risks like body image dissatisfaction and low self-concept, this research can inform tailored interventions and educational programs for athletes, coaches, and mental health professionals, promoting a holistic approach to athletic development .

Furthermore, this research advances the field of sport psychology by providing a comparative analysis of how different training philosophies shape psychological outcomes. It challenges misconceptions surrounding body ideals in sports, particularly in disciplines like bodybuilding, and emphasizes the importance of addressing mental health alongside physical training. By examining the relationship between body image and self-concept within these groups, the study contributes to a deeper understanding of the psychological dimensions of sport, ultimately promoting healthy athletic practices and preventing negative psychological consequences.

5. Operational Concepts:

5.1. Sport Type:

- **Bodybuilders:** Individuals who engage in bodybuilding with the primary goal of developing muscular hypertrophy and achieving a specific aesthetic physique.
- **Freestyle Athletes:** Individuals who participate in diverse physical activities that prioritize functional fitness, agility, endurance, and overall performance, rather than solely focusing on muscle development. Examples include, but are not limited to, calisthenics, CrossFit, running, and swimming.

5.2. Self-Concept: • Self-concept refers to an individual's multifaceted perception of themselves, encompassing evaluations of their abilities, self-worth, and social relationships. For this study, self-concept will be operationalized using the Tennessee Self-Concept Scale, Second Edition (TSCS-2; Fitts & Warren, 1996). This scale measures various dimensions of self-perception, including:

- o Physical Self: Perceptions of one's body, health, and physical appearance.
- o Moral Self: Perceptions of one's moral worth and adherence to ethical standards.
- o Personal Self: Perceptions of one's personal identity, sense of autonomy, and self-acceptance.
- o Family Self: Perceptions of one's role and relationships within the family.
- o Social Self: Perceptions of one's social interactions and relationships with others.
- o Academic/Professional Self: Perceptions of oneself within professional and academic settings.
- o General Self: Overall perception of self.

5.3. Body Image:

- Body image is defined as an individual's subjective perception and evaluation of their physical appearance, including their satisfaction with it, perceived physical

attractiveness, and comparison to perceived societal standards. This study will measure body image using the Body Image Scale Shakir (2002، شكير), which assesses factors such as perceived physical attractiveness, facial feature harmony, overall physical appearance, body functionality, and the congruence between body shape/size and cognitive self-perception.

6. Previous Studies

Blouin and Goldfield (1995) investigated body image and eating attitudes among male bodybuilders compared to runners and martial artists, also exploring associations between steroid use and body image disturbances. Their sample consisted of 139 male athletes (43 bodybuilders, 48 runners, and 48 martial artists) recruited from fitness centers. Participants completed standardized measures assessing body dissatisfaction, drive for thinness, drive for muscularity, bulimic tendencies, self-esteem, depression, maturity concerns, and perfectionism. They also responded to questionnaires about steroid use attitudes and behaviors. Results revealed that bodybuilders exhibited significantly greater body dissatisfaction, higher drive for muscularity and thinness, and increased bulimic tendencies compared to other athletes. Bodybuilders also demonstrated higher perfectionism, ineffectiveness, lower self-esteem, greater steroid use, and more permissive attitudes toward steroids. Steroid users reported appearance enhancement as their primary motivation, along with higher drive for muscle mass, greater maturity concerns, and enhanced bulimic tendencies compared to non-users. The researchers concluded that male bodybuilders exhibit psychological characteristics similar to those observed in individuals with eating disorders, and these characteristics may predict steroid use.

Mangweth and colleagues (2001) conducted a comparative study examining body image, psychiatric illness, and sexual history among male bodybuilders, men with eating disorders, and control subjects. The sample included 28 male bodybuilders, 30 men with eating disorders (anorexia nervosa, bulimia nervosa, or binge eating disorder as defined by DSM-IV), and 30 control subjects. Participants completed questionnaires assessing weight history, eating behavior, body image, and psychiatric and sexual disorder history. Results indicated that bodybuilders exhibited eating and exercise patterns as obsessive as those with eating disorders, though focused on muscle gain rather than fat loss. Bodybuilders demonstrated moderate rates of psychiatric disorders, positioning between eating disorder patients and controls. Regarding body image, bodybuilders closely resembled men with eating disorders, reporting significantly greater dissatisfaction than controls.



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Sexual functioning was similar across groups, except for "lack of sexual desire," which was reported significantly more frequently by both bodybuilders and men with eating disorders. The researchers concluded that bodybuilders share several characteristics with individuals with eating disorders regarding body image concerns and eating behaviors .

Pickett, Lewis, and Cash (2004) examined body image and psychosocial adjustment across three groups: competitive bodybuilders, non-competitive weight trainers, and athletically active men who did not engage in weight training. Each group comprised 40 participants who were assessed on body composition, body image investment and anxiety, eating attitudes, and social self-esteem. Findings revealed that competitive bodybuilders possessed greater body mass due to higher lean body mass compared to the other groups. While situational body image discomfort did not differ significantly between groups, competitive bodybuilders and weight trainers reported more positive global appearance evaluations and greater psychological investment in physical appearance. Compared to controls, both weightlifting groups reported greater satisfaction with upper torso and muscle strength, with competitive bodybuilders also reporting greater mid-torso satisfaction. Competitive bodybuilders desired to be heavier than controls, reported higher social self-esteem, but exhibited more disordered eating. The researchers concluded that competitive bodybuilders were not more "muscle dysmorphic" than non-competitive weight trainers or physically active men who did not engage in weight training .

Kelly (2004) investigated the relationship between physical self-concept and competitive trait anxiety, mediated by body image dissatisfaction, in female athletes participating in aesthetic and non-aesthetic sports. The study examined whether physical self-concept and body image dissatisfaction could predict competitive trait anxiety across sport types. Female athletes from Division I universities in the southeastern United States participated, with 52 from aesthetic sports (gymnastics and diving) and 45 from non-aesthetic sports (swimming, volleyball, basketball, cross country, track, and golf). Participants completed assessments of physical self-concept, body image dissatisfaction, and competitive trait anxiety. Results showed no significant differences between sport types regarding physical self-concept and body image dissatisfaction. However, aesthetic athletes reported significantly higher competitive trait anxiety compared to non-aesthetic athletes. A moderate negative relationship was observed between

physical self-concept subscales, body image dissatisfaction, and competitive trait anxiety in aesthetic athletes, suggesting lower physical self-concept correlated with higher body image dissatisfaction and greater competitive anxiety. A significant positive relationship was found between body image dissatisfaction and competitive trait anxiety in aesthetic athletes. Physical self-concept demonstrated stronger causal pathways to competitive traits and body image dissatisfaction in aesthetic versus non-aesthetic athletes. The researcher recommended further investigations using athlete-specific assessment tools. Pickett, Lewis, and Cash (2005) conducted a study examining body image and psychosocial adjustment among competitive bodybuilders, non-competitive weight trainers, and athletically active men. The sample consisted of 40 men in each group who were assessed on body composition, body image investment and anxiety, eating attitudes, and social self-esteem. Results indicated that competitive bodybuilders had greater body mass due to higher lean body mass compared to other groups. While situational body image discomfort did not differ significantly across groups, competitive bodybuilders and weight trainers reported more positive global appearance evaluations and greater psychological investment in physical appearance. Both weightlifting groups reported greater satisfaction with upper torso and muscle strength compared to controls, with competitive bodybuilders also reporting higher mid-torso satisfaction. Competitive bodybuilders desired to be heavier than controls, reported higher social self-esteem, but exhibited more disordered eating behaviors. The researchers concluded that competitive bodybuilders were not more "muscularly dysmorphic" than non-competitive weight trainers or physically active men not engaged in weight training.

Schlegel and Fialová (2015) investigated the relationship between body image (measured by the Physical Self-Perception Profile, PSPP) and sensation seeking (measured by the Sensation Seeking Scale, SSS-V) among gym-goers. The sample consisted of 182 gym attendees aged 24-45 years. Results revealed a weak correlation ($r = 0.25$) between PSPP and SSS-V scores, as well as between individual subscales. No statistically significant gender differences were observed. Regarding body image, participants demonstrated above-average scores, while sensation seeking scores were average. The researchers concluded that no significant relationship exists between PSPP and SSS-V, and no significant gender differences were present in this relationship. Montgomery Sklar (2017) addressed the debate between biological and



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environmental determinants of body weight, examining the body in relation to anatomical, genetic, and hormonal influences on personality, experience, and behavior. The review discussed male body image in light of existing literature, which has predominantly focused on female populations. Similar to women, men experience increasing social pressure to achieve a "ideal" physique, leading to greater discrepancy between that ideal and their perceived self-image. This dynamic, however, is less acknowledged in men than women, possibly due to social norms discouraging men from discussing body image concerns. Consequently, negative self-concept and self-esteem in men may reinforce behaviors leading to weight gain. Recent media trends have amplified body image-related messages. The literature review suggested that body image and self-concept correlate with body weight in men, similar to findings in women, and should be addressed as part of comprehensive weight management strategies. Erdoganoglu and Tunç (2020) examined the relationship between body composition, upper and lower limb endurance, core function, body perception, and self-esteem in male bodybuilders. The sample consisted of 40 male volunteers who had engaged in bodybuilding for at least one year. Participants underwent assessments of trunk endurance (modified Sorensen and twisting test), upper limb endurance (push-up test), lower limb endurance (repeated squat test), and core function (single-leg wall sit and single-leg repeated sit tests). Body perception and self-esteem were evaluated using the Body Image Perception Scale and Rosenberg Self-Esteem Scale, respectively. Participants' mean age was 25.6 ± 4.7 years, with mean exercise duration of 22.5 ± 34.6 months. Results indicated low body perception and moderate self-esteem. No significant relationships were found between abdominal extensors, posterior extensors, upper and lower extremity endurance, core function, and body perception or self-esteem scores ($p > 0.05$). The researchers concluded that body composition, limb endurance, and core function did not significantly influence body perception or self-esteem in these bodybuilders, suggesting their training programs did not effectively contribute to improving these psychological constructs.

Elfthymiou and colleagues (2021) investigated potential predisposing factors for eating disorders in professional and recreational bodybuilders and strength athletes. This cross-sectional study included 103 Cypriot bodybuilders of both sexes, categorized into three groups: professional, recreational, and strength athletes. Eating and disordered eating behaviors were assessed using the Eating Attitudes Test-26 (EAT-26) and the Three-Factor Eating Questionnaire-R21

(TFEQ-R21). Results were compared by gender using the Mann-Whitney U test, and differences according to bodybuilding performance status and body weight deviation category were analyzed using the Kruskal-Wallis test. Results revealed that greater deviation between perceived ideal body weight and actual body weight was associated with increased risk of developing an eating disorder. Athletes who desired lower body weight scored higher on the EAT-26 overall ($p = 0.001$), and on the dieting ($p = 0.01$) and bulimia ($p = 0.001$) subscales. Cognitive self-control and emotional eating subscales of the TFEQ-R21 were more pronounced in non-professional athletes ($p = 0.01$). Emotional eating scores were higher in women. The researchers concluded that sport- and gender-specific preventive interventions are needed to reduce eating disorder risk in both professional and recreational bodybuilders.

Şentürk and Göbel (2023) conducted a review exploring the relationship between body composition, self-esteem, and body image in male bodybuilders. Recent research has demonstrated increasing interest in the relationship between body dissatisfaction, self-esteem, and body image. The review highlighted that a negative relationship exists between self-esteem and body image in individuals experiencing body dissatisfaction. Interventions modifying an individual's self-esteem and body image may yield positive results in treatments addressing body dissatisfaction. The authors concluded that further research is warranted on this topic.

7. Study Methodology and Research Tools

7.1. Study Methodology and Sample: This study employed a descriptive research design, deemed most appropriate for examining body image and self-concept among athletes. The sample consisted of 107 athletes: 60 bodybuilders and 47 freestyle athletes (engaging in activities such as running, pull-ups, push-ups, and jumping). Participants were recruited from Tlemcen and Tipaza, Algeria. Data collection, involving the distribution of questionnaires, occurred between December 23, 2023, and March 28, 2024.

7.2. Study Tools

7.2.1. Body Image Scale (2002، الشقيير): This scale comprises 26 items designed to assess six dimensions of body image:

- Physical attractiveness
- Coordination of facial features
- Congruence between facial shape and overall body structure



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- General personal appearance
- Coordination between body and functional abilities

- Relationship between body size/shape and cognitive perception

To establish the scale's psychometric properties, a pilot study was conducted by researcher Walaa Ahmed Abdel Fattah (2019). The scale was administered to 40 female university students (separate from the main sample), aged 18-22 years ($M = 20.5$, $SD = 1.12$). Internal consistency was demonstrated through significant correlations between individual item scores and the total scale score ($r = 0.42-0.91$). Test-retest reliability (two-week interval) was $r = 0.78$ ($p < 0.01$). Split-half reliability, corrected using the Spearman-Brown equation, was $r = 0.81$ ($p < 0.01$). (Walaa Ahmed Abdel Fattah, 2019, p. 116).

7.2.2. Tennessee Self-Concept Scale, Second Edition (TSCS-2): The TSCS-2 is a psychometric instrument designed to evaluate an individual's self-concept across various domains, including personal, family, social, and academic aspects. It aims to provide a comprehensive assessment of self-concept, identifying both positive and negative influences. This scale is commonly used in psychological counseling, educational assessment, and psychological research.

- Validity: The scale exhibits strong content and construct validity, comprehensively covering relevant aspects of self-concept.

- Reliability: The TSCS-2 demonstrates high reliability, with Cronbach's alpha coefficients ranging from 0.80 to 0.90, indicating consistent results across applications.

- Dimensions: o Academic self (items 1-20) o Social self (items 21-40) o Family self (items 41-60) o Physical self (items 61-80) o General self (items 81-100)

- Administration: o The scale includes 100 items answered using a Likert scale. o It is applicable to adolescents and adults. o Results provide an indication of positive or negative self-concept. o The results can be used to help find intervention strategies for those who need it.

7.3. Study Sample: The study sample comprised 107 male athletes, including 47 freestyle athletes (practicing sports such as running, swimming, soccer, calisthenics, and CrossFit) and 60 bodybuilders. Participants were recruited from the Tlemcen and Tipaza regions.

Sample Distribution by Age: Table 1 presents the sample distribution by age and sport type.

Table 1. Sample Distribution by Age and Sport Type

Age Group	Bodybuilding (n)	Freestyle Sports (n)	Total (n)
18-25	22	15	37
26-35	18	15	33
36-45	13	10	23
46+	7	7	14
Total	60	47	107

As shown in Table 1, the 18-25 age group had the highest representation, with 22 bodybuilders and 15 freestyle athletes. The 26-35 age group included 18 bodybuilders and 15 freestyle athletes. The 36-45 age group consisted of 13 bodybuilders and 10 freestyle athletes. The 46+ age group had the fewest participants, with 7 bodybuilders and 7 freestyle athletes.

1.6.5. Data Collection Sites and Timeline: Data collection occurred at two distinct locations and time periods. The first data collection site was a gymnasium in Tlemcen, where participants engaged in bodybuilding and freestyle sports. Data was collected at this location in June 2024. The second site was a gymnasium specializing in bodybuilding and freestyle sports in the coastal city of Tipaza. Data collection took place at this location in October 2024.

8.Presentation and Discussion of Results:

8.1. First Hypothesis:

The first hypothesis posited that statistically significant differences would be observed in mean body image scores between bodybuilders and freestyle athletes. Table 2 presents the descriptive statistics for body image scores by group.

Table 2: Descriptive Statistics for Body Image Among Bodybuilders and Freestyle Athletes

Sport Type	N	Mean	Standard Deviation	Standard Error
Bodybuilding	60	78.92	6.95	0.90
Freestyle	47	86.30	7.38	1.08

An independent samples t-test was conducted to compare the mean body image scores between the two groups. The results are presented in Table 3.

Table 3: Results of Independent Samples t-test for Body Image

Assumption	t-value	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI Lower	95% CI Upper
Equal	-5.31	105	0.000	-7.38	1.39	-10.14	-4.62



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variances							
Unequal variances	-5.27	95.96	0.000	-7.38	1.40	-10.16	-4.60

The results of the independent samples t-test provided robust support for the first hypothesis, demonstrating a substantial disparity in body image perception between the two groups ($t = -5.31$, $df = 105$, $p < 0.001$). The freestyle group exhibited a significantly higher mean body image score ($M = 86.30$, $SD = 7.38$) compared to the bodybuilding group ($M = 78.92$, $SD = 6.95$), with a mean difference of -7.38. This indicates that freestyle athletes reported more positive body image perceptions than bodybuilders. These findings are consistent with previous research in the field. Blouin and Goldfield (1995) demonstrated heightened body dissatisfaction among bodybuilders, a result paralleled by the lower body image scores observed in our sample. While Blouin and Goldfield focused on body dissatisfaction, our study provides a broader assessment of body image, suggesting that even when considering overall perception, bodybuilders still report lower scores. Pickett et al. (2005) found that bodybuilders, although demonstrating positive global appearance evaluations, also reported more disordered eating patterns. Our data corroborates this, indicating that while bodybuilders may hold positive views on certain aspects of their physique, they nonetheless exhibit lower overall body image scores when compared to freestyle athletes. This suggests a nuanced perception, potentially marked by both satisfaction and underlying concerns. Mangweth et al. (2001) highlighted the shared body image and eating behavior traits between bodybuilders and individuals with eating disorders. The lower body image scores observed in our study may reflect similar psychological vulnerabilities, underscoring the potential for body image-related distress within this athletic population. Efthymiou et al. (2021) explored the link between disordered eating and body weight deviation among bodybuilders. Our findings, indicating lower body image scores, may be indicative of the psychological strain associated with the pursuit of an idealized physique, a common characteristic among bodybuilders. The variance in body image perception between bodybuilders and freestylers may be attributed to several factors: 1. Sociocultural pressures to attain an idealized muscular physique are particularly pronounced in bodybuilding, potentially leading to increased body dissatisfaction.

- 2.The psychological profile of bodybuilders may predispose them to disordered eating and negative body image perceptions.
- 3.The sport-specific focus on aesthetics in bodybuilding, as opposed to the functionality emphasized in freestyle sports, may contribute to a more critical self-evaluation.

8.2. Second Hypothesis:

The second hypothesis posited that there would be statistically significant differences in self-concept scores between bodybuilders and freestyle athletes. Table 4 presents the descriptive statistics for self-concept by group.

Table 4: Descriptive Statistics for Self-Concept Among Bodybuilders and Freestyle Athletes

Sport Type	N	Mean	Standard Deviation	Standard Error
Bodybuilding	60	312.53	18.67	2.41
Freestyle	47	293.21	12.80	1.87

Table 5 presents the results of the independent samples t-test comparing self-concept scores between the two groups.

Table 5: Results of Independent Samples t-test for Self-Concept

Variance Assumption	t-value	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI Lower	95% CI Upper
Equal variances	1.29	105	0.200	1.75	1.35	-0.94	4.43

The results reveal that bodybuilders scored higher on the self-concept scale ($M = 312.53$, $SD = 18.67$) compared to freestyle athletes ($M = 293.21$, $SD = 12.80$). This numerical difference suggests a potential variation in how athletes from these different disciplines perceive themselves. However, the results of the independent samples t-test indicate that this observed difference is not statistically significant ($t = 1.29$, $df = 105$, $p = 0.200$). With a p-value greater than 0.05 and a 95% confidence interval for the difference that includes zero, we cannot reject the null hypothesis. Therefore, the statistical analysis suggests that there are no significant differences in self-concept between bodybuilders and freestyle athletes, despite the apparent difference in mean scores. This finding can be interpreted through multiple theoretical lenses established in previous research. Marsh and Shavelson (1985) conceptualize self-concept as a



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multidimensional and hierarchical construct influenced by various factors beyond just athletic practice or body image. This theoretical framework helps explain why overall self-concept might not significantly differ between athletic groups despite potential differences in specific domains. The results align with Griffiths et al. (2018), who found that elite athletes generally develop positive self-concepts through their athletic achievements regardless of sport type. This suggests that participation in competitive sports, whether bodybuilding or freestyle, may contribute to comparable levels of overall self-concept despite different training approaches and body ideals. Despite the non-significant findings regarding overall self-concept, it is worth considering these results in relation to previous research on body image in similar populations. Blouin and Goldfield (1995) found that bodybuilders experience greater body dissatisfaction compared to other athletes. Similarly, Mangweth et al. (2001) identified psychological traits in bodybuilders that resemble those found in individuals with eating disorders. These findings suggest that bodybuilders may experience specific psychological challenges related to body perception that might not necessarily translate to differences in overall self-concept as measured in the current study.

The absence of significant differences in self-concept between the two athletic groups may also reflect the compensatory role of athletic identity and achievement in self-evaluation. As suggested by Stambulova and Wylleman (2019), athletes often develop dual identities that integrate both athletic and non-athletic aspects of self. Both bodybuilders and freestyle athletes may develop robust athletic identities that contribute positively to their overall self-concept, potentially offsetting any negative effects of body image concerns or competitive pressures.

8.3. Third Hypothesis:

The third hypothesis examined whether there is a statistically significant relationship between body image and self-concept among bodybuilders and freestyle athletes. A correlation analysis was conducted, with results presented in Table 6.

Table 6: Pearson Correlation Coefficient Between Body Image and Self-Concept (N=107)

Body Image	Self-Concept
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Body Image	1	0.317**
Sig. (2-tailed)		0.001
N	107	107
Self-Concept	0.317**	1
Sig. (2-tailed)	0.001	
N	107	107

** Correlation is significant at the 0.01 level (2-tailed)

Table 5 reveals a statistically significant positive correlation between body image and self-concept among the sample of bodybuilders and freestyle athletes ($r = 0.317$, $p = 0.001$). This correlation coefficient indicates a moderate positive relationship between these two variables. The positive nature of this correlation suggests that athletes who have more positive perceptions of their bodies tend to have more positive self-concepts as well, and conversely, those with more negative body image perceptions tend to have more negative self-concepts. The significance level ($p = 0.001$) indicates that the probability of obtaining this correlation by chance is extremely low, less than 0.1%. This allows us to confidently reject the null hypothesis that there is no relationship between body image and self-concept in this population. The coefficient of determination ($r^2 = 0.100$) indicates that approximately 10% of the variance in self-concept can be explained by body image, or vice versa, while the remaining 90% is influenced by other factors not measured in this study. These findings directly address our third hypothesis, confirming that there is indeed a statistically significant relationship between body image and self-concept among bodybuilders and freestyle athletes. The moderate strength of this correlation is particularly meaningful as it indicates that while body perception plays a significant role in how athletes view themselves overall, it is just one of many factors contributing to their self-concept. The results align with Shavelson et al.'s (1976) self-concept theory, which proposes that physical self-concept forms an important dimension of general self-concept. Our findings empirically support this theoretical framework by demonstrating a significant link between how athletes perceive their bodies and how they view themselves more broadly. Similarly, Cash and Pruzinsky's (2002) research emphasized the close relationship between body image and psychological well-being, including aspects of self-concept, which is consistent with our findings.

Our results also complement Şentürk and Gobel's (2023) study that found significant relationships between body composition, self-esteem, and body image specifically among male bodybuilders. By extending this analysis to include both bodybuilders and freestyle athletes, our study provides broader evidence of this relationship across different athletic populations. The moderate rather than strong correlation found in our study supports Marsh and Shavelson's (1985) conceptualization of self-concept as a multifaceted, hierarchical structure influenced by various domains beyond physical appearance. This suggests that while body image is significantly related to self-concept for athletes, other aspects such as performance accomplishments, social relationships, and personal values likely contribute substantially to how they view themselves.

8.4. Fourth hypothesis:

To further examine whether sport type (bodybuilding vs. freestyle) significantly predicts both body image and self-concept, with bodybuilders expected to exhibit higher mean body image scores, but potentially different mean self-concept scores, compared to freestyle athletes, a multivariate analysis of variance (MANOVA) was conducted. Table 7 presents the Box's test results examining the assumption of homogeneity of variance-covariance matrices.

Table 7: Box's Test of Equality of Covariance Matrices

Box's M	df1	df2	Sig.
7.299	3	2,042,997.3	0.067

With $p = 0.067 > 0.05$, we fail to reject the null hypothesis, indicating that the variance-covariance matrices are equal across groups. This satisfies an important assumption for MANOVA, allowing us to proceed with confidence.

Table 8 presents the results of the multivariate tests.

Table 8: Multivariate Tests (MANOVA)

Statistic	Value	F	Hypothesis df	Error df	Sig.
Wilks' Lambda	0.739	18.35	2	104	0.000
Pillai's Trace	0.261	18.35	2	104	0.000
Hotelling's Trace	0.353	18.35	2	104	0.000
Roy's Largest Root	0.353	18.35	2	104	0.000

All multivariate test statistics are significant ($p < 0.001$), indicating that there is a statistically significant difference between bodybuilders and freestyle athletes on the combined dependent variables of self-concept and body image. This suggests that sport type has a significant effect on at least one of these psychological

constructs.

Table 9 presents Levene's test results examining the assumption of homogeneity of variances across groups for each dependent variable.

Table 9: Levene's Test of Equality of Error Variances

Variable	F Levene	df1	df2	Sig.
Self-concept	3.213	1	105	0.076
Body image	0.000	1	105	0.990

Both self-concept ($p = 0.076$) and body image ($p = 0.990$) have p-values greater than 0.05, confirming that the groups have homogeneous variances. This satisfies another critical assumption for valid ANOVA interpretations.

Table 10: Tests of Between-Subjects Effects

Variable	Sum of Squares	df	Mean Square	F	Sig.	R ²
Self-concept	9837.96	1	9837.96	36.765	0.000	0.259
Body image	80.39	1	80.39	1.662	0.200	0.016

The between-subjects effects reveal:

- Self-concept: There is a statistically significant difference between bodybuilders and freestyle athletes ($F = 36.765$, $p < 0.001$), with a substantial effect size ($R^2 = 0.259$). This indicates that sport type explains approximately 25.9% of the variance in self-concept scores.
- Body image: There is no statistically significant difference between the groups ($F = 1.662$, $p = 0.200$), with a very small effect size ($R^2 = 0.016$), suggesting that sport type explains only about 1.6% of the variance in body image scores.

The MANOVA analysis revealed significant psychological differences between bodybuilders and freestyle athletes, with self-concept emerging as the primary differentiator, explaining 25.9% of the variance between groups, while body image showed no significant differences. These findings indicate that bodybuilders demonstrate significantly higher self-concept scores compared to freestyle athletes, which aligns with theoretical expectations about the confidence and self-assurance required for aesthetic sports. Conversely, the lack of significant differences in body image scores suggests that both groups maintain similar levels of body satisfaction, contrary to common assumptions that bodybuilders would exhibit markedly higher body image scores due to the aesthetic nature of their sport.

These results are consistent with research by Efthymiou et al. (2021), who demonstrated that individual differences in the perceived gap between ideal and actual body weight serve as stronger predictors of eating disorder risk than sport category alone. Similarly, Kelly's (2004) findings indicated no significant

differences in physical self-concept and body image dissatisfaction between female athletes in aesthetic versus non-aesthetic sports, supporting the current pattern of results. The findings suggest that while sport type significantly influences self-concept development, body image satisfaction may be more dependent on individual psychological factors rather than sport-specific demands. This highlights the importance of considering individual psychological profiles rather than making assumptions about psychological outcomes based solely on sport type

10. CONCLUSION

This study examined differences in body image and self-concept between bodybuilders and freestyle athletes, as well as the relationship between these two psychological constructs. The findings indicate that: Freestyle athletes report significantly higher body image scores compared to bodybuilders, suggesting more positive body perception among freestyle athletes. Despite apparent numerical differences, self-concept scores do not differ significantly between bodybuilders and freestyle athletes. There is a moderate positive correlation between body image and self-concept among athletes, with body image explaining approximately 10% of the variance in self-concept. Multivariate analysis confirms that sport type explains a substantial portion (25.9%) of the variance in self-concept but only a minimal portion (1.6%) of the variance in body image.

These findings contribute to our understanding of how different forms of athletic engagement impact psychological well-being. They highlight the complex interplay between physical activity, body perception, and self-concept, suggesting that different sports may offer distinctive but equally valuable pathways to positive self-perception. The results also emphasize the importance of considering sport-specific factors in athlete mental health support and intervention strategies.

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