



CORRELATES OF BODY IMAGE IN POLISH WEIGHT TRAINERS

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MONIKA GUSZKOWSKA *, TOMASZ MAZIARCZYK

Józef Piłsudski University of Physical Education in Warsaw, Warsaw, Poland

ABSTRACT

Purpose. The purpose of this study was to determine body image and body satisfaction in Polish adult men involved in resistance training and to investigate their relationships with objective anthropometric and training characteristics. **Methods.** The study included 176 males aged 18–31 years with 1–14 years resistance training experience. The Figure Rating Scale, Body Satisfaction Scale and a self-designed questionnaire were administered. **Results.** Approximately 62% of the participants would like to be more muscular, only 29% accepted their appearance and 9% would like to be less muscular. The body selected as the personal ideal ($M = 5.34$) was less muscular than the body considered by the participants to be ideal by other men (normative body; $M = 6.07$) and was more muscular than the body thought to be most attractive to women ($M = 5.10$). Actual and ideal body muscularity correlated positively with age and body mass, height and BMI. Dissatisfaction with trunk and motor characteristics correlated positively with ideal body and the body considered most attractive to women as well as with the discrepancy indices between the above factors and the actual body. **Conclusions.** Men regularly involved in resistance training were found to strive for a muscular physique. The normative body, the physique believed to be desired by other men, was more muscular than what was considered preferential to women. However, the latter constitutes a stronger determinant of the level of body satisfaction in men engaged in resistance training.

Key words: body image, body satisfaction, resistance training, men

Introduction

In the last 30 years, a trend has been observed in which men (especially younger men) have been less satisfied with their appearance [1], with the share of dissatisfied men having increased from 15% to 43% during this period [2, 3] and reached a percentage level similar to that observed in women [4, 5]. Contemporary men, just like women, are experiencing growing pressure to look ideal [6]. Over two-thirds of adolescent boys were found to be dissatisfied with their bodies [7]. From 28% to 43% of young men with normal body mass considered themselves too slim and expressed wanting to increase muscle mass by either dieting and resistance training [8, 9].

A muscular build, devoid of fat tissue and with well-defined muscles, is considered to be the modern ideal of the male body [10]. Even action figures of male heroes for children have become more and more muscular [11]. Most men and boys, even those aged six years, showed a visible preference towards the heavily muscular model [12]. Striving for the extremely mesomorphic ideal, many men were found to engage in intense resistance training and spend many hours training at a gym [13].

The results of previous studies are ambiguous with respect to body image and the level of body satisfaction in men participating in resistance training. Some studies

indicated greater dissatisfaction with the body, a stronger focus on body mass, and an imbalanced diet in comparison with men engaged in other types of physical activities as well as those who were not physically active [14, 15]. However, a more positive body image [16] (including greater satisfaction with trunk and muscle tone, a more positive overall evaluation of self appearance and greater willingness to invest one's time towards their physical appearance [17]) was observed in male bodybuilders than in men engaged in other recreational sports. The level of commitment to resistance exercise also seems to be important. A comparison between a group of men engaged in bodybuilding as a form of recreation and those who took part in competitive bodybuilding showed that the latter group was more focused on body mass and body shape, more often undertook extreme measures to enhance these features (strict diet, intense exercise, diuretics and anabolic steroids) [5], was more inclined to avoid exposing their bodies and displayed stronger negative emotional reactions towards their own bodies [18].

The level of dissatisfaction with the body is strongly connected with the risk of muscle dysmorphia. The basic feature of this disorder is constantly focusing on being insufficiently muscular, which leads to considerable frustration and anxiety even if a given individual is more muscular than an average person. To achieve a desired body image, the individual centres their life around a training schedule, diet and spends a great deal of time exercising, which clashes with their professional and

* Corresponding author.

social obligations. Dissatisfaction with appearance also causes the individual to function worse and avoid situations of social exposure [19, 20]. In a study by Pope et al. [13], muscle dysmorphia was observed in 10% of individuals in a random sample of bodybuilders and 9% in patients with other dysmorphic disorders. Studies analysing university students indicated that subclinical muscle dysmorphia also occurred in both the male and female general population [21].

Sociocultural factors, particularly the extremely mesomorphic models of male appearance promoted in the media, are credited as the reasons for increasing body dissatisfaction in men [22]. These factors cause the individual to be strongly focused on physical features and intensify their efforts to be muscular. The level of acceptance towards these models is culturally diverse. The desire to be more muscular was observed in over 90% of Americans, 69% of Ukrainians and in 49% of men living in Ghana, which suggests that this model is present in most cultures albeit to a different degree [12].

Considering the increasing number of gyms and the men who regularly train at these facilities, as well as the sharp increase in the amount of journals dedicated to body shaping, it can be expected that a similar situation has arisen in Poland. However, the generalization of findings conducted in the United States and even in European countries to the population of Poland should be approached with caution. While it can be assumed that men in Poland also wish to emulate a muscular physique, there is a paucity of information on how large the discrepancy between real and ideal body image is in Polish men and no data on the number of men dissatisfied with their appearance. Furthermore, it is unknown to what extent such a discrepancy, if it exists, determines emotional attitudes towards their body. Also unknown are the factors influencing body image in Polish men engaged in resistance training. Of special interest is understanding the body image of men engaged in resistance training as the desire to have a muscular physique is most likely the strongest in this group.

Therefore, the aim of this study was to determine the body image and level of acceptance towards one's own body in adult men engaged in resistance training

and to investigate their relationships with objective measures of body variables, resistance training variables, and body satisfaction.

Material and methods

The sample included 176 males aged between 18 and 31 years (26.35 ± 4.24 years). A prospective questionnaire was administered collecting data on the number of years involved in resistance training, the training frequency, intensity, and duration, and body mass and height. All participants had been regularly training in local gyms in the city of Warsaw, Poland from 1 to 14 years (5.56 ± 4.88 years) at a frequency of 2 to 7 times per week; 34.6% trained three times per week and 30.1% trained four times per week (3.74 ± 1.12 training sessions per week). The duration of a single training session was from 1 to 4 hours (1.79 ± 0.64 hours), where 25.9% trained for 90 min and 40.7% for 120 min. Training intensity was either moderate (35.2%), high (48.4%), or very high (15.4%). Self-reported body mass and height ranged between 61 kg and 130 kg (85.26 ± 11.80 kg) and 170 cm and 202 cm (181.65 ± 6.19 cm), respectively. BMI was calculated and ranged between 18.12 and 45.45 (25.85 ± 3.45).

The Figure Rating Scale, as developed on Stunkard et al. [23], was used to assess body dissatisfaction. It comprises nine silhouettes that gradually increase in musculature (Figure 1). Participants were to indicate a silhouette that was the most similar to their own body type (actual body), a silhouette that they would like to have (ideal body), a silhouette that in their opinion other men would like to have (normative body), and a silhouette that was the most attractive to women. Differences between the measures were analysed by subtracting actual body indicators from the remaining ones.

Satisfaction with one's body was measured with a modified version of the Body Satisfaction Scale [24]. The following aspects were evaluated by the participants on a seven-point scale from very satisfied to very dissatisfied: eight head parts (dissatisfaction with head), eight body parts (dissatisfaction with body), dissatisfaction with general appearance (height, mass, profile, general

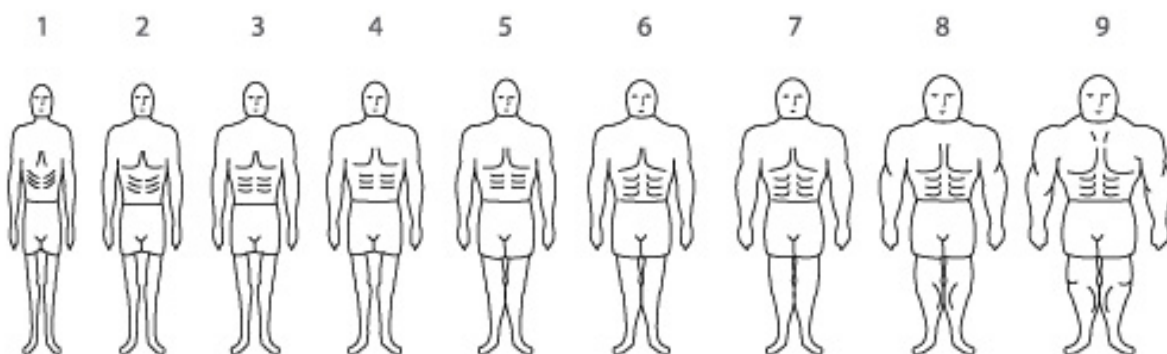


Figure 1. The Figure Rating Scale (modified version)

physical attractiveness, attractiveness to the opposite sex), and dissatisfaction with eight items defining fitness and motor characteristics (health, fitness, and movement precision, flexibility, strength, stamina, velocity, agility).

The study was approved by the Senate Ethics Committee at the Józef Piłsudski University of Physical Education in Warsaw, Poland. All data analyses were performed with SPSS Statistics 22.0 (IBM, USA). The significance level was set at $p < 0.05$. Student's t test for dependent samples and Spearman's rank correlation were used to compare the variables.

Results

Table 1 presents the percent distribution of Figure Rating Scale results. The range of responses was very high, covering the entire scale. The study participants most often selected silhouettes 3, 4 and 5 (71.0% of total responses) as the build that was most similar to their own. Two participants selected the least muscular silhouette and three selected the most muscled silhouette. The participants selected a wide range of silhouettes that in their opinion were the ideal (from silhouettes 2 to 9), although the majority of the respondents (70.4%) considered silhouettes 4, 5 and 6 to be the ideal figures. The participants also had varied opinions as to what figure other men would prefer. In this case, the most common response was silhouettes 5, 6 and 7 (64.2% of total responses), while silhouettes 4, 5 and 6 (68.1% of total responses) were considered the most attractive to women. As outliers, four men chose the least muscular silhouette and two men chose the most muscular silhouette.

Divergence indicators between the actual, idea, normative and attractive to women bodies were calculated (Table 2), where a positive value indicated that the body considered by the participants to be similar to their own body was less muscular, while a value of zero indicated a match between the actual body and the other choices.

The majority of participants (61.9%) were found to want a more muscular body (usually one or two silhouettes more muscular than their actual body). Fewer than 30% accepted their appearance while 9.1% of the participants indicated that they would like to be less muscular. The divergence between the actual body and normative body was even more prominent. Fewer than 10% of the participants selected a silhouette that matched their own. According to the choices made by 75% of the participants, the body that the respondents thought other men found ideal was more muscular than their own. In turn, 15% of the participants responded that the normative body was less muscular. The greatest difference was observed between the actual body and the body that women were considered to find attractive. Less than one-quarter of the sample (23.9%) selected silhouettes less muscular than their own whereas 60.2% selected silhouettes that were more muscular. A match between silhouettes was observed in approximately 16% of the respondents.

Further analysis involved calculating the Spearman's correlation coefficients for the studied variables. The selections concerning the actual body were strongly and positively correlated with the ideal body ($\rho = 0.540, p < 0.001$) while the correlation between the actual body and body thought most attractive to women was slightly weaker ($\rho = 0.260, p < 0.001$). There was no correlation between the actual body and normative body ($\rho = 0.121, p > 0.1$). Significant positive correlations were found between the ideal body and normative body ($\rho = 0.279, p < 0.001$), between the ideal body and the body women were thought to find attractive ($\rho = 0.462, p < 0.001$), and between the normative body and body women were thought to find attractive ($\rho = 0.421, p < 0.001$).

Table 3 presents the correlations between the selections in the Figure Rating Scale, the divergence indicators, age, body variables and data concerning resistance training. The older the study participant the more muscular the actual body, the less muscular the normative

Table 1. Results of the Figure Rating Scale (%)

| Silhouette | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | <i>M ± SD</i> |
|---------------------|-----|------|------|-------------|-------------|-------------|-------------|------|-----|---------------|
| Actual | 1.1 | 10.2 | 15.9 | 25.0 | 30.1 | 10.2 | 5.1 | 0.6 | 1.7 | 4.37 ± 1.49 |
| Ideal | 0 | 2.3 | 5.1 | 22.7 | 26.1 | 21.6 | 14.8 | 6.3 | 1.1 | 5.34 ± 1.46 |
| Normative | 0 | 0.6 | 5.1 | 13.1 | 15.3 | 22.2 | 26.7 | 11.9 | 5.1 | 6.07 ± 1.56 |
| Attractive to women | 2.3 | 0.6 | 10.8 | 21.0 | 22.7 | 24.4 | 16.5 | 0.6 | 1.1 | 5.10 ± 1.48 |

Results in bold indicate the most common responses.

Table 2. Divergence indicators in the Figure Rating Scale (%)

| Divergence | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | <i>M ± SD</i> |
|----------------------------|-----|-----|-----|-----|------|-------------|-------------|-------------|------|------|-----|-----|---------------|
| Ideal-actual | 0 | 0 | 0 | 2.2 | 6.8 | 29.0 | 29.0 | 22.2 | 5.7 | 4.0 | 1.1 | 0 | 0.97 ± 1.47 |
| Normative-actual | 0 | 1.1 | 1.7 | 2.3 | 10.2 | 9.7 | 15.9 | 23.3 | 17.6 | 11.4 | 5.7 | 1.1 | 1.70 ± 2.04 |
| Attractive to women-actual | 0.6 | 0.6 | 4.0 | 7.4 | 11.4 | 15.9 | 22.7 | 23.9 | 8.5 | 5.1 | 0 | 0 | 0.73 ± 1.80 |

Results in bold indicate the most common values.

body, and the lower divergence indicators. There was a significant correlation between declared (self-reported) body mass and the actual body and between declared body mass and the ideal body. There was no correlation, however, between declared body mass and the normative body and between declared body mass and the body considered to be most attractive to women. The higher the declared body mass the smaller the divergence between the actual body and normative body and also smaller between the actual body and body considered by the participants to be most attractive to women but not between the actual body and ideal body. Declared body height was positively correlated with declared body mass ($\rho = 0.329, p < 0.001$) and with the choices made in the Figure Rating Scale except for the choices concerning the actual body. BMI positively correlated with the level of actual and ideal body musculature but correlated negatively with all divergence indicators.

The number of years in training correlated positively with the level of actual body musculature and negatively with all divergence indicators. The higher the training frequency the more muscular selection of the actual body and normative body. The musculature of the ideal body correlated negatively with training session duration. Training intensity correlated positively with all choices in the Figure Rating Scale. The choices in the Figure Rating Scale were significantly correlated with dissatisfaction with the trunk (Table 4). The more muscular the ideal body and the body attractive to women, and the greater the divergence between the actual body and ideal body and between the actual body and the body thought to be attractive to women, the greater the dissatisfaction

with the trunk. The same correlations were observed in the case of dissatisfaction with one's motor characteristics and total dissatisfaction with the body. Dissatisfaction with overall appearance correlated with the actual body, the divergence between the actual body and ideal body, and between the actual body and the body considered most attractive to women.

Discussion

The results of the study indicate that the Polish population of men regularly involved in resistance training in gyms aspired for a muscular build similar to what was observed in studies conducted on North America and Europe populations. The mean ideal body selected by the participants was more muscular than what they considered to be their actual body, with the mean difference between the ideal and the actual body was one silhouette. Less than 30% of sample fully accepted their appearance (a match between the silhouette selected as the most similar to their own body and the silhouette indicated as the one they would like to have). A small percentage of the men indicated that they would like to be less muscular. For comparison, the findings of other researchers indicated that 86% of students aged 18–30 years at an American college would like to be more muscular, 35% wanted to increase body mass, 31% wanted to decrease body mass and 34% of these students were satisfied with their body mass [25]. This result was explained by men striving to increase body mass than to reduce it as more frustration was felt when being too frail than when overweight [26]. It can be assumed

Table 3. Spearman's correlation coefficients between the results of the Figure Rating Scale and body and training characteristics (ρ)

| | A | B | C | D | B–A | C–A | D–A |
|--------------------------------------|--------------------|---------------------|---------------------|--------------------|---------------------|---------------------|---------------------|
| Age | 0.194 ^b | 0.007 | -0.138 ^a | -0.076 | -0.193 ^b | -0.236 ^b | -0.263 ^c |
| Body mass | 0.522 ^c | 0.427 ^c | 0.038 | 0.144 | -0.123 | -0.355 ^c | -0.333 ^c |
| Height | 0.156 ^a | 0.244 ^c | 0.167 ^a | 0.143 ^a | 0.090 | 0.011 | 0.022 |
| BMI | 0.453 ^c | 0.292 ^c | -0.068 | 0.041 | -0.187 ^a | -0.379 ^c | -0.368 ^c |
| Years of training | 0.206 ^a | -0.012 | -0.027 | -0.020 | -0.246 ^c | -0.198 ^a | -0.256 ^c |
| Number of training sessions per week | 0.177 ^a | 0.111 | 0.278 ^c | 0.138 | -0.103 | 0.097 | -0.036 |
| Duration of training session | 0.036 | -0.131 ^a | 0.110 | -0.049 | -0.181 ^a | 0.092 | -0.068 |
| Intensity of training session | 0.163 ^a | 0.219 ^b | 0.201 ^b | 0.156 ^a | 0.008 | -0.025 | -0.043 |

A – actual, B – ideal, C – normative, D – attractive to women; ^a 0.01 < $p \leq 0.05$; ^b 0.001 < $p \leq 0.01$; ^c $p \leq 0.001$

Table 4. Spearman's correlation coefficients between the results of the Figure Rating Scale and body dissatisfaction indices (ρ)

| | A | B | C | D | B–A | C–A | D–A |
|--|---------------------|--------------------|--------|--------------------|--------------------|--------|--------------------|
| Dissatisfaction with head | 0.053 | 0.130 | 0.061 | 0.074 | 0.192 ^a | -0.019 | 0.088 |
| Dissatisfaction with trunk | -0.081 | 0.256 ^c | 0.012 | 0.197 ^a | 0.386 ^c | 0.072 | 0.232 ^b |
| Dissatisfaction with general appearance | -0.198 ^a | 0.084 | -0.071 | 0.042 | 0.310 ^c | 0.080 | 0.205 ^b |
| Dissatisfaction with motor characteristics | -0.079 | 0.134 ^b | 0.038 | 0.226 ^b | 0.330 ^c | 0.071 | 0.258 ^c |
| Dissatisfaction with body (total) | -0.120 | 0.226 ^b | 0.005 | 0.186 ^a | 0.387 ^c | 0.095 | 0.256 ^c |

A – actual, B – ideal, C – normative, D – attractive to women; ^a 0.01 < $p \leq 0.05$; ^b 0.001 < $p \leq 0.01$; ^c $p \leq 0.001$

that these differences are particularly substantial in the case of men engaged in regular resistance training.

The body that the participants indicated other men would like to have were even more muscular. If we assume that other individual's opinion determine appearance norms, this finds that the normative body was the most muscular. This was also evidenced by the fact that the greatest observed difference occurred between the respondents' opinion about their own appearance and this normative model (a mean minimum of one-and-a-half silhouettes). Only one in ten participants were found with match between the actual body and the normative body. This suggests that a considerable percentage of Polish men engaged in resistance training do not accept their own appearance and consider themselves inadequately muscular in comparison with the social model. The presence of this mesomorphic model, typical in Western culture, has been confirmed in studies carried out not only in North America and Europe but also in Africa and Asia [12, 27–29].

On what basis did the respondents formulate their opinions about the body desired by other men? This has been hypothesized to be the result of social comparisons (I vs. others) especially in locations where men engage in behaviours aimed at achieving an ideal body (in this case fitness clubs and gyms) [22]. Men may also adopt the bodies of instructors working at such facilities as a model. Studies on this issue have shown that the tendency to conduct social comparisons in such situations resulted in worsened body image, stronger aspiration for being muscular [30] and greater body dissatisfaction [31]. Models promoted in the media are another source of body image [22, 32]. Studies have indicated that exposure to these models makes an individual more focused on their appearance [33], intensifies drive for a muscular body [22] and results in diminished acceptance of self appearance and lowered body satisfaction [34].

Therefore, there arises the question as to which of the studied indicators have the greatest influence on the level of body satisfaction. Our results indicate that the more muscular the ideal body and the body attractive to women, the greater the dissatisfaction with one's trunk and motor characteristics. However, there was no relationship between dissatisfaction with the trunk and motor characteristics and the perceived level of musculature (actual body) and opinion concerning what other men's ideal was (normative body). The results also found that the divergence between the actual body and the body that was considered most attractive to women was considerably significant. The indicator of this divergence was associated with almost all the other indicators of body dissatisfaction in the Body Satisfaction Scale (apart from dissatisfaction with the face). The indicator of divergence between the actual body and the ideal body correlated only with dissatisfaction with the trunk and motor characteristics. Interestingly, the divergence between the actual body and normative body did not

correlate with any of the indicators of body satisfaction. Therefore, the emotional attitude of the study participants towards their own bodies seemed to be mainly determined by the agreement between the participants' own bodies and their concept of the ideal body and the body they thought is most attractive to women, and not by the match between the participants' actual bodies and the body they thought other men would consider ideal. Previous studies have suggested that the increase in body dissatisfaction observed in contemporary men was related to increasingly more demanding cultural models [30, 34]. Comparing one's appearance with such standards is believed to cause people to think of themselves as less attractive, hence the rise in dissatisfaction [31]. According to the results of this study, relating one's own appearance to less restrictive ideals believed to be most attractive to women may be a defence mechanism against lower levels of body satisfaction. The use of this defence mechanism may be more frequent in men training in gyms, as they are regularly confronted with men whose appearance is closer to the models presented in the media. Other studies have indicated that resistance training may protect an individual from the negative effects and increased body dissatisfaction after being exposed to muscled ideals [34].

The results of the present study showed that the silhouette selected as the most similar to the respondents' body became more muscular with age and the number of years involved in resistance training. As a result, all the divergence indicators decreased, where the older the individual and greater the number of years spent training, the greater the match between the actual body and the ideal, normative and attractive to women body types. It can be observed that body mass and musculature quickly increase with age during late adolescence and early adulthood, the age range of the study participants, and may explain the relationship identified in the study. While there was a correlation between age and years in training, none of the remaining partial correlation coefficients of age and the results from the Figure Rating Scale, according to the number of years in training, were statistically significant. Therefore, it can be assumed that the number of years in training was responsible for the observed correlation. The significance of this variable is quite obvious; the longer an individual is involved in resistance training, the greater the musculature and the closer they achieve the ideal body. It should be remembered that being engaged in regular exercise, especially in activities aimed at hypertrophy and building strength, plays a role in reducing the negative influence of being exposed "ideally muscled men" on body satisfaction [34, 35].

The relatively strong correlations between the actual body and body mass and between the actual body and BMI suggest that the actual (self-reported, to be more precise) body variables were significant indicators of actual body image as identified in the Figure Rating Scale.

Previous studies have indicated that body image reflects objective body characteristics (body mass, BMI) and the relationship between these variables only to a small degree, although athletes, especially those engaged in resistance training, made more accurate judgements as to the size of their own body [36]. Correlations between the self-reported physical dimensions and the body declared as the ideal allow us to assume that men training in gyms adjust the ideal body to actual body variables.

Training frequency was positively correlated with actual body and normative body musculature. This correlation, naturally, does not determine the direction of the relationship. It seems probable that men engaged in resistance exercise present an increase in body mass while being simultaneously confronted with the muscular bodies of instructors and other individuals frequenting gyms. Training intensity correlated positively with the ideal body. In this case, it seems more probable that men increased exercise intensity while striving for the very muscular ideal. However, determining the direction of this relationship requires longitudinal research. It is also difficult to explain why training duration was negatively correlated with the ideal body and with the divergence between the ideal body and actual body. These issues require further study.

The present study had significant limitations that require consideration. This included using self-reported measures of body mass and height that were not measured objectively and may have affected the robustness of the results. Furthermore, data were not collected on what silhouette best matched the actual appearance of the participants. The actual body referred to in the study was also a self-reported measure that the participant declared to resembled their own body build. As the cited research indicates, body perception may be distorted by a number of factors and this may have skewed the results. Hence, an objective evaluation via an outside observer would have been a valuable source of information. In addition, the study encompassed a rather small sample of men training in gyms in Warsaw, Poland. As the models of appearance depend on socio-cultural factors, the obtained results cannot be generalised to the entire population of men involved in resistance training in Poland.

Conclusions

The results of the study suggest that Polish men training in gyms strive for a muscular physique and that few individuals fully accept their appearance. The majority of the participants indicated they would like to be more muscular and that the physique that they selected as being considered ideal by other men was even more muscular. The results also indicated that the body desired by men was not always the one indicated to be most attractive to women. The normative body, as determined by the expectations of other men, seems to be more de-

manding than the preferences attributed to women. However, the latter is possibly a stronger determinant of the level of body satisfaction in men engaged in resistance training. Age, body mass, BMI and the number of years in training appear to decrease the indicators of divergence between the body models and the actual body due to their positive correlation with the actual body as perceived by the participants.

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References

1. Adams G., Turner H., Bucks R., The experience of body dissatisfaction in men. *Body Image*, 2005, 2 (3), 271–283, doi: 10.1016/j.bodyim.2005.05.004.
2. Garner D.M., The 1997 Body Image Survey results. *Psychol Today*, 1997, 30, 30–44, 75, 76, 78, 84.
3. Schooler D., Ward L.M., Average Joes: Men’s relationships with media, real bodies, and sexuality. *Psychol Men Masculinity*, 2006, 7 (1), 27–41, doi: 10.1037/1524-9220.7.1.27.
4. Frederick D.A., Fessler D.M.T., Haselton M.G., Do representations of male muscularity differ in men’s and women’s magazines. *Body Image*, 2005, 2 (1), 81–86, doi: 10.1016/j.bodyim.2004.12.002.
5. Goldfield G.S., Blouin A.G., Woodside D.B., Body image, binge eating, and bulimia nervosa in male bodybuilders. *Can J Psychiat*, 2006, 51 (3), 160–168.
6. Miller E., Halberstadt J., Media consumption, body image, and thin ideals in New Zealand men and women. *New Zealand J Psychol*, 2005, 34 (3), 189–195.
7. Xie B., Chou C.-P., Spruijt-Metz D., Reynolds K., Clark F., Palmer P.H. et al., Weight perception and weight-related sociocultural and behavioral factors in Chinese adolescents. *Prev Med*, 2006, 42 (3), 229–234, doi:10.1016/j.ypmed.2005.12.013.
8. McCabe M.P., Ricciardelli L.A., Body image dissatisfaction among males across the lifespan: a review of past literature. *J Psychosom Res*, 2004, 56 (6), 675–685, doi: 10.1016/S0022-3999(03)00129-6.
9. McCreary D., Sadava S., Gender differences in relationships among perceived attractiveness, life satisfaction, and health in adult as a function of body mass index and perceived weight. *Psychol Men Masculinity*, 2001, 2 (2), 108–116.
10. Leone J.E., Sedory E.J., Gray K.A., Recognition and treatment of muscle dysmorphia and related body image disorders. *J Athl Train*, 2005, 40 (4), 352–359.
11. Baghurst T., Hollander D.B., Nardella B., Haff C.G., [Change in sociocultural ideal male physique: An examination of past and present action figures](#). *Body Image*, 2006, 3 (1), 87–91, doi: 10.1016/j.bodyim.2005.11.001.
12. Frederick D.A., Buchanan G.M., Sadeghi-Azar L., Peplau L.A., Haselton M.G., Brezovskaya A. et al., Desiring the muscular ideal: Men’s body satisfaction in the United States, Ukraine, and Ghana. *Psychol Men Masculinity*, 2007, 8 (2), 103–117, doi: 10.1037/1524-9220.8.2.103.

13. Pope Jr. H.G., Gruber A.J., Choi P., Olivardia R., Phillips K.A. Muscle dysmorphia: An underrecognized form of body dysmorphic disorder. *Psychosomatics*, 1997, 38 (6), 548–557, doi: 10.1016/s0033-3182(97)71400-2.
14. Grieve F.G., A conceptual model of factors contributing to development of muscle dysmorphia. *Eat Disord*, 2007, 15 (1), 63–80, doi: 10.1080/10640260601044535.
15. Mangweth B., Pope H.G., Kemmler G., Ebenbichler C., Hausmann A., De Col C. et al., Body image and psychopathology in male bodybuilders. *Psychother Psychosom*, 2001, 70 (1), 38–43, doi: 10.1159/000056223.
16. Anderson S.L., Zager K., Hetzler R.K., Nahikian-Nelms M., Syler G., Comparison of Eating Disorder Inventory (EDI-2) scores of male bodybuilders to the male college student subgroup. *Int J Sport Nutr*, 1996, 6 (3), 255–262.
17. Pickett T.C., Lewis R.J., Cash T.F., Men, muscles, and body image: comparison of competitive bodybuilders, weight trainers, and athletically active controls. *Br J Sports Med*, 2005, 39 (4), 217–222, doi: 10.1136/bjism.2004.012013.
18. Santerecchi E., Dèttore D., Muscle dysmorphia in different degrees of bodybuilding activities: Validation of the Italian version of Muscle Dysmorphia Disorder Inventory and Bodybuilder Image Grid. *Body Image*, 2012, 9 (3), 396–403, doi: 10.1016/j.bodyim.2012.03.006.
19. Murray S.B., Rieger E., Touyz S.W., De la Garza Garcia Y.L., Muscle dysmorphia and the DSM-V conundrum: where does it belong? A review paper. *Int J Eat Disord*, 2010, 43 (6), 483–491, doi: 10.1002/eat.20828.
20. Nieuwoudt J.E., Zhou S., Coutts R.A., Booker R., Muscle dysmorphia: Current research and potential classification as a disorder. *Psychol Sport Exerc*, 2012, 13 (5), 569–577, doi: 10.1016/j.psychsport.2012.03.006.
21. Goodale K.R., Watkins P.L., Cardinal B.J., Muscle dysmorphia: a new form of eating disorder? *Am J Health Educ*, 2001, 32(5), 260–266, doi: 10.1080/19325037.2001.10603480.
22. Daniel S., Bridges S.K., The drive for muscularity in men: Media influences and objectification theory. *Body Image*, 2010, 7 (1), 32–38, doi: 10.1016/j.bodyim.2009.08.003.
23. Stunkard A.J., Sorenson T., Schlusinger F., Use of Danish adoption registers for the study of obesity and thinness. In: Kety S.S., Rowland L.P., Sidman R.L., Mathysse S.W. (eds.), *The genetics of neurological and psychological disorders*. Raven Press, New York 1983, 115–120.
24. Slade P.D., Dewey M.E., Newton T., Brodie D., Kiemle G., Development and preliminary validation of the body satisfaction scale (BSS). *Psychol Health*, 1990, 4 (3), 213–220.
25. Ochner C.N., Gray J.A., Brickner K., The development and initial validation of a new measure of male body dissatisfaction. *Eat Behav*, 2009, 10 (4), 197–201, doi: 10.1016/j.eatbeh.2009.06.002.
26. Olivardia R., Pope Jr. H.G., Borowiecki J.J., Cohane G.H., Biceps and body image: The relationships between muscularity and self-esteem, depression and eating disorder symptoms. *Psychol Men Masculinity*, 2004, 5 (2), 112–120, doi: 10.1037/1524-9220.5.2.112.
27. Babusa B., Urbán R., Czeglédi E., Túry F., Psychometric properties and construct validity of the Muscle Appearance Satisfaction Scale among Hungarian men. *Body Image*, 2012, 9 (1), 155–162, doi: 10.1016/j.bodyim.2011.08.005.
28. González-Martí I., Bustos J.G.F., Jordán O.R.C., Mayville S.B., Validation of a Spanish version of the Muscle Appearance Satisfaction Scale: Escala de Satisfacción Muscular. *Body Image*, 2012, 9 (4), 517–523, doi: 10.1016/j.bodyim.2012.05.002.
29. Tylka T.L., Refinement of the tripartite influence model of men: Dual body image pathways to body change behaviors. *Body Image*, 2011, 8 (3), 199–207, doi: 10.1016/j.bodyim.2011.04.008.
30. Morrison T.G., Morrison M.A., Hopkins C., Striving for bodily perfection? An exploration of the drive for muscularity in Canadian men. *Psychol Men Masculinity*, 2003, 4 (2), 111–120, doi: 10.1037/1524-9220.4.2.111.
31. Lorenzen L.A., Grieve F.G., Thomas A., Exposure to muscular male models decreases men's body satisfaction. *Sex Roles*, 2004, 51 (11–12), 743–748, doi: 10.1007/s11199-004-0723-0.
32. Leit R.A., Gray J.J., Pope Jr H.G., The media's representation of the ideal male body: A cause of muscle dysmorphia? *Int J Eat Disord*, 2002, 31 (3), 334–338, doi: 10.1002/eat.10019.
33. Bartlett C.P., Vowels C.L., Saucier D.A., Meta-analyses of the effects of media images on men's body-image concerns. *J Soc Clin Psychol*, 2008, 27 (3), 279–310, doi: 10.1521/jscp.2008.27.3.279.
34. Blond A., Impacts of exposure to images of ideal bodies on male body dissatisfaction: A review. *Body Image*, 2008, 5 (3), 244–250, doi: 10.1016/j.bodyim.2008.02.003.
35. Halliwell E., Dittmar H., Orsborn A., The effect of exposure to muscular male models among men: Exploring the moderating role of gym use and exercise motivation. *Body Image*, 2007, 4 (3), 278–287, doi: 10.1016/j.bodyim.2007.04.006.
36. Rossi B., Zoccolotti P., Body perception in athletes and non-athletes. *Percept Mot Skills*, 1979, 49 (3), 723–726, doi: 10.2466/pms.1979.49.3.723.

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Correspondence address

Monika Guskowska
Wydział Turystyki i Rekreacji
Akademia Wychowania Fizycznego
Józefa Piłsudskiego
ul. Marymoncka 34
00-968 Warszawa, Poland
e-mail: monika.guskowska@awf.edu.pl