



Body image in women participants of strength training: association with sociodemographic factors and practice time

Imagem corporal em mulheres praticantes de treinamento de força: associação com fatores sociodemográficos e tempo de prática

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ABSTRACT

In Brazil, the evidence indicates a high prevalence of dissatisfaction with body image (BI) among adult women. Studies show that gym goers have characteristics that differ from other populations. Specifically, women who practice strength training (ST) exhibit intense concern about well-being, which presents as strong self-criticism of the body. This group of women are typically in search for an ideal body pattern stipulated by society. The purpose of the present study was to identify in the women the perception with BI, classify them as satisfied or dissatisfied, and association this information with age group, anthropometric indicators (body mass index and perimeter of waist), and variables related to the practice of ST (purpose and time of the practice). The sample group consisted of 77 women aged 20 to 54 years (29.83 ± 9.75) who practiced ST. For the assessment of BI, the Body Shape Questionnaire (BSQ) was used in addition to a questionnaire around the other variables. A descriptive analysis was used, chi-squared test and Fisher's Exact test were adopted at a significance level of 5%. The results demonstrated that among all participants, 87.0% were satisfaction with BI. It was found association direct with the dissatisfaction of BI with the purpose of the practice of ST ($p = 0.031$) and with the practice time ($p = 0.030$). Were found, in which the women less satisfied with their BI were those who trained for body mass control and practiced ST for more than 6 months. The other variables did not show significant associations with BI. It is concluded that the women who practice ST have shown a positive perception regarding their body image, associated to the objective and the time of the practice.

Keywords: Body image; Self-evaluation; Resistance training.

RESUMO

No Brasil, evidências indicam uma elevada prevalência de insatisfação com a imagem corporal (IC) entre as mulheres adultas. Estudos mostram que frequentadores de academias têm características que o diferem de outras populações. As mulheres praticantes de treinamento de força (TF) demonstram preocupação intensa com o bem-estar e forte autocrítica em relação ao corpo. Essas mulheres tendem a buscar o padrão ideal estipulado pela sociedade. O objetivo do presente estudo foi identificar em mulheres praticantes de TF a percepção da IC, classificá-la como satisfeita ou insatisfeita, e associar com a idade, indicadores antropométricos (índice de massa corporal e circunferência da cintura) e variáveis relacionadas ao TF (objetivos da prática e tempo de prática). Participaram do estudo 77 mulheres de 20 a 54 anos ($29,83 \pm 9,75$). Para a avaliação da IC utilizou-se o Body Shape Questionnaire (BSQ) e um questionário para as demais variáveis. Utilizou-se análise descritiva, o teste Qui-quadrado e Exato de Fisher. Os resultados demonstraram que dentre as participantes, 87,0% estavam satisfeitas com a IC. Foram encontradas associações diretas da insatisfação da IC com o objetivo ($p = 0,031$) e com o tempo da prática ($p = 0,030$). As mulheres menos satisfeitas com a sua IC eram as que treinavam com o objetivo de controle da massa corporal e praticavam TF há mais de 6 meses. As demais variáveis não demonstraram associações significativas com a IC. Conclui-se que as mulheres praticantes do TF demonstraram ter uma percepção positiva com relação a sua imagem corporal, associada ao objetivo e ao tempo da prática.

Palavras-chave: Imagem corporal; Autoavaliação; Treinamento de resistência.

Introduction

The relationships between an individual and the perception of his or her own body are often determined by social and cultural values imposed by society and

media, which accepts and diffuses established standards as being ideal¹. Studies show that a referential body of beauty is the lean and muscular type^{2,3}. However, these beauty standards are unreachable for the majority of the

population, which generates exaggerated concerns with one's appearance and dissatisfaction with one's own body image (BI)^{1,4}. In Brazil, the evidences show an elevated prevalence of BI dissatisfaction among adult females^{5,6} and, 67% have shown to be dissatisfied^{7,8}. Given the high rate^{5,6}, it is common to observe, among this crowd, a quest for strategies to improve this scenario, whether by the involuntary development of eating disorders or by performing physical exercises, such as water aerobics, walking and strength training (ST)⁹⁻¹¹.

Evidences show that gym goers have characteristics that differ them from other populations⁶. Women practitioners of ST show an intense worry regarding their bodies, which causes them to have strong self-criticism towards it. Thus, some studies have found moderate (52%) and severe (34.3%) levels of BI dissatisfaction in women who practice ST regularly⁵⁻⁹. Therefore, it is believed that there are factors that identify the relationship between BI and women. It has been shown that body mass index (BMI)⁹ and age⁶⁻⁹ were not associated, however the ST practice has been associated BI perception in the same population⁹.

Furthermore, studies^{1,12} demonstrated that with a BI it is associated with environment. Cities with high percentage of physical activity practitioners and places that encourage a practice tend to present more individuals with positive BI. Moreover, there is the eminent need of knowing the factors possibly associated with BI dissatisfaction in individuals who practice ST.

There are very few national studies found with the adult female population practitioners of ST⁶⁻¹³ on the perception with BI. Thus, it is necessary to understand the peculiarities of this specific group in relation the behaviors that can be associated to excessive concern such as own appearance, such as age, anthropometric variables, practice time and the goals that lead to practicing ST. Therefore, the present study has the following purposes: (i) identifying BI perception and classifying them as satisfied or dissatisfied; and (ii) associating this outcome with age, anthropometric indicators [BMI and waist circumference (WC)] and variables related to ST (practice objectives and practice time) in women practitioners of ST.

Methods

This study is characterized as descriptive, cross sectional. The study was carried out in 2016 in a gym located in the city of Florianópolis (Santa Catarina). The participants were selected for convenience, and all the women who fit the inclusion criteria were invited and

accepted to participate in the study. The sample consisted of 77 women practitioners of ST with a mean age of 29.83 ± 9.75 years. The sample power a posterior was calculated considering $\alpha = 5\%$, $\beta = 80\%$ and chi-square between practice objective and dissatisfaction with BI, resending a high effect size ($d = 0.99$) through G * Power software version 3.1.9.2.

To participate in the study, women should have a minimum age of 18 years old and have been practicing TF for at least one month. Women who were involved in other physical activities were excluded. The study participants have signed Free and Informed Consent Forms that followed the ethical principles. The study was approved by the Human Research Ethics Committee of the Federal University of Santa Catarina (UFSC), registered under the number 1.640.726, according to the norms of Resolution 466/12 of the National Health Council. The pre-selection of the subjects was given one week prior to the start of the research through the academic records of the academy.

For the BI evaluation, the Body Shape Questionnaire proposed by Cooper et al.¹⁴ was employed in its translated version, validated by Di Pietro e Silveira¹⁵. The adaptation of the questionnaire kept the characteristics of the original scale, presenting the adequate internal consistency (alfa de Cronbach = 0.97). The questionnaire is self-applicable, composed by 34 questions with six options of answers in Likert scale (never, rarely, sometimes, often, usually and always), scored from one through six. The final score can vary from 34 to 204 points, wherein higher scores indicate bigger BI concern and bigger self-deprecation due to physical appearance, specially in how one feels towards being overweight. According to the score obtained, the women were classified as satisfied (score < 111) or dissatisfied (score ≥ 111), according to Alves et al.¹⁶.

To recognize the purpose related to the practice of ST, a questionnaire with multiple-choice answers about the objective (weight control, health, physical fitness, physical attractiveness, body harmony, fun, disposition) and practice time (less than 3 months, 3 to 6 months, more than 6 months) was applied. The questionnaire applied in the present study was based on the "Reasons for exercise inventory" proposed by Silberstein et al.¹⁷.

In order to calculate the BMI, the self-referenced body mass and stature measurements were used. The validity of these measurements was verified in a study carried out with public workers in Rio de Janeiro (Rio de Janeiro), which identified a high correlation be-

tween admeasurement and information, with intraclass correlation coefficients of 0.98 for body mass and 0.94 for stature¹⁸. For the BMI classification, the cut points of the World Health Organization were used: underweight (≤ 18.5), normal weight ($> 18.5 \leq 24.9$), overweight ($\geq 25 \leq 29.9$) and obesity (≥ 30)¹⁹. In the data analysis, the women who were underweight or had average weight were grouped into a single category due to the small number of underweight women ($n = 3$).

A single trained measurer, measured the WC, according to the standardization proposed by the International Society for the Advancement of Kinanthropometry²⁰. A flexible and extensible anthropometric measuring tape by Sanny[®] was used, with 0.1 centimeters resolution. The World Health Organization²¹ cut-off points for the WC were used to identify the risk of cardiovascular diseases and other chronic non-transmissible diseases. In the data analysis, the risk categories considered were normal (< 80 cm), increased (≥ 80 cm) and highly increased (≥ 88 cm).

Some variables, due to the low frequencies, were categorized for the data analysis. For the practice objective, three categories were considered: weight control; health; others (physical fitness, physical harmony, body harmony, fun and disposition), and regarding practice time, the interval taken under consideration was “ ≤ 6 months” and “ > 6 months”. Regarding the BMI analysis, the categories were grouped into “Underweight / normal weight” and “overweight / obesity”. Finally, the WC was classified as “Normal” (< 80 cm) and “Increased” (≥ 80 cm)²¹.

The descriptive analysis, based on average, standard deviation, minimum and maximum value and the distribution of absolute and relative frequencies was used to describe the variables studied. To verify the association between BMI dissatisfaction and independent variables (age group, BMI, WC, ST practice goal and practice time), chi-squared test (variable 2×2), the Fisher's Exact Test (variable 3×2) was used. The data were analyzed in the statistical program SPSS, version 15.0, considering a 5% significance level. (CAAE: 57256716.1.0000.0121).

Results

Characteristics of the women practitioners of the study sample is shown in Table 1. Descriptive information regarding age, body mass, height, BMI and WC. The score related to the BSQ questions indicates the women were classified as being satisfied with BI.

Table 1 – Characterization of women who practice ST at a gym in the city of Florianópolis, Santa Catarina, 2016 ($n = 77$).

Variable	Mean (SD)	Minimum	Maximum
Age (years)	29.83 (9.75)	20	54
Body weight (kg)	58.53 (8.22)	44	82
Height (m)	1.63 (0.06)	1.51	1.78
BMI (kg/m ²)	21.32 (2.58)	16	29
WC (cm)	68.01 (5.70)	57	83
BSQ	79.92 (23.05)	35	130

BMI = body mass index; WC = waist circumference; BSQ = Body Shape Questionnaire.

The values referring to the association and frequency distribution of the independent variables studied. The found results indicate that for classification of body image, 87.0% ($n = 67$) of all participants were satisfied with BI. Among the women satisfied, 11.9% ($n = 8$) were overweight/obese. Regarding the association of perception with BI and the factors determining the outcome, significant associations were found with the objective ($p = 0.031$) and the time ($p = 0.030$) of practice (Table 2).

Table 2 – Association and frequency distribution of BI with the independent variables in women who practice ST in the city of Florianópolis, Santa Catarina, 2016 ($n = 77$).

Independent variables	All participants % (n)	Body image % (n)		p value
		Satisfied	Dissatisfied	
		87.0 (67)	13.0 (10)	
Age (years)				0.144
20-29	61.0 (47)	89.4 (42)	10.6 (5)	
30-39	18.2 (14)	71.4 (10)	28.6 (4)	
40-54	20.8 (16)	93.8 (15)	6.35 (1)	
BMI				0.479
Underweight/Normal weight	87.0 (67)	88.1 (59)	11.9 (8)	
Overweight/obesity	13.0 (10)	80.0 (8)	20.0 (2)	
WC				0.427
Normal	94.8 (73)	86.3 (63)	13.7 (10)	
Increased	5.2 (4)	100.0 (4)	0.0 (0)	
Purpose of practice				0.031*
Weight control	20.8 (16)	68.8 (11)	31.3 (5)	
Heath	42.9 (33)	87.9 (29)	12.1 (4)	
Others ¹	36.4 (28)	96.4 (27)	3.6 (1)	
Practice time				0.030*
Up to 6 months	27.8 (32)	96.9 (31)	3.1 (1)	
More than 6 months	39.2 (45)	80.0 (36)	20.0 (9)	

¹Physical aptitude, physical attractiveness, body harmony, fun and disposition. *Significant association; BMI = body mass index; WC = waist circumference.

Discussion

The present study investigated the association between BI perception with the age group, anthropometric indicators (BMI and WC) and variables related to the strength training practice in women over 18 years of age. The prevalence of BI dissatisfaction was 13% and the goals of the women who practice ST presented an association with the outcome, which indicates a bigger dissatisfaction among those who practiced with the goal of losing weight and in those whose practice time is longer than 6 months.

Our findings diverge from those found by Costa et al.⁵, who evaluated the presence of BI dissatisfaction in gym goers and observed that 34.3% presented moderate and severe BI dissatisfaction, and from the results found by Silva et al.⁹ who found 52.0% of women who practice ST with the same degree of dissatisfaction. Young women idealize a slim body because of aesthetic standards, becoming a risk group for presenting self-image dissatisfaction⁵.

In the present study, the number of women who presented BI dissatisfaction was smaller (13.0%), compared to the other studies mentioned^{5,9}, but similar (21.4%) to the results found among women who were gym goers in the city of Pelotas, Rio Grande do Sul²². For the authors²², the low score could be due to the fact that the evaluated population is differentiated when compared to other population data. The regional, cultural and age differences of the population evaluated in the studies seem to influence the levels of dissatisfaction found.

The findings of the present study may be related to the fact of it being carried out in Florianópolis, a city that ranks as one of the best social and health indicators of the country (human development index 0.88). The capital of the Santa Catarina state may also have an appeal to practicing physical activities, with spaces that encourage exercising. Moreover, according to data from the Research Surveillance of Risk Factors and Protection for Chronic Diseases by Telephone Inquiry (VIGITEL, in Portuguese) carried out in 2014, Florianópolis is the capital with the highest percentage of adults who practice physical activity regularly (44.0%). Thus, the practice of physical activity might provide a positive BI, possibly due to the visible improvement in the anthropometric and psychic aspects^{9,23}.

Among the independent variables analyzed, the one that was associated with BI dissatisfaction in women practitioners of ST was practice goal, more specifically,

ly, weight control. Body dissatisfaction is associated to weight concerns, body shape and body fat¹³. Thus, to women who present concerns regarding their weight, the fear of being in a process of gaining weight is always present, which can reverberate in distortions regarding their self-image^{6,24}. The women with the objective of altering physical shape and increase satisfaction with BI, occurrence the search excessive physical activity or acquiring of abnormal eating patterns^{9,25}.

Therefore, in the present study, women who are dissatisfied with BI practice ST, with concerns with their body (gain or weight loss), corroborating with the literature that observes an intense preoccupation with body for women who practice ST^{6,9,13,25}. Women who practice ST are considered a risk group when it comes to developing unhealthy habits, given their intense worry with their health and well-being and also due to them being more critical of their own bodies²⁵. This fact can be observed when it is noticed that 20.0% of the women who practice ST for a period longer than 6 months are dissatisfied with the BIF. Differently, Silva et al.⁹ observed that as the practice time increased, there was an increase in body satisfaction, facts that were possibly found due to aspects related to the improvement of body aesthetics.

Contrary to this, in the present study no such results were found, it is believed that the female population is more susceptible to distort their BI due to the constant physical comparisons with other women²². Taking this fact into account, the gym environment can promote this dissatisfaction with BI, especially in women with greater difficulties in reaching their goals, whether it is weight loss or gaining muscle mass. Another factor that should be taken into consideration is that women start to get even more demanding with their body with the increase in practice time.

Regarding the anthropometric indicators, no associations were found between BMI, WC and BI. A possible explanation for this seems to be the fact that the anthropometric indicators are in the normal range, which may have contributed to bigger satisfaction regarding the physique. Different results were found in the study carried out by Bucchianeri et al.²⁶, which by evaluating women in a longitudinal study, have found an association between BI dissatisfaction and BMI. Abdominal region is the body part that is most associated to one's own body weight self-evaluation¹³. It is known that the BI is formed by the image an individual has regarding their size, structure, body shape

and how they feel regarding these characteristics⁵. In this sense, the bigger the WP, the more significant one's dissatisfaction regarding body image can be. This corroborates with the present study, given that there was no association found between WC and BI and the women had an average WC.

The age presented no association with the BI, corroborating the findings by Souza et al.⁶, who found no association between age and a few behaviors (eating, physical activity and BI dissatisfaction patterns). However, it is not yet well established in the literature the correlation between age and BI, so the age is not a determining factor for BI dissatisfaction¹⁰. Nevertheless, a few studies observed that women, regardless of age, have concerns with their body shape and with the advancement of their age, these concerns shift from aesthetics to health^{6,25,27}.

Regarding to the limitations of this study, the population was evaluated by estimation, considering the attendance in a specific gym, and the results cannot be generalized for all populations, we can mention the study's design as cross-sectional, which does not allow to establish causal relation between the variables studied. The small number of women evaluated is also a limitation due to the reduced statistical power in the analysis. Still, we consider that this study can bring important contributions, by analyzing that BI dissatisfaction with women who practice ST and the association to a set of variables (age, BMI, WP, practice goals and practice time). It is considered that the results of the present study can guide health professionals in the promotion of strategies to guide and assist women on the benefits brought about by physical exercise, mainly related to well-being.

The results allowed to conclude that the BI dissatisfaction in women who practice ST was low. Regarding the variables, associations with the purpose of the practice and the time of practice were made. Anthropometric indicators, age and time of practice did not present an association with BI. It is believed that despite the great cultural, mediatic and social influence of the perception of BI, it is necessary to emphasize and establish strategies to encourage healthy habits, in order to achieve a better quality of life. We highlight the necessity that health professionals reinforce and stimulate body image self-acceptance, in addition to stimulating the practice of physical activities. In addition, the obtained results can serve as an incentive for the practice and maintenance of strength training. It addresses the

need for health professionals to reinforce and stimulate self-acceptance of body image, as well as stimulating the practice of physical activities. Further researches on this topic are suggested in ST practitioners involving larger samples and both sexes in order to obtain more applicable information about BI.

Conflict of interest

The authors declare no conflict of interest.

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Authors' contributions

Sousa MV, the creation of the project, collection of study data, elaboration of the central and critical review of the text. Martins CR, interpretation of the results and critical review of the text. Lunardi M, the collection of study data, interpretation of the results and critical review of the text. Biduski GM, the collection of study data, interpretation of the results and critical review of the text. Ferrari EP, interpretation of the results and critical review of the text. Freitas CR, interpretation of the results and critical review of the text. All authors approved the final version of the manuscript.

References

1. Claumann GS, Pereira EF, Inácio S, Santos MC, Martins AC, Pelegrini A. Satisfação com a imagem corporal em acadêmicos ingressantes em cursos de Educação Física. *Rev Educ Física*. 2014;25(4):575-83.
2. Graup S, Pereira ÉF, Lopes AS, Araújo VC, Legnani RFS, Borgatto AF. Associação entre a percepção da imagem corporal e indicadores antropométricos de escolares. *Rev Bras Educ Fis Esporte*. 2008;22(2):129-38.
3. Felden EPG, Claumann GS, Sacomori C, Daronco LSE, Cardoso FL, Pelegrini A. Fatores sociodemográficos e imagem corporal em adolescentes do ensino médio. *Cien Saude Colet*. 2015;20(11):3329-37.
4. Castro JBP, Mattos RDS, Passos MD, Aquino FSD, Retondar JJM, Machado ADS. Alimentação, corpo e subjetividades na educação física e na nutrição: o ranço da adiposidade e a ascensão dos músculos. *DEMETERA: Aliment Nutr Saúde*. 2016;3 (11):803-24.
5. Costa ACP, Torre MCMD, Alvarenga MS. Atitudes em relação ao exercício e insatisfação com a imagem corporal de frequentadores de academia. *Rev Bras Educ Fis Esporte*. 2015;29(3):453-64.
6. Souza MCDFF, Souza LV, Barroso SM, Scorsolini-Comin F. Padrões alimentares e imagem corporal em mulheres frequentadoras de academia de atividade física. *Psico-USF*. 2013;18(3):445-54.
7. Santos Silva DA, Nahas MV, Sousa TF, Del Duca GF, Peres KG. Prevalence and associated factors with body image dissatisfaction among adults in southern Brazil: A population-based study. *Body Image*. 2011;8(4):427-31.

8. Mintem GC, Horta BL, Domingues MR, Gigante DP. Body size dissatisfaction among young adults from the 1982 Pelotas birth cohort. *Eur J Clin Nutr.* 2015;69(1):55-61.
9. Silva AJB, Brunetto BC, Reichert FF. Imagem corporal de praticantes de treinamento com pesos em academias de londrina, PR. *Rev Bras Ati Fis Saúde.* 2010;15(3):170-5.
10. Souto SVD, Novaes JDS, Monteiro MD, Neto GR, Mourão Carvalho MI, Coelho E. Imagem corporal em mulheres adultas vs. meia-idade e idosas praticantes e não praticantes de hidroginástica. *Motricidade.* 2016;12(1):53-9.
11. Damasceno VO, Lima JRP, Vianna JM, Vianna VRÁ, Novaes JS. Tipo físico ideal e satisfação com a imagem corporal de praticantes de caminhada. *Rev Bras Med Esporte.* 2005;11(3):181-6.
12. Alves D, Pinto M, Alves S, Mota A, Leirós V. Cultura e imagem corporal. *Motricidade.* 2009;5(1):1-20.
13. Porto DB, Azevedo BG, Melo DG, Christofaro DGD, Codogno JS, Silva CB, et al. Fatores associados à autoavaliação do peso corporal em mulheres praticantes de academia. *Rev Bras Cineantropom Desempenho Hum.* 2015;17(2):175-85.
14. Cooper PJ, Taylor MJ, Cooper Z, Fairburn CG. The development and validation of the body shape questionnaire. *Int J Eat Disord.* 1987;6(4):485-94.
15. Di Pietro M, Silveira DX. Internal validity, dimensionality and performance of the Body Shape Questionnaire in a group of Brazilian college students. *Rev Bras Psiquiatr.* 2008;31(1):21-4.
16. Alves E, Vasconcelos FAG, Calvo MCM, Neves J. Prevalência de sintomas de anorexia nervosa e insatisfação com a imagem corporal em adolescentes do sexo feminino do Município de Florianópolis, Santa Catarina, Brasil. *Cad Saúde Pública.* 2008;24(3):503-12.
17. Silberstein LR, Striegel-Moore RH, Timko C, Rodin J. Behavioral and psychological implications of body dissatisfaction: Do men and women differ? *Sex Roles.* 1988;19(3-4):219-32.
18. Fonseca MJM, Faerstein E, Chor D, Lopes CS. Validade de peso e estatura informados e índice de massa corporal: estudo pró-saúde. *Rev Saúde Pública.* 2004;38(3):392-8.
19. Garber CE, Blissmer B, Deschenes MR, Franklin BA, Lamonte MJ, Lee IM, et al. Quantity and Quality of Exercise for Developing and Maintaining Cardiorespiratory, Musculoskeletal, and Neuromotor Fitness in Apparently Healthy Adults. *Med Sci Sports Exerc.* 2011;43(7):1334-59.
20. Marfell-Jones M, Olds T, Stewart A, Carter L (eds). International standards for anthropometric assessment (ISAK). 1ª ed. Kinanthropometry IS for the A. South Africa: Potchefstroom Editorial; 2006:1-139.
21. World Health Organization. Obesity: Preventing and Managing the Global Epidemic. Geneva: WHO, 2000.
22. Medeiros TH, Caputo EL, Domingues MR. Insatisfação corporal em frequentadoras de academia. *J Bras Psiquiatr.* 2017;66(1):38-44.
23. Ahmed C, Hilton W, Pituch K. Relations of Strength Training to Body Image Among a Sample of Female University Students. *J Strength Cond Res.* 2002;16(4):645-8.
24. Kravchychyn ACP, Silva DF, Machado FA. Relação entre estado nutricional, adiposidade corporal, percepção de autoimagem corporal e risco para transtornos alimentares em atletas de modalidades coletivas do gênero feminino. *Rev Bras Educ Fis Esporte.* 2013;27(3):459-66.
25. Daros K, Zago EC, Confortin FG. Transtornos alimentares e imagem corporal de mulheres praticantes de atividade física em academias do município de Chapecó-SC. *Rev Bras Nutr Esportiva.* 2012;6(36):495-503.
26. Bucchianeri MM, Arikian AJ, Hannan PJ, Eisenberg ME, Neumark-Sztainer D. Body dissatisfaction from adolescence to young adulthood: Findings from a 10-year longitudinal study. *Body Image.* 2013;10(1):1-7.
27. Tiggemann M. Body image across the adult life span: stability and change. *Body Image.* 2004;1(1):29-41.

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