

# Association between motivational aspects, BMI and gender in resistance training practitioners

## Abstract

The present study aimed to identify the main motivational factors that lead adults to seek physical activity practices in gyms and their relationship with gender and BMI. The study had a quantitative, analytical, cross-sectional and randomized characteristic and was held in 4 physical training centers. In a population of 550 individuals, the sample consisted of 134, adults of both sexes, bodybuilding practitioners. As a tool and collection, a questionnaire from Meneguzzi and Voser (2011) was used to verify the motivational aspects for the practice of physical activity. For data homogeneity and normality, the Levene and Kolmogorov-Smirnov test were used, respectively. To verify the association between qualitative data, the chi-square test was used. A 95% confidence interval was adopted, reflecting a value of  $p < 0.05$ . The research participants were adults of both sexes with an average age of  $(30.7 \pm 9.11)$  years and a BMI of  $(25.29 \pm 3.4)$  kg/m<sup>2</sup>. The sample consisted of 49.25% men ( $n=66$ ) and 50.75% women ( $n=68$ ). There was no association between BMI and gender with motivational factors for the practice of strength training ( $p > 0.05$ ). With the exception of “social integration”, in all other factors the “extremely important” option was evident in most groups. We concluded in this study that, as a motivational factor, the majority of adults consider conditioning, aesthetics, health and anxiety control to be the practice of resistance training, as well as the different BMI and gender do not influence these responses.

**Keywords:** motivation, sedentary lifestyle, adults

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## Introduction

Nowadays, it is known that a sedentary lifestyle is one of the most relevant aspects in the occurrence of a series of health problems. This lack of physical exercise is associated with several cardiological and metabolic disorders, including a metabolic syndrome. It can also be responsible for 51% of deaths caused by chronic degenerative diseases, especially diabetes and cancer.<sup>1</sup>

It is a fact that technological advances have brought many benefits to man, such as the ability to exercise his daily and occupational activities with as little effort as possible. According to the Surveillance System for Risk and Protection Factors for Chronic Diseases by Telephone Survey, Brazilian adults have a high profile of leisure. About 28% of survey participants use television for three or more hours a day. The institute also points out that the cities with the highest percentages (23%) of television use for more than 3 hours a day are: Curitiba, Boa Vista and Fortaleza, each 23% of adults.<sup>2</sup> A recent study on world trends in insufficient physical activity between 2001 and 2016 points out that more than 47% of Brazilians are sedentary.<sup>3</sup> A research conducted with medical students found that, among the risk factors analyzed for obtaining cardiovascular diseases, physical inactivity prevailed among individuals.<sup>4</sup>

In sedentary individuals, the risk of developing hypertension is approximately 30% higher than that of active individuals.<sup>5</sup> In this sense, inactivity can lead to obesity, thus leading to other disorders, such as metabolic and joint disorders. Sedentary lifestyle has a series of complications, like circulating glucose malfunction, causing a disorder known as hyperglycemia, which in the medium and long term can lead to a predisposition to type 2 diabetes mellitus.<sup>6</sup> Currently, physical activity grows along with people's needs to be concerned about health and well-being. Thus, people look for establishments

conducive to the practice of bodybuilding, motivated by several factors such as aesthetics and improved health.<sup>7</sup> Bodybuilding, also called strength training, or resistance training, helps your practitioner to develop in neuromuscular aspects, where there is an adaptation of nerve endings and skeletal muscle to exercise, thus generating a gain in strength.<sup>8</sup>

Currently, bodybuilding has been growing side by side with the needs related to health and well-being. For these reasons, people are increasingly looking for gyms, motivated by various factors such as social interaction, improved health, and aesthetics. Therefore, different individuals can practice the same exercise, but with different goals, either for health or to achieve the perfect body sold by the current media.<sup>9</sup>

The media has become the largest world market producing and broadcasting in a meaningful way and within a contemporary society, transforming a culture into commodities, offered daily by the media and consumed by the population. In this new modernization of information technology, a media culture is created, influenced by the cultural industry, where healthy appearance and perfect bodies grow or manifest.<sup>10</sup> The need for healthy lifestyle habits has been widely publicized in improving the quality of life. However, in order to achieve these objectives, it is necessary for people to adhere to prolonged and regular periods of physical activity. The academy, as a service provider institution, needs to ascertain among its students and possible students the interest that motivates them to attend. It, so that there is a match between the user's wishes and the services offered and provided.<sup>11</sup>

Even with the knowledge of the harms resulting from a sedentary lifestyle<sup>12</sup> as well as the benefits of the practice of strength training,<sup>13</sup> it is not completely clear what are the main factors that motivate adults

to perform this practice and if there is a relationship between the gender and the body mass index. In view of the presented scenario, it is of great importance to identify the main motivational factors that lead people to seek the practice of physical activities in fitness centers and their relationship with these variables.

Thus, the aim of this study was to identify the main motivational factors that lead people to seek physical activity practices in weight training gyms and their relationship with BMI and gender.

## Methodology

### Ethical aspects

This research adopted the assumptions of bioethics, according to the determinations of Resolution 466/12 of the National Health Council of Brazil, which allow work with human beings. For the participation of the research all participants signed the consent form.

### Study design

The present study has a quantitative, analytical, cross-sectional and randomized characteristic. The research was conducted in four physical training centers, located in the city of Fortaleza-CE, from May to July of 2019. In a population of 550 individuals in the physical training centers, the sample was composed of 134, adults of both genders, practitioners of bodybuilding modality. The inclusion and exclusion criteria are presented below.

### Inclusion & exclusion criteria

To participate in the study, individuals should be adults, aged between 18 and 59 years old, regularly active in the gyms, with a minimum frequency of 3x a week, during the last 3-months. Individuals who, before the weight-training period, already practiced other physical activities, as well as those who did not complete the questionnaire completely or did not sign the Informed Consent Form (ICF), were excluded.

### Research outline

After signing the consent form by those responsible for the training centers, the researchers took turns in the morning, afternoon and evening, allowing a homogeneous chance for bodybuilding practitioners. The practitioners were approached and invited at random to participate in the study. After acceptance, each volunteer, each volunteer signed the ICF and answered a semi-structured questionnaire validated in the literature, with questions about motivation for the practice of physical activity and filling in socio-demographic data. The resolution of the questionnaire was carried out in a calm and reserved environment, allowing the privacy of the participants. After solving the questionnaire, the participants' weight and height were checked. With these data, it was possible to measure their Body Mass Index (BMI), according to the guidelines of the World Health Organization<sup>14</sup>.

### Outcome measures

Motivation Questionnaire for Systematized Physical Activity Practice: As a data collection instrument, a questionnaire created and validated by Meneguzzi & Voser<sup>15</sup> was used. The questionnaire consists of 5 questions, containing five categories of motivation: Physical conditioning/Performance improvement, Aesthetics; Health/physical rehabilitation, disease prevention, quality of life; Social

integration; Reduction of anxiety, stress (psychological issues); and Rehabilitation. Each of the questions presents five different degrees of importance (from 1 to 5) for each of the categories, considering the individual and motivational needs that led them to look for a gym, being: 1 (NI) as Not Important, 2 (PI) as Least Important, 3 (I) Important, 4 (MI) Very Important and 5 (EI) Extremely Important.

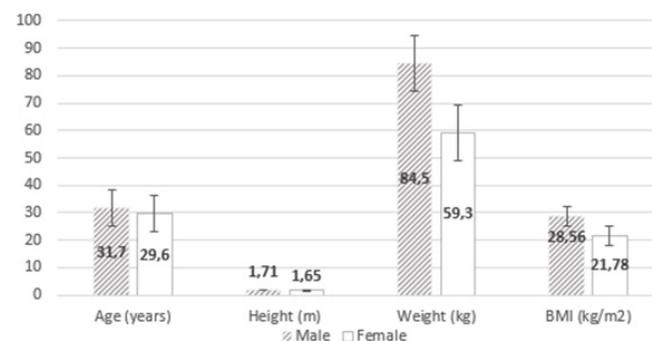
Weight, height and BMI: To check the participants' weight and height, a Tanita scale, model 558, and a portable Sannystadiometer were used, both validated by the National Institute of Quality and Technology Metrology (INMETRO). To check the body mass index, we used the formula [weight (kg) / (height (m) x height (m))].

### Statistical analysis

After collection, data were tabulated and analyzed using Microsoft Excel 2016 and SPSS Statistics 22. A 95% confidence interval was used, reflecting a p-value <0.05. To verify homogeneity and normality of the data, the Levene and Kolmogorov-Smirnov tests were used. The data were presented as distribution of simple frequencies (numerical value), relative (percentage), mean and standard deviation. To check the association between qualitative data, the chi-square test was used. In this test the null hypothesis is that the variables are not associated, in other words, they are independent.

## Results

The present study aimed to verify what are the main motivational factors in adults to start exercising in gyms and if there was a relationship with gender and BMI. Figure 1 presents the descriptive characteristics of the 134 research participants. The male gender represented 49.25% (n 66) of the sample, with a mean age of 31.7 years, and a BMI of 28.56kg/m<sup>2</sup>. The female gender with 68 participants (50.75%) had an average age and BMI of 29.6 years and a BMI of 21.78kg/m<sup>2</sup>, respectively.



**Figure 1** Description of the research participants divided by gender. Legend: m = meters. kg = Kilogram. BMI = Body Mass Index.

Table 1 shows an association between gender and motivational factors for the practice of strength training in adults. In none of the factors verified: Conditioning, Aesthetics, Health and Rehabilitation, Social Integration and Reduction of anxiety and stress we found an association with gender (p>0.05).

In the present study for physical conditioning, aesthetics, health and rehabilitation and anxiety, the “extremely important” option was attributed in a higher percentage for both genders. As for “social integration”, the highest percentage we found was the “important” choice for both men and women.

**Table 1** Association between gender and motivational factors in the practice of strength training

	Male (n=66)	Female (n=68)	P value
<b>Physical conditioning</b>			
Nothing important	n=2 (3%)	n=1 (1.5%)	0.708
Little important	0	0	
Important	n=12 (17.9%)	n=16 (23.9%)	
Very important	n=19 (28.4%)	n=15 (22.4%)	
Extremely important	n=34 (50.7%)	n=35 (52.2%)	
<b>Aesthetics</b>			
Nothing important	0	0	0.827
Little important	n=2 (3%)	n=1 (1.5%)	
Important	n=18 (26.9%)	n=15 (22.4%)	
Very important	n=20 (30.6%)	n=21 (31.3%)	
Extremely important	n=27 (39.3%)	n=30 (53.3%)	
<b>Health and physical rehabilitation</b>			
Nothing important	0	0	0.513
Little important	0	0	
Important	n=6(9%)	n=3(4.5%)	
Very important	n=12(17.9%)	n=15(22.4%)	
Extremely important	n=49(73.1%)	n=49(73.1%)	
<b>Social integration</b>			
Nothing important	n=2(3%)	n=3(4.5%)	0.576
Little important	n=19(28.4%)	n=19(28.4%)	
Important	n=23(34.3%)	n=23(34.3%)	
Very important	n=15(22.4%)	n=9(13.4%)	
Extremely important	n=8(11.9%)	n=13(19.4%)	
<b>Anxiety reduction, stress</b>			
Nothing important	n=8(11.9%)	n=6(9%)	0.713
Little important	n=5(7.5%)	n=3(4.5%)	
Important	n=10(14.9%)	n=7(10.4%)	
Very important	n=11(16.4%)	n=10(14.9%)	
Extremely important	n=33(49.3%)	n=37(55.2%)	

n, number of participants; %, percentage of participants; p, <0.05 is significance value obtained by the chi-square test

Table 2 shows the results of the association between BMI and motivational factors for the practice of strength training in adults. Most participants were eutrophic 51.2% (n=69), then overweight 38.8% (n=52) and finally, obese 9.7% (n=13). The body mass index also showed no association with the level of motivational factor in strength training practitioners for all variables analyzed (p>0.05).

The “extremely important” option for improving performance, health and physical rehabilitation, stress reduction and physical conditioning can be highlighted. As for social integration, the highest percentage was attributed to “important” for both groups. It can also be mentioned that the study shows that the body mass index does not statistically influence the motivating factors for the practice of resistance training.

**Table 2** Association between gender and motivational factors in the practice of strength training

	Euthropic (n=69)	Overweight (n=58)	Obese (n=13)	P value
<b>Improving performance</b>				
Nothing important	0	0	0	0.356
Little important	n=1(1.4%)	n=2(3.8%)	0	
Important	n=19(27.5%)	n=12(23.1%)	n=2(15.4%)	
Very important	n=18(26.1%)	n=18(34.6%)	n=6(46.2%)	
Extremely important	n=31(44.9%)	n=20(38.5%)	n=5(38.5%)	
<b>Health physical rehabilitation</b>				
Nothing important	0	0	0	0.638
Little important	0	0	0	
Important	n=6(8.7%)	n=2(3.8%)	n=1(7.7%)	
Very important	n=15(21.7%)	n=9(17.3%)	n=3(23.1%)	
Extremely important	n=48(69.6%)	n=41(78.8%)	n=9(69.2%)	
<b>Social integration</b>				
Nothing important	n=4(5.8%)	n=1(1.9%)	0	0.572
Little important	n=23(33.3%)	n=11(21.2%)	n=4(30.8%)	
Important	n=21(30.4%)	n=22(42.3%)	n=3(23.1%)	
Very important	n=11(15.9%)	n=10(19.12%)	n=3(23.1%)	
Extremely important	n=10(14.5%)	n=8(15.4%)	n=3(23.1%)	
<b>Anxiety reduction, stress</b>				
Nothing important	n=4(5.8%)	n=9(17.3%)	n=1(7.7%)	0.425
Little important	n=5(7.2%)	n=1(1.9%)	n=2(15.4%)	
Important	n=8(11.6%)	n=8(15.4%)	n=1(7.7%)	
Very important	n=16(23.2%)	n=6(11.5%)	n=3(23.1%)	
Extremely important	n=36(52.2%)	n=28(53.8%)	n=6(46.2%)	
<b>Physical conditioning</b>				
Nothing important	0	n=3(5.8%)	0	0.456
Little important	0	0	0	
Important	n=16(23.2%)	n=10(19.2%)	n=2(15.4%)	
Very important	n=17(24.6%)	n=12(23.1%)	n=5(38.5%)	
Extremely important	n=36(52.2%)	n=27(51.9%)	n=6(46.2%)	

n, number of participants; %, percentage of participants; p, <0.05 is significance value obtained by the chi-square test

## Discussion

In this research, despite the use of inclusion criteria to cover ages between 18 and 50 years, the majority of bodybuilding practitioners were approximately 30 years old. This similar age group is found in several other recent surveys involving this type of population.<sup>16-20</sup>

When evaluated motivational factors to beginning to practice exercises, we watch the prominence in the control of health and anxiety, aesthetics and physical conditioning. This result was independent of the sex and BMI classification displayed.

This finding differs from another survey,<sup>21</sup> carried out on motivational factors in gym classes with adults of both sexes. In the latter, women considered in priority order: health, followed by pleasure, third stress control, then aesthetics, sociability and, finally, Competitiveness. For men, the main factors found were health and pleasure, followed by aesthetics, then stress control, competitiveness, and sociability. In all dimensions, men showed less motivation than women did.

Regarding BMI, the results of present study is similar to the result of another research,<sup>22,23</sup> which found no relationship between the

weight factor and motivational regulation for the practice of physical activity. However, we emphasize that the number of obese people in the present study was quite small. Even so, aesthetics appeared in this and other studies that addressed overweight adults<sup>22,24</sup> as one of the main motivational factors for the practice of physical exercises.

In general, the present study corroborated with a recent research,<sup>25</sup> which evaluated the association between motivating factors and anthropometric parameters in bodybuilding practitioners and demonstrated as the most cited reasons for the practice of physical activity, for both sexes: health, physical conditioning, disposition, attractiveness, dissatisfaction with body image, aesthetic improvement, feeling of well-being and leisure.

In a similar study<sup>26</sup> carried out in 3 gyms, on motivational aspects for the practice of physical activities in adults, the main results were found to be health (36.6%) and aesthetics (22.8%). Finally, a literature review survey<sup>27</sup> evaluated in 13 articles, the motivational aspects for the practice of physical activities in physical training in gyms. The main reasons for joining were search for health, aesthetics, socialization, improvement of physical condition, and well-being.

As we have seen, responses from last surveys share some motivational aspects for the practice of physical activity. These responses point to a new direction in the demands of the public that wants to practice physical exercises in the gyms, such as the acquisition of a healthier lifestyle and greater quality of life. Even so, it is clear that there is a trend in this population in search of improvements in aesthetics and physical conditioning. Health professionals must be aware of this change in demand, as these responses may directly influence them in the creation of new activities for the coming years.

In addition, we highlight as a limitation of this study, the type of cross-sectional research itself, which does not point out the relationship between effect and causality. We also pointed out the limited number of participants as a possible study bias. To reduce this bias, we conducted a survey at 4 training centers. We suggest future research with larger samples, as well as other variables for analysis.

## Conclusion

We concluded in this study that, as a motivational factor, most adults consider conditioning, aesthetics, health and anxiety control as a resistance training practice, as well as there is no influence of BMI and gender on the results. Considering that the studied age group is seen in great abundance in gyms, the findings become strategically relevant for health professionals, researchers and gym managers, to improve their efforts in these aspects, seeking solutions through innovations, training methods, health campaigns and products that meet the demands of this audience.

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## Conflicts of interest

The authors declare there are no conflicts of interest.

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