16 - RELATION OF BODY MASS INDEX AND PERCENTILE OF CORPORAL FAT IN YOUNG ADULTS PRACTICING OF STRENGTH

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INTRODUCTION

In the last years, rates of obesity have been increasing and becoming a large global health risk thus it is important to measure body fat with minimal error to control the volume of body fat in relation human health (JAMES EN et. al., 2001, WORLD hEALTH ORGANIZATION, 2000). This fact has led researchers to discover and demonstrate different techniques to estimate body fat, such as: Biometrics, bioimpedance, Skinfold Thickness, among others. Anthropometry has been the technique most used around the world to get the body mass index (BMI) or body fat percentage (BF%), being an inexpensive technique that provides great reliability, utilizing linear measurements of mass, diameter, perimeter and skinfolds. The percentage of fat obtained from the skinfolds have been great acceptance among researchers (Glaner, MF et. all., 1999 & THORLANDE, WG et. all., 1884). The technique of bioelectrical impedance becomes a good alternative in the assessment of body composition through to its ease in working with equipment noninvasive and easily manageable, suitable for population studies (KYLE, et. all., 2004 AM & Sharma, 2003)

The body mass index has been recommended for the World Health Organization (2012), and the National Heart, Lung, and Blood Institute of the National Institutes of Health (1998) as the measurement technique of overweight and obesity more proficient and is usable for both genders and all age groups, thanks to its easy to obtainment at no charge (Kuczmarski RJ, Flegal KM, 2000).

This study was conducted in order to list the fat percentage and body mass index in young adults practing of stregth

METHODOLOGY

This study consists of a descriptive research, which includes a survey of normative data and related studies (Thomas and Nelson, 2002).

The article was conducted by collecting data from individuals of a bodybuilding gym in the city of Maringá/PR. Each subject was submitted to a body assessment, as to obtain the data needed for the study that in the case, it is the body mass index and percentile of corporal fat. All information collected was kept confidential, as well as the personal data of all subjects who signed a consent form.

To carry out the assessments, were identified anthropometric measurements of weight, height, body circumferences, skinfold thickness of each individual and measured blood pressure. For the weighing was used Bioimpedance Digital Glass Glass 6 FW (max. 150 kg) G-TECH (fiber), and height was detected using metric scale vertical with accuracy of 1 mm. Circumferences were measured with the use of Trena Anthropometric Sanny ® Medical (SN-4010) Starren, the skinfold thickness was identified using the caliper Prime Plus Neo-Prime-Med and blood pressure level measured with the apparatus Geratherm ® Automatic Wristwatch Pulse.

After all the data collected, we use them to estimate the percentage of body fat (% BF) of each subject. For this, we use the protocol and Jackson Pollock (1978), of nine skinfolds (subscapular, triceps, biceps, pectorals, supra iliac, abdomen, thigh, and leg subaxilar), which already indicate where there is the largest accumulation of fat .

We calculated the body mass index (BMI) dividing the value of the weight in kilograms (kg) by the square of height measured in meters (kg/m2) of each individual. (Ainsworth BE, Haskell WL, Whitt MC et al. 2000)

Were applied 200 evaluation of woman in men and women aged between 18 and 38 years, beginners in the practice of weight training, and 200 evaluation of woman in the same individuals after a period greater than the two months of training from this we were selected by random sampling, 20 evaluation of woman of men and 20 evaluation of beginners in the practice of weight training, then we selected the 20 evaluation of men and 20 evaluation of female of the same individuals, however, already involved in training.

Four groups was obtained, Male I (20 subjects, male beginners to practice weight training), Male II (20 subjects, male practitioners of weight training for more than two months, and these are the same individuals from group Male I) , Female I (20 subjects, female beginners to practice weight training), and Female II (20 subjects, female practitioners of weight training for more than two months, and these are the same individuals in the group female I) as described tables 1 and 2.

For the evaluation of BMI the parameters utilized were those indicated for the World Health Organization: BMI between 25.0 kg/m² and 29.9 kg /m² identifies subjects with overweight and BMI> 30.0 kg / m² identifies obese subjects (WORLD HEALTH ORGANIZATION, 2000) For the categorization of %BF was considered overweight men between 15.0% and 20.0% body fat and women between 25.0% and 30.0% body fat, obesity were considered for men over 20 0% and women over 30.0% body fat (NATIONAL INSTITUTE OF DIABETES aND DIGESTIVE aND KIDNEY DISEASES, 1993)

The qualitative and quantitative variables are presented in tables with values expressed in media and standard error.

RESULTS AND DISCUSSION

For the anthropometric characteristics of women's groups for length of to practice in weight training, it is observed that the mean age for the female group I and II were, respectively, 22.45 ± 0.65 years and 22.7 ± 0, 63 years. The group female I has a mean weight of 57.91 ± 1.42 kg, while the group female II features 57.3 ± 1.44. With respect to the height value found is the same for both groups 162 ± 1.02 cm. The BMI found in female groups I and II are respectively 21.8 ± 0.41 and 21.57 ± 0.42, however the percentage of fat found in the same groups are 28.13 ± 0.95 and 26.29 ± 0.87, respectively, the percentage of fat found in the female group I is 28.13 ± 0.95 and in the female group II as 26.29 ± 0.87 displays the table 1.

Comparing the values found us female groups I and II we see that after the period of training to BMI decreased from 21.8 ± 0.41 to 21.57 ± 0.42, the %BF already suffered a fall of 28.13 ± 0 ,95 to 26.29 ± 0.87, in both groups there is a similar result, BMI 21.8 ± 0.41 and 21.57 ± 0.42, groups I and II respectively, no pointing for overweight being below the cutoff point indicated by

the World Health Organization, the BMI between 25.0 kg/m² and 29.9 kg/m², but the same groups the %BF sindicates overweight being within the cutoff of 25 %BF to 30% for females in that indicates overweight individuals, shown in Table 1

TABLE 1 - Mean values and standard error of the study variables for the female groups beginner and already inserted in the practice of weight training.

Groups	Age	Body mass (kg)	Height (cm)	BMI	%BF
Female I	22,45±0,65	57,91± 1,42	162 ±1,02	21,8 ± 0,41	28,13 ± 0,95
Female II	22,7 ±0,63	57,3 ± 1,44	162 ±1,02	21,57± 0,42	26,29± 0,87

The anthropometric characteristics of male groups for length of to practice in weight training note that the mean age for the group male I and II are, respectively, 23.5 ± 0.73 years and 23.8 ± 0.73 years . Already in the body mass medias the group male I has an average of 76.69 ± 2.58, while the group male II features 75.8 ± 2.13. For the averages height of the value found is the same for both groups 175 ± 0.05 cm. The BMI identified in groups male I and II are respectively 19.02 ± 1.37 and 24.55 ± 0.65, however the percentage of fat detected in the same groups are 19.02 ± 1.37 and 17.23 ± 1.08, respectively, the percentage of fat found in the male group I is 19.02 ± 1.37, however in the male 17.23 ± 1.08, as shown in Table 2. The results found on groups male I and II show that us the past the training period there was a decline in BMI 24.98 ± 0.78 to 24.55 ± 0.65, the % BF also was down by 19.02 ± 1.37 to 17.23 ± 1.08 in both groups had a very similar result where the BMI groups I and II 24.98 ± 0.78 and 24.55 ± 0.65 respectively, does not point to overweight, being below the cutoff point indicated by the World Health Organization, BMI between 25.0 kg/m² and 29.9 kg/m², but the same groups the %BF sindicates overweight being within the point cutting of 15.0% and 20.0%BF for individuals male sex, indicating overweight individuals, as evidenced in Table 2.

TABLE 2 - Mean values and standard error of the study variables for the male groups beginner and already inserted in the practice of weight training.

Groups	Age	Body mass (kg)	Height (cm)	BMI	%BF
Male I	23,5 ± 0,73	76,69 ±2,58	175 ±0,05	24,98±0,78	19,02± 1,37
Male II	23,8 ±0,73	75,8 ± 2,13	175 ±0,05	24,55± 0,65	17,23 ±1,08

The women presented mean BMI that of men in both groups of practitioners of weight training, but was observed a decrease in BMI in Group female II compared with the group female I, supposedly due to the training period The same happens with the male groups, the group male I presented a BMI higher than the group male II.

The %BF follows the same line of BMI, with a decrease of approximately 2% compared to groups II male and females compared with to groups I male and female.

In accordance with the indices indicated by the World Health Organization (1998) we have 40.4% of the population is overweight and 17.3% can be classified as obese, only 38.5% of the population would be the perfect weight.

It is evident that the exercise was instrumental in the decline of BMI and %BF, but the reduction of %BF shows us how really exercise was satisfactory, because the BMI is composed of two variables, body mass and height, as exercise caused no shift in height variable, BMI was not able to show improvement real in the condition of individuals

In a study Grossl, T., et al,. 2010 found a difference between correlations of % BF with BMI between men and women (r = .54 and r = .73, respectively), which was expected, because men have a higher amount of lean body mass compared to women. Thus, the use of the IMC can diagnose false positives, ie identifying overweight and obese individuals as they have a large presence of lean body mass.

FINAL REMARKS

The citizens of today often do not have adequate care with their health, not doing exercise and having a slouchy feeding much of this due to lack of time, these factors can aggravate the health physical and psychological aspect (FREITAG et. al, 2012; FREITAG et. al, 2011).

Decrease the amount of fat while increasing the volume of muscle mass is between the desires of most of the practitioners of physical exercise, thus the inclusion of techniques to diagnose the body composition on physical assessments in bodybuilding academies can generate key information for better performance.

The factor that restricts the use of BMI is the fact that he is not able to provide information associated with body composition, thus, individuals with a large amount of muscle mass can display the BMI in a way large, even if the body fat not excessive (ODE, JJ et al, 2007; WITT KA, AND BUSH, 2005;)

BMI has high correlation with body mass and downtown with height, it is essential that their values correlate with other independent variables of body composition, determining the composition of body fat and muscle mass (ANGELS, LA, 1992)

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RELATION OF BODY MASS INDEX AND PERCENTILE OF CORPORAL FAT IN YOUNG ADULTS PRACTICING OF STRENGTH

ABSTRACT

The main objective of this study is list the percentile of corporal and body mass índex in Young adults practicing of strength. The research was conducted through the collection of data from individuals of a bodybuilding gym in the city of Maringá/PR. The final sample obtained (n = 80) was divided into 4 groups: group male I (20 subjects, males), group male II (20 subjects, males), group female I (20 subjects, female), and group female II (20 subjects, female), with age between 18 and 38 years, the groups of number 2 are composed of same individuals of groups I, but after a period of training. To the achievement of assessments, were identified the anthropometric measurements, weight, height, body circumferences, skinfold thickness of each individual and the bioimpedance. The data were analyzed through descriptive statistics. After the training period the BMI (body mass index) of the groups female I and II decreased from 21.8 ± 0.41 to 21.57 ± 0.42 alread the %BF (percentile of corporal fat) has undergone a drop of 28.13 ± 0.95 to 26.29 ± 0.87, this was not considered overweight, being below the cutoff point indicated by the World Health Organization, but the %BF points to the overweight being within the cutoff point 25% to 30% for females. In the male groups the same happens, there was a decline in BMI of the male groups I and II 24.98 ± 0.78 to 24.55 ± 0.65alread the %BF also suffered a decline of 19.02 ± 1.37 to 17.23 ± 1.08, the BMI of the groups I and II do not indicate overweight already the %BF points to the overweight being within the cutoff point of 15.0% and 20.0% for male. Is important to quantify body fat with minimum error, in order to control the volume of body fat in relation to human health, the factor that limits the use of BMI is the fact that he is not able to provide information associated with body composition thus subjects with a large amount of muscle mass can display the BMI so as high even if, body fat it is not too much.

KEYWORDS: Body fat distribution, body mass index, percentile of corporal fat.

LA RELATION POURCENTAGE DE GRAISSE CORPORELLE ET L'INDICE DE MASSE CORPORELLE LES JEUNES ADULTES PRATICIENS DE MUSCULATION

RÉSUMÉ

L'objectif principal de cette étude était établir une relate entre le pourcentage de graisse corporelle et l'indice de masse corporelle lês jeunes adultes praticiens de musculation. La recherche a été menée par la collecte de données provenant d'individus d'une salle de musculation dans la ville de Maringá/PR. L'échantillon final obtenu (n = 80) a été divisée en 4 groupes: groupe hommes I (20 sujets hommes), groupe hommes II (20 sujets hommes), groupe femmes I (20 sujets femmes), groupe femmes II (20 sujets femmes), âgés entre 18 et 38 ans, os groupes de nombre II sont composés des mêmes personnes de groupes I, toutefois, après une période de entraînement. Pour mener à bien les évaluations, ont été identifiés les mesures anthropométriques, poids, taille, circonférence du corps, de l'épaisseur du pli cutané de chaque individu et le bioimpedance. Les résultats ont été analysés en utilisant de statistiques descriptives. Après une période de entraînement IMC (L'indice de masse corporelle) de groupes femmes I et II, a diminué de 21,8 ± 0,41 à 21,57 ± 0,42 %G (pourcentage de graisse corporelle.) déjà diminué de 28,13 ± 0,95 à 26,29 ± 0,87, pas considérés comme en surpoids, en dessous du point indiqué par l'Organisation mondiale de la santé, cependant, le %G montre surpoids étant à l'intérieur la point decoupur 25% à 30% pour les femmes. Dans les groupes d'hommes est le même, il y avait une déclin de BMI les groupes hommes I et II 24,98 ± 0,78 à 24,55 ± 0,65 le %BF a également subi une déclin diminué de 19,02 ± 1,37 à 17,23 ± 1,08le IMC les groupes I et II n'indiquent passupoids, le %BF BF le Montre à l'intérieur surpoids etant son point de decoupur 15% à 20% Pour les hommes. Il est important de quantifier la graisse corporelle avec une erreur minimum, afin de contrôler la quantité de graisse du corps par rapport à la santé humaine, le facteur qui limite l'utilisation de l'IMC est le fait qu'il n'est pas en mesure de fournir des informations associées la composition du corps, ainsi, les individus avec une grande quantité de masse musculaire peut afficher le BMI si élevé, même si la graisse n'est pas grande

MOTS-CLÉS: Distribution de la graisse corporelle, L'indice de masse corporelle, pourcentage de graisse corporelle.

RELACIÓN ENTRE LA PORCENTAJE DE GRASA CORPORAL Y EL ÍNDICE DE MASA CORPORAL EN ADULTOS JÓVENES PRATICANTES DE MUSCULACIÓN

RESUMEN

El objetivo principal de este estudio fue relate el porcentaje de grasa corporal y el índice de masa corporal en los adultos jóvenes practicantes de musculación. La investigación se llevó a cabo mediante la recopilación de datos de los individuos de un gimnasio de musculación en la ciudad de Maringá/PR. La muestra final obtenida (n = 80) se dividió en 4 grupos: grupo hombres I (20 individuos hombres), grupo hombres II (20 individuos hombres), grupo mujeres I (20 individuos mujeres), grupo mujeres II (20 individuos mujeres) con edades comprendidas entre los 18 y 38 años, los grupos de número II están compuestos delos mismos individuos en los grupos I, sin embargo, después de un período de entrenamiento. Para llevar a cabo las evaluaciones, se identificaron las medidas antropométricas, peso, talla, circunferencias corporales, pliegues cutáneos de cada individuo y el bioimpedancia. Los resultados fueron analizados mediante estadística descriptiva. Después de un período de entrenamiento el IMC (índice de masa corporal) de grupos mujeres I y II se redujo de 21,8 ± 0,41 a 21,57 ± 0,42, la %G (porcentaje de grasa corporal) se redujo en 28,13 ± 0,95 a 26,29 ± 0,87, no considerados sobrepeso, está por debajo del punto de corte indicado por la Organización Mundial de la Salud, sin embargo, la %G, la %G F muestra sobrepreso esté dentro del límite de 25% a 30% para mujeres. En los grupos de hombres es el mismo, se produjo una disminución en los IMC de los grupos el IMC hombres I y II de 24,98 ± 0,78 a 24,55 ± 0,65 el %G también sufrió un descenso del 19,02 ± 1,37 de 17,23 ± 1,08, el IMC de los grupos I y II no indican sobrepeso, sin embargo, el %G muestra sobrepreso por estar dentro del límite de 15,0% y 20,0% para los hombres. Es importante cuantificar mismo que la grasa corporal con el error mínimo, con el fin de controlar la cantidad de mismo que la grasa corporal en relación con la salud humana, el factor que limita el uso de el IMC es el hecho de que no es capaz de proporcionar la información asociada con la composición corporal por lo tanto las personas con una gran cantidad de masa muscular puede mostrar en un alto el IMC, mismo que la grasa corporal, nos es grande.

PALABRAS CLAVE: Distribución de la grasa corporal, porcentaje de grasa corporal y el índice de masa corporal

RELAÇÃO ENTRE O PERCENTUAL DE GORDURA E O ÍNDICE DE MASSA CORPORAL EM JOVENS ADULTOS PRATICANTES DE MUSCULAÇÃO

RESUMO

O estudo foi desenvolvido com o objetivo de relacionar o percentual de gordura e o índice de massa corporal em jovens adultos praticantes de musculação. A pesquisa foi realizada através da coleta de dados de indivíduos de uma academia de musculação na cidade de Maringá/PR. A amostra final obtida (n=80) foi dividida em 4 grupos distintos: grupo masculino I (20 sujeitos, do gênero masculino), grupo masculino II (20 sujeitos, do gênero masculino), grupo feminino I (20 sujeitos, do gênero feminino), e grupo feminino II (20 sujeitos, do gênero feminino), com idades entre 18 e 38 anos, os grupos de numero II são compostos pelos mesmo indivíduos dos grupos I, porém, após um período de treinamento. Para a realização das avaliações, foram identificadas as medidas antropométricas, peso, estatura, circunferências corporais, espessura das dobras cutâneas de cada indivíduo, e bioimpedância elétrica. Os resultados foram analisados através da estatística descritiva. Após o período de treinamento o IMC (índice de massa corporal) dos grupos feminino I e II diminuiu de 21,8 ± 0,41 para 21,57 ± 0,42, já o %G (percentual de gordura corporal) sofreu uma queda de 28,13 ± 0,95 para 26,29 ± 0,87, não sendo considerado sobrepeso, estando abaixo do ponto de corte indicado pela Organização Mundial da Saúde, porém, o %G aponta para o sobrepreso estando dentro do ponto de corte de 25% a 30% para indivíduos do sexo feminino. Nos grupos masculinos acontece o mesmo, houve um declínio no IMC dos grupos masculino I e II de 24,98 ± 0,78 para 24,55 ± 0,65, o %G também sofreu uma queda de 19,02 ± 1,37 para 17,23 ± 1,08, o IMC dos grupos I e II não apontam para o sobrepeso, já o %G aponta para o sobrepreso estando dentro do ponto de corte de 15,0% e 20,0% para indivíduos do sexo masculinos. É importante quantificar a gordura corporal com o mínimo de erro, a fim de, controlar o volume de gordura corporal em relação à saúde humana, o fator que restringe o emprego do IMC é o fato de que ele não é apto a fornecer informações associadas com a composição corporal, desta forma, indivíduos com uma grande quantidade de massa muscular podem exibir o IMC de forma elevado, mesmo que a gordura corporal não seja demasiada.

PALAVRAS-CHAVE: Distribuição da gordura corporal, índice de massa corporal, percentual de gordura corporal.