94 - ANTHROPOMETRIC INDICATORS OF CHILDREN, TEENS AND ADULTS WITH DOWN SYNDROME IN THE CITIES OF AMETISTA DO SUL-RS AND CHAPECÓ-SC

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1. INTRODUCTION

The extra chromosome in the 21st pair genome characterized Down syndrome (DS), this feature changes the formation of human beings emodifica development (MOREIRA; GUSMÃO, 2002). Typical observable characteristics of the syndrome, which can appear in the majority or not, are: short stature, round face, slanted eyes like the eastern, smaller hands and short fingers with single palmar crease, small ears, protruding tongue, small muscle tone that normal and hence motor difficulties of physical activities, delay in speech, intellectual disability, slower learning, developmental delay that varies with each person, and besides, half the population develops heart disease (BISSOTO, 2005; LOPES et al., 2008; SANTOS; FRANCESCHINI; PRIORE, 2006; SILVA; DESSEN, 2001).

The phenotypic features are differentiated, is the prevalence of obesity and higher weight, with the highest concentration of visceral fat, particularly in adolescents and adults (Silva et al., 2009). All these reasons support the use of anthropometric indices such as Body Mass Index (BMI; ANGELS, 1992) and Waist Hip Ratio (WHR; PITANGA, 2008), in predicting the behavior of serum fat during the surveillance and monitoring of factors risk of chronic degenerative diseases in this population.

On the curves and growth patterns, Gorla et al. (2011) present a review of authors who have conducted studies to verify that the weight and stature are meeting the requirements of their genetic potential, its conclusions resemble Zini and Ricalde (2009), which state that normally should be corrected for children with short stature and slower growth rates.

Regarding the anthropometric profile of people with SD, Silva et al. (2009) evaluated 33 participants from active life residing in two cities of Rio de Janeiro, through BMI and WHR, found higher mean values for BMI in females and non WHR normal values. Already Zini and Ricalde (2009), with 18 participants of Rio Grande do Sul, found normal results through BMI for the entire sample. Mendonça and Pereira (2008) aimed to explore a general level of agreement with estimates of fat mass, waist circumference, body mass index and other measures, using 20 healthy participants with DS, the BMI defined as a positive criterion in the diagnosis of this pathological risk population. Finally, Rocha et al. (2008), also by BMI and WHR, developed a study which concluded that the issue is associated with the goal of determining the relationship of the characteristics of the physical profile, body composition and health risk. As main results, 35 of the 76 participants were within the area of health risk, determined by BMI; and 27 participants were identified in negative state health through WHR.

The lifestyle is a determinant of anthropometric characteristics during the development stages, both in normal people and in people with DS people factor. Because of the socioeconomic and cultural differences, this style varies in each region of the country, especially when it is understood that in cities within the possibilities of interaction and social adjustment are smaller. Therefore, it is accepted as a hypothesis for this study, that the culture around people with DS anthropometric influences on your profile. What makes the practice of body composition assessment to monitor the development of these crescimentoe indivíduosde interest of public health, like claim Barros Filho and Telles (2003) when they argue the importance of anthropometry, and how Gonçalves and Mourão (2008), when relate this to the quantitative importance to clarify the relationship between body components and health analysis.

Based on the statements presented, this study established to realize a physical assessment to raise the anthropometric indicators of children, adolescents and adults with DS, the two entities in the cities cities of Ametista do Sul-RS and Chapecó-SC, and determine the prevalence of overweight and obesity in the population of these regions.

2. METHOD

The research design proposed conduct a single assessment on your sample, therefore, it qualifies as a field research, descriptive and transversal.

The sample consisted of 27 participants with Down syndrome residing in the cities of Chapecó-SC and Ametista do Sul-RS, being 16 males, aged between 8 and 22 years, and 11 females, aged between 12 and 23 years. Inclusion criteria: be enrolled in institutions (Activity Center psychophysical Patrick- CAPP and Association of Parents and Friends of Mentally-APAE), presenting with presence minimal frequency of 75% in the activities, and be under parental permission to participate in the study and signed the consent form signed under case nº 381/2013.

Instruments as a questionnaire to characterize the sample as a physical exercise, within and outside the organization, weekly frequency of activity and perception of healthy eating by parents were used; body mass was measured using a scale with a digital resolution of Filizola® (São Paulo, Brazil), and height with a stadiometer Cescorf® resolution of 0.1 cm; and measurement of waist and hip circumferences an anthropometric tape Cardiomed® (Curitiba, Brazil), with millimeter resolution was used.

The procedure adopted consisted in the execution of a set of protocols for the evaluation. Anthropometric measurements of weight, height and waist and hip circumferences were obtained according to the protocol of the International Society for the Advancement of Kinanthropometry (ISAK, MARFELL-JONES et al., 2006). For the measurement of body mass, assessed climbed on the scales, putting one foot at a time, on his back, positioning itself in the, center platform barefoot, wearing only shorts when men and women when another top. For the measurement of height, was assessed barefoot positioning with the back of the heel, pelvis, shoulder girdle and occipital region in contact with the instrument and the head oriented in the Frankfurt plane. To measure waist circumference was seen last rib, rated stood in the standing position, and the reading was performed after a normal expiration. To measure hip circumference, the participant remained standing with your back straight, legs together and arms at your sides, made to measure in greater hip circumference, i.e., the most voluminous portion of the buttocks observed lateral to the pelvis. Four days were required for the completion of the entire collection.

In data processing, transformation and classification of BMI index was performed according to the method proposed by Quetelet (ANGELS, 1992); and the WHR index, the amount of visceral fat that surrounds abdominal organs, the classification adopted was to Silva et al. (2009) for the general population, since by the time of this writing there were no specific references for this population tables found. The cutoff used for age groups was suggested by Bee and Boyd (2011), children aged between 8 and 12 years, adolescents between 13 and 16 years, and adults from 17 years. Statistical tests of mean, standard deviation, frequency distributions, Wilcoxon Rank Sum Test for differences between groups and correlation (in particular alpha 0.05) were

used.

3. RESULTS

The results show that in the interview with regard to physical exercise in the Entity to which it belongs, four participants responded CAPP who exercise and seven who did not practice, while in APAE, all participants reported that they regularly exercise (n = 15). With regard to physical exercise outside of the Entity, six participants reported CAPP who exercise five who do not practice, while in APAE, none of the participants reported physical exercise outside the entity (n = 15). As regards the frequency of weekly exercise entity outside the four participants reported CAPP practicing one to two times weekly, and one participant reported practice three or four times per week; already in APAE, there was neither a type of account. And lastly, the question about healthy eating, CAPP was reported in four participants with regular feeding esete with good nutrition, while APAE presented ten participants with five regular supply with good nutrition.

The sample showed overall values for BMI of m= 28.60 (sd = 6.03), comm classifying them 8% underweight, 11% normal 7% overweight and 74% obese. For WHR the overall mean was 0.092 (sd = 0.07), and the classification presented 26% of the sample with normal risk, no participant with medium risk, 37% at high risk and 37% with very high risk. The classification of BMI and WHR obtained the sample, by cities and entities is presented in Figure 1 and 2.

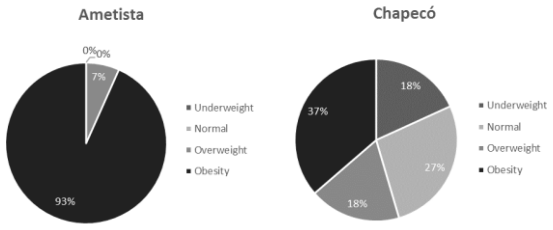


Figure 1. Classification of BMI for cities (p<0.05).

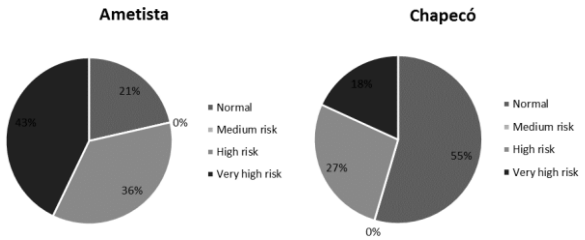


Figure 2. Classification of cities for WHR (p<0,05).

Tables 1 and 2 present data of municipalities divided by age groups. It can be seen in Table 1, according to the classification of BMI, a higher prevalence of obesity in all groups Ametista do Sul (children 100%, teens 100% and adults 83%). In Table 2, represented by WHR, you can also observe the highest prevalence in Ametista, groups of children and adolescents have a higher incidence of very high-risk and high-risk adults. The Wilcoxon test performed for the mean difference between the sample and Ametista do Sul and Chapecó presented results that reject the null hypothesis, ie, there were significant differences between groups for BMI (p = 0.0051, zval = 2.80, ranksum = 94), and the WHR (p = 0.018, zval = -2.37, ranksum = 102.50).

Table 1. Absolute and relative frequency in each category of BMI by city.

	Ametista			**Chapecó**		
	Children	Adolescents	Adults	Children	Adolescents	Adults
Underweight	0 (0%)	0 (0%)	0 (0%)	1 (20%)	0 (0%)	1 (33%)
Normal	0 (0%)	0 (0%)	0 (0%)	2 (40%)	1 (33%)	0 (0%)
Overweight	0 (0%)	0 (0%)	1 (17%)	1 (20%)	1 (33%)	0 (0%)
Obesity	3 (100%)	6 (100%)	5 (83%)	1 (20%)	1 (33%)	2 (33%)

*Ametista-Chapecó p<0,05.

Table 2. Absolute and relative frequency in each category of WHR by city.

	Ametista			**Chapecó**		
	Children	Adolescents	Adults	Children	Adolescents	Adults
Normal	0 (0%)	1 (17%)	2 (40%)	3 (60%)	1 (33%)	2 (67%)
Medium risk	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
High risk	1 (33%)	1 (17%)	3 (60%)	2 (40%)	1 (33%)	0 (0%)
Very high risk	2 (67%)	4 (66%)	0 (0%)	0 (0%)	1 (33%)	1 (33%)

*Ametista-Chapecó p<0,05.

The results divided by sex groups, men had to a frequency classification for BMI from underweight 12%, normal in 19%, 6% overweight and 63% obese; and WHR, 37% of the sample with normal risk, no participant with medium risk, 63% at high risk and with no risk to very high. Already the results in females for BMI showed no participant underweight, no normal, overweight and 9% obese 91%; and the WHR 9% of the sample normal risk, medium risk any participant, any participant with 91% high risk and very high risk. Table 1 shows the mean values and standard for BMI and WHR deviations in groups by sex, by the classification of idade.Os values for the result of differences between the means, the Wilcoxon test, the group divided by sex, not rejected zero, in other words, there were no significant differences case the BMI (p=0,24, zval=-1,18, ranksum=199,50), and so little in WHR (p=0,54, zval=0,62, ranksum=237).

Table 3. Mean values and standard deviation obtained for the group by sex and age.

	Male				**Female**			
	BMI		WHR		BMI		WHR	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Children	21,79	6,13	0,90	0,09	28,96	4,16	0,95	0,00
Adolescents	~~30,12~~	~~4,98~~	0,93	0,07	31,13	0,89	0,93	0,07
Adults	29,74	8,36	0,93	0,09	33,05	4,50	0,89	0,00

The results of the Pearson correction performed between the anthropometric variables and the variables of anamneses were more significant in the relationship between BMI and weekly frequency of exercise (r = 0.47), WHR and quality of food (r = -0, 39), WHR and weekly frequency of exercise (r = 0.24) and BMI and diet quality (r = -0.22).

4. DISCUSSION

The aim of this study was to describe the anthropometric indicators of children, adolescents and adults with DS of Ametista do Sul-RS and of Chapecó-SC through the prevalence of overweight and obesity. The prevalence of obesity as determined by BMI, Amethyst South is 93% and 37% Chapecó (Figure 1). The prevalence of very high risk, determined by WHR, in the Ametista do Sul is 43% and in the Chapecó is 18% (Figure 2). Moreover, the hypothesis that the culture in which the person is embedded influences on your lifestyle and with this in their anthropometric profile was confirmed, since significant differences were found between the mean of the cities studied ($p<0,05$). Observed a pattern of risk in the Ametista do Sul, perhaps generated by the few options participations socias activities. Reason preventing the professionals of Physical Education and Health Area to control the growth and development of this population, and to promote quality of life in these individuals, through opportunities for leisure and pleasure, by means of well-being biological, psychological and social (GESTAL et al., 2008).

In the age group pattern was the same for the whole sample, we could not perform statistical tests of difference of means because of stratified sampling to be low. However, the WHR has a tendency in Ametista do Sul different of Chapecó, while in the group of adults of Ametista presents indices indicate better quality of life than those of groups of children and adolescents in Chapecó is the group of children who do not presents values of very high risk. One of the possible causes of these results in Ametista do Sul can be compared with the fact that this sample does not do any exercise outside entity, and also present indices of poor quality power supply according to the interview held with parents. A social validation of a parent reinforces this idea: "[...] when he was younger he liked more healthy foods, now craves salty, refrigerente and fat, hardly eats fruit [...]."

The high prevalence rate of riscon and obesity in this sample is of concern. Overweight increases the likelihood of low incidence of health conditions, such as dropping, lesions, fatigue, depression and social isolation in Disabled (RIMMER et al.,2011), and especially with the DS, these factors are directly associated with the Syndrome and require specific intervention. In this sense, Seron, Silva and Greguol (2014), found positive results with a study on the effects of two exercise programs on body composition in adolescents with DS, in both conditions showed a maintenance of body fat levels compared with sedentary. And yet, found that aerobic training has contributed to a better state of health, with a reduction in waist circumference and BMI. Mosso et al. (2011) also found positive effects on weight and waist circumference with a 12-week intervention based on muscular endurance and aerobic capacity. Already Borssatti, Anjos and Ribas (2013) in a study of muscle strength and gait in DS found no significant results after 12 weeks of training, which indicates the need for further studies.

An important limitation of this study lies in the classification adopted for this specific population, it is suggested that specific tables to be created. Pinheiro et al. (2003) found the same need after making a comparison of the Chilean population base of the American and Spanish reference table.

Understanding the role of physical education as a structuring an environment that enables global development through the motions (SILVA et. al., 2011) and stimuli that trigger offered significant development processes, establishing and motor responses that express feelings, interpretations and acquisitions patterns (GESTAL et. al., 2008), to invigorate idea that interventions in the population of people with DS are required to treat obesity, reduce the risk of cardiovascular disease and increase their quality of life.

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ANTHROPOMETRIC INDICATORS OF CHILDREN, TEENS AND ADULTS WITH DOWN SYNDROME IN THE CITIES OF AMETISTA DO SUL-RS AND CHAPECÓ-SC

ABSTRACT

The people with Down Syndrome (SD) are characterized by the presence of an extra chromosome 21 in number, causing changes in the body. In addition to engine modifications, physical and intellectual development, it is proven in reading changes in body composition. The present study aims to examine some of the anthropometric indicators of students and patients with Center Activities psychophysical Patrick Down Syndrome (CAPP) Chapecó-SC and Assossiação of Parents and Friends of Exceptional of Ametista do Sul -RS (APAE) by assessing the weight and height, check the waist and hip circumferences and calculation together with the classification results using the formulas of body mass (BMI) and waist / hip ratio (WHR). The study included 27 patients and students with Down syndrome, of both sexes aged between 8 and 23 years; 16 males and 11 females. The female group had a higher mean BMI compared to the male group. In WHR index, it appears that the average male group was equal to the average female group. All data obtained in this study show the importance of physical education professional working with this specific area. Exercise is crucial, because its characteristics are the greatest predictors of obesity and increased visceral fat. At the end of the survey, it is considered that the objective was achieved. Therefore, it is necessary accompaniment of people with Down Syndrome, favoring their quality of life through exercise, healthy eating and wellness to the favored individual.

KEYWORDS: Down Syndrome. Anthropometry. Physical evaluation.

LES INDICATEURS ANTHROPOMÉTRIQUES DES ENFANTS, ADOLESCENTS ET LES ADULTES SYNDROME DE DOWN DANS LES MUNICIPALITÉS DE L'AMÉTHYSTE SUD-RS ET LE CHAPECÓ-SC

RÉSUMÉ

Cette étude visait à décrire les indicateurs anthropométriques des enfants, des adolescents et des adultes ayant le syndrome de Down, les deux entités dans les comtés du Améthyste Sud-RS et Chapecó-SC, et de déterminer la prévalence du surpoids et de l'obésité. Inclus 27 patients et les étudiants des deux sexes âgés de 8 et 23 ans (hommes n=16 et femmes n=11). Le protocole de ISAK a été utilisé pour mesurer l'indice de masse corporelle et le rapport taille-hanche. Les principales données sur les résultats ont révélé des différences significatives ($p<0,05$) entre les groupes dans les deux villes. Amethyst du Sud a montré une prévalence de l'obésité de 93%, tandis que Chapecó 37%, sur le classement de l'indice de masse corporelle. Par le rapport taille-hanche, 43% de l'échantillon a été trouvé pour être le plus à risque a Amethyst Sud, tandis que dans Chapecó, 18%. Il est suggéré que les programmes spécifiques de qualité de vie sont effectués pour ces échantillons, puisque les resultats reflèten les questions de santé publique importantes et révèle paramètres qui justifient leur élaboration.

INDICADORES ANTROPOMÉTRICOS EN NIÑOS, JÓVENES Y ADULTOS CON SÍNDROME DE DOWN EN LAS COMARCAS DE AMETISTA DEL SUR-RS Y CHAPECÓ-SC

RESUMEN

El presente estudio ha tenido como objetivo describir los indicadores antropométricos de niños, jóvenes y adultos con Síndrome de Down, en dos entidades de las comarcas Ametista do Sul-RS y Chapecó-SC, y además, verificar la prevalencia del sobrepeso y obesidad. Participaran 27 pacientes y educandos, de ambos sexos con edad entre 8 y 23 años (masculino n=16 e femenino n=11). El protocolo ISAK fue utilizado para averiguar los índices de masa corpórea y la relación cadera-cuadril. El resultado principal reveló datos con diferencias significativas ($p<0,05$) entre las dos comarcas. Ametista do Sul presentó prevalencia de 93% de obesidad, mientras Chapecó 37%, por el índice de masa corpórea. Por medio de la relación cintura-cuadril, 43% de la muestra reveló estar en risco altísimo en Ametista do Sul, mientras que en Chapecó, 18%. Se sugiere que programas específicos de cualidad de vida sean realizados para estas muestras, ya que los resultados reflejan cuestiones importantes de salud pública y revela parámetros que justifican la elaboración de los mismos.

INDICADORES ANTROPOMÉTRICOS DE CRIANÇAS, ADOLESCENTES E ADULTOS COM SÍNDROME DE DOWN NOS MUNICÍPIOS DE AMETISTA DO SUL-RS E CHAPECÓ-SC

RESUMO

O presente estudo teve por objetivo descrever indicadores antropométricos de crianças, adolescentes e adultos com Síndrome de Down, de duas entidades nos municípios de Ametista do Sul-RS e Chapecó-SC, e verificar a prevalência de sobrepeso e obesidade. Participaram 27 pacientes e educandos, de ambos os sexos com idade entre 8 e 23 anos (masculino n=16 e feminino n=11). O protocolo ISAK foi utilizado para aferir os índices de massa corporal e a relação da cintura-quadril. O resultado principal revelou dados com diferenças significativas ($p<0,05$) entre os grupos dos dois municípios. Ametista do Sul apresentou prevalência de 93% de obesidade, enquanto Chapecó 37%, pela classificação do índice de massa corporal. Através da relação cintura-quadril, 43% da amostra revelou estar em risco altíssimo em Ametista do Sul, enquanto que em Chapecó, 18%. Sugere-se que programas específicos de qualidade de vida sejam realizados para estas amostras, já que os resultados refletem questões importantes de saúde pública e revela parâmetros que justificam a elaboração dos mesmos.,

PALAVRAS-CHAVE: Síndrome de Down. Antropometria. Avaliação Física.