142 - HEALTH-RELATED PHYSICAL FITNESS IN SCHOOLCHILDREN: A COMPARATIVE STUDY OF CHILDREN WITH NORMAL BMI AND OVERWEIGHT OF SANTA CRUZ DO SUL-RS

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INTRODUCTION

Obesity to Guiselini (2004), is now considered a major threat to health in the developed world, the scope of the problem is the prevalence of the combination of health risks.

Guiselini states (2004), that a physically inactive lifestyle is a risk factor for weight gain with age, obese individuals are generally very sedentary, since the excess body weight is an obstacle for a more active lifestyle. A sedentary lifestyle in overweight or obese people increases the likelihood of morbidity, common to excess weight or premature death.

Still Bouchard (2003), states the development of obesity can be influenced by many environmental and behavior factors, which varies from socio-economic conditions up to perception of body image as genetic factors. The alimentary behavior has a considerable influence on the development of obesity, affecting the total number of calories consumed and consequently the development of obesity, alcohol intake was associated with a high level of weight gain, especially in the trunk region. According to Bouchard (2003), an important psychological variable that influences in the development of obesity is body perception.

To Dâmaso (2003), the overweight is in many aspects very different from obesity, it is obvious that obesity is characterized by an excess significantly greater in weight and body mass in adipose tissue rather than on overweight, leaving the situation more complex. The basic difference lies in the greater percentage of body mass (fat in obese individuals), in other words, the expansion in fat-free lean tissue was not accompanied by the adipose growth. Another difference relates to energy expenditure: since obese are heavier, in relation to their structure, than overweight individuals, on average they spend more energy, higher energy expenditure, above the resting energy expenditure of people with normal weight. This higher energy expenditure is a consequence of the great need of energy required by the obese to move a "higher" mass.

According to McAtee (1988), stretches are important links between sedentary and active life, keeps the muscles flexible, prepare us for movement and help us achieve the daily transition from inactivity to vigorous activity without undue stresses and are especially important in the case of people who run, ride bikes, play tennis or do other strenuous exercises, because activity as these promote tension and inflexibility.

These stretches should be sized according to your muscle structure, your flexibility and according to the different tension levels. It's something peaceful, relaxing and noncompetitive, doing stretches gives us the freedom to be ourselves and to enjoy it. (McAtee, 1998).

This study aims to investigate whether there are differences in health indicators (flexibility, strength-endurance of the abdominal muscles) among students with normal BMI, with excess of obese of the 5th year of a state school in Santa Cruz do Sul-RS

METHODS

This cross-sectional study involved the participation of 18 schoolchildren, 10 males and 8 females, ages 9 to 11 years old at a state school in Santa Cruz do Sul-RS. To evaluate the health-related physical aptitude in schoolchildren the following tests were applied: Body Mass Index (BMI), flexibility and abdominal strength/resistance.

To calculate BMI it was evaluated the body mass, with a balance accurate to 100 grams, and height with a stadiometer or measuring tape accurate to 2 millimeters. Have BMI was determined by the ratio between the measure of body mass in kilograms and height in meters squared.

The flexibility test was conducted with the Wells Bench, which for its implementation students were barefoot, sitting in front of the bench, with outstretched joined legs. The hands were overlapped and elevated arms to the vertical, leaning the body forward, trying to reach the tip of the fingers as far as possible on the graduated scale, without flexing the knees and without using swinging motions (insistences). Each child performed two attempts, and recorded the highest result.

In the abdominal endurance test the student was positioned in dorsal decubitus with the knee flexed to 90 degrees and with arms crossed over the chest. The evaluator fixed the student's feet to the ground and at the signal started trunk flexion movements until touching with the elbows on the thighs, returning to the initial position. The students must complete as many full repetitions in 1 minute.

The test protocols and classifications were based on those established by PROESP-BR (2009) being the results subsequently entered into spreadsheet StatisticalPackage for Social Sciences for Windows (SPSS version 20.0) and analyzed using descriptive statistics with means and standard deviation, for quantitative variables and frequency and percentage for categorical.

RESULTS AND DISCUSSION

Were evaluated 18 schoolchildren of the municipality of Santa Cruz do Sul, with age average of 10,17±0,58 years old, obtaining a global index of excess weight of 33,3%. This results were also found in a study conducted in 2009-2010 with North Americans schoolchildren, showing that 16.9% were obese and 31.8% were overweight or obese, indicating overweight (OGDEN, 2012).

Considering the results of the health indicators of all evaluated schoolchildren, separated by nutritional state in normal

weight and overweight (Table 1), it is observed that the mean BMI was 15.92 ± 1.15 and 23.17 ± 4.50 respectively for these groups. Regarding the indicator of flexibility means were higher in the first group (29.21 ± 4.75) compared with the second (20.50 ± 1.30), which shows that overweight individuals have lower articular amplitude, becoming more susceptible to risk of injuries and fractures. Abdominal strength subjects with normal weight also had more favorable health outcomes, with a mean of 27.25 ± 3.467 compared to overweight (16.00 ± 3.74).

Table 1 – Indicators of health in schoolchildren

Statistics					
BMI classification		age	BMI	Flexibility	Abdominal
normal	N	12	12	12	12
	Means	10,17	15,9167	29,21	27,25
	Standard deviation	,577	1,14799	4,750	3,467
excess weight	N	6	6	6	6
	Means	10,00	23,1667	20,50	16,00
	Standard deviation	0,000	4,50407	1,304	3,742

Analyzing the health-related indicators with the nutritional state (normal weight and excess weight) the results indicate a higher number of schoolchildren with excess weight in the risk zone for the classification of flexibility (table 2). It was observed that all the students with excess weight were in this classification (risk zone), while 75% of the ones with normal weight were also classified as this, which indicates that most of the schoolchildren present low levels of flexibility, with a tendency of the normal weight to be more flexible. In a similar manner to this work, low values of flexibility found in other studies as performed in the city of Westfália - RS, where children of 8 years of age had 27.4 ± 5.4 cm of flexibility and at 10 years old they reached 26.8 ± 5.9 cm (NOLL, 2008).

Table 2- BMI classification in relation to flexibility

BMI classification			Frequency	Percentage
normal	V	Healthy zone	3	25,0
		Risk zone	9	75,0
		Total	12	100,0
excess weight	V	Risk zone	6	100,0

In the evaluation of abdominal resistance, it was visualized in Table 3, again, that all the schoolchildren who were overweight were in health-risk area. However in the classified as normal weight 58.3% were in this same classification, with only 41.7% of normal weight with healthy indexes.

In a study that was conducted in Joinville, 57.9% of the boys and 56.0% of the girls, failed to meet the minimum health criteria, showing that physical fitness of this population is quite low (SOARES, 2007).

Table 3 – BMI classification in relation to abdominal strength/resistance

BMI classification			Frequency	Percentage
Normal	V	Healthy zone	5	41,7
		Risk Zone	7	58,3
		Total	12	100,0
Excess weight	V	Risk zone	6	100,0

CONCLUSION

This study indicates a relation between excess weight and lower levels of health-related physical fitness of the schoolchildren, regarding flexibility and abdominal muscle strength. This fact highlights the importance of encouraging the practice of physical activity for improving the framework of obesity as well as to develop physical fitness, aiming to health.

It is suggested that further studies be made with a larger number of subjects, addressing the different components of health-related physical fitness, such as cardio respiratory fitness, muscular strength and other variables of body composition in order to broaden the spectrum of analysis.

REFERENCES

BOUCHARD, Claude. Atividade Física e Obesidade. São Paulo: Editora Manoele, 2003.

DÂMASO, Ana. Obesidade. Rio de Janeiro: Guanabara Koogan, 2003.

DE ARAUJO, Silvan Silva; DE OLIVEIRA, Antônio César Cabral. Aptidão física em escolares de Aracaju. Rev. Bras. Cineantropom. Desempenho Hum, v. 10, n. 3, p. 271-276, 2008.

GUISELINI, Marcos.Aptidão física, saúde e bem-estar: fundamentos teóricos e práticos. São Paulo: Phorte, 2004.

MCATEE, Robert E. Alongamento facilitado. São Paulo: Manole, 1998.

NOLL, Matias; SÁ, KB de. Avaliação da flexibilidade em escolares do ensino fundamental da cidade de Westfália–RS. IX Salão de Iniciação Científica-PUCRS, Rio Grande do Sul, 2008.

OGDEN, Cynthia L. et al. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. JAMA: the journal of the American Medical Association, v. 307, n. 5, p. 483-490, 2012.

PROJETO ESPORTE BRASIL: manual 2012. Disponível em: <http:www.proesp.ufrgs.br> Acesso em: 02 out. 2013

SOARES, K. N.; KROEFF, M. S.; OELKE, S. A. Perfil de desenvolvimento e hábitos de vida de crianças de10 a 12 anos da rede municipal de ensino de Joinville – SC. Educación Física e Deportes: Revista Digital, Buenos Aires, Ano 12, n. 107, abr, 2007.

HEALTH-RELATED PHYSICAL FITNESS IN SCHOOLCHILDREN: A COMPARATIVE STUDY OF CHILDREN WITH NORMAL BMI AND OVERWEIGHT OF SANTA CRUZ DO SUL-RS

ABSTRACT

The present cross-sectional study aims to verify possible differences in health-related physical fitness of schoolchildren with normal BMI, overweight and obese of Santa Cruz do Sul - RS. The subjects of this research were 18 children and teenagers, being 10 males and 8 females, aged 9 to 11 years old, of a state school in the municipality of Santa Cruz do Sul / RS. To evaluate the health-related physical aptitude, tests created by Project Sport Brazil (BR-PROESP, 2009) were conducted: abdominal (abdominal strength/resistance); seating and reaching the Wells bench (flexibility) and body mass index (BMI). The results were entered into spreadsheet StatisticalPackage for Social Sciences for Windows (SPSS version 20.0) and analyzed using descriptive statistics. It was found that 33,3% of the schoolchildren presented excess weight and related to this: a) low flexibility indexes in 100% of the schoolchildren with excess weight and in 58,33% of the ones with normal weight; b) lower abdominal resistance presented by 59,09% of those evaluated, with frequency of 100% in overweight individuals; c) greater occurrence of individuals in the risk zone for overweight in male schoolchildren. Therefore, the study suggests a relationship between excess weight and lower levels of physical fitness of schoolchildren, regarding flexibility and abdominal muscle strength. This fact highlights the importance of encouraging the practice of physical activity for improving the framework of obesity as well as to develop physical fitness, aiming to health.

KEYWORDS: Health, Physical Fitness; Schoolchildren; Obesity.

LA CAPACITÉ PHYSIQUE ET LA SANTÉ: UNE ÉTUDE COMPARATIVE CHEZ LES ENFANTS À L'ÂGE SCOLAIRE AVEC L'IMC NORMAL EN AYANT UN EXCÈS DE POIDS. SANTA CRUZ DO SUL, RS, BRÉSIL

RÉSUMÉ

Le but de cette étude transversale est de déterminer les différences possibles dans la condition physique liée à la santé des enfants ayant un IMC normal, le surpoids et l'obesité chez les enfants des écoles de la ville de Santa Cruz do Sul, RS. La recherche a eté faite chez 18 enfants et adolescents, 10 mâles et 8 femelles, âgés de 9 à 11 ans, dans une école publique. Pour évaluer la pertinence liée à la santé physique des enfants, les tests suivants recommandé par Sport Project Brésil, (PROESP-BR 2009) ont été effectués: abdominale (force /la force abdominale), s'asseoir et atteindre sur un banc Wells (flexibilité) et l' Indice de masse corporelle (IMC). Les données ont été saisies dans un paquet de feuille de calcul statistique pour les sciences sociales pour Windows (logiciel SPSS version 20.0) et analysées à l'aide de statistiques descriptives. On a observé une prévalence de 33,3% d'excès de poids qui est lié: a) 100% des élèves ayant un surplus de poids et 58,33% , avaient une souplesse du corps réduite; b) 59,9% a montré une inférieure force abdominale, mais 100% chez les enfants on un surpoids; c) on a été constaté chez les garçons une occurrence accrue chez les individus au risque de surplus de poids et de l' obesité . Ainsi, les points de cette étude montre un rapport entre l'excès de poids et les plus bas niveaux de condition physique des enfants, ce que réfère à la flexibilité et la force des muscles abdominaux. Ce fait montre aussi l'importance d'encourager la pratique d'activités physiques pour reduire l'obésité et effectuer le développement de la force physique et améliorer la santé.

MOTS-CLÉS: santé, capacité physique; enfants; obésité.

APTITUD FÍSICA RELACIONADA A LA SALUD DE ESCOLARES: ESTUDIO COMPARATIVO DE LOS ESCOLARES CON ÍNDICE DE MASA CORPORAL - IMC NORMAL Y CON EXCESO DE PESO DE SANTA CRUZ DO SUL-RS

RESUMEN

El presente estudio transversal tuvo como objetivo evaluar las posibles diferencias en la aptitud física relacionada a la salud de escolares con IMC normal y exceso de peso de la provincia de Santa Cruz do Sul – RS. Los sujetos de esta investigación fueran 18 niños y adolescentes, siendo 10 del sexo masculino y 8 del femenino, con edad de 9 hasta 11 años, de una escuela de la red estadual de la provincia. Para evaluación de la aptitud física relacionada a la salud, fueran realizados los siguientes testes preconizados por lo Projeto Esporte Brasil (PROESP-BR, 2009): abdominal (fuerza/resistencia abdominal); sentar y alcanzar con el banco de Wells (flexibilidad) y el Índice de Masa Corporal (IMC). Los datos fueron digitados en planilla del Statistical Package for Social Sciences for Windows (SPSS versión 20.0) y analizados por la estadística descriptiva. Se constató que el 33,3% de los escolares presentaran exceso de peso y, asociados a este: a) bajos niveles de flexibilidad en 100% de los escolares con exceso de peso y en el 58,33% de los con peso normal; b) menor resistencia abdominal presentada por el 59,09% de los evaluados, siendo frecuencia del 100% en sujetos con exceso de peso; c) mayor ocurrencia de personas en la zona de riesgo para exceso de peso en los escolares del sexo masculino. Así, el estudio apunta una relación entre el exceso de peso y índices inferiores de aptitud física en los escolares, lo que se refiere a la flexibilidad y la resistencia muscular abdominal. Sin embargo, se destaca la importancia del estímulo a la práctica de actividad física para la reducción del cuadro de obesidad, bien como para el desenvolvimiento de aptitud física, con vistas a la salud.

PALABRAS CLAVE: Salud; Aptitud Física; Escolares; Obesidad.

APTIDÃO FÍSICA RELACIONADA À SAÚDE DE ESCOLARES: ESTUDO COMPARATIVO DOS ESCOLARES COM IMC NORMAL E COM EXCESSO DE PESO DE SANTA CRUZ DO SUL-RS

RESUMO

O presente estudo transversal tem como objetivo verificar possíveis diferenças na aptidão física relacionada à saúde de escolares com IMC normal, sobrepeso e obesos de Santa Cruz do Sul – RS. Os sujeitos desta pesquisa foram 18 crianças e adolescentes, sendo 10 do sexo masculino e 8 do feminino, com idades entre 9 e 11 anos, de uma escola da rede estadual do município de Santa Cruz do Sul/RS. Para avaliação da aptidão física relacionada à saúde, foram realizados os seguintes testes preconizados pelo Projeto Esporte Brasil (PROESP-BR, 2009): abdominal (força/resistência abdominal); sentar e alcançar com banco de Wells (flexibilidade) e o Índice de Massa Corporal (IMC). Os dados foram digitados em planilha do Statistical Package for Social Sciences for Windows (SPSS versão 20.0) e analisados pela estatística descritiva. Constatou-se que 33,3% dos escolares apresentaram excesso de peso e, associados a este: a) baixos índices de flexibilidade em 100% dos escolares com excesso de peso e em 58,33% dos com peso normal; b) menor resistência abdominal apresentada por 59,09% dos avaliados, sendo frequência de 100% em indivíduos com excesso de peso; c) maior ocorrência de indivíduos na zona de risco para excesso de peso nos escolares do sexo masculino. Deste modo, o estudo aponta uma relação entre o excesso de peso e menores índices de aptidão física dos escolares, no que se refere a flexibilidade e a resistência muscular abdominal. Fato este que destaca a importância do estímulo à prática de atividade física para a melhoria do quadro de obesidade, bem como para o desenvolvimento de aptidão física, com vistas à saúde.

PALAVRAS CHAVE: Saúde; Aptidão Física; Escolares; Obesidade.