155 - THE INFLUENCE OF A MULTIDISCIPLINARY PROGRAM IN THE HEALTH RELATED PHYSICAL FITNESS OF CHILDREN AT 7 10 YEARS OLD

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INTRODUCTION

It is observed that the advances in the industrialization and technological processes allied to the increase of violence in big cities are inducing the population to the adoption of a sedentary lifestyle.

Studies carried out in international (JORDAN *et al.*, 2006; GOUVEIA *et al.,* 2007) and national scope (OEHLSCHAEGER *et al.,* 2004; FARIAS and SALVADOR, 2005) with adolescents show that the sedentary behavior already reaches a great parcel of this population, the same occurring with children in international (JORDAN *et al*, 2006; GOUVEIA *et al.,* 2007) and national studies (GIUGLIANO and CARNEIRO, 2004; ARRUDA and LOPES *et al.,* 2007).

Amongst sedentary activities, watching television has revealed itself as the most performed one, presenting an average time of 4,1±3,2 h/d among adolescents (MARANHãO NETO, 2000) and 3 h/d among children (BRACCO, 2001; JORDAN *et al.*, 2006).

Sedentarism has been pointed as one of the main responsible factors of obesity occurrence, since there are evidences that sedentarism keeps positive and statisticaly significant relation with all obesity indicators - BMI, waist circumference and skinfold (FERNANDES et al., 2006) and obesity has become a strong factor of illnesses development - diabetes mellitus, arterial hypertension, heart disease, cancer and thoracic kyphosis, hyperlordosis, pelvic anteroversion, valgos knees and flat feet (ARRUDA AND SIMÕES, 2007).

Opposite to sedentarism, physical activity contributes towards weight control and cardiovascular performance improvement, besides increasing the bone mineral density (ALVES, 2003).

In this perspective, this study aimed at investigating the effects of a multidisciplinary intervention program in the level of HRPF of well-nourished children with overweight risk, with overweight and obese.

MATERIAL AND METHODS

The study was carried out from July to November 2007, involving students of both sexes, in the age group from 7 to 10 years old, as part of the project *"Chilhood obesity prevention and intervention multidisciplinary action: playful motor activities, nutricional re-education and psychological orientation",* developed by the Physical Education Course at Universidade para o Desenvolvimento do Estado e da Região do Pantanal - UNIDERP.

During all the stages, the study followed the requirements of the Resolution CNS nº196/96, being approved by the Committee of Ethics in Research of Universidade para o Desenvolvimento do Estado e da Região do Pantanal under the protocol nº 097/2007.

In the first stage of the project the weight and height measures of 280 children were evaluated, using the BMI=weight (kg) /height (m) ^{2} formula to determine the Body Mass Index. As reference, the values proposed by Conde and Monteiro (2006) were used, classifying the results in well-nourished, overweight and obesity. After the diagnostic evaluation of the nutricional status the results were sent to the parents by means of printed document.

For the second phase of the research all the children who had presented values of risk to the overweight (67), overweight (72) or obesity (27) were invited in the previous phase. From these, only 17 with risk to the overweight, 26 with overweight and 12 with obesity enrolled. However, only 11 children with risk to the overweight, 14 with overweight and 6 with obesity remained in the program until the end.

The inquiry technique used in the second phase (pre-test) was the analysis of the health-related physical fitness through the gauging of weight and height measures using the BMI=weight/height^2 formula to determine the BMI, "seat-and-reach" (flexibility) tests and abdominal strenght/resistance (1 min.) using as reference the values proposed by Proesp - Br (GAYA and SILVA, 2007).

The evaluation of the body mass was carried out with barefoot children, wearing shorts without shirt (boys) and bikini (girls), standing in the same position, turning their backs to the scale, keeping the lower limbs about shoulder-width apart. The stature gauging occurred with children bare-footed and standing with their back to the stadiometer, keeping contact of the posterior heel surfaces, pelvic girdle, scapular girdle and occipital region with the instrument, being the head guided in the plan of Frankfurt, being the measure surveyed with the child in apnea.

The test "seat-and-reach" was carried out with bare-footed pupils, seated in front of the Wells Bench, with extended and joined legs. After that, with overlapping hands the arms are raised to a vertical line, inclining the body forwards and reach with the fingers tips of the hands the most possible distant point on the ruler, without bending knees and using swinging movements.

For the accomplishment of the abdominal strenght/resistance test, the evaluated pupil was located in supine position with knees bent at 90 degrees and with arms crossed over the chest. After that, the appraiser fixed the feet of the student to the ground. To the signal the pupil initiated the flexion movements of the trunk until touching the elbows in the thighs, returning to the initial position (not being necessary to touch the head in the long cushion at each execution). The countings were carried out out loud. The test lasted one minute when it was registered the major number of complete repetitions.

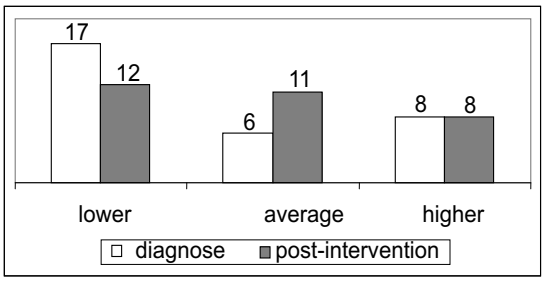
After the diagnostic assessment, the registered children participated of a program of recreational playful activities (intervention) for a period of five months, with lessons three times per week, during fifty minutes each, in a light intensity. During playful activities planning the cognitive stages indicated by Piaget (1978) and the motor skill stages were taken into account (GALLAHUE and OZMUN, 2003).

After five months of intervention, children were again submitted to evaluations of BMI, flexibility and abdominal resistance (after-intervention), adopting the same conditions and criteria of the previous phase.

Frequency analysis was used when handling with data. Ratio test was applied to compare the values obtained during pre and after-intervention and p<0,05 was adopted as level of significance.

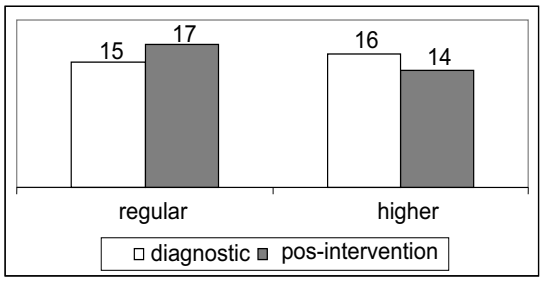
RESULTS DISCUSSION

The diagnostic assessment identified that most participants were overweight considering the ZSMC. According to picture 1, after the intervention period, the amount of children classified as regular IMC, hat is, in the ZSMC, as higher than the diagnose assessment.



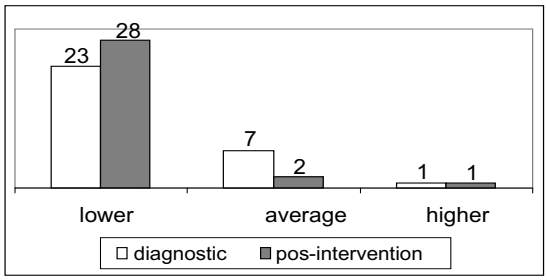
Picture 1 Percentage of classification of ZSMC in the diagnostic test and post intervention.

As far as flexibility was concerned, data demonstrated that most children in the diagnostic test did not show positive values in relation to a health life, due to the fact that 17 of them were below the positive values of ZSAF. According to picture 2, after the intervention period, positive factors were demonstrated into such variable.



Picture 2 Percentage of classification of ZSAF in the diagnose assessment and post intervention of flexibility.

Abdominal resistance was a variable in which were observed the worst results, both in the diagnostic test and the post intervention, once most children were below the ZSAF.



Picture 3 Percentage of classification of ZSAF in the diagnostic assessment in the post intervention of abdominal resistance.

Although the physical activity can have a positive effect in the prevention of weight gain or in its recovery (WYATT e HILL 2002) and improvements in the nutritional status, when submitting data to the proportion test, the research identified that the differences among the amount of children classified as in the average of ZSMC in the pre and post assessment were not statistically meaningful (15*vs*17; p=0,6113), the same evidence indicated in the flexibility (6*vs*11; p=0,1546) and abdominal resistance (23*vs*20; p=0,0965).

As far as the excess of body mass is concerned, according to the Consensus State Men (2002), as well as adults, physical activities developed every day during the week, 30 minutes of light insensitivity, can prevent or even inhibit the transition of overweight to obesity. However, researchers state that with the systematic practice of such activities, is also necessary the reduction of sedentary action in every day life.

Moreover, the absence of meaningfulness between the data obtained in the pre a and post test can be related to the intensity of activities developed (recreation of light intensity) and the amount of sessions because exercises used in obesity treatment therapies, when limited to three sessions weekly do not have any effects (or a minimum effect) on obesity (VOTRUBA et al., 2000). According to Marrugat et al. (1996) there are indexes that physical activities of light intensity area insufficient to provoke meaningful alterations in the lipid profile.

CONCLUSIONS

To sum up, the intervention program had positive effects on the improvement of the values of IMC and in the flexibility, but did not have the same effect regarding the abdominal resistance. However, improvements were not statistically meaningful in any variables.

There are indications that the absence of statistics meaningfulness in the intervention can be related to the intensity and in the number of weekly sessions developed through the intervention period, therefore, further investigations are necessary in a higher frequency.

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THE INFLUENCE OF A MULTIDISCIPLINARY PROGRAM IN THE HEALTH RELATED PHYSICAL FITNESS OF CHILDREN AT 7 10 YEARS OLD

ABSTRACT

The absence of good physical fitness to health is strongly associated to hypokinetic deseases predisposition, most of the times resulting in deaths. Considering that physical activity can exert great influence on health, this study aimed at evaluating the efects of a multidisciplinary intervention program in the level of health-related physical fitness (HRPF) of well-nourished children with overweight risk, with overweight and obese. The sample was composed of 11 well-nourished overweight risk children, 14 with overweight and 6 obese. The HRPF was evaluated through measurements of Body Mass Index (BMI), flexibility and abdominal strenght/resistance, classifying the results in "below". "in" and "above" the Body Mass Healthy Zone (BMHZ) and Physical Fitness Healthy Zone (PFHZ). The results show that after the intervention period three children presented improvements in BMI and five in flexibility. However, when Ratio test was applied, data showed that the differences are not statisticaly significant. In conclusion, although improvements have occurred, the program was not enough to cause statisticaly significant changes in HRPF.

Key words: Body Mass. Flexibility. Abdominal

INFLUENCE D'UN PROGRAMME MULTIDISCIPLINAIRE D'APTITUDE PHYSIQUE RELATIVE A LA SANTE DES ENFANTS DE 7 A 10 ANS.

RÉSUMÉ

Le manque de bonne santé physique est fortement associée à la prédisposition à des maladies hypokinetic, entraînant souvent des morts. Considérant que, l'activité physique peuvent exercer une grande influence sur la santé, cette étude a eu comme but évaluer les effets d'une intervention multidisciplinaire au niveau des conditions physiques liés à la santé (AFRS) des enfants eutrophes à risque de surcharge pondérale, du surpoids et de obèses. L'échantillon comprenait 11 enfants eutrophes à risque de surpoids, 14 surpoids et 6 obèses. L'AFRS a été évaluée par des mesures de l'indice de masse corporelle (IMC), la flexibilité et la force / force abdominale, décrivant les résultats comme « ci-dessous », « en » et « au-dessus de la » Zone de masse corporelle sain (ZSMC) et la Zone Sain pour la condition physique (ZSAF). Les résultats montrent que, après la période d'intervention trois enfants ont presenté une certaine amélioration de l'IMC et cinq en souplesse. Toutefois, lorsqu'il est appliqué à l'épreuve de la Proportion les données montrent que les différences ne sont pas statistiquement significatives. On a conclu que, même si des améliorations ont eu lieu, le programme ne suffit pas à provoquer des changements statistiquement significatifs dans l'AFRS.

Mots-clé: la masse corporelle. Flexibilité. abdominale.

INFLUENCIA DE UN PROGRAMA MULTIDISCIPLINAR EM LA APTITUD FÍSICA RELACIONADA A LA SALUD DE NIÑOS DE 7 A 10 AÑOS

RESUMEN

La ausencia de una buena aptitud física a la salud está fuertemente asociada a la predisposición a enfermedades hipocinéticas, muchas veces resultando en óbitos. Considerando que, la actividad física puede ejercer gran influencia sobre la salud, este estudio tuvo por objetivo evaluar los efectos de un programa de intervención multidisciplinar en nivel de aptitud física relacionada a la salud (AFRS) de niños eutróficos con riesgo de sobrepeso, con sobrepeso y obesos. La muestra fue compuesta por 11 niños eutróficos con riesgo a sobrepeso, 14 con sobrepeso y 6 obesas. La AFRS fue evaluada a través de las medidas de Índice de Masa Corporal (IMC), flexibilidad y fuerza/resistencia abdominal, clasificando los resultados en “abajo”, “en la” y “arriba” de la Zona Saludable de Masa Corporal (ZSMC) y de la Zona Saludable de Aptitud Física (ZSAF). Los resultados muestran que tras el período de intervención tres niños presentaron mejoras en el IMC y cinco en la flexibilidad. Sin embargo, cuando aplicado el teste de Proporción los datos muestran que las diferencias no son estadísticamente significantes. Se concluye que aunque mejoras hayan ocurrido, el programa no fue suficiente para provocar cambios estadísticamente significantes en la AFRS.

Palabras-llave: Masa Corporal. Flexibilidad. Abdominal.

INFLUÊNCIA DE UM PROGRAMA MULTIDISCIPLINAR NA APTIDÃO FÍSICA RELACIONADA À SAÚDE DE CRIANÇAS DE 7 A 10 ANOS

RESUMO

A ausência de uma boa aptidão física à saúde está fortemente associada à predisposição a doenças hipocinéticas, muitas vezes resultando em óbitos. Considerando que, a atividade física pode exercer grande influência sobre à saúde, este estudo teve por objetivo avaliar os efeitos de um programa de intervenção multidisciplinar no nível de aptidão física relacionada à saúde (AFRS) de crianças eutróficas com risco de sobrepeso, com sobrepeso e obesas. A amostra foi composta por 11 crianças eutróficas com risco a sobrepeso, 14 com sobrepeso e 6 obesas. A AFRS foi avaliada através das medidas de Índice de Massa Corporal (IMC), flexibilidade e força/resistência abdominal, classificando os resultados em “abaixo”, “na” e “acima” da Zona Saudável de Massa Corporal (ZSMC) e da Zona Saudável de Aptidão Física (ZSAF). Os resultados mostram que após o período de intervenção três crianças apresentaram melhoras no IMC e cinco na flexibilidade. No entanto, quando aplicado o teste de Proporção os dados mostram que as diferenças não são estatisticamente significantes. Conclui-se que embora melhoras tenham ocorrido, o programa não foi suficiente para provocar mudanças estatisticamente significantes na AFRS.

Palavras-chave: Massa Corporal. Flexibilidade. Abdominal.