144 - NUTRITIONAL CONDITIONS FOR DISABLED PEOPLE ATTENDANTS OF THE MOTOR ACTIVITIES FOR DISABLED PEOPLE PROGRAM

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INTRODUCTION

Sports improve physical and psychological aspects of the disabled people, therefore the physical activity is a reaffirmation element and makes possible the ability to go beyond difficulties. So, when a disabled person is taking part of a team or plays a championship, that means that he is going beyond limits and reaching his goals (WELLS & HOOKER, 1990).

Concerning nutritional aspects for disabled people, there are very few papers about this subject to support this work. We all know that still does not exist a specific protocol that shows a truly profile of the corporal composition of this population (RIBEIRO et al, 1998). Gomes (2005), in his work with amputated people, stands out the need of building the nutritional profile of these population in a way that this could help them to get better results and life quality.

That is why this research intended to describe the nutritional conditions of a group of disabled people attendants of the Motor activities for Disabled People Program - PROAMDE, in order to contribute for the growth of studies in this area and also for the increase of the life quality of this population.

METHODOLOGY

This research has a descriptive and quantitative character on searching the nutritional profile of physically active disabled people. It was carried through with 10 (ten) attendants registered in the Motor Activities for Disabled People Program - PROAMDE, which is an extension course project of the Federal University of Amazon - UFAM, that takes care of people with some kinds of physical disability as hemiphlegia, the paraplegia, amputation of members, cerebral paralysis, mental deficiency, as the Down and other syndromes, conducting classes of physical education.

The individuals that are part of this study constitute the team of disabled people that play Wheelchair Basketball, which 5 (five) of them have paraplegia, being 4 (four) of traumatic origin and 1 (one) of non-traumatic origin, 4 (four) of them have inferior members amputation and 1 (one) of them presents sequels of polio in the right inferior member. All are man, with age between 22 (twenty two) and 43 (forty three) years old.

The alimentary habits evaluation was carried through individual level, registering the alimentary habits for three days, being one of the days in a weekend, when has been registered the amount of food and drinks taken, expressed in homemade measures. These registers had been collected and revised by the responsible researcher together with the individual.

From the information generated by these instruments and through the Nutri Virtual Program, it was built the profile of alimentary consumption of the disabled people.

The anthropometric evaluation was conducted by taking the measurements of weight, height, waist and hip circumferences and cutaneous folds.

It was necessary to make corrections to the corporal weight of the amputated ones, accordingly to a formula described by Lee and Nieman (1995). The percentage of the amputation was of 11,6 for the superior portion of the leg and of 5,3 for the inferior portion of the leg, as considered by Brunnstons (1983). For the paraplegic ones, since they are not able to be in a standing position and they did not have control of the body to keep seated on the scale, it was used a formula described by Chumlea (1988) for a weight estimative.

For the height measurement, the amputated ones used the anthropometric scale, with a capacity for 150kg and precision of 0,1kg. With the paraplegic ones, it was used the estimation method for height proposed by Chumlea (1994), considering the impossibility to keep them in a standing position.

The Body Mass Index (BMI) was calculated from the measurements of weight (kg) and height (m), by means of the formula: BMI = Weight/Height ^{2} (ANGELS, 1992).

The measurements of waist and hip circumferences were carried through by means of flexible and not extensible metric ribbon. The amputated ones had been instructed to be stand, erect position and keep the arms along the body. With the paraplegics individuals, these measurements were made in a dorsal decubitus position.

To analyze the corporal composition of the individuals, had been made measurements of cutaneous folds in accordance with the protocol established by Guedes (1994). This protocol uses the folds triciptal, suprailíaca and abdominal for men. The cutaneous folds had been verified by means of a LANGE® Compass, with constant accuracy of 10 g/mm^2 and total opening of 65 mm.

RESULTS

The amputated ones shows homogeneity in weight, with an average of 78,88 kg, occurring overweight of them in relation to the BMI. The waist and hip relation shows an average of 1,03, a level considered as increased risk for cardiovascular diseases (Table 1). The paraplegics ones showed heterogeneities in weight, with an average of 61,9 kg and presented the BMI in the obesity band, despite the average of the waist and hip relation, that was of 0,90, not being considered as risk for cardiovascular diseases (Table 2). The individual with polio sequel presented a high degree of BMI (32,5 kg/m^2) and waist and hip relation (1,01), with increased risk for cardiovascular diseases (Table 3).

Table 1 - Anthropometrical profile of amputated individuals

IND.	AJUST. WEIGHT (kg)	HEIGTH (m)	BMI (Kg/m^2)	WAIST CIRC. (m)	HIP CIRC. (m)	W/H REL.	FAT %
1	71,27	1,69	24,95	0,87	0,96	0,91	22,1
2	75,29	1,75	24,44	0,90	0,99	0,91	23,7
3	82,57	1,70	28,57	0,93	1,4	0,66	25,4
4	86,38	1,62	32,91	1,80	1,10	1,64	25,2
Mean	**78,88**	**1,69**	**27,72**	**1,12**	**1,11**	**1,03**	**24,1**
Median	**78,93**	**1,70**	**26,76**	**0,91**	**1,05**	**0,91**	**24,45**
SD	**6,85**	**0,05**	**3,92**	**0,45**	**0,20**	**0,42**	**1,53**

IND. = Individuals; AJUST. WEIGHT = adjusted weight; BMI = body mass index; CIRC. = circunference; W/H REL. = waist/hip relation; SD = Standard Deviation

Table 2 - Anthropometrical profile of paraplegics

IND.	ESTIM. WEIGHT (kg)	ESTIM. HEIGTH (m)	BMI (Kg/m^2)	WAIST CIRC. (m)	HIP CIRC. (m)	W/H REL.	FAT %
5	65,2	1,39	33,5	0,94	1,00	0,94	23,6
6	57,0	1,34	31,7	0,79	0,99	0,80	12,8
7	77,3	1,28	47,2	0,95	1,10	0,86	28,6
8	60,0	1,39	30,8	0,83	0,88	0,94	26,0
9	61,6	1,41	31,0	0,74	0,78	0,95	15,8
Mean	**61,9**	**1,31**	**36,3**	**0,86**	**0,92**	**0,90**	**21,4**
Median	**60,8**	**1,37**	**32,6**	**0,87**	**0,94**	**0,94**	**22,5**
SD	**9,1**	**0,13**	**7,2**	**0,09**	**0,13**	**0,07**	**6,1**

IND. = Individuals; ESTIM. WEIGHT = estimated weight; BMI = body mass index; CIRC.= circunference; W/H REL. = waist/hip relation; SD = Standard Deviation

Table 3 - Anthropometrical profile of the one with paralytic poliomyelitis

IND.	WEIGHT (Kg)	HEIGTH (m)	BMI (Kg/m^2)	WAIST CIRC. (m)	HIP CIRC. (m)	W/H REL.	FAT %
10	79,0	1,56	32,5	0,99	0,98	1,01	26,5

BMI = body mass index; CIRC.= circunference; REL. W/H= waist/hip relation

Related to the dietary evaluation, the results for the energy and macronutrients consumption showed a large heterogeneity of the sample, even from one to another individual or from the same individual in one day to another, as showed in the table 4, presenting an average of 2.448kcal of energy consumption, lipids of 74g (27%), protein of 123g (20%) and low percentual of carbohydrates (53%) (Figure 1). The average cholesterol consumption was over the level recommended of 300mg diary.

Table 4 - Average energy, lipids , protein, carbohydrates and cholesterol consumption

IND.	ENERGY (kcal)	PROTEÍN		CARBOHYDRATES		LIPÍDS		CHOLESTEROL (mg)
	X ± SD	X ± SD (g)	%	X ± SD (g)	%	X ± SD (g)	%	X ± SD
01	3404,3±1092,5	158,9±49,3	19,3	468,4±179,2	56,8	87,4±42,0	23,9	413,2±159,5
02	1869,5±357,1	66,6±13,2	14,4	279,9±127,8	60,6	51,5±17,4	25,0	153,3±21,6
03	2274,2±825,3	106,3±42,3	18,6	305,9±128,5	53,6	70,4±40,3	27,8	451,9±431,8
04	2648,0±252,7	126,9±14,3	20,2	342,8±13,8	54,6	70,3±30,2	25,2	331,9±35,8
05	2426,5±262,2	141,9±39,1	23,3	250,8±2,0	41,1	96,7±35,3	35,7	443,9±342,3
06	1955,9±463,9	95,4±46,8	19,4	256,3±38,3	52,1	62,3±24,2	28,5	303,2±136,2
07	3422,1±1634,6	80,4±7,9	12,2	389,5±149,2	59,1	84,1±25,1	28,7	108,9±80,9
08	1899,2±179,6	70,4±24,1	14,8	268,6±13,7	56,4	60,9±12,9	28,8	158,2±104,6
09	3342,2±227,5	257,0±38,8	30,6	355,7±106,6	42,3	101,0±14,3	27,1	714,9±111,5
10	2253,4±1275,8	127,7±100,1	22,9	305,9±174,9	54,8	55,6±26,4	22,4	278,3±251,6

IND. = Individuals; X= mean; SD = Standard Deviation

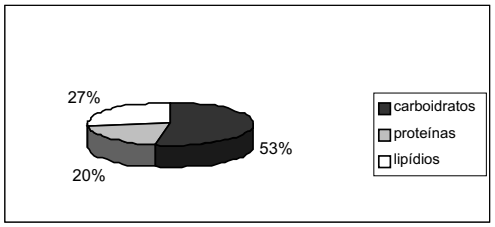

Figure 1 - Macronutrients Consumption

DISCUSSION

The corporal composition in disabled people is hard to be evaluated. Does not exist a specific protocol for each kind of disability, what makes difficult a final analysis of the data.

In the average, amputated individuals have overweight considering even BMI or fat percentual. People with amputation of one of the inferior members should avoid the overweight, having in mind the support for only one leg (GOMES, 2005).

The paraplegics individuals presented, in average, the BMI in the obesities band, even so some did not look like to be overweighed, and the fat percentage showed an average in the band of moderate overweight. This question can be explained due to a lack of a specific protocol for physical evaluation for this type of disability, and still, the unproportionality between the weight and the height of these individuals, due to the margin of error of the equations used to estimate these measurements, therefore the immobilized members of this population have the mineral content in the bones and also the corporal density injured (BOSCH & WELLS, 1991), and this could be one of the factors that interfered with these results.

The present study demonstrated very high standard deviations related to the dietary evaluation of the sample, characterizing the heterogeneities on the total consumption of calories and macronutrients in the same individual from one day to another, what demonstrates a non-constant alimentary pattern, with a lot of variation between one day to another in the amount and quality of eaten foods. It must be observed that, great part of these individuals comes from a low socioeconomic class, what makes more difficult the access to foods and the real register of same (PEDRAZA, 2004; DÂMASO, 1994).

An average consumption of 2448kcal/day was observed, which is inside of the recommended value (BUTLER, et al 1999), but this cannot be affirmed that for these individuals it is enough, therefore they use orthopedic supports for walking should demand a higher consumption of energy.

In average, a low consumption of carbohydrates calories occurred, since the adequate recommendations are around 60 to 70% of the total caloric consumption daily, so that the reserves of muscular and hepatic glycogen are kept (CARVALHO, 2003). An adequate ingestion of carbohydrates is recommended for individuals that make intense physical exercises as the basketball, in order to optimize the physical performance of the players (BUTLER, 1999).

The lipid consumption was inside of the recommended standard (CARVALHO, 2003). The protein consumption (g/kg/day) also presented an average adjusted for athletes. It is important to stand out that the protein consumption contributes for the supply of energy in exercises of endurance and are necessary for the muscular protein synthesis after the exercise (CARVALHO, 2003). However, the protein consumption above of the recommended may produce, after some time, damages to the hepatic and renal

systems (POORTMANS & DELLALIEUX, 2000).

CONCLUSION

The present study demonstrated a great necessity of a specific physical evaluation for the disabled people, mainly for the group of the paraplegics, creating a higher difficulty to establish a better profile of the sample. We cannot tell also that the evaluation of the alimentary habits of these individuals is totally complete, since, it was overcome as reference protocols that are used for people who have no disabilities, so it is hardly necessary to have studies that verify the real condition in the nutritional evaluation of these individuals.

It was of great importance to recognize the socioeconomic aspects of this population, cause this has an important contribution in the analysis of the results.

It's clear the necessity of adjusted methods of corporal composition for individuals with spinal injury. Very few works about disabled people results in the relevance of tracing a nutritional profile of these individuals.

Disabled people have a great potential for the society. Studies with new anthropometrics and nutritional determination would help a lot in the attainment of better alimentary habits, resulting in a better life quality of these people. The individuals of the present study presented different individual dietary characteristics. The development of other works with higher number of disabled people is of extreme importance for a better nutritional profile characterization.

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NUTRITIONAL CONDITIONS OF PHYSICAL DEFICIENTS ATTENDANTS OF THE MOTOR ACTIVITIES FOR DISABLED PEOPLE PROGRAM

ABSTRACT

Although there are many researches related to nutritional status of different populations, there are very few papers about nutritional aspects for disabled people. This work had as objective to describe the nutritional conditions of physically disabilities through anthropometric measurements and investigation of their alimentary habits. It was conducted over a sample of 10 men, physically disabled, from the Wheelchair Basketball Team of the Motor Activities for Deficients Program, from the Federal University of Amazon who have paraplegia, inferior members amputation and paralytic poliomyelitis. In the dietary evaluation, it was used the alimentary register of three days to verify the energy, macronutrients and cholesterol consumption. The anthropometric measurements taken were weight, height, waist and hip circumferences, and cutaneous folds. The amputated ones presented homogeneity in the weight, overweight in relation to BMI and high value for waist circumference, in a level considered as increased risk for cardiovascular complications. The paraplegic ones presented heterogeneity in the weight and BMI of obesity, although the average for waist circumference was not considered in a level of risk for cardiovascular complications. The one who had paralytic polio presented a high degree of BMI and waist circumference, with increased risk for cardiovascular complications. In relation to the dietary evaluation, the results of energy and macronutrients consumption demonstrated a great heterogeneity of the sample, both from an individual to the other as for the same individual from one day to another, presenting on average an energy consumption of 2448 kcal, with 74g of lipids (27%), 123g of proteins (20%) and low percentage of carbohydrate (53%). The average cholesterol consumption was above the recommendation of 300mg per day. More studies are necessary in relation to nutritional aspects of physically disabled people, aiming a better nutritional characterization of this population, contributing for a better life quality for these individuals.

Key-words: Disabled people, alimentary habits, anthropometric measures

CONDITIONS NUTRITIONNELLES DES INVALIDES PARTICIPANT AUX PROGRAMMES D'ACTIVITÉS MOTRICES POUR INVALIDES

RÉSUMÉ

Bien qu'il existe de nombreuses recherches relatives à l'état nutritionnel de diferentes populations, la bibliograplie existante sur les aspects nutritionnles des invalides est très rare. Ce travail a pour objectif de décrire les conditions nutrionnelles des invalides au travers de mesures anthropométriques et du relevé de leurs habitudes alimentaires. L'étude a été réalisée avec 10 sujets du sexe masculin, invalides qui sont membres de l'équipe de basket sur roues du PROAMDE, lesquels sont paraplégiques avec une amputation des membres inférieurs et des séquelles de polomiélite. L'évaluation diététique a été faite à partir de l'enregistrement alimentaire pendant trois jours pour vérifier la consommation d'énergie, macronutriments et cholestérol. L'évaluation anthropmétrique a été faite à partir de prises de mesures de poids, hauteurs et tours de taille, des hanches et des plis cutanés. Les

sujets amputés ont présenté un poids homogène, un surpoids par rapport à l'IMC et une valeur accentuée du tour de taille avec un risque accru de compilications cardiovasculaires. Les sujets paraplégiques ont présenté une hétérogénéité de poids et un IMC dans la zone d'obésité, bien que le tour de taille moyen ne se trouvait pas à un niveau considéré comme à risque de complications cardiovasculaires. Dans l'évaluation diététique, les résultats de consommation d'énergie et de macronutriments ont démontré une grande hétérogénéité de l'échantillon, non seulement entre un sujet et un autre mais aussi avec un même sujet d'un jour sur l'autre, présentant en moyenne, une consommation énergétique de 2448 kcal, lipiidique de 74g (27%), protéique de 123g (20%) et un faible pourcentage de carbohydrates (53%). La consommation moyenne de cholestérol a été au delà de celle recommandée de 300 mg par jour. Des études supplémentaires sont nécessaires concernant les aspects nutritionnels des invalides, visant une meilleure caractérisation nutritionnelle de ces derniers, contribuant ainsi à une meilleure qualité de vie.

Mots-clefs: Invalides, habitudes aliementaires, mesures anthropométriques

CONDICIONES NUTRICIONALES DE LOS DISCAPACITADOS FÍSICOS DEL PARTICIPANTE DEL PROGRAMA DE LAS ACTIVIDADES DE MOTOR PARA DISCAPACITADOS

RESUMEN

Aunque existan muchas investigaciones relacionadas al estado nutricional de poblaciones diversas, la literatura es muy escasa en los aspectos nutricionales de la gente con discapacidad física. Este trabajo se propone a describir las condiciones nutricionales de los discapacitados a través de medidas antropométricas y del examen de los hábitos alimenticios. El estudio fue llevado a cabo con 10 individuos hombres, discapacitados físicos miembros del equipo de baloncesto en ruedas del PROAMDE, los cuales presentan paraplejía, la amputación de miembros inferiores y secuelas de la poliomielitis. En la evaluación dietética el registro alimenticio de tres días fue utilizado para verificar el consumo de energía, de los macronutrientes y del colesterol. La evaluación antropométrica fue realizada a través de tomadas de medidas de peso, de altura, de las circunferencias de la cintura y caderas y de los dobleces. Los individuos amputados habían presentado homogeneidad en el peso, exceso de peso en lo referente a el IMC y valores acentuados de la circunferencia de la cintura con el riesgo aumentado de complicaciones cardiovasculares. Los individuos parapléjicos han demostrado heterogeneidad en el peso y han presentado el IMC en el rango de la obesidad, a pesar del promedio de la circunferencia de la cintura no estuviera en el nivel considerado como el de riesgo de complicaciones cardiovasculares. El individuo con secuelas de la poliomielitis presentó un IMC y una circunferencia cintura elevados, con el riesgo acrecido de complicaciones cardiovasculares. En la evaluación dietética, los resultados de la consumición de la energía y de os macronutrientes han demostrado un gran heterogeneidad de la muestra, tanto de un individuo para el otro como en el mismo individuo de un día para el otro, presentando, en promedio, un consumo de energía de 2448kcal, el lipídico de 74g, el protéico de 123g y un porcentaje bajo de carboidratos (el 53%). La consumición media del colesterol estaba arriba de la recomendación de 300mg al día. Más estudios son necesarios en lo referente a los aspectos nutricionales de los discapacitados físicos, teniendo como objetivo una mejor caracterización nutricional de los mismas, contribuyendo a una calidad mejor de estos individuos.

Términos-llaves: discapacidad física, hábitos alimenticios, medidas antrométricas

CONDIÇÕES NUTRICIONAIS DE DEFICIENTES FÍSICOS PARTICIPANTES DO PROGRAMA DE ATIVIDADES MOTORAS PARA DEFICIENTES

RESUMO

Embora existam muitas pesquisas relacionadas ao estado nutricional de diversas populações, é muito escassa a literatura sobre os aspectos nutricionais de pessoas com deficiência. Este trabalho pretendeu descrever as condições nutricionais de deficientes físicos através de medidas antropométricas e levantamento dos hábitos alimentares. Foi realizado com 10 indivíduos homens, deficientes físicos que constituem a equipe de basquete sobre rodas do PROAMDE, da Universidade Federal do Amazonas - UFAM, os quais apresentam paraplegia, amputação de membros inferiores e seqüelas de poliomielite. Na avaliação dietética utilizou-se o registro alimentar de três dias para verificar o consumo de energia, macronutrientes e colesterol. A avaliação antropométrica foi realizada com a tomada de medidas de peso, altura, circunferências de cintura e quadril e dobras cutâneas. Os indivíduos amputados apresentaram homogeneidade no peso, sobrepeso em relação ao IMC e um acentuado valor de circunferência de cintura com risco aumentado de complicações cardiovasculares. Os indivíduos paraplégicos demonstraram heterogeneidade no peso e apresentaram o IMC na faixa de obesidade, apesar da média da circunferência de cintura não estar em nível considerado como risco de complicações cardiovasculares. O indivíduo com seqüela de poliomielite apresentou IMC e circunferência de cintura elevados, com risco aumentado de complicações cardiovasculares. Na avaliação dietética, os resultados do consumo de energia e de macronutrientes demonstraram uma grande heterogeneidade da amostra, tanto de um indivíduo para o outro como para o mesmo indivíduo de um dia para o outro, apresentando, em média, um consumo energético de 2448 kcal, lipídico de 74g (27%), protéico de 123g (20%) e baixo percentual de carboidratos (53%). O consumo médio de colesterol foi acima da recomendação de 300mg ao dia. Mais estudos são necessários em relação aos aspectos nutricionais de deficientes físicos, visando uma melhor caracterização nutricional dos mesmos, contribuindo com uma melhor qualidade de vida desses indivíduos.

Termos-chaves: Deficiência física, hábitos alimentares, medidas antropométricas.