177 - PHYSICAL ACTIVITY AND NUTRITION: A PROGRAM OF INTERDISCIPLINARY HEALTH

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INTRODUCTION

It is considered that when a man adopts a sedentary lifestyle it promotes in its structure a low capacity for fat oxidation and the consumption of a high-fat diet will install fat deposits in a synergic manner. This fact, in some way, creates an unbalance in the organic composition of man. The muscle tissue, the largest tissue in the body in its action will result in caloric expenditure. Thus, so that the construction and maintenance of this tissue is preserved, the body needs a minimum of muscle mass and a certain amount of fat tissue. The muscle needs plentiful supply of fat as an energy source for its growth which justifies the production of muscle protein and thus the increase in muscle mass. Regardless of body type of the individual it requires proportionality, symmetry and harmony within an organic vision and aesthetics.

Another significant factor in this case is that unbalanced nutritional demands affect the body's ability to respond satisfactorily to muscle stimulation. The metabolic rate of muscles involved in the exercises has a high cost to the body, especially in how to use fat as fuel. Both the period of actual physical practice, as well as the recovery of high metabolic rate is guaranteed by eating healthy, balanced nutrients. The muscle functioning under stress or not, depends on conditions and typical needs adjusting power to the energy expenditure of the individual.

Any change where food demand is greater or less than the demand of power indicated the organic environment will be subject to unsatisfactory processes, such as obesity or muscular hypotony. It is suggested that the morbidity associated with chronic diseases such as obesity, diabetes among others, could be reduced through prevention, including changes in lifestyle, especially diet and physical activity. In so doing, interdisciplinary programs must link education to health to represent the union of learning, knowledge, attitudes and skills to improve the quality of life and consequent prevention of those. However, within those programs, results are only obtained when the goals become clear and the individual has the tools necessary to achieve them.Motivation and constant monitoring by professionals are relevant factors and essential for the achievement of those.

MATERIAL AND METHODS

The "Total Attitude" program was developed by an interdisciplinary team of Gym of Ponta Grossa-Pr, consisting of physical educators and nutritionists. Students of the Gym were invited to participate voluntarily in the program. Those who have accepted enrolled and were informed about the procedures and asked to fill out the Consent Form.

PHYSICAL EVALUATION

At the beginning of the program participants underwent a nutrition and physical assessment when, along with the team, they identified their goals. The physical assessment contemplated anamneses when history of pathologies, any drug use, smoking and the degree of trainability for physical practices were investigated. For the anthropometric parameters Biometrics and Body Composition were considered. Abdominal neural motor test, Bank of Wells and push up, posture assessment by Simetrography and Cicloergometer (Astrand submaximal) test for VO^2 Max, were applied. Those who had any suspect case during the tests were advised to seek medical evaluation. The project participants were weighed on a mechanical calibrated scale of brand Welmy, wearing light clothing and without shoes. The results were expressed in kilograms. Height was assessed by scientific metric tape with precision of 0.5 mm, attached to a surface perpendicular to the ground, where the subjects were positioned upright and without shoes. The values of body height were expressed in centimeters. The evaluations were repeated every forty days and the results were compared by calculating the difference.

The skin folds followed protocol Pollock (1984) and were measured with caliper (caliper, scientific model) and the end result was the average of the circuit of three measures taken. All data were added to the software developed by Ranzani (2004) for the Gym. This made the analysis of the results and generated individual report evaluated at the end.

NUTRITIONAL ASSESSMENT

The Nutritional Assessment was carried out through history food anamneses, food record of 72 hours and form of feeding frequency developed by the researchers. The nutritional objectives were proposed in accordance with the physical and nutritional results. The food records were evaluated for suitability of the food groups according to the methodology proposed by Martins et al, 1997. To evaluate the achievement of the goals proposed, supply food records of 72 hours were required every two months, physical assessments followed the same schedule.

PRACTICE

For the prescription of resistance training with weights there were manipulated variables that were determined by the specificity and individuality following the target set in conjunction with the student scoring strategies and combinations of exercises.

The exercise intensity was monitored by perceived exertion (Borg scale) the volume and time of rest between sets were adapted progressively during the program. Specific training to the physical objectives were formulated and evaluated monthly. The arrangements for training exercises were practiced to resistance and aerobic in group.

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MEETING

At the first meeting the interdisciplinary team was introduced and was defined for six months with monthly meetings, and the participants met with the team the first week of each month and the team had a technical meeting in the last week where they discussed the cases individually and proposals for future meetings with the group.

The group meetings with the team have covered topics on healthy eating based on the principles of sports nutrition and exercise. The themes were addressed in the form of dynamic of group with informative and motivational objectives. The first meeting dealt with the Food Pyramid, followed by the theme of Resources to Achieve Goals. The meetings discussed later how to build a healthy meal for Better Nutrition and Physical Performance.

News related to such matters was sent to the e-mail created for the group weekly to publicize the meetings, notices, and other relevant issues. At the end of the certificates of program participation containing a summary of the results was presented individually to participants in the final meeting.

RESULTS AND DISCUSSION

Among the 17 participants, 15 were female and 2 males. The mean age was 37.8 7.54 years for women and 20 7.07 years for men. In the beginning 29% (5) individuals were considered eutrophic, 47% (8) overweight, 24% (2) as patients with obesity class1 and 2 with obesity class 2. The body mass index (BMI) versus the initial rate was 25.3 7.4 kg/m2 vs. 24.6 6.2 kg/m2 for women and 28.9 4.9 kg/m2 vs. 27.9 3.5 kg / m2 for men. The result for reduction of BMI though it seems to be small it reflects in the increase in the body thin average mass from 33.8 4, 6 kg to 35.4 5.9 kilograms for women and from 41 3.8 kilograms to 44.1 2.9 kilograms in men.

The average fat mass was also reduced from 10.4 10.9 kg at the beginning and 9.3 7.3 kg in the end for women and for men 18.2 8.5 kg at the beginning and 15.25 4.87 kg at the end of the program. These data confirm the statement by Schrauwenand Westerterp (2000) about the fact that the percentage of body fat is negatively associated with physical exercise and when the exercise is done at high intensity there are pronounced effects on energy expenditure and substrate oxidation, including corporal fat. The assessment of abdominal circumference showed that 65% (11) of the sample were within the adequate range and 35% (6) were inadequate, therefore at risk of developing cardiovascular diseases. The average reduction in centimeters was

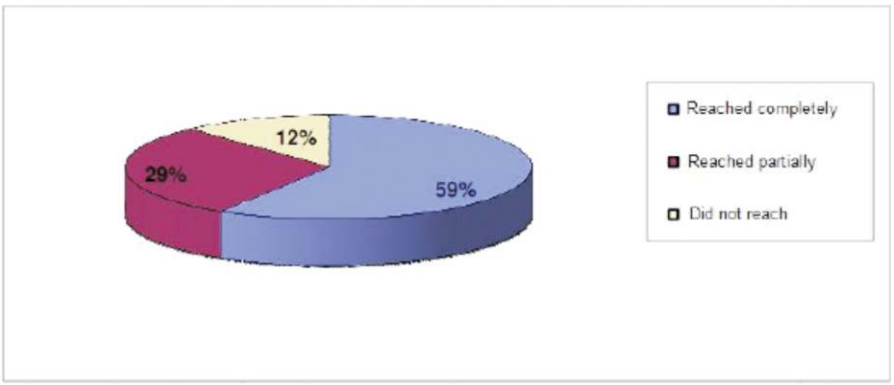
3.6 2.6 cm for men and 2.3 5.7 cm for women. Table 1 shows the initial and final results of each of these parameters.

Table 1 – Average results relating physical parameters.

	Women	Men
IMC initial (kg/ m²)	25,3 ± 7,4	28,9 ± 4,9
IMC final (kg/ m²)	24,6 ± 6,2	27,9 ± 3,5
Initial Fat Mass (Kg)	10,4 ± 10,9	18,2 ± 8,5
Final Fat Mass (Kg)	10,3 ± 7,3	15,25 ± 4,8
Initial Thin Mass (Kg)	33,8 ± 4,6	41 ± 3,8
Final Thin Mass (Kg)	35,4 ± 5,9	44,1 ± 2,9
Initial waist circumference (cm)	78,3 ± 12,5	89,1 ± 14
Final waist circumference (cm)	76,7 ± 8,9	85,5 ± 11,3

After nutritional assessment 59% (10) individuals achieved their goals completely, 29% (5) partially achieved and 12% (2) did not achieve their goals as outlined in Figure 1.

Chart 1 - Scope of nutritional goals proposed by the team.



Corral et al (2009) when investigating the adherence to the diet in a group of obese patients with and without exercise and still separated into resistance training group and endurance training group observed weight loss averaged 12 kg in 158 days of program. Adherence to the proposed diet of 800 calories per day was 73% and the group treated with diet in conjunction with endurance training presented even more acceptance. When we checked the association between diet observances in the group treated with diet alone showed a negative correlation, ie, exercises increased the observance to the diet especially in the group with endurance exercise. Rocha (2008) evaluated the impact of training weights on indicators of body composition in sedentary men but apparently healthy with a mean age of 33.5 years for 12 weeks of training with three sets of 8 to 10 repetitions maximum. Skinfold measurement was collected before and after the intervention period. There was an increase of 6.35% in thin body mass; however the total body mass, fat mass and body fat percentage has not changed significantly ($p > 0.05$) in the post experiment period.

Bucci et al (2005) concluded that both aerobic training and the training of hypertrophy are important for improving the quality of life, the Body, the functional capacity of the body, among other benefits. These authors also suggest the need to develop training programs where the two methods are conducted in different periods or days to refine the goals, whatever they are. The

methodology used in this study includes that suggestion. As for the food, the subjects evaluated in this study were instructed about the qualitative and quantitative changes of food, though the caloric value of food was not established, a fact that may have led individuals to lose less weight when

Compared to individuals in the study of Corral et al (2009). However a meta-analysis done by Astrup et al (2000) involving 1728 individuals emphasizes that a diet low in fat, high protein and high in fiber, mainly from different vegetables, fruit and whole grains provides good sources of vitamins, minerals, fiber and trace elements which can be beneficial for indicators of quality of life desirable in public health programs. The authors also add that a reduction in total fat diet without caloric restriction of total energy intake per day prevents corporal weight gain in individuals with normal weight and promotes weight loss in overweight individuals. The characteristics were similar to the ones proposed by this research program.

Francischi, Pereira and Junior (2001) reported that low-calorie diets are effective for weight loss and fat, but can cause loss of thin body mass and therefore reduction in metabolic rates. Physical training alone, without diet control, causes a modest weightloss. In combination with diet, it facilitates observance to dietary control and ensures greater success in maintaining thin body mass and decreased fat mass. Geliebter et al (1997) verified, in 65 women and men 20% above ideal weight, the effects of two types of training combined with diet for eight weeks in three groups: Group D consists of diet alone (giving an average value of 1286 281 kcal / day), DF: diet plus strengthtraining and DA: diet plus aerobic training. The results indicated that the reduction in body fat and weight was the same for all groups, but DF has lost less thin mass than the others: the total weight lost, was only 8% of thin tissue in DF, while in 20 % of weight lost was compound of thin mass and D the figure was 28%.

Ferreira et al (2005) in a study that evaluated the effect of an orientation program of physical activity and nutrition for women, says that the group that received specific guidance on healthy eating presented voluntary increase in the frequency of moderate activities. This fact suggests that the Diet Guidelines to the participants can contribute as a motivational factor to physical exercise, besides those already known such as the change in body composition of individuals. Participants achieved reduction in the BMI, fat mass and waist circumference as well, particularly in males. Although there was an increase in thin body mass and significant improvement of eating habits.

CONCLUDING REMARKS

The proposition of the program with the fact of setting goals, physical and nutritional support and group activities was the motivating factor to achieve results. In addition to this the fact that even in the case of a program team, the physical and nutritional individuality was taken into account.

The program results suggest that exercise scheduled in conjunction with nutritional guidance was effective in reaching the goals of the proposed program.

The democratic character of the program suggests similar initiatives.

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PHYSICAL ACTIVITY AND NUTRITION: A PROGRAM OF INTERDISCIPLINARY HEALTH

SUMMARY

Nowadays, interdisciplinary activities in the area of physical activity bring in their context the linking of various programs with the objective of promoting the health and well being of man. Thus, the inclusion of nutritional guidance, associated with the practice of physical activity becomes interesting. When we think over the importance of interdisciplinary we aim in this study to analyze a program of physical activity and nutrition guidelines, called "Total Attitude" linked and implemented in a gym in the city of Ponta Grossa – Pr. Regarding the methodological aspects of this research it is characterized as applied with quantitative and qualitative characteristics. This project lasted for 6 months in which the evaluations were physical and nutritional, with specific training and nutritional guidance. The studied population consisted of 17 participants, 15 female and 2 male, mean ages 37.8 ± 7.54 years old for women and 20 ± 7.07 years old for men. The Body Mass Index versus average initial rate was 25.3 ± 7.4 kg/m2 vs. 24.6 ± 6.2 kg/m2 for women and 28.9 ± 4.9 kg/m2 vs. 27.9 ± 3.5 kg/m2 for men. Regarding the increase in thin body

mass there was an average of 33.8 ± 4.6 kg to 35.4 ± 5.9 kg for women and 41 ± 3.8 kg to 44.1 ± 2.9 kg in men. The average fat mass was also reduced by 10.4 ± 10.9 kg in the beginning and 9.3 ± 7.3 kg in the end for women and for men 18.2 ± 8.5 kg in the beginning and 15.25 ± 4.87 kg at the end of the program. As the measure of waist circumference, the average reduction in centimeters was 3.6 ± 2.6 cm for men and 2.3 ± 5.7 cm for women. 59% (10) of subjects achieved their goals completely, 30% (5) partially achieved and 11% (2) did not achieve their goals. There was also decrease in BMI, fat mass and waist circumference in particular in males and increase in thin mass with significant improvement of eating habits.

KEYWORDS: Physical activity, nutrition, interdisciplinar approach.

L'ACTIVITÉ PHYSIQUE ET LA NUTRITION: UN PROGRAMME DE SANTÉ INTERDISCIPLINAIRE

RÉSUMÉ

Dans nos jours, des activités interdisciplinaires au domaine de l'activité physique ont dans leur contexte un lien avec divers programmes dans le but de promouvoir la santé et le bien-être de l'homme. Ainsi, l'introduction d'orientations nutritionnelles incorporée à la pratique de l'activité physique devient intéressante. En ayant réfléchi à l'importance de l'interdisciplinarité on a eu dans cette étude l'objectif d'analyser un programme d'activités physiques et d'orientations nutritionnelles nommé « Atitude Total », en lien avec un club de gymnastique dans la ville de Ponta Grossa – PR. En ce qui concerne les aspects méthodologiques, cette recherche est caractérisée par des applications quanti-qualitatives. Cet projet a eu une durée de 6 mois auxquels ont été réalisées des évaluations physiques et nutritionnelles, des entraînements spécifiques et des orientations nutritionnelles. La population étudiée était composée de 17 individus, dont 15 du sexe feminin et 2 du sexe masculin, agés 37,8 7,54 ans pour les femmes et 20 7,07 ans pour les hommes. L'indice de masse corporelle (IMC) moyen initial versus final a été de 25,3 7,4 kg/m2 versus 24,6 6,2 kg/m2 chez les femmes et 28,9 4,9 kg/m2 versus 27,9 3,5 kg/m2 chez les hommes. À propos de l'augmentation de la masse maigre on a constaté la moyenne de 33,8 4,6 kg sur 35,4 5,9 kg chez les femmes et 41 3,8 kg sur 44,1 2,9 kg chez les hommes. La masse graisse moyenne a aussi eu une réduction de 10,4 10,9 Kg au début et 9,3 7,3 Kg à la fin chez les femmes, et chez les hommes 18,2 8,5 Kg au début et 15,25 4,87 Kg à la fin du programme. Sur la mesure de la circonférence de la ceinture, la moyenne de réduction par centimètre a été de 3,6 2,6cm chez les hommes et 2,3 5,7cm chez les femmes. 59% (10) des individus ont réussi leurs buts totalement, 30% (5) partiellement et 11% (2) n'ont pas réussi leurs buts. Il y a aussi eu une réduction de l'IMC, de la masse graisse par rapport la circonférence abdominale, surtout chez ceux du sexe masculin, et une augmentation de la masse maigre avec des avances significatives quant aux comportements alimentaires.

MOTS CLÉS: Activité physique, Nutrition, Interdisciplinarité.

ATIVIDADE FISICA E NUTRIÇÃO: UM PROGRAMA DE SAUDE INTERDISCIPLINAR

RESUMEN

Hoy en día, las actividades interdisciplinarias en el ámbito de la actividad física, traen en su contexto la vinculación de diversos programas encaminados para promover la salud y el bienestar del hombre. Así, la inclusión de consejos nutricionales, asociados con la práctica de actividad física se vuelve más interesante. Al reflexionar sobre la importancia del objetivo interdisciplinario de este estudio se analizó un programa de actividades físicas con pautas de nutrición, denominado "Actitud Total", realizado en un gimnasio en la ciudad de Ponta Grossa – PR. En cuanto a los aspectos metodológicos de esta investigación esta encuesta está caracterizada por la forma de como se aplican las características cuantitativas y cualitativas. Este proyecto tuvo una duración de 6 meses en el cual fueron realizadas evaluaciones físicas y nutricionales, entrenamientos específicos y orientación nutricional. La población de estudio estuvo constituida por 17 participantes, 15 mujeres y 2 varones, edad media 37,8 ± 7,54 años para las mujeres y de 20 ± 7,07 años para los hombres. El índice de masa corporal inicial frente a la tasa promedio fue de 25,3 ± 7,4 kg/m2 vs 24,6 ± 6,2 kg/m2 para las mujeres y 28,9 ± 4,9 kg/m2 vs 27,9 ± 3,5 kg / m 2 para los hombres. En cuanto al aumento de la masa corporal flaca hubo un promedio de 33,8 kg ± 4,6 a 35,4 ± 5,9 kg para las mujeres y de 41 ± 3,8 kg y 44,1 ± 2,9 kg en hombres. El peso medio de materia grasa también se redujo de 10,4 ± 10,9 kg en el momento basal y 9,3 ± 7,3 kg en la final para las mujeres y los hombres 18,2 ± 8,5 kg al inicio y 15,25 ± 4,87 kg al final del programa. Dado que la medida de la circunferencia de la cintura, la reducción media en centímentros fue de 3,6 ± 2,6 cm para los hombres y 2,3 ± 5,7 cm para las mujeres. 59% (10) dos de los encuestados lograron sus objetivos por completo, el 30% (5) lograron y 11% (2) no lograron sus objetivos. También hubo descenso en el IMC, la masa gorda media de la circunferencia abdominal, en particular en los varones y el aumento de la masa flaca, con una mejora significativa de los hábitos alimentarios.

PALABRAS CLAVE: Actividad física, nutrición, enfoque interdisciplinario.

ATIVIDADE FISICA E NUTRIÇÃO: UM PROGRAMA DE SAUDE INTERDISCIPLINAR

RESUMO

Nos dias atuais, atividades interdisciplinares na área da atividade física, trazem em seu contexto a vinculação de diversos programas no intuito de promover à saúde e o bem estar do homem. Assim a inserção de orientações nutricionais, vinculado com a pratica da atividade física torna-se interessante. Ao refletirmos sobre a importância desta interdisciplinaridade objetivou-se neste estudo analisar um programa de atividade física e de orientações nutricionais, denominado de “Atitude Total” vinculado em uma academia na cidade de Ponta Grossa – Pr. Em relação aos seus aspectos metodológicos esta pesquisa é caracterizada como aplicada com características quanti-qualitativa. O referido projeto teve a duração de 6 meses no qual foram realizadas avaliações físicas e nutricionais, treinos específicos e orientações nutricionais. A população em estudo era constituída por 17 participantes, sendo 15 do sexo feminino e 2 do sexo masculino com idade média 37,8 7,54 anos para mulheres e 20 7,07 anos para homens. O Indice de Massa Corporal médio inicial versus final foi de 25,3 7,4 kg/m2 versus 24,6 6,2 kg/m2 para as mulheres e 28,9 4,9 kg/m2 versus 27,9 3,5 kg/m2 para os homens. Em relação ao aumento da massa magra constatou-se uma média de 33,8 4,6 kg para 35,4 5,9 kg para mulheres e de 41 3,8 kg para 44,1 2,9 kg nos homens. A massa gorda média também teve redução de 10,4 10,9 Kg no início e 9,3 7,3 Kg no final para mulheres e para os homens 18,2 8,5 Kg no início e 15,25 4,87 Kg ao final do programa. No tocante a medida da circunferência da cintura, a média de redução em centímentros foi de 3,6 2,6cm para homens e 2,3 5,7cm para mulheres. 59% (10) dos indivíduos atingiram suas metas totalmente, 30% (5) atingiram parcialmente e 11% (2) não atingiram suas metas. Houve também diminuição do IMC, massa gorda e medida da circunferência abdominal em especial naqueles do sexo masculino e aumento na massa magra com melhoras significativas quanto aos hábitos alimentares.

PALAVRAS CHAVE: Atividade física, Nutrição, Interdisciplinaridade

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