132 - LEVEL OF PHYSICAL ACTIVITY AND LIPID CONSUMPTION PROFILE IN SELECTED SUBJECTS IN THE VALE DO SINOS REGION, RS, BRAZIL.

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INTRODUCTION

It is well-established that physical inactivity and low fitness level have been considered risk factors for early mortality which are as important as smoking, dyslipidemias, and hypertension (BALADY, CHAITMAN et al., 1998; BLAIR; BRODNEY, 1999; CARNETHON, GULATi et al., 2005; FROBERG; ANDERSEN, 2005; HANKEY, 2006; PAIS, 2006; WARBURTON, NICOL et al., 2006). Poor diet has also contributed for risk factors, such as dyslipidemias and obesity. The Health Ministry in Brazil (BRASIL, 2006), mentioning data from Orçamentos Familiares 2002-2003 Study (BRASIL, 2004), carried out by Instituto Brasileiro de Geografia e Estatística - IBGE, states that the increase of obesity in Brazil is associated with the increase of sugar and fat consumption. Studies have been showing that healthy diet standards show association with a substantial decrease in cardiovascular disease risk (GIUGLIANO, CERIELLO et al., 2006; LICHTENSTEIN, APPEL et al., 2006). Considering these important questions, the aim of our study was to describe lipid consumption related to the level of physical activity (PA) of adults from Vale do Sinos region, RS, Brazil.

METHODOLOGY

This Study was carried out with 597 subjects, from 18 to 81 years old, of both genders, living in towns from the Vale do Sinos region, such as Novo Hamburgo, São Leopoldo, Campo Bom, Dois Irmãos, Ivoti and Sapiranga. Subjects were selected according to the residence criterium used by IBGE. In order to calculate body mass index (BMI) was used a Cauduro mechanical scale at 100g to assess body mass and a stadiometer at 0.1cm to assess height. PA levels were identified through the application of the International Physical Activity Questionnaire (IPAQ) short version. Lipid consumption was calculated through 24-h food record and using the DietWin® software. The ANOVA test, from the statistical package SPSS 12.0 was performed in the analyses, considering $p<0.05$.

RESULTS AND DISCUSSION

The characteristics of the 597 people studied are in Table 1.

Table 1 - Sample Characteristics (n=597).

Variables	Men (n=197) Mean ± sd	Women (n=400) Mean ± sd
Age (yrs)	39.6 ± 14.6	42.8 ± 14.8
Height (cm)	174.3 ± 7.7	161.1 ± 7.0
Body Mass (kg)	76.7 ± 15.7	67.1 ± 15.1
BMI ($kg \cdot m^{-2}$)	25.5 ± 3.9	26.4 ± 5.6

The comparison of the amount of lipid consumption informed - Total Energy Intake (TEI) proportion - was made between the individuals in the three levels of PA. In this comparison, no significant difference was found between the PA levels ($p=0.124$). Subjects' relative frequency according to lipid consumption is explained in Table 2.

Table 2 - Percentage of subjects according to lipid intake and level of physical activity (PA).

(PA).

Lipid consumption (TEI %)	Insufficiently Active (IA) (n=223)	Sufficiently Active (SA) (n=220)	Highly Active (HA) (n=154)
< 25%	32.3%	38.0%	34.4%
25 - 30% (recommended)	22.4%	21.8%	29.2%
> 30%	45.3%	40.0%	36.4%

TEI: Total Energy Intake

Regarding lipid consumption, over one third of the analyzed individuals consumed lipids above nutritional recommendation (WORLD HEALTH ORGANIZATION, 2003), regardless of PA level. Although the statistical test did not show significant difference between the groups, there was a tendency for a higher number of individuals classified as insufficiently active (IA) to consume lipids above recommendation levels, when compared to the sufficiently active ones (SA) and the highly active ones (HA). It was reported that 54.5% of the individuals who consumed over 30% of TEI on lipids and who were IA showed overweight or obesity.

Stubbs and Hughes et al. (2004) studying six men with normal body mass (69.2 11.4 kg), and average age 23.0 2.3 years, regarding the level of physical activity and calorie intake, identified that, when being on a sedentary routine for seven days, the subjects in the study did not show reduction on their usual calorie intake, which shows a positive energetic balance therefore causing body fat accumulation. This study did not identify higher fat consumption by the individuals who were submitted to a more sedentary routine due to the fact it has standardized meals at macronutrient proportions.

CONCLUSION

We did not find statistically significant difference in lipid consumption between the different levels of PA. However, concerning the individuals who consume lipids above the recommended TEI, it seems that there is a tendency that the least

physically active ones consume more lipids. This corroborates with the fact that both low level of physical activity and the exaggerated lipid consumption may lead to increase the risk for overweight and/or obesity, therefore contributing for the higher risk of coronary artery disease.

REFERENCES

BALADY, G. J.; CHAITMAN, B. et al. Recommendations for cardiovascular screening, staffing, and emergency policies at health/fitness facilities. **Circulation**, v.97, n.22, p.2283-93, jun. 1998.

BLAIR, S. N.;BRODNEY., S. Effects of physical inactivity and obesity on morbidity and mortality: current evidence and research issues. **Med Sci Sports Exerc**, v.31, n.11 suppl, p.S646-62, nov.1999.

BRASIL. INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. **Pesquisa de Orçamentos Familiares 2002-2003**. Brasília, 2004.

_____. MINISTÉRIO DA SAÚDE. **Caderno de atenção básica: obesidade**. v.12. Brasília (DF), 2006.

CARNETHON, M. R.:, GULATI, M., et al. Prevalence and cardiovascular disease correlates of low cardiorespiratory fitness in adolescents and adults. **Jama**, v.294, n.23, p.2981-8, dec. 2005.

FROBERG, K.; L. B. ANDERSEN, L. B.. Mini review: physical activity and fitness and its relations to cardiovascular disease risk factors in children. **Int J Obes,** London, v.29, suppl 2, sept, p.S34-9, 2005.

GIUGLIANO, D., A. Ceriello*, et al.* The effects of diet on inflammation: emphasis on the metabolic syndrome. **J Am Coll Cardiol**, v.48, n. 4, p.677-85, aug. 2006.

HANKEY, G. J. Potential new risk factors for ischemic stroke: what is their potential? **Stroke**, v.37, n.8, p.2181-8, aug, 2006.

LICHTENSTEIN, A. H.; APPEL L. J., et al. Diet and lifestyle recommendations revision 2006: a scientific statement from the American Heart Association Nutrition Committee. **Circulation**, v.114, n.1, p.82-96, jul., 2006.

PAIS, P. S. Early intervention and prevention of myocardial infarction. **J Hypertens**, suppl, v.24, n.2, p.S25-30, apr. 2006.

STUBBS, R. J.; HUGHES, D. A. et al. A decrease in physical activity affects appetite, energy, and nutrient balance in lean men feeding ad libitum. **Am J Clin Nutr**, v.79, n.1, p.62-9, jan. 2004.

WARBURTON, D. E., NICOL, C. W. et al. Health benefits of physical activity: the evidence. **Cmaj**, v.174, n.6, p.801-9, mar.2006.

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LEVEL OF PHYSICAL ACTIVITY AND LIPID CONSUMPTION PROFILE IN SELECTED SUBJECTS IN THE VALE DO SINOS REGION, RS, BRAZIL.

Abstract

It is well-estabilished that physical inactivity and low fitness level have been considered risk factors for early mortality which are as important as smoking, dyslipidemias and hypertension. Similarly, the excessive consumption of fat also contributes for the increase of obesity and cardiovascular disease risk. The aim of this study was to describe lipid consumption related to the level of physical activity (PA) of adults in Vale do Sinos, RS. For this study, 597 subjects from 18 to 81 years old were selected according to the residence criterion of Instituto Brasileiro de Geografia e Estatística - IBGE, living in towns in Vale do Sinos, RS. BMI was calculated through height and body mass. The level of PA was assessed through the application of the International Physical Activity Questionnaire (IPAQ), short version. Lipid consumption was calculated through 24h food record. ANOVA, from the statistical package SPSS 12.0, was used in order to test differences between PA levels, considering $p<0.05$. More than one third of the subjects analyzed consumed lipids above nutritional recommendations (25-30% of Total Energy Intake -TEI). Although the statistical test does not show significant difference between the groups, there was a tendency for a higher number of subjects classified as insufficiently active (IA) to consume lipids above recommended levels when compared to sufficiently active (SA) and highly active (HA) ones. The study identified that 54.5% of the subjects who consumed more than 30% of TEI in lipids and were IA showed overweight or obesity. In conclusion, we did not find statistically significant difference in lipid consumption between PA levels. However, low levels of physical activity seem to be more present among individuals who consume lipids above recommended levels. This leads to a profile of compromised health, which contributed for an increase in coronary artery disease risk.

Key words: physical activity, BMI, lipids

PROFIL DU NIVEAU D'ACTIVITÉ PHYSIQUE ET DE LA CONSOMMATION DE LIPIDES EN INDIVIDUS SÉLECTIONNÉS À LA RÉGION DU "VALE DO RIO DO SINOS, RS".

Résumé

Actuellement nous savons que l'inactivité physique et le bas niveaux de conditionnement physique ont été considérés comme un facteur de risque pour la mortalité prématuré aussi important que le tabac, les altérations de lipides sanguins et l'hypertension artérielle. Également, la consommation exagérée de grasses contribue pour l'augmentation de l'obésité et du risque de développer des maladies cardiovasculaires. L'objectif de cette étude a été la description de la consommation de lipides en rélation au niveau d'activité physique (NAF) d'individus adultes du Vale dos Sinos, RS. Pour cette étude ont été selectionnés, selon le critère de domicile de l'Instituto Brasileiro de Geografia e Estatística - IBGE, 597 individus, de 18 à 81 ans, résidents aux villes appartenantes au « Vale dos Sinos ». L'Indice de Masse Corporelle (IMC) a été calculé à travers l'application du questionnaire international IPAQ, version courte. La consommation de lipides a été calculée à partir de l'enquête alimentaire au souvenir de 24 heures. Nous avons employé l'ANOVA, du paquet statistique SPSS 12.0 , pour tester des différences entre les classes de NAF, considérant $p<0,05$. Plus d'un tiers des individus analysés consommaient des lipides au-dessus de la recommandation nutritionnelle (25-30% de la Valeur Énergétique Totale - VET). Bien que le test statistique ne pointe pas une différence significative entre les groupes, a été observé une tendence d'augmentation du nombre d'individus classés comme insuffisamment actifs (IA) qui consomment des lipides au-dessus du racommandé, lorsque comparés aux suffisamments actifs (SA) et très actifs (TA). Nous avons encore identifié que 54,5% des individus qui consommaient au-dessus de 30% de la valeur énergétique totale (VET) en lipides et qui étaient IA, présentaient du surpoids ou de l'obésité. Pour conclure, nous n'avons pas trouvé une différence statistique dans la consommation de lipides entre les classes de NAF, mais la baisse

activité physique semble être plus présente parmi les individus qui consomment des lipides au-dessus de la recommandation. Celà, mène à un profil de compromission de la santé, ce qui contribue pour l'augmentation du risque de développement de maladies cardiovasculaires.

Mots-Clés : niveau d'activité physique, IMC, lipides.

PERFIL DEL NIVEL DE ACTIVIDAD FÍSICA Y DEL CONSUMO DE LÍPIDOS EN INDIVIDUOS SELECCIONADOS EN LA REGIÓN DEL VALE DO SINOS, RS.

Resumen

Actualmente, se sabe que la inactividad física y el bajo nivel de condicionamiento físico han sido considerados factores de riesgo para la mortalidad prematura tan importantes como el tabaco, dislipidemias e hipertensión arterial. De la misma manera, el consumo exagerado de gorduras también contribuye para el aumento de la obesidad y del riesgo de desarrollar enfermedades cardiovasculares. El objetivo de este estudio fue describir el consumo de lípidos en relación al nivel de actividad física (NAF) de individuos adultos del Vale dos Sinos, RS. Para este estudio fueron seleccionados, según el criterio de domicilio del Instituto Brasileiro de Geografia e Estatística - IBGE, 597 individuos, de 18 a 81 años, residentes en ciudades pertenecientes al Vale dos Sinos, RS. Fue calculado el índice de masa corporal (ICM), a través de las medidas de estatura y de la masa corporal. El nivel de actividad física (NAF) fue accedido a través de la aplicación del cuestionario internacional IPAQ, versión corta. El consumo de lípidos fue calculado a partir de una indagación alimentar recordatoria de 24 horas. Se usó la ANOVA, del paquete estadístico SPSS 12.0 para probar diferencias entre las clases de NAF, considerando $p<0,05$. Más de un tercio de los individuos analizados consumían lípido superior a la recomendación nutricional (25-30%) del Valor Energético Total-VET. A pesar del test energético no señalar diferencia significativa entre los grupos, se observó una tendencia de un mayor número de individuos clasificados como insuficientemente activos (IA) a consumir más lípidos que lo recomendado, cuando comparados con los suficientemente activos (SA) y con los muy activos (MA). Fue identificado que 54% de los individuos que consumían arriba del 30% del valor energético total (VET) en lípidos y que eran IA, presentaban sobrepeso u obesidad. Concluyendo, no encontramos diferencia estadística en el consumo de lípidos entre las clases de NAF. La baja actividad física parece estar más presente entre los individuos que consumen lípidos arriba de lo recomendado. Esto lleva a un perfil de comprometimiento de la salud, lo que contribuye para el aumento del riesgo de desarrollo de enfermedades cardiovasculares.

Palabras clave: nivel de actividad física, IMC, lípidos.

PERFIL DO NíVEL DE ATIVIDADE FíSICA E DO CONSUMO DE LIPíDEOS EM INDIVÍDUOS SELECIONADOS NA REGIÃO DO VALE DO SINOS, RS.

Resumo

Atualmente, sabe-se que a inatividade física e o baixo nível de condicionamento físico têm sido considerados fatores de risco para mortalidade prematura tão importantes quanto fumo, dislipidemias e hipertensão arterial. Da mesma forma, o consumo exagerado de gorduras também contribui para o aumento da obesidade e do risco de desenvolver doenças cardiovasculares. O objetivo deste estudo foi descrever o consumo de lipídeos em relação ao nível de atividade física (NAF) de indivíduos adultos do Vale dos Sinos, RS. Para este estudo foram selecionadas, segundo o critério de domicílio do IBGE, 597 indivíduos, de 18 a 81 anos, residentes em cidades pertencentes ao Vale dos Sinos, RS. Foi calculado o Índice de Massa Corporal (IMC), através das medidas da estatura e da massa corporal. O nível de atividade física (NAF) foi acessado através da aplicação do questionário internacional IPAQ, versão curta. O consumo de lipídeos foi calculado a partir do inquérito alimentar recordatório de 24 horas. Usou-se a ANOVA, do pacote estatístico SPSS 12.0, para testar diferenças entre as classes de NAF, considerando $p<0,05$. Mais de um terço dos indivíduos analisados consumiam lipídeos acima da recomendação nutricional (25-30% do Valor Energético Total-VET). Apesar do teste estatístico não apontar diferença significativa entre os grupos, observou-se uma tendência de um maior número de indivíduos classificados como insuficientemente ativos (IA) consumirem lipídeos acima do recomendado, quando comparados com os suficientemente ativos (SA) e muito ativos (MA). Foi identificado que 54,5% dos indivíduos que consumiam acima de 30% do valor energético total (VET) em lipídeos e que eram IA apresentavam sobrepeso ou obesidade. Concluindo, não encontramos diferença estatística no consumo de lipídeos entre as classes de NAF. Mas, a baixa atividade física parece estar mais presente entre os indivíduos que consomem lipídeos acima do recomendado. Isto leva a um perfil de comprometimento da saúde, o que contribui para o aumento do risco de desenvolvimento de doenças cardiovasculares.

Palavras-chave: nível de atividade física, IMC, lipídeos.