INTRODUCTION

Given the nutritional transition processes occurring in different places of the world, eating experiences are modified regarding their eating habits patterns, causing an increase of high calorie diets which emphasize on the ingestion of carbohydrates and lipids. In parallel to this alteration on daily life, the lack of physical activity contributes to the occurrence of diseases associated to overweight and leads to antagonistic effects on the human metabolism. The metabolism decrease is conditioned to aging, therefore, the importance of healthy eating must be emphasized, as well as the quest for healthier living habits.

Common elements converge to a diet rich in fats, sugar and refined foods, with reduced amounts of fibers and complex carbohydrates. Simultaneous alterations in body composition, particularly the exceptional increase of obesity in the country, are associated to the predominance of this diet and to the progressive decrease of physical activity (MONTEIRO, 1995).

Recently, observational studies and experiments have evidenced the close relation between the diet's qualitative features and the occurrence of chronic degenerative diseases such as cardiovascular diseases; diabetes mellitus, non-insulin dependent; different types of cancer; and obesity (WHO, 1990).

In order to evaluate the nutritional state, the Body Mass Index (BMI) was applied. The criteria adopted for age and gender classification values, as well as its respective cutoff points, were those proposed by the World Health Organization (WHO, 1998). For the admeasurement of the classifications of calculated anthropometric variations - body mass and height-, the Welmy scale with 100g precision was used. A stadiometer with 0.1cm precision, of the same brand, was used for height measurement.

In order to identify the individuals' eating habits and macronutrients intake (carbohydrate, protein and lipid), the food inquiry method was used, which consists of reporting all food consumed in the span of 24 hours, from the first to the last meal consumed within this interval. According to Majen and Barba (1995), this study allows a more accurate assessment of the daily average intake and constitutes a procedure which does not demand a long period of time for its application.

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Afterwards, the food intake and the meal preparations informed by the interviewees were converted in home measures and weights. The objective was to identify, in the best possible way, the variety of ingredients in each cited meal. For the analysis of the food intake, through the quantification of the energy values of each meal in macronutrients, the professional version of the dietWin® software was used.

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Three measurements were made between these two, considering the average value obtained.

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RESULTS

The obtained results were analyzed statistically in the SPSS (15.0) software, through the Pearson product-moment correlation coefficient (PMCC) and ANOVA tests, in order to detect differences among the studied variables.

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According to the obtained and identified results, presented on Table 1, the nutritional state of the individuals was classified as eutrophic (38.6%), overweight (39.6%) and obese (39.3%), in accordance with WHO standards.

Table 1 - Subjects absolute and relative frequency distributions as to their nutritional state and physical activity level (n=960)

<table>
<thead>
<tr>
<th>Nutritional State</th>
<th>PHYSICAL ACTIVITY LEVEL</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>IA %</td>
<td>SA %</td>
</tr>
<tr>
<td>Normal</td>
<td>167</td>
<td>38.6</td>
</tr>
<tr>
<td>Overweight</td>
<td>127</td>
<td>39.6</td>
</tr>
<tr>
<td>Obese</td>
<td>81</td>
<td>39.3</td>
</tr>
<tr>
<td>Total</td>
<td>375</td>
<td>378</td>
</tr>
</tbody>
</table>

*21 subjects were underweighted and were not included in the total figure.

The nutritional state average among the total of studied individuals revealed that there is a predominance of normality.
However, if we consider the quantity of people above the normal state as a whole (overweight plus obesity), this value would comparatively increase (Chart 1).

Chart 1 - Relative frequency distribution of the subjects as to their nutritional state (n=981)
Regarding the level of physical activity (IPAQ), the subjects were classified as insufficiently active (IA), sufficiently active (SA) and very active (VA), as presented on Chart 1.

The physical activity average intensity, observed in the total of studied individuals, showed a higher number of sufficiently active persons (Chart 2).

Chart 2 - Relative frequency distribution of the subjects according to their physical activity level (n=981)
A strong relation (p<0.05) among the 50-59 and the over 60 age-groups with the BMI was identified. The obesity index increases with age.

The carbohydrates intake, verified through a feeding record, was above the normal recommended value. On Table 3, this intake is intercepted with variables used in the IPAQ test. However, there was no significance.

Table 2 - Subject distribution according to carbohydrate intake and physical activity level (n=981)

No significant statistical differences were found between the BMI and the IPAQ.

A significance of p=0.052 was identified among sufficiently active individuals, being the intake of lipids under the recommended (30 to 35% of the total energy value), according to the WHO, as presented on Table 3.

Table 3 - Subject distribution according to lipid intake and physical activity level (n=981)

DISCUSSION
The food we eat gives us fuel and build materials for life, supplying our bodies with structural elements and guaranteeing the necessary means for the execution of body processes which consume energy. After the basal necessities of the body are fulfilled, the extra energy is sent as fuel to the muscular activity, whether in a recreational, professional or sportive context (MAUGHAN; BURQUE, 2004).

Among the eating factors, the excess energy favors the increase of adiposity, mainly high carbohydrate and lipid ingestion (FRANCISCHI, 2004).

Obesity and physical inactivity were positively associated to the risk of developing cardiovascular diseases, comprising the most meaningful risk factors (GRUNDY et al., 1999).

The results of this study showed that there is a high ingestion of lipids by the individuals in our society, and that the increase of lipid intake does not stimulate its oxidation, in addition to being very effectively stored as body fat, at around 96% (WHO, 1998). The increase of lipid ingestion will induce a positive lipid balance and, therefore, the gathering of adipose body mass (FLATT, 1987, 1995). According to Krause (2002), with the increase of the macronutrient intake, the ingestion of oxidized LDL activates the macrophages, stimulating them to secrete mediators which send proliferative and inflammatory cascades, some of which lead to atherosclerosis. Usually, fat contributes with almost 35% of ingested calories, but the recommended is 30% at the most (MELVIN, 2002).

Lipids, as well as the remaining macronutrients, lead to obesity and can increase more than threefold the chances of...
ABSTRACT

This paper aims at relating the nutritional state with the physical activity level of adult individuals of the Vale do Sinos Region, Rio Grande do Sul State, Brazil.

CONCLUSION

Based on the importance of the evidence presented and on the magnitude of the health issues involved, the advice for dietetic changes was to reduce the intake of high fat and salt foods, as well as increase the intake of foods rich in carbohydrates and fibers. Through a balanced and connected exchange system, the food we eat must be converted into simpler substances, and later into even simpler ones: substances which our cells may use to maintain life (Williams, 1997).

REFERENCES


food inquiry for the identification of the eating habits and macronutrients intake, calculated using the professional version of the dietWin® software. The Body Mass Index (BMI) was applied for the evaluation of the nutritional state, with the use of a scale and a stadiometer for variable height. The data was statistically analyzed through ANOVA and Pearson correlation. The results pointed to the following classification: 38.6% eutrophic, 39.6% overweight and 39.3% obese. As to the level of physical activity, the subjects were classified as insufficiently active (IA), sufficiently active (SA) and very active (VA). A strong relation (p<0.05) among the 50-59 and the over 60 age-groups with the BMI was identified: the obesity index increases with age. No significant statistical difference was found between the BMI and the IPAQ. A significance of p=0.052 was identified among sufficiently active individuals and the intake of lipids was under the recommended (30 to 35% of the total energy value), according to the WHO. Summarizing, the risk of developing obesity increases with age. Therefore, the practice of regular physical activity associated to balanced eating is of great importance in order to obtain a healthier life.

KEYWORDS: Eating control. Physical activity. Healthy habits.

LA CORRELACIÓN DEL ESTADO NUTRICIONAL CON EL NIVEL DE ACTIVIDAD FÍSICA EN INDIVIDUOS ADULTOS DE LA RÉGION DEL VALE DOS SINOS/RS

RESÚMEN
Este artículo intenta relacionar el estado nutricional con el nivel de actividad física en individuos adultos de la región del Vale do Sinos, Río Grande del Sur (RS). En este estudio, de carácter descriptivo, se utilizó 965 individuos, de 18 a 80 años, seleccionados por conveniencia. Las personas fueron sometidas al Cuestionario Internacional de Actividad Física (en formato corto) y a una averiguación alimentaria de 24 horas, para la identificación del hábito alimentario y consumo de macronutrientes, calculados a través del programa Diet Win Profesional. Para la evaluación del estado nutricional se utilizó el índice de masa corporal, evaluado a través de una báscula de equilibrio y un estadiómetro para la variable estatura. Los datos fueron analizados estadísticamente a través de ANOVA y de la Correlación de Pearson. Los resultados se clasificaron en la siguiente clasificación: 38.6% eutéfalos, 39.6% con sobrepeso y 39.3% obesos. Cuanto al nivel de actividad física, los individuos fueron clasificados como: Insuficientemente Activos (IA), Suficientemente Activos (SA) y Muy Activos (MA). Se identificó una fuerte correlación (p<0.05) entre el grupo etario de 50 a 59 años y mayores de 60 años con el IMC: cuanto mayor la edad, más alto el índice de obesidad. No se encontró diferencia estadísticamente significativa entre el IMC y el IPAQ. Se identificó una significación de (p=0.052) entre individuos suficientemente activos y el consumo de lipidos bajo de la recomendación (de 30 a 35% del valor energético total) según el OMS. En síntesis, con el avance de la edad, se aumenta el riesgo de desarrollar la obesidad. De tal forma es muy importante la práctica regular de la actividad física asociada a una alimentación equilibrada para la obtención de una vida más sana.


CORRELACIÓN DEL ESTADO NUTRICIONAL CON EL NIVEL DE ACTIVIDAD FÍSICA EN INDIVIDUOS ADULTOS DE LA REGIÓN DE VALE DOS SINOS/RS

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