152 - PROFILE OF THE FEMALE ATHLETES IN FUTSAL UNESC ON THE SYNDROME METABOLIC

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INTRODUCTION

Cardiovascular diseases are one of the main causes of deaths in developed countries, and are growing increasingly in developing countries and underdeveloped. Many of these diseases are related to poor diet, physical inactivity and the low level of fitness, which are considered risk factors for premature mortality, as important as smoking, dyslipidemia, hypertension and obesity. Epidemiological studies have demonstrated strong relationship between physical inactivity and presence of cardiovascular risks. Furthermore, the practice of regular physical activity has been recommended for the prevention and treatment of cardiovascular disease, its risk factors, and other chronic diseases such as metabolic syndrome.

The metabolic syndrome, also known as syndrome X, insulin resistance syndrome, or syndrome plurimetabólica deadly quartet is a group of disorders that includes obesity, insulin resistance, hypertension, dyslipidemia, and has gained importance because of its association with the development subsequent to cardiovascular disease and type 2 diabetes. This disease is characterized by this group of cardiovascular risks, and in accordance with the publication of the World Health Organization (WHO) and the American Association of Diabetes in 1998 apud (BENELLI, Vanessa Raquel et al, 2006), are considered carriers the metabolic syndrome subjects with glucose intolerance, the normal glucose tolerance with diabetes or insulin resistance and two of the following changes: use of anti-hypertensive and / or high blood pressure (> 140/90 mmHg), obesity (of mass index corporal> 30 kg/m2) abdominal (waist-hip ratio> 0.90 in men and> 0.80 in women), high levels of triglycerides (> 150 mg / dl), glucose above 100 mg / dl, HDL - low cholesterol (<35 mg / dl in men and <39 mg / dl in women), total cholesterol> 200mg/dL, and microalbuminuria urinary excretion of albumin> 20 mg / min).

Several associations of health of the world as American College of Sports Medicine (ACSM), "American Heart Association (AHA), and Brazilian Society of Cardiology (SBC), recommend physical exercises for the control and prevention of cardiovascular diseases and other chronic diseases. Studies also show benefits of regular exercise in the control of hypertension, insulin resistance, diabetes, dyslipidemia and obesity. As recommended 30 minutes of physical activities, with moderate intensity, at least 3 times a week, may be made as leisure or at work. The fitness should be encouraged for all healthy people or those with multiple risk factors, provided they are able to participate in a program of physical training. The physical activity promotes favorable physiological adaptations, resulting in improving the quality of life, and is being increasingly widespread in society by associations of health, as a means of prevention of cardiovascular diseases and maintenance of general health.

The purpose of this article is to check whether the futsal female athletes of the team's UNESC, the city of Criciúma variables have total cholesterol, triglycerides, glucose and BMI, considered "good" if compared to the levels of people with metabolic syndrome. Knowing that a team of income has a load of intense exercises, and they practice exercises 5 to 6 times a week.

METHODOLOGY

PATIENTS

The sample was composed by 6 young women aged between 18 and 23 years (20.5 ± 1.8). Included in this search only the voluntary aged over 18 years, which provided time for the collection of data, which showed the end of informed consent free and informed signed. The volunteers were recruited through ads, done during the drills, running on posters at the Academy of bodybuilding and in the gymnasium where they train. They were informed on the consent of all procedures, and freedom to discontinue participation at any time of the search.

METHODS

All the selected volunteers were subjected to assessments anthropometric, clinical, body composition, before join in the project. The time for action was a week, time needed for the collection of all data necessary for the study.

1) Assessment anthropometric: The body mass was achieved through a balance of platform Brand Filizola, with maximum load of 150kg and an accuracy of 100g. The balance was measured before each measurement and volunteers were heavy on foot, barefoot and using only shorts or intimate clothing. The stature has been verified with a stadiometer standing, graduated with a tape measure in centimeters and accuracy of 1mm, with vertical bar of wood and sets, using a square for mobile positioning on the head of the volunteer.

2) Criteria for the diagnosis of obesity: It used the body mass index (BMI), also known as the Quetelet index, which is considered the simplest method antropométrico, corresponding to the relationship between body mass in kg and the square's stature in meters: body mass (kg) / altura2 (m).

3) Evaluation biochemistry: strengths of total cholesterol, triglycerides and glucose were analyzed using the Kit Accutrend aka GCT - Glucose, Cholesterol and Triglicerídeos containing: 01 of Glucose Analyzer, Cholesterol and Triglicerídeos, 01 lancet Accu-Chek Softclix, 01 cx. Glucose strips of reagents for un with 25, 01 cx. Strips of reagents for Cholesterol with 25 un. Being a drop of blood collected from each athlete to be made the readings of these levels.

4) Analysis of data: The data were organized into spreadsheets and analyzed using descriptive statistical procedures (mean, the standard deviation) and comparing intra (repeated measures), with level of statistical significance of $p < 0.05$. For analysis of the data using Microsoft Excel.

5) ethical aspects of the work: The whole methodology (of testing protocols and exercise) presented in this study was submitted to the Committee of Ethics in Research of the University of the Far South Catarinense (UNESC).

RESULTS

The results are presented as mean ± standard deviation. The results obtained in the group composed of the athletes, in the levels of glucose, total cholesterol, triglycerides and BMI, was compared to the levels considered normal by the WHO, and compared to the levels of holders of the metabolic syndrome.

The values of body mass, stature, BMI and age, are shown in table 1, and according to WHO figures considered normal for people to adult BMI is between 18.5 to 24.9 kg / sqm.

Table 1

Variable	Group Athletes	Track recommended	Metabolic Syndrome
Age	20,5 ±1,8		
Weight (Kg)	62,3 ± 2,9		
Height (cm)	162 ± 0,003		
BMI (Kg/m²)	23,7 ± 1,58	18,5 até 24,9	>30

It was observed that the average BMI found in the group of athletes is considered recommended by the World Health Organization (WHO), classified as having low weight and low risk associated with health. The average is also below the levels found in bearers of the metabolic syndrome. (SEIDELL, 2000).

In table 2 are the results of the levels of total cholesterol, and glucose triglycerides group of athletes, compared to the levels recommended by WHO, and the levels of bearers of metabolic syndrome.

Table 2

Variable	Group Athletes	Track recommended	Metabolic Syndrome
Cholestero (mg/dL)	163,3 ± 6,92	< 200	>200
Glucose (mg/dL)	78,6 ± 9,9	70 a 110	>100
Triglicerídeos (mg/dL)	106,8 ± 40,9	<150	>150

It appeared that the group of athletes has analyzed the metabolic profile, in the levels of glucose, cholesterol and triglycerides within the standard recommended by the associations of health, not incorporating as suffering from metabolic syndrome.

DISCUSSION

This study together a group of female athletes of futsal that were subjected to tests biochemical and anthropometric to compare their clothing with the holders of metabolic syndrome, and the standards recommended by associations of health. The athletes train for competitions at professional level, so anaerobic and aerobic, 5 to 6 days a week, with high intensity. Despite the physical problems that this type of training can lead, as muscle and joint injuries, one can see that in the metabolic profile the practice intense and regular physical activity and becomes positive, since its data are compatible to the recommended. The implementation of intense exercise is a physiological stress to the body according to the great increase of energy demand in relation to the rest, which causes large release of heat and intense alteration of the chemical environment muscle and systemic. Consequently, the regular exposure to the exercise over time (physical training) promotes a number of morphological and functional changes that give greater power to the agency to respond to the stress of exercise. Thus, after these adjustments, an exercise of the same absolute intensity (same speed and inclination in the wake, for example), would lower acute effects after a period of training.

With the physical training, the skeletal muscle develops major changes in capillary density in protein structure and its composition myofibril enzyme. This results in greater efficiency in the use of lipids as energy substrate, delaying the use of muscle glycogen, prolonging the time of exercise and increasing the intensity of effort that can be sustained. It is important to note that the effects of chronic exercise depend, crucially, a peripheral adjustment, which involves both a better control and distribution of blood flow, and specific adaptations of skeletal muscle. Histochemical changes occur in the muscles trained dependent on the type of training, making the enzyme activity is predominantly oxidative (aerobic) or laccolitic (anaerobic lattice).

A single session of exercise can lower the levels of triglycerides and increase levels of HDL-cholesterol so elusive, disappearing the effect over a period of around two days. This underscores the importance of holding regular physical exercise in countering the dislipidemias. Programs of physical training with a weekly caloric expenditure from 1200 to 2200 kcal are sufficient to cause a favorable effect on the levels of serum lipids. Even with minimal changes in body weight, the greater the weekly caloric expenditure, higher benefits to lipemia.

It can be concluded then, that the practice of regular physical exercises, so with professional training back to the income, contributes to prevention and control of cardiovascular disease and other chronic diseases, such as metabolic syndrome. The levels analyzed the athletes on the BMI, glucose, total cholesterol and triglycerides, were all within the range recommended by reinforcing the idea that the practice of regular exercises can be effective in preventing this type of pathology.

REFERENCES

BENELLI, Vanessa Raquel et al, Síndrome metabólica: a importância da atividade física**. Revista Digital - Buenos Aires** - Ano 11 - N° 102 - Novembro de 2006. Disponível em: <http://www.efdeportes.com>. Acesso em: 18/08/2007

BRANDÃO, Ayrton Pires et al, Síndrome Metabólica em Crianças e Adolescentes. **Arquivos Brasileiros de Cardiologia -** Volume 85, Nº 2, Agosto 2005

CIOLAC, Emmanuel Gomes; GUIMARÃES, Guilherme Veiga, Exercício físico e síndrome metabólica**. Rev Bras Med Esporte** vol.10 no.4 Niterói July/Aug.

Wei; BERENSON, Gerald. S, Síndrome metabólica: definição e prevalência em crianças**. J. Pediatr. (Rio J.)** vol.83 no.1 Porto Alegre Jan./Feb. 2007.

FERNANDEZ, Ana Cláudia et al Influência do treinamento aeróbio e anaeróbio na massa de gordura corporal de adolescentes obesos. **Rev Bras MedEsporte vol.10 no.3 Niterói May/June 2004**

FERREIRA, Aparecido Pimentel et al, Síndrome metabólica em crianças obesas e fatores de risco para doenças cardiovasculares de acordo com a resistência à insulina (HOMA-IR). **J. Pediatr. (Rio J.)** vol.83 no.1 Porto Alegre Jan./Feb. 2007.

GUIMARÃES, G. V., CIOLAC E. G. Síndrome Metabólica: Abordagem do Educador Físico. **Rev Soc Cardiol Estado de São Paulo 2004**

MORAES, Ruy Silveira**, Diretriz** de Reabilitação Cardíaca**. Arq. Bras. Cardiol. vol.84 no.5 SÃ£o Paulo May 2005.**

NASCIMENTO, Fernando Gomes, **Dicionário Médico Enciclopédico Taber**. . **17a**. **edição 2000**

SABIA, Renata Viccari et al, Efeito da atividade física associada à orientação alimentar em adolescentes obesos: comparação entre o exercício aeróbio e anaeróbio. **Rev Bras Med Esporte vol.10 no.5 Niterói Sept./Oct. 2004.**

SEIDELL, J.C. The currente epidemic of obesity In C. Bouchard (Ed). **Phsysical activity an obesity** (pp.21-30) Champaign II: Human Kinetcs.

SINAIKO, Alan, Obesidade, resistência à insulina e síndrome metabólica. **J. Pediatr. (Rio J**.) vol.83 no.1 Porto Alegre Jan./Feb. 2007.

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PROFILE OF THE FEMALE ATHLETES IN FUTSAL UNESC ON THE SYNDROME METABOLIC
ABSTRACT

The metabolic syndrome, also known as syndrome X, insulin resistance syndrome, or syndrome plurimetabólica deadly quartet, is characterized by the group of cardiovascular risks, and in accordance with the publication of the World Health Organization (WHO) and the American Association the Diabetes in 1998 apud (BENELLI, Vanessa Raquel et al, 2006), are considered carriers of metabolic syndrome subjects with glucose intolerance, the normal glucose tolerance with diabetes or insulin resistance and two of the following changes: use of anti-hypertensive and / or high blood pressure (> 140/90 mmHg), obesity (body mass index> 30 kg/m2) abdominal (waist-hip ratio> 0.90 in men and> 0.80 in women), high levels of triglycerides (> 150 mg / dl), glucose above 100 mg / dl, low HDL-cholesterol (<35 mg / dl in men and <39 mg / dl in women), total cholesterol> 200mg/dL, and microalbuminuria urinary excretion albumin of> 20 mg / min). The practice of regular physical exercise is related to the control of various cardiovascular diseases and other chronic diseases, such as metabolic syndrome. In this study was analyzed the metabolic profile of athletes, indoor soccer, voluntary, female with an average age of 20.5 years (2.5) of a female team, which train of 5 (five) to 6 (six) twice week, and compared the levels of bearers of the metabolic syndrome. Blood samples were collected from athletes and conducted tests for levels of glucose, total cholesterol and triglycerides, as well as the lifting of the Body Mass Index, BMI. Compared to the standards of WHO for carriers of the syndrome X, the athletes are in the patterns considered normal, strengthening the hypothesis that physical exercise is important in the control of these diseases.

KEYWORDS: Metabolic syndrome, Physical Exercise and Athletes Futsal

PROFIL DES FEMMES ATHLETES DANS LE FUTSAL L'UNESC SUR LE SYNDROME METABOLIQUE
RESUME

Le syndrome métabolique, aussi connu comme le syndrome X, le syndrome de résistance à l'insuline, ou syndrome de plurimetabólica quatuor mortelle, se caractérise par le groupe de risques cardiovasculaires, et en conformité avec la publication de l'Organisation mondiale de la santé (OMS) et l'Association américaine du diabète en Apud 1998 (BENELLI, Vanessa Raquel et coll, 2006), sont considérés comme porteurs du syndrome métabolique sujets ayant une intolérance au glucose, de la tolérance au glucose normale avec le diabète ou résistance à l'insuline et deux des changements suivants: utilisation des antihypertenseurs et / ou l'hypertension Pression (> 140/90 mm Hg), l'obésité (indice de masse corporelle> 30 Kg/m2) abdominale (rapport taille hanche> 0,90 chez les hommes et> 0,80 chez les femmes), des niveaux élevés de triglycérides (> à 150 mg / DL), le glucose supérieur à 100 mg / dl, cholestérol HDL bas (<de 35 mg / dl de chez les hommes et <39 mg d'/ dL chez la femme), le cholestérol total> 200mg/dL, microalbuminurie et de l'excrétion urinaire d'albumine> à 20 mg / mn). La pratique régulière de l'exercice physique est liée à la maîtrise de diverses maladies cardiovasculaires et d'autres maladies chroniques, telles que le syndrome métabolique. Dans cette étude a analysé le profil métabolique de sportifs, soccer intérieur, volontaire, les femmes avec une moyenne d'âge de 20,5 ans (2,5) d'une équipe féminine, qui forment de 5 (cinq) à 6 (six), deux fois par semaine , Et comparé les niveaux de porteurs du syndrome métabolique. Des échantillons de sang ont été recueillies auprès des athlètes et effectué des tests pour les niveaux de glucose, de cholestérol total et de triglycérides, ainsi que la levée de l'indice de masse corporelle, IMC. Par rapport aux normes de l'OMS pour les transporteurs du syndrome X, les athlètes sont dans la structure considérée comme normale, le renforcement de l'hypothèse que l'exercice physique est important dans le contrôle de ces maladies.

MOTS CLES: le syndrome métabolique, l'exercice physique et athlètes Futsal

PERFIL DE LAS MUJERES ATLETAS EN EL FUTSAL UNESC SOBRE EL SÍNDROME METABÓLICO
RESUMEN

El síndrome metabólico, también conocido como síndrome X, el síndrome de resistencia a la insulina o síndrome mortal plurimetabólica cuarteto, que se caracteriza por el grupo de riesgo cardiovascular, y de conformidad con la publicación de la Organización Mundial de la Salud (OMS) y la Asociación Americana de la Diabetes 1998 apud (BENELLI, Vanessa Raquel y otros, 2006), son considerados portadores de síndrome metabólico sujetos con intolerancia a la glucosa, la tolerancia a la glucosa normal con la diabetes o la resistencia a la insulina y dos de los siguientes cambios: el uso de la lucha contra la hipertensión y / o alta de la sangre Presión (> 140/90 mm Hg), la obesidad (índice de masa corporal> 30 kgm2) abdominales (cintura: cadera> 0.90 en hombres y> 0,80 en mujeres), los altos niveles de triglicéridos (> de 150 mg / Dl) de glucosa por encima de 100 mg / dl, colesterol HDL bajo (<35 mg / dl en hombres y <39 mg / dl en mujeres), colesterol total> 200mg/dL, y la microalbuminuria la excreción urinaria de albúmina> de 20 mg / m). La práctica de ejercicio físico regular está relacionado con el control de diversas enfermedades cardiovasculares y otras enfermedades crónicas, como el síndrome metabólico. En este estudio se analizó el perfil metabólico de los atletas, futsal, el voluntariado, las mujeres con una edad media de 20,5 años (2,5) de un equipo femenino, que tren de 5 (cinco) al 6 (seis) el doble de la semana , Y se comparan los niveles de los portadores del síndrome metabólico. Se recolectaron muestras de sangre de los atletas y se realizaron pruebas de detección de los niveles de glucosa, colesterol total y triglicéridos, así como el levantamiento del Índice de Masa Corporal, IMC. En comparación con las normas de la OMS para portadores del síndrome X, los atletas están en los patrones considerados normales, el fortalecimiento de la hipótesis de que el ejercicio físico es importante en el control de estas enfermedades.

PALABRAS CLAVE: síndrome metabólico, ejercicio físico y atletas Futsal

PERFIL DE ATLETAS DE FUTSAL FEMININO DA UNESC EM RELAÇÃO A SÍNDROME METABÓLICA
RESUMO

A síndrome metabólica, também conhecida como síndrome X, síndrome da resistência à insulina, quarteto mortal ou síndrome plurimetabólica, é caracterizada pelo agrupamento de fatores de risco cardiovascular, e de acordo com a publicação da Organização Mundial da Saúde (OMS) e da Associação Americana de Diabetes em 1998 apud (BENELLI, Vanessa Raquel et al, 2006), são considerados portadores de síndrome metabólica indivíduos com intolerância à glicose, tolerância normal à glicose com resistência à insulina ou diabetes e mais duas das seguintes alterações: uso de anti-hipertensivos e/ou pressão arterial elevada (> 140/ 90 mmHg), obesidade (índice de massa corpórea > 30 kg/m^2) abdominal (relação cintura-quadril > 0,90 no homem e > 0,80 na mulher), níveis elevados de triglicérides (> 150 mg/dl), glicose acima de 100 mg/dl, HDL-colesterol baixo (< 35 mg/dl no homem e < 39 mg/dl na mulher), colesterol total >200mg/dL, e microalbuminúria excreção urinária de albumina > 20 mg/min). A prática de exercícios físicos regulares está relacionada ao controle de diversas doenças cardiovasculares e de outras doenças crônicas, como síndrome metabólica. Neste estudo foi analisado o perfil metabólico de atletas de futsal, voluntárias, do sexo feminino com média de idade 20,5 anos (±2,5) de uma equipe feminina, que treinam de 5 (cinco) a 6 (seis) vezes por semana, e comparados aos níveis dos portadores da síndrome metabólica. Foram recolhidas amostras de sangue das atletas e realizado testes dos níveis de glicose, colesterol total e triglicerídeos, assim como o levantamento do Índice Massa Corporal - IMC. Comparados aos padrões da OMS para portadores da síndrome X, as atletas estão nos padrões considerados normais, reforçando a hipótese que o exercício físico tem papel importante no controle dessas doenças.

PALAVRAS CHAVES: Síndrome Metabólica, Exercício Físico e Atletas Futsal.