20 - COMPARATIVE ANALYSIS OF AEROBIC CAPACITY FROM HYPERTENSION AND NORMAL TENSIONS WOMEN IN CONCÓRDIA CITY

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INTRODUCTION

The general subject of this research is the worry with women health from 30 to 50 years old of Concórdia city. The most of the women from this age take a sedentary life and they have many health problems, maybe provoked according to Pollock; Wilmore (1993), Nieman, 1999, Leite (2000), by lack of physical activity.

Do not practice physical activity loses the human organism balance developing Hypocinesia syndrome which brings consequences such as appearance of several illness denominated illness of civilization, arterioscleroses, cardiac illness, hypertension, obesity, diabetes, osteoporoses, cancer, neurasthenia and others. (APANACENKO, 1988).

The syndrome or illness denominated Hypocinesia is defined by functional and organic complex changes developed by disagreement between the organisms in relation to itself, some own systems and the environment. (RAAB, 1965).

The syndrome of Hypocinesia provokes the appearance of cardiac illness that currently is involving the most percentage of human death in developed countries.

The death as a result of cardiac illness from industrialization countries comparing with the beginning of the century, increased 5 times, it occupied the first of all among other human death causes. (MILHNER, 1991).

To reverse this result is necessary to become neutral the negative factors from modern environment such as hypocinesia, hypertension, excessive feeding and rich in calories.

Among many health problems provoked by sedentary life is pointed hypertension, illness that can provoke the death of the individual. A prevention manner and the control of hypertension is the systematic physical activity. (POLLOCK; WILMORE, 1993; USMANOV; BONDAR, 1986; SHARKEY, 1998; NIEMAN, 1999; LEITE, 2000).

The hypertension is one of the often illness and one of the frequent cause of the illness. The high arterial pressure, or hypertension increases the work of the heart forcing it to contract itself against a large resistance, it can damage the interior walls of the artery and contribute to arterioscleroses. This excessive pressure increases the risk of vascular brain accidents.

The blood pressure in rest depends on, in part, of the currently emotional state of the person, but during the physical effort the influence of emotional factors disappears. So, the blood pressure shows an increase in systolic and diastolic values during the effort. The proportion of this increase is in relation to the intensity. After a section of sub maximum continuo exercise the systolic pressure is reduced temporary to levels down of the value pre exercise to individuals as much normal tensions as hypertensions. This hypotension answer to the preview exercise spends at about two or three hours during the recuperation. These data leaned the utilization of exercise as an important line of defense, not pharmacological during the treatment of hypertension, and can justify a participation in the soft physical activity to moderate. (KAUFMAN; HUGHSON; SCHAMAN,1987).

Usmanov & Bondar (1986) researches also showed that the hypertension can be controlled and denominated by training of aerobic processes.

According to Hollmann, Hettinger apud Weineck (2000), training of resistance cause changes in the regularization of peripheral circulation, and the same in the blood pressure.

In comparison to normal population, in the trained person with a maximum load is found a systolic blood pressure reduced. The fall of blood pressure happened because of alteration in the minute volume, peripheral and elastic resistance of the vessels. The blood pressure reduced in the rest state is favorable, it is considerate the unloading of the heart and the vessels, which also have importance in relation to Health.

So, the aerobic training reduces the artery pressure in the human being. But is it possible that the insufficient level of development of aerobic capacities of human being have relation to hypertension?

The purpose of this research was to provoke if there is a difference in the development of aerobic capacity (VO_2 max) of hypertensions and normal tensions women in Concórdia city.

METHODOLOGY

The sample of the research was compound of 23 volunteer healthier women from 45 to 65 years old (14 from 46 to 55 age group, and 9 from 56 to 65 age group) and 21 women with moderated hypertension in treatment (12 from 46 to 55 age group and 9 from 56 to 65 age group) from Concórdia city - SC.

According to national patterns of research involving human being written in 196]96 Resolution of Health National Counselor, to them it was explained the purposes, procedures and benefits of the study. In front of the accepted, everybody (the participants) firmed the Free and Clarified Consent Term to participate in the research.

To determination of aerobic capacity (VO_2 max) from individuals of the sample were used the Walking Test of 400m from (KALININA, 2002), Watch ACCOREX PLUS, Transmission Polar, INTERFACE PLUS, MC PENTIUM, Scale of lever Filizola™ with precision of 50g and Estadiometro of wood with precision of 0,5cm.

To statistic treatment were used the methods of statistical parametrical (average, pattern detour, Test “t” to independents samples). The level of reliable adopted is = 0,05.

RESULTS AND DISCUSSION

TABLE 1 - The data anthropometrics from women of researched sample from 46 to 55 age group.

	Age [age]	Weight (W) [kg]	Stature (S) [m]	IMC = P/(E)^2
Normal Tensions				
Average	49,4	69,1	1,6	26,6
DP	3,1	8,9	0,05	3,4
n	14	14	14	14
Hypertensions				
Average	49,6	78,6	1,6	30,7
DP	3,7	16,7	0,08	6,9
n	12	12	12	12

TABLE 2 - The anthropometrics data from women of researched sample from 56 to 65 age group.

	Age [age]	Weight (W) [kg]	Stature (S) [m]	IMC = P/(E)^2
Normal Tensions				
Average	60,9	72,9	1,61	28,2
DP	5,5	8,9	0,04	4,2
n	9	9	9	9
Hypertensions				
Average	61,7	69,1	1,58	29,1
DP	4,4	14,7	0,04	5,0
n	9	9	9	9

The data anthropometrics from individuals of the sample researched presented in Tables 1 and 2 showed that there are not significant differences between anthropometrics of normal tensions and hypertensions group of the same age group.

TABLE 3 - The aerobic capacity (VO_2max) from women of research sample and its analysis comparative between normal tensions and hypertensions women from 46 to 55 age group.

		Individuals researched		Δ	Δ%
		Normal tensions	Hypertensions		
VO_2max [ml/kg/min]	Average	32,8	25,8	7,0*	27,1%*
	DP	4,3	5,8		
	n	14	12		

P.s.: Data marked with (*) are significant, $p < 0,01$;
Δ = Norm tensions - Hypertensions

TABLE 4 - The aerobic capacity (VO_2max) from women of research sample and its analysis comparative between normal tensions and hypertensions women from 56 to 65 age group.

		Individuals researched		Δ	Δ%
		Normal tensions	Hypertensions		
VO_2max [ml/kg/min]	Average	26,5	20,4	6,1	29,9%*
	DP	6,8	5,0		
	n	10	9		

P.s.: Data marked with (*) are significant, $p < 0,05$;

The data presented in tables 3 and 4 showed that:

a) the aerobic capacity (VO_2max) from hypertensions women of the researched sample, on average, is significant minor than normal tensions women. The difference reaches 27,1% ($p < 0,01$) from 45 to 55 age group and 29,9% ($p < 0,01$) from 56 to 65 age group.

b) according Patterns of Physical Conditions and Health to women between 50 and 69 years old (POLLOCK; WILMORE, 1993, p. 655-656), normal tensions women of the sample have, on average, medium level of VO_2max and the hypertensions women of the sample have on average, the level very low of VO_2max.

The increase of blood pressure in obesity people is knew for a long time and verified by many researchers. (USMANOV; BONDAR, 1986; POLLOCK; WILMORE, 1993; SHARKEY, 1998; NIEMAN, 1999; LEITE, 2000). But, the data of our research showed that the low level of development of aerobic capacity, also contribute to this process. We can do these conclusions analyzing the data of the aerobic capacity determination from women of researched sample from 56 to 65 age group.

The data presented in tables 1 and 4 showed that, in spite of normal tensions and hypertensions groups have the same level of IMC (28,2 4,2 e 29,1 5,0, respectively), the VO_2 max of norm tensions women, is on average, 29,9% ($p < 0,05$) bigger than the VO_2 max. of the hypertensions women.

CONCLUSION

Based on results found we can have the follow conclusions:

The aerobic capacity (VO_2max) from hypertensions women of researched sample, on average, is significant minor than normal tensions women. The difference reaches 27,1% ($p < 0,01$) from 45 to 55 age group and 29,9% ($p < 0,01$) from 56 to 65 age group.

The level of development of aerobic capacities of hypertensions women of the reached sample is very low;

Maybe the level very low of the development of aerobic capacities from women from 46 to 65 age group can provoke hypertension.

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COMPARATIVE ANALYSIS OF AEROBIC CAPACITY FROM HYPERTENSION AND NORMAL TENSIONS WOMEN IN CONCÓRDIA CITY

ABSTRACT:

The lack of physical activity loses the human organism balance developing Hypocinesia syndrome which brings consequences such as appearance of several illness denominated illness of civilization, and among them the hypertension, illness that can take the people to death. The purpose of this research was to provoke if there is a difference in the development of aerobic capacity (VO_2 max) of hypertensions and normal tensions women in Concórdia city. The sample of the research was compounded of 23 healthy volunteer women from 45 to 65 age group (14 from 46 to 55 age group, and 9 from 56 to 65 age group) and 21 women with moderated hypertension in treatment (12 from 46 to 55 age group and 9 from 56 to 65 age group) from Concórdia city - SC. To determination of aerobic capacity (VO_2 max) from individuals of the sample were used the Walking Test of 400m from Kalinina. To statistic treatment were used the methods of statistical parametrical (average, pattern detour, Test "t" to independents samples). The level of reliable adopted is = 0,05. The results of the research showed that aerobic capacity (VO_2max) from hypertensions women of researched sample, on average, is significant minor than normal tensions women. The difference reaches 27,1% ($p < 0,01$) from 45 to 55 age group and 29,9% ($p < 0,01$) from 56 to 65 age group, and the level of development of aerobic capacities of hypertensions women of the reached sample is very low. Conclusion: maybe the level very low of the development of aerobic capacities from women from 46 to 65 age group can provoke hypertension. KEY WORDS: Consumption maximum of oxygen. Hypertension. Women.

ANALYSE COMPARATIVE DE LA CAPACITÉ AÉROBIQUE DES FEMMES HYPERTENSES ET NORMOTENSES DE LA VILLE DE CONCÓRDIA

RÉSUMÉE:

L´inactivité physique cause un déséquilibre dans l´organisme humain, en développant la syndrome de Hyponesie qu´ à son tour apporte des conséquenses telles le surgissiment de plusieures maladies,appelées maladies de la civilisation et parmi celles-ci l´ hypertension,maladie qui peut amener la personne à la mort. Le but de cette recherche a été celle de prouver s´il y a différence dans le développement de la capacité aérobique (VO2 max) dans les femmes hypertenses et normotenses dans la ville de Concórdia-SC. L´amostrage de la recherche a été composé par 23 femmes volontaires saines du sexe féminin âgées entre 45 á 65 ans(14 d´âge entre 46 à 55 ans et 9 entre 46 à 55 ans) et 21 femmes avec hypertension modérée en traitement (12 d´âge entre 46 à 55 ans et 9 entre 46 à 55 ans) de la ville de Concórdia-SC. Pour déterminer la capacité aérobique (VO2 max)des sujets de l´amostrage ont été utilisées le Test de Marche de 400 mètres de Kalinina. Pour le traitement statistique ont été utilisées les méthodes de la statistique paramétrique (moyenne, déviation type,Test « t » de Student pour les amostrages indépendantes). Le niveau de confiance adopté c´est $\alpha = 0,05$. Les résultats de la recherche ont montré que la capacité aérobique (VO2 max) des femmes hypertenses de l´amos- ge étudié,dans la moyenne,est significativement plus petite que des femmes normotenses. La différence atteint la gamme d âges de 45 à 55 ans de 27,1 % ($p < 0,01$) et dans la gamme d´âges de 56 à 65 ans de 29,9 % ($p < 0,01$) et dans le niveau du développement des capacités aérobiques des femmes hypertenses de l´amostrage étudiée est très basse. Conclusion :Probablement le niveau très bas du développement des capacités aérobiques des femmes de 46 à 65 ans peut leurs provoquer de l`hypertension. MOTS-CLES: Consmmation maximum d`oxigène,Hypertension,Femmes.

ANÁLISE COMPARATIVA DE LA CAPACIDAD AERÓBIA DE LAS MUJERES HIPERTENSAS Y NORMOTENSAS DE LA MUNICIPALIDAD DE CONCÓRDIA

RESUMEN:

La inactividad física desequilibra el organismo humano, desarrollando la síndrome de Hipocinesia que por su vez traiga consecuencias como el aparecimiento de muchas enfermedades, llamadas enfermedades de civilización y entre estos la hipertensión, enfermedad que puede llevar la persona hasta la muerte. El objetivo de esta investigación fue probar si existe diferencia en el desarrollo de la capacidad aeróbica (VO_2 máx.) en las mujeres hipertensas y normo tensas de la municipalidad de Concórdia. La muestra de la investigación fue compuesta de 23 mujeres voluntarias, con salud de 45 hasta 65 años de edad (14 en el grupo de edad 46 hasta 65 años y 9 en el grupo de 56 hasta 65 años) y 21 mujeres con hipertensión moderada en tratamiento (12 en el grupo de 46 hasta 55 años y 9 del grupo de 56 hasta 65 años) de la municipalidad de Concórdia - SC. Para determinación de la capacidad aeróbica (VO_2 máx.) de los sujetos de la muestra fue utilizado el Teste de Caminada de 400m de Kalinina. Para tratamiento estadístico fueran utilizados los métodos de la estadística paramétrica (media, deslío padrón, Teste "t" de Student para muestras independientes). El nivel de confianza adoptado es = 0,05. Los resultados de la investigación muestrearon que la capacidad aeróbica (VO_2max.) de las mujeres hipertensas de muestras investigadas, en media, es significativamente menor do que de las mujeres normo tensas. La diferencia alcanzada 27,1% ($p < 0,01$) en el equipo de 45 hasta 55 años y 29,9% ($p < 0,01$) en el equipo de 56 hasta 65 años y el nivel del desarrollo de las capacidades aeróbicas de las mujeres hipertensas de la muestra investigada es muy bajo. Conclusión: Probablemente el nivel muy bajo del desarrollo de las capacidades aeróbicas de las mujeres del equipo de 46 hasta 65 años puede provocar la hipertensión. PALABRAS LLAVE: consumo máximo de oxigeno. Hipertensión. Mujeres.

ANÁLISE COMPARATIVA DA CAPACIDADE AERÓBICA DAS MULHERES HIPERTENSAS E NORMOTENSAS DO MUNICÍPIO DE CONCÓRDIA

RESUMO:

A inatividade física desequilibra o organismo humano, desenvolvendo a síndrome de Hipocinesia que por sua vez traga conseqüências como aparecimento de várias doenças, chamadas doenças de civilização e entre estes e a hipertensão, doença que pode levar a pessoa até morte. O objetivo desta pesquisa foi provar se existe diferença no desenvolvimento da capacidade aeróbia (VO_2 máx) nas mulheres hipertensas e normotensas do Município de Concórdia. A amostra da pesquisa foi composta de 23 mulheres voluntárias, sadias de sexo feminino de 45 a 65 anos de idade (14 na faixa etária 46 a 55 anos e 9 na faixa etária 56 a 65 anos) e 21 mulheres com hipertensão moderada em tratamento (12 na faixa etária 46 a 55 anos e 9 na faixa etária 56 a 65 anos) do Município de Concórdia - SC. Para determinação da capacidade aeróbia (VO_2 máx) dos sujeitos de amostra foi utilizado o Teste de Caminhada de 400m de Kalinina. Para tratamento estatístico foram utilizados os métodos da estatística paramétrica (média, desvio padrão, Teste "t" de Student para amostras independentes). O nível de confiança adotado é = 0,05. Os resultados da pesquisa mostraram que capacidade aeróbia (VO_2max) das mulheres hipertensas de amostra pesquisada, em média, é significativamente menor do que das mulheres normotensas. A diferença alcança 27,1% ($p < 0,01$) na faixa etária de 45 a 55 anos e 29,9% ($p < 0,01$) na faixa etária de 56 a 65 anos e o nível do desenvolvimento das capacidades aeróbias das mulheres hipertensas de amostra pesquisada é muito baixo. Conclusão: Provavelmente o nível muito baixo do desenvolvimento das capacidades aeróbias das mulheres de 46 a 65 de idade pode provocar a hipertensão. PALAVRAS CHAVE: Consumo máximo de oxigênio, Hipertensão, Mulheres.