159 - THE EFFECTS OF NON-MONITORED WALKING IN HYPERTENSE ELDER WOMEN BETWEEN 60 AND 75 YEARS OLD.

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INTRODUCTION

It has been some years that the sedentary lives increase all over the world, this is a consequence of the industrialization mainly, people have been working more and the free time to take care of their own health decreased, raising the risks for the organism. The lack of exercise is directly related with an increasing of the body weigh and cardiovascular problems, raising the arterial pressure. The obesity reaches about 50% of the European population, around 2,5 million of people die annually because of problems related to a sedentary life, as the cardiovascular disturbs[1].

The Arterial Hypertension relevance as an important cardiovascular risky factor, its high predominance worldwide and the raise of the probability of lethal and non-lethal circulatory outcome when it is associated with other risky factors become extremely important the knowledge of its national and also regional occurrence. Despite of not being able to show studies with a good level of national representation about arterial hypertension, local researches show this high predominance, located in the 20 and 45% of the adult population[2].

Brandão[3] assures us that arterial hypertension is a condition that responses for a big part of cardiovascular morbidity and mortality from industrialized countries and this is one of the risky factors for the arterial coronary disease development, vascular cerebral accident, heart failure, renal failure and peripheral arterial disease.

Coitinho and Monteiro[4,5] say it is necessary to consider the changing of Brazilian population feature in relation to food and life habits which indicates a more intense vulnerability to the cardiovascular risks each time. The changing in the quantity of ingested food and also the diet composition evoked significant alterations in the body weight and fat distribution, increasing progressively the overweigh and obesity predominance on the population. In addition the low attendance to physical exercise practices which also contributes to this situation.

By recognizing the changing in the life habit with the prevention of the risky factors and a proper treatment to avoid these diversions of the normality when they are established (arterial hypertension, obesity, sedentary life, dislipidemia, and others) change the transforming history of these worsening, making even more strategic the knowledge and its predominance[4].

Interventions related to promoting health and preventing diseases, the control of the obesity and cardiovascular diseases like stimulating physical activities, neglecting tobacco and giving nutritional education to the population has been taking as an important event for resulting in desired changes of reduction of arterial pressure levels[5].

The preventive actions have been showing positive impacts reducing the morbidity and mortality associated to hypertension, the Health Ministry even assures about the importance of prevention as primordial (actions to aware the citizens) as primary (removing the risky factors) as secondary (detecting and treating in advance) and as tertiary (reduction of complications)[6]. On the same way Peres[7] and Jardim et. Al[8] believe that apart from using the remedies to control the hypertension it is also necessary to change the idea about health on its own, because the conception of health is formed throughout a very strong relation of beliefs, ideas and values, and in this sense, the education about health is one of the items to stimulate a hyper tense person to treatment programs.

Trying to focus people about the necessity, activity programs taught by professionals in the health area are offered by the government. The prescription of exercising to hyper tense people is similar to indications to normal tense people; however, the activities must be done less intensively. Studies as Moreira et al.[9] e de Fagard[10] show positive results in groups of 20 and 70% of the highest capacity. This gives us the possibility of checking the existence of positive results and then it is possible to indicate the insertion of hyper tense individuals in programs of physical activities in groups or community, even those released of the restrict control of effort intensity.

Physical exercise is accepted as a complementary way of hyper tension, but it doesn't exist much study about the authenticity of results when the programs do not have a restrict control of the volume. So, this study aims to check the alterations of Arterial Pressure (AP), Heart Frequency (HF) and Rate of Body Mass (RBM), Rate of Waist and Hip (RWH) in a program of non-monitored walk.

METHODOLOGY

The present study was done in Itajaí, a city in south of Brazil between April and July 2007 completing eight weeks of training aiming to observe the evolution of the participants really committed with the program, during the mentioned period.

Sample

It was selected for this study, by convenience, women who joined a walking program in Itajaí city. This study started with 14 women between 61 and 75 years old, the average of 5,27 years, who necessarily needed to have a frequency higher or equal as 80% of the total attendance and have two evaluations, before and after the program of intervention.

The methods of inclusion of the sample were the women, between 60 and 75 years old, with hypertension diagnosed. The reasons for excluding them were those who did not join the program (attendance below 80%), serious cardiovascular problems, osteomata articulate problems or metabolic which limit or were against of the practice of exercises, and also the participation of other regular exercise programs. From those 14 women whose were selected only one was excluded from this study because she presented hormonal alteration.

Instrument

To all those included women in this study, it was required them to sign the Term of Free Agreement and Enlighten, and then they passed through an evaluation which, from other pieces of information, registered arterial pressure, heart frequency and mensuration of anthropometric variables (weight, height, waist and hips measure). All of the anthropometric evaluations were take using conventional techniques described by Pollock *et al*[11]. The body mass was reported in kilograms and the height in meters with maximum of two decimal houses. Both changes were checked, in a mechanic balance *Filizola,* model 31, with the estadiometer presenting 0,1kg and 0,5cm for weight and height, respectively. From the scores of body mass and the height, it was calculated the rate of body mass.

The arterial pressure was checked for a aneroid sphygmomanometers with a mercury column and was taken at the beginning of the first and the last session (unique measure), with the participant sat having her left arm supported in her breast area height. The beginning of auscultatory noises was considered as systolic arterial pressure and the extinction of the auscultatory noises as a diastolic arterial pressure.

The circumference of waist was checked using a tape measure that wasn't elastic located in the smaller curve between the ribs and the iliac crist. The hip circumference was checked with the same kind of tape measure where was the biggest gluteus protuberance. These both measurements made the origin to gain the indicator of rate waist and hips. These details were useful as parameters for future analysis of evaluation of work.

To obtain the heart frequency, it was touched the radial arterial wrist in the radial leak, using two or three digital pulp and the thumb supported, grabbing, the dorso- radial extremity of the forearm, with the minimum as possible of compression. The compression was kept for a minute and registered in the heart frequency[12].

Experimental Procedure

From the beginning of this program all the women were informed about this study, it was explained the objectives, the importance, that they would have a characteristic as a volunteer participants and that they could leave the program at any time. The patients were undertaken to a program of community exercise that was completely aerobic, with a soft or medium intensity that lasted 60 minutes each session, apart from the exercises for flexibility.The methodology of those sessions took: a) 10 minutes warming up; b) 35 minutes for the aerobic part (walking); c) 15 minutes of exercises for flexibility and then coming back to a normal rhythm.

Statistic Analyses

The details about the eight weeks of commitment in the non-monitored walking program were taken to the analyses of the test 't' Student, and the descriptive statistic (average, pattern diversion, minimum value and maximum value). It was used for all this detail analyses, considering as a significance level $p<0.05$.

RESULTS

The general characteristics of the group are presented in Table 1. significant differences weren't found in the anthropometric changes, body mass (BM) and height as in the systolic arterial pressure (SAP) and diastolic arterial pressure (DAP), heart frequency (HF) of resting and double product (DP).

Table 1 - general characteristics of the studied group (* p < 0,05)

Individual	Age	Stature	BM		W/H		RWH	
			Initial	Final	Initial	Final	Initial	Final
1	65,00	1.48	63.6	64,00	0.91	0,90	29,04	29,22
2	61,00	1,72	103.2	103,60	0,86	0,83	34,98	35,11
3	75,00	1,49	45,70	46,60	0,91	0,92	20,58	20,99
4	62,00	1,53	58,40	59,90	0,88	0,90	24,95	25,59
5	69,00	1,57	55,10	56,50	0,80	0,88	22,39	22,96
6	63,00	1,65	72,10	71,30	0,83	0,84	26.5	26,21
7	74,00	1,58	68,30	69,60	0,74	0,88	27,42	27,95
8	66,00	1,57	75,40	74,60	0,84	0,77	30,65	30,32
9	74,00	1,62	76,10	77,00	0,80	0,89	29,04	29,38
10	75,00	1,64	69,90	70,00	0,82	0,91	25,97	26,11
11	70,00	1,62	77,00	78,10	0,93	0,92	29,38	29,80
12	64,00	1,61	56,80	58,10	0,76	0,83	21,93	22,43
13	67,00	1,54	59,90	58,50	0,80	0,87	25,27	24,68
Mean	67,57	1,60	66,18	68,39	0,81	0,86	26,96	26,87
Desv. Stand.	5,27	0,06	10,70	13,51	0,08	0,06	3,99	3,73
Minimum	61,00	1,49	45,70	46,60	0,62	0,69	20,58	20,99
Maximum	75,00	1,72	79,40	103,60	0,93	0,92	34,98	35,11

Table 2 - Characteristics of a group in relation to SAP (Systolic arterial Pressure), DAP (Diastolic Arterial Pressure) and DP (Double Product) (*p<0,05)

Individual	SAP		DAP		FCr		DPI	DPF
	Initial	Final	Initial	Final	Initial	Final		
1	150,00	120,00	70,00	78,00	60,00	58,00	9000	6960,00
2	154,00	194,00	68,00	100,00	76,00	56,00	11704	10864,00
3	172,00	156,00	70,00	70,00	96,00	72,00	16512	11232,00
4	140,00	140,00	74,00	70,00	60,00	68,00	8400	9520,00
5	190,00	210,00	60,00	85,00	56,00	64,00	10640	13440,00
6	158,00	158,00	100,00	80,00	60,00	76,00	9480	12008,00
7	120,00	120,00	68,00	72,00	68,00	68,00	8160	8160,00
8	120,00	128,00	66,00	60,00	72,00	80,00	8640	10240,00
9	160,00	150,00	80,00	70,00	92,00	88,00	14720	13200,00
10	142,00	120,00	70,00	68,00	96,00	76,00	13632	9120,00
11	114,00	140,00	70,00	60,00	64,00	60,00	7296	8400,00
12	166,00	160,00	88,00	96,00	80,00	68,00	13280	10880,00
13	140,00	158,00	60,00	72,00	80,00	76,00	11200	12008,00
Mean	147,43	149,43	73,14	75,79	74,57	70,14	11018,29	10426,29
Desvi.Stand.	21,36	26,78	10,83	11,79	13,91	8,89	2742,58	1899,11
Minimum	114,00	120,00	60,00	60,00	56,00	56,00	7296,00	6960,00
Maximum	190,00	210,00	100,00	100,00	96,00	88,00	16512,00	13440,00

DISCUSSION

This work has shown that the non-monitored walk -it means without a trainer looking after the people and developed under the desire of elder women mainly. It did not change the analyzed parameters. They were arterial pressure, Heart Frequency, Rate of Body Mass, Rate of Waist and Hip and Double Product. However, domestic programs allow, mainly in long term, to reach satisfactory results where the exercise can be done in places and time more suitable for the patients[13].

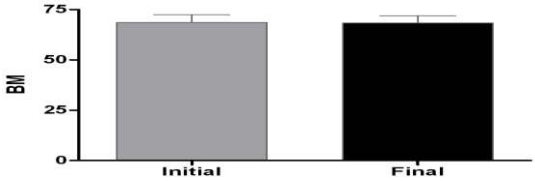
The importance of this work built a certain kind of independence for those women in relation to exercising, once trained to control and manage some charges of effort that represent over charges. Even though the training effects cannot be controlled with the same accuracy of formal programs, it can be seen that the incorporation of physical activity as a habit, in a long term, seems to be favored by this kind of program[13].

Talking about characteristics that are particularly about a community program for hyper tenses and/or cardiopathy, the training intensity must be based on the clinical conditions of the patients. This is a problem usually fought by programs of this type, for communities, and loads of times their practice with a supervision of the exercises is not doable on many days of the week because of many different kinds of limitations (e.g.: weather, financial conditions and materials for the program).

In this context, these factors can have an influence in the results of the study. In table 1 and 2 there are the details from Body Mass, Waist and Hips, rate of Waist and Hip, Systolic Arterial Pressure, Diastolic arterial Pressure, Heart Frequency, Double product, before and after the walking program can be observed throughout these results a discreet difference between the average of reported and measured values but without a significant difference. Nevertheless, even not gaining significant results in these patterns, it is known that the physical exercise acts in a very important way by controlling the stress, anxiety and depression. It is also good for social interaction from the individuals who practice exercises in community[13].

In the body mass variable (BM), it was assured that it did not change at all, keeping its stability. This represents a risk for the worsening of hypertension[14].

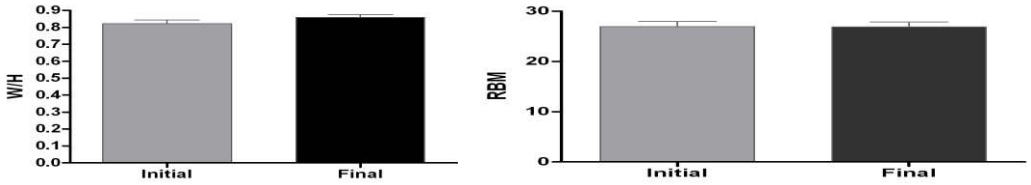
Table1- Relation between initial body mass and final body mass



The excessive weight, especially the stomach obesity are related with the cardiovascular risky factors, mainly with high levels of triglycerides and HDL reduced showing more impact about the raise of arterial pressure as it was seen before in the literature[14]. The reduction of weight is strictly related to the physical activity level, and the principal advices in the program are the association with the reduction of the use of energy in the sessions of moderate exercise in a minimum time of 150 minutes (2.5 hours) a week, raising to 200 to 300 minutes a week [15].

The rate waist and hip (W/H) and the rate of body mass (RBM) did not present significant changes either.

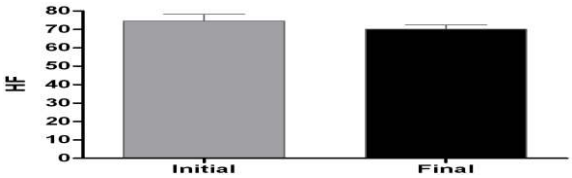
Table 2 - Relation rate waist and hip (W/H) and rate body mass (RBM)



These indicators present a strong association with the incidence of a lot of chronic non transmitted diseases[16], as the risk of many aggravates to the health, such as raising the cardiovascular diseases, hypertension[16], cholesterol - LDL, raising the concentration of triglycerides in the blood, diabetes and other forms of cancer[17]. The wrong distribution of body fat, as too much abdominal fat would be related with the development of chronic cardiovascular and metabolic diseases[16].

Relating to Systolic Arterial Pressure and Diastolic Arterial Pressure, *American College of Sports Medicine*[18] shows that training aerobic exercises would make in a mid or long term, a reduction of 10 mmHg in the systolic and diastolic pressures. But Petrella[19] throughout many studies proposed walking in a moderated intensity as a complement to the hyper tense treatment and found reduction of 13 to 18 mmHg in the systolic and diastolic pressures. Hagberg and cols.[20] showed in their work that it could happen some significant differences in the reduction of the arterial pressure within three months of training lasting at least 30 minutes.

Table 3 - Relation Systolic Arterial Pressure (SAP) and Diastolic Arterial Pressure (DAP)

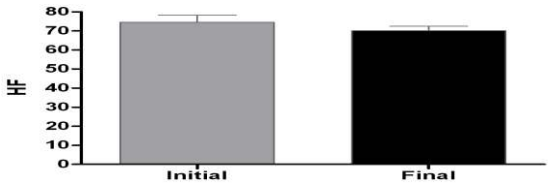


In the current study we could not reach the result as described by the literature, it was missing a more effective frequency and intensity control and a longer period of the activities to describe this divergence. The observed period was short and it is possible to guess the effects that could happen if the period of the program lasted longer.

A consequence that has not changed in this process of getting older is the decreasing of cardiovascular development, it means, the lack of some things for the heart; it suffers a reduction of the systolic volume, the heart frequency max is less produced and the highest consume of oxygen is reduced[21]. The exercise shows us some visible autonomic adaptations which influence the cardiovascular system, including the chronotropic function[21].

According to Araújo[21], during the first seconds of exercising, the heart frequency increase is controlled by a vagal inhibition (smaller level of parasympathetic activation) and there is nothing to do with the intensity of the exercise. While this happens there is a higher sympathetic heart activation that takes a more important role in the following moments[22]. If we check the occurred differences in the results of the heart frequency of resting we can notice smaller improvements, it has already been a reduction in relation to the first collection and the last one. But, as it was already mentioned above, when considering the level of significance ($p<0.05$) it is not possible to find any result, once that his work in level of significance was superior.

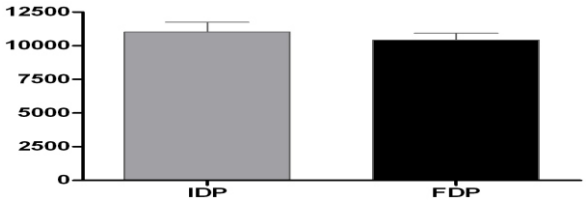
Table 4 - Relation heart frequency (HF) initial and final



The double product (DP) which is a result of systolic arterial pressure and heart frequency have been considered an important parameter when evaluating the oxygen consume by the myocardium being a non evasive method. It is believed that high values in the edge of the effort were reflected in the cardio work and they should be related with a good ventricular function and also the absence of ischemia. The opposite happens when the values are too low[23].

In the results of the double product neither (DP) the differences were significant, however, it is clear the necessity of checking the physiologic parameters for a possible control and prescription of the aerobic activities intensity.

Table 5 - Relation douple product initial and final (IDP and FDP)



The criterion Sociedade *Brasileira de Cardiologia sobre Teste Ergométrico*[24], the high double product is mentioned as na indication to make the ergometric test (ET) associated with other methods. It is confirmed in other studies[25] that the high double product constituted itself an important variable to prevent the absence of significant obstructive coronariopathy in individuals with a positive esrgometric test. It can become a useful tool to make a clinic decision.

It is important to headline some difficulties when controlling these variables potentially strong as the caloric ingestion. Once that it wasn't made the nutritional control in the period the study was done and the food ingestion. The kind of program is also important as being a domestic work where the individuals do their exercises out of a controlled place, as hospitals, health clubs and so on. That's why it is necessary to abdicate to a great part of the physiologic control training because there is not a direct observation of the physical activity.

There is an example of population studies [24], it was verified that there is an important association that the society in development which is supporting longer lives expectative are likely to have other risks that may be dangerous for the elder lives and may cause serious health damages to the entire health system.

Actions to the population and individual level directed to preventing and treating is the most efficient way to decrease the impact of cardiovascular diseases as the arterial hypertension. The role of these programs and campaigns to people to join the program of making regular physical activities is a complex task and it must be understood as a process that aims, at the end having people doing these exercises daily. It can be used as a way to incentive the practice of these exercises to elder people: Strategies to promote an active style of life, like the ones proposed by the program *Agita São Paulo* (considered a strategic model, adopted by the World Health Organization[25]). Even the programs which are done in small cities like this one mentioned in this work must be useful for this kind of incentive.

Therefore this study has not obtained significant results statistically it cannot be discarded the physical, social and emotional benefit of this kind of program. It is worth to mention the necessity of new researches which have as a goal the proof if non-monitored walking has a positive effect when it is done in a longer period.

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THE EFFECTS OF NON-MONITORED WALKING IN HYPERTENSE ELDER WOMEN BETWEEN 60 AND 75 YEARS OLD.

ABSTRACT:

Objective: Checking the changes in the Arterial Pressure, Heart Frequency, Rate of Body Mass and Rate of Waist and Hip in a non-monitored program. Methods: This study was done in Itajaí, a city in south of Brazil, between April and July 2007 completing 8 (eight) weeks of training aiming for the observation of the evolution of the participants who were really committed in this program during the mentioned period. Results: The general characteristics of the group are shown in Table 1. Significant differences in the *anthropometric* changing weren't found, as the arterial diastolic and systolic pressure, Heart Frequency of resting and double product. Conclusion: The effect of this non-monitored walk in elder women didn't show any changing in the analyzed parameters, however, the most effective way to slow down the impacts of cardiovascular illnesses as arterial hypertension is by actions in populational level and individual level focused on the development of preventing and treatment actions. Although when it is dealt with community programs, it still remains the difficulty of controlling the intensity and amount of exercise and this makes more difficult the clinical evaluation of the results in this kind of program. In this study we did not get significant results in the analyzed changes, in this way it is worth to assure the necessity of new researches with the objective of proving if programs of non-monitored walking present a more positive result in a longer term. KEY WORDS: Arterial Hypertension, Walking, Non-monitored Physical Activity

LES EFFETS DE LA RANDONNÉE NON CONTRÔLÉE DANS DES FEMMES ÂGÉES HIPERTENSAS AVEC ÂGE ENTRE 60 ET 75 ANS.

RESUME :

Objectif: Vérifier les modifications dans la Pression Artérielle (PA), Fréquence Cardiaque (FC), Indice de Masse Corporelle (IMC), et Indice Taille Hanche (ICQ), dans un programme de randonnée non contrôlée. Méthodes: La présente étude a été réalisé dans la ville d'Itajaí, région sud du Brésil, pendant le période d'avril à juillet 2007, totalisant 08 (huit) semaines de formation, avec la finalité d'apprécier l'évolution des participants réellement engagés dans le programme pendant la période mentionnée. Résultats: Les caractéristiques générales du groupe sont présentées dans la table 1. N'ont été pas trouvées des différences significatives dans les variables anthropométriques, masse corporelle et stature, ainsi qu'à les variables PAS et PAD (pression artérielle systolique et diastolique), FCr (fréquence cardiaque de repos) et PDD (double produit). Conclusion: L'effet de la randonnée contrôlée dans des personnes âgées n'a montré pas modiier les paramètres analysés, cependant, les actions à niveau populacional et individuel dirigées au développement d'actions de prévention et de traitement c'est la manière le plus efficiente de diminuer l'impact des maladies cardiovasculaires, ainsi que de la hipertension artérielle. Des recherches ultérieures pourraient focaliser le changement d'habitude alimentaire et pratiquent d'activité physique dans un long délai, vérifiant si ces changements restent après à cesser le programme. En ajoutant encore, l'importance de la monitorament pendant le travail pour que s'arrivent à des résultats positifs, étant nécessaire ainsi l'approvisionnement des matériels nécessaires par les agences responsables.

MOTS-CLES: Hipertension Artérielle - Marchée - Activité Physique non contrôlée.

EFECTOS DE CAMINATAS NO MONITORADAS EN MUJERES IDOSAS HIPERTENSAS CON EDAD ENTRE 60 Y 75 AÑOS.

RESUMEN:

Objetivo: Verificar las alteraciones de la Presión Arterial (PA), Freqüencia Cardiaca (FC), Índice de Masa Corporal (IMC), y Índice Cintura Cadera (ICC), en un programa de caminatas no monitoradas. Métodos: El presente trabajo fue realizado en la ciudad de Itajaí, región sur del Brasil, durante el período de abril a julio de 2007, totalizando 08 (ocho) semanas de entrenamiento, con la finalidad de apreciar la evolución de los participantes realmente envueltos en el programa durante el período ya citado. Resultados: Las características generales del grupo están presentadas en el quadro 1. No fueron encontradas diferencias significativas en las variaciones antropométricas, masa corporal y estatura, así como en la PAS y PAD (presión arterial sistólica y diastólica), FCr (freqüencia cardíaca de reposo) y PD (doble producto). Conclucion: El efecto de caminatas no monitoradas en mujeres idosas no mostró alteraciones en los parámetros analisados, además, acciones en nivel colectivo y individual direccionadas al desenvolvimiento de las acciones de prevención y tratamiento es la manera más eficaz de disminuir el impacto de las enfermedades cardiovasculares, asi como también de la hipertensão arterial. Investigaciones subseqüentes podrian enfocar mudanzas en el hábito alimentar y prácticas de atividades físicas a largo plazo, verificando asi, si estas mudanzas permanecen después de cesar el programa. Agregando todavia la importancia de un monitoramiento durante el trabajo para conseguir resultados positivos, siendo necesário así el fornecimiento de materiales necesários por los órganos responsables.

PALABRAS-CLAVE: Hipertensión Arterial - Caminatas - Actividad Física no monitorada.

OS EFEITOS DA CAMINHADA NÃO MONITORADA EM MULHERES IDOSAS HIPERTENSAS COM IDADE ENTRE 60 E 75 ANOS.

RESUMO:

Objetivo: Verificar as alterações na Pressão Arterial (PA), Freqüência Cardíaca (FC), Índice de Massa Corporal (IMC), e Índice Cintura Quadril (ICQ), em um programa de caminhada não monitorada. Métodos: O presente estudo foi realizado na cidade de Itajaí, região sul do Brasil, no período de abril a julho de 2007, totalizando 08 (oito) semanas de treinamento, com a finalidade de apreciar a evolução dos participantes realmente engajados no programa durante o período citado. Resultados: As características gerais do grupo estão apresentadas na Tabela 1. Não foram encontradas diferenças significativas nas variáveis antropométricas, bem como nas variáveis PAS e PAD (pressão arterial sistólica e diastólica), FCr (freqüência cardíaca de repouso) e PD (duplo produto). Conclusão: O efeito da caminhada não monitorada em idosas mostrou não alterar os parâmetros analisados, contudo, ações em nível populacional e individual direcionadas ao desenvolvimento de ações de prevenção e tratamento é a maneira mais eficaz de diminuir o impacto das doenças cardiovasculares, bem como da hipertensão arterial. Todavia, quando se trata de programas comunitários, permanece ainda a dificuldade do controle de intensidade e volume de exercício, o que torna difícil à avaliação clínica dos resultados desse tipo de programa. Neste estudo, não obtivemos resultados significativos das variáveis analisadas, sendo assim, vale ressaltar a necessidade de novas pesquisas, a fim de comprovar se programas de caminhada não monitorada apresentam um resultado positivo em um período de maior duração.

PALAVRAS-CHAVES: Hipertensão Arterial - Caminhada - Atividade Física não monitorada