156 - TRACKING OF CARDIOVASCULAR RISK AND INCIDENCE OF SIGNALS OF "ATHLETE'S HEART" IN JUDO FIGHTERS

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INTRODUCTION

The cardiovasculars diseases (DCVs) are the main cause of death in Brazil and all over the world. Because of the partner-economic impact, they have been target of several dedicated studies of the evaluation and the prevention of the factors of the cardiovascular risks in younger people (BRANDÃO, 2004).

The great prevalence of cardiovasculars diseases and the number of deaths related to the same ones justify the identification of risk factors to look forward to revert this problem. The use of primary ways of prevention in young people is today recognized as great importance for the scene of the cardiovascular diseases. To establish detention routines and to differentiate the athlete's physiological myocardial hypertrophy and the Hypertrophic cardiomyopathy (CMH) are a challenge.

Edmar et al. (2002), points the percentage of fatness as indispensable indicator to the judo fighters so they could reduce their weights without losing lean mass.

Physiological aspects

According to Weineck (2003), the increase of the cardiac chambers and muscular hypertrophy is resulted of an intense resistance training, increasing the cardiac volume followed by the cardiac debit (cardiac volume pumped per minute). With the systolic volume increased, there is a reduction of the FC and save of the cardiac work even the person being rested.

McArdle and Katch (1996) affirm that, the athletes of resistance (marathon runners), when submitted to great volume of training, will present normal thickness of the ventricular wall and a very increased ventricular cavity. Now, the athletes who practices exercises against resistance (weight lifters, hurlers and fighters), because of the high intensity exercises, that cause peaks in the arterial pressure, have normal ventricular volume and thickned ventricular walls. Froelicher et al. (1998) affirms that beyond the type and the volume of training, the appropriate alterations of the heart must be influenced by the athlete's genetic characteristics and by the biological maturity.

"Athlete's heart"

For Rowland (2003), the "athlete's heart" is the set of cardiac answers observed in adult athletes of endurance, characterized for bradicardia of rest, expansion and hypertrophy of the left ventricle and increased frequency. He affirms that the daily pay-pubescent athletes, if compared with the adult athletes, have more difficulty in presenting the characteristics of the "athlete's heart" in result of the lesser intensity and duration of
the trainings.

Puffer (2004) defines as a new cardiac form, representing a benign adaptation in virtue of the vigorous physical activity that includes the increase of the volume of the
ventricular cardiac chambers, of ventricular septum and thickness of the ventricular wall.

Differential diagnosis between the "athlete's heart" and CMH

For Hespanha (2004), the CMH is the pathology that cause most of the sudden death in young athletes and what differentiates it of the "athlete's heart" is the diastolic function: normal in the athlete and damaged in the evolution of the CMH. He says that in an athlete the septal thickness is about 12mm, more than 16mm the pathology is mentioned to it and between 12 and 16mm there is a a border region. He emphasizes that the CMH presents left and/or right ventricular hypertrophy, being the anti-symmetrical septal hypertrophy (block) the most common form, followed by the not block (septal anti-symmetrical one, apical, concentrical or látero-posterior). For Borges (2000), the cardiovascular diseases occurs due to structural genetic abnormality of the heart, that cause most of sudden death in young athletes. It is characterized by a blockage to the way of exit of the VE. Moreira (1995) says that the CMH has an unknown origin and presents cardiac hypertrophy that, according to Viégas (2005), shows itself in varied forms with functional alterations, and can or not obstruct the sanguineous flow.

DCVs and Factors of Risk

In general way, the DCV include the coronaryopathys, the hipertension, the vascular accidents (AVCs), the congestiv cardiac insufficience, the valvelopathis and cardiopathy (POLLOCK; WILMORE, 1993; WILMORE; COSTILL, 2001). The three main ones are: the cardiac attack, AVC and hipertension (POLLOCK; WILMORE, 1993). Fernandes (2001) says that coronary arterial diseases, the AVC and the peripheral arterial diseases increase mortality for cardiovascular diseases in 2,5 times to each 10 years.

Guimarães (2002) classifies the factors of cardiovascular risk in stipulate factors (genetic and ambient: life style); causal factors of risk (dislipidemias, hipertension, tobaccoism, intolerance to glucose and diabetes) and predisponent factors of risk (overweight and central obesity offices, physical inactivity and estresse psychological).

Corporal composition

In the judo the athletes are categorized by weight. Then the importance of the corporal composition for the athlete and the coach, as tool of control of the weight of the athletes and indicator of aptitude for the loss of weight, without that the judo fighter be injured. Even because a big number of athletes competes in the category of a weight below which it is placed (EDMAR et al., 2002).

Objective: To verify the incidence of signs of "athlete's heart" in judo fighters, differentiating of the Hypertrophic cardiomyopathy (CMH), to diagnostic DCVs and to evaluate its risks, to identify the percentage of corporal fatness and to calculate the Body mass index (BMI).

Metodology

Population and sample: Sample constituted of 40 judo fighters.

Criterion of enclosure and exclusion: Have participated of the research, only judo fighters athletes, between the age of 14 to 25 years old and who have being practicing to at least 3 years.

Instrument: The athletes were submitted to the exam of Echo Doppler (ATL brand, Ultramark 9 HDI model); to a corporal evaluation that included: percentage of fatness obtained through the Equation of Prediction for Estimate of the Most minimum Weight of Fighters of Lohman (1981), utilizing an **Adipômetro** of the Sanny model with precision 0,1mm, the height was obtained through the **Estadiômetro** of the Seca model with precision of 0,1cm and the corporal batter was obtained

through an analog scale of Welmy model, with maximum shipment of 150kg and precision of 100g; application of questionnaire for evaluation of the factors of risk for diseases cardiovasculars and calculation of BMI.

Procedures: The exams of Echo Doppler were done at the CLINICOR. For the achievement of the exam, must be put electrodes in three points of the chest and position the individual in to set sth aside, lay on the left arm, in an appropriate bed for that exam.

The corporal evaluation was obtained in the LAFE. After it collects of the facts of you fold cutaneous (subescapular, triciptal and abdominal), obtained itself the percentage of fatness.

For the height, the athlete was barefoot, standing with the joined feet and come back for front, sloppy shoulders and streched arms and facing the horizon.

The corporal mass was obtained with the barefoot athlete, closer to bareness, going up in the scale and stepping on the center, maintaining itself erect and with the back turned to the scale of measures.

The questionnaire was applied in the same moment of the corporal evaluation and the BMI calculated after collects of the facts.

Statisctics Analysis: the analysis was of the descriptive type, using software SPSS 10.0.

Results and Argument

In a study carried out by Pelliccia et al. (1999) in the Sport Science Institute in Rome, evaluating the dimension of left ventricular cavity, were evaluated 1309 athletes elite Italian (957 men and 352 women) of 13 to 59 years of age in 38 sporting games. They found substantial increasement of the ventricular cavity left: 38 to 66 mm in women and 43 to 70 mm in men. In 725 athletes (55%), were found 54 mm. The chart 1 presents the results of this studying, where 4 of the 40 athletes that were evaluated presented signs of “athlete's heart”, as diameters cavitys and increased ventriculars thicknesses or in the upper limit of the normality in the ECHO.

According to Viégas (2005), CMH is a rare cardiovascular diseases (0,2% -1 in 500) transmitted genetically. In this studying no athlete showed signs that characterizes to CMH, however, Ghorayeb et al. (2000) aware for the athletes that are found between the CMH and to hypertrophy physiological, because the differential diagnosis is complicated.

To figure out that distinction, healthy utilized the following echocardiographics aspects: to asymmetry prominent among the hypertrophy of determined segment (generally the previous portion of the septum) and other areas of the VE, revealing heterogeneous standard, and the abrupt transition between portions of muscle myocardial in normal thicknesses and those in that to hypertrophy is marked. To him, another aid for the differential diagnosis is the size of the cavity of the VE, since the size expected for the athletes frequently is not found in those with CMH.

	Number	Medium	SD
Athlete’s heart	40	0.1	± 1.02
Percentage of fatness	28	14.09	± 9.50
Body mass index (BMI)	28	24.48	± 5.10

The 28 athletes that were submitted to the evaluation of the corporal composition presented a medium of 14,09%G, what shows itself to be in average for judo fighters , because according to Wilmore and Costill (2001), the percentage of adequate fatness for judo fighters is 5 to 16%. Confirmed in the work of Fox, Bowers and Foss (1991), that vouch the percentage of fatness for men is on average of 15 to 17%. As regards the results of the BMI, the athletes presented normal classification (medium of 24,48), suggested by the facts of the The Surgeon General' s Report on Nutrition and Health, where the classification of the male sex, based in the BMI is of 24-27 normal; 28-31 moderately obese;> 31 severely obese.

Frequency and Risk Factors Percentage		
	Frequency	Percentage (%)
Conditional	12	42,9
Causais	0	0
Predisposition	8	28,6

Chart 2 - Frequency and percentage of the Factors of Risk for cardiovasculars diseases.

The Chart 2 shows that the 25 athletes who answered the questionnaire, 12 presented conditionants factors, 8 presented predisposes factors and 3 included conditionants and predisponers factors.

In what concerns the factors of risk, Fernandes (2001 mentions studies showing that the reduction of the levels of the bad cholesterol reduces the risk of arterial coronary disease. Wilmore and Costill (2001) show that each 4 adult American, 1 presents hypertension and in 1995 the same killed more than 39 thousand Americans. Pollock and Wilmore (1993), say that the rate of resulting mortality of the coronary disease is 37% and show themselves to be twice more elevated among tobacco smockers taken root compared to the not-smokers. Fernandes (2001) show researches that verify that between kids and adolescents there is a suggestive to the sedentary because of the technological progress that contributed for the diminution of the energy expense in the work and in the leisure. The television, the computer, the videogames, the worry of the parents regarding the security of their kids, etc, are used as arguments for a sedentary way of life. Smanio (2003), alert for the importance of to do a heart evaluation, even in individuals that practice physical activity, showing that the adolescents and pre-adolescents (between 7-14 years) that initiate a sport, 21% present cardiac alterations. From those affirmations, we verify that the fact of practicing a sport, does not exclude those judo fighters of heart risks, because they present factors of risk for cardiovasculars diseases.

Studies show, according to Pollock and Wilmore (1993), that even inside the streak considered “normal” of blood pressure, finds itself a bigger number of heart attacks and AVCs when the individuals present levels pressures upper than between those who has an under blood pressure level. The same authors aim that there are indications that incidence of AVCs and cardiac insufficiency can decrease in the patients who utilize of medication to reduce the blood pressure.

Fernandes (2001) says that in children, the hypertension incidence is of 2 to 13% what should not be inconsiderate, even if it has bigger predominance in adults and presents studies where the style of life and standards of behavior favor the development of the atherosclerotic disease, for being transmitted and shared. The dislipidemia is between the factors that more influence the atherosclerotic disease: 60% of the profile greasy drawn in children with family transcript of precocious arterial coronary disease presented some forms of dislipidemia (a third). The blood pressure of the athletes, checked moments before of the exam, presented values inside the normality, which according to the authors cited above, do not

exempt them of cardiac risks. In what to concern to the cardiac frequency, the electrocardiograms analysis showed themselves inside the standards for athletes coached (between 44 to 65 bfm).

Conclusion: The analysis of the ECHO showed 4 athletes that presented signs of "athlete's heart", presented no signs of CMH and in what concerns the factors of risk, the stipulate factors presented elevated. About the percentage of fatness presented itself inside the average for the category of fight. And as regards the BMI, had normal classification.

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TRACKING OF CADIOVASCULAR RISK AND INCIDENCE OF SIGNS FROM "ATHLETE' HEART" IN JUDO FIGHTERS

ABSTRACT

The cardiovascular disease is the main cause of death in Brazil and all over the world. The cardiovascular factors of risk are classified as conditionants, cause risks and predisponers. Puffer (2004) define the "athlete's heart" as a benigne adaptation in virtue of physical activity, presenting diamenters cavities and espessures ventriculars increased. **Objective:** To verify the incidence of "athlete's heart" in judo fighters, diferencing the hypertrophic cardiomyopathy (CMH) and to diagnostic cardiovascular diseases. **Methods:** The sample is constituted of 40 judo fighters between 14 to 24 years that were trained at least 3 years. Submitted to antropometric evaluation, fat percentual, ecodoppler test and questionnaire about the risk factors. These, 28 did evaluation of fat percentual and body mass index (BMI)and 25 answered the questionaire. To statistically analyze, was done the descriptive model of the data. **Results**: The analyze of the ECO, was done in 40 athletes, resulting in average of 0,1 and standard deviation of +/-1,02. The fat percentual, was done in 28 athlete, and the average was 14,09% and the standard deviation of +/- 9,50.The BMI calculo has presented an average of 24,48 and standard deviation of +/- 5,10. The Chart 2 shows that the 25 athletes who answered the questionnaire, 12 presented conditionants factors, 8 presented predisposes and 3 included conditionants and predisponers. **Conclusion** From 40 athletes, 4 presented signals of "athlete's heart", nothing has presented signals of the CMH and in relation to risk factors, the conditioners factors have presented high. In fat percentual has presented in average to the fight category. In BMI, had normal classified.

Word keys: Judo fighters; "Athlete's heart"; Cadiovascular risk.

RESUMÉ

Les maladies cardiovasculaires constituent la cause principale de mortalité au Bbrésil et dans tout le monde. Les facteurs de risques cardiovasculaires sont classifiés comme : conditionants, risque de cause, predisponents. Puffer (2004) définit le "coeur des sportifs" comme une adaptation bénine à cause de l'activité fisique, presentant diametre cavitaires et épaisseurs ventriculaires accrues. **Objectif :** Verifier l'incidence de signes de "coeur des sportifs" en sportifs de judo, avec diferénce de la cardimiopatie hipertrofique (CMM) e diagnostiquer mmaladies cardiovasculaires. **Méthode :** Échantillon constitué par 40 sportifs de judo de 14à 24 ans qui s'exercent au moins 3 ans. Soumis à l'avaliantion antropometrique, percentile de la graisse, éxamen Ecodoppler (ECO), questionnaire sur les facteurs des risques et au calcul du SM (Statistique de Masse) . Entre eux. 40 font l'éxamen ECO, 28 font l'avaliation de percentile de la graisse e IMC, 25 ont répondu au questionaires. Pour l'analyse statistique, lé té exécuté le anodéte descriptif des donnees. Resultat : l'analyse de ECO, realisé

entre 40 sportifs, a resulté en moyenne de 0, l et ligne de manoeure noeme +/-1,02. le percentile de la graisse, realisé entre 28 sportifs, a eu en moyenne de 14,09% et ligne de manoeure norme de +/-9,50. le calcul de IMC a montré en moyenne de 24,48 et ligne de manoeurenorme de +/-5,10. dans les 25 sportifs qui ont répondu le questionaire, 12 ont presenté facteurs conditionants, 8 predisponents e 3 conditionants et prediponents. **Conclusion** : dans 40 sportifs, 4 ont presenté signes de "coeur des sportif",persone n'a presenté signes de CMM e sur les facteurs de risque, les facteurs condionants se sont apresentés é levé. Sur le percentile de la graisse se sont presentés moyenne pour la categorie de combat. Sur le IMC, ils ont eu classification normal.

Mots-clés : spotifs de judo ; "couer des sportifs" ; risques cardiovasculaires.

RESUMEN

Las enfermedades cardiovasculares constituyen la causa principal de la mortalidad en Brasil y en el mundo. Los factores de riesgos de enfermedades cardiovasculares se clasifican como: condicionantes, causales riesgos y la predisposición. Puffer (2004) definió el “corazón de atleta” como una adaptación benigna en la virtud de la actividad física, presentando los diámetros cavitários y espesores ventriculares aumentado. **El objetivo**: verificar a la incidencia de signos de “corazón de atleta” en el combatientes de judo, diferenciando del cardiomiopatia de hipertrófica (CMH) y las enfermedades diagnósticas de cardiovasculares. **El método**: La muestra constituyó de 40 combatientes de judo, entre la edad de 14 a de 25 años y que practica por lo menos 3 años. Ellos fueron sometidos a una evaluación del antropométrica, el porcentaje de la gordura, el examen de Ecodoppler, el cuestionario acerca de los factores de riesgos y cálculo del IMC. De esos 40 combatiente de judo que sacó el examen de Ecodoppler, 28 hicieron la evaluación del porcentaje de la gordura y IMC, 25 contestaron el cuestionario. El análisis estadística, se llevó a cabo el modelo descriptivo de los hechos. **Los resultados**: El análisis del ECO, hecho por 40 atletas, resultó un promedio de 0.1 y el desvío estándar de ± 1.02. El porcentaje de la gordura, hecho por 28 atletas, tuvieron un promedio de 14.09% y el desvío estándar de ± 9.50. El cálculo de IMC mostró un promedio de 24.48 y el desvío estándar de ± 5.10. De esos 40 atletas, 25 contestaron el cuestionario, 12 atletas mostraron condicionantes los factores, 8 predisposición y 3 condicionantes y la predisposición. **La conclusión**: De esos 40 atletas, 4 presentaron “corazón de atleta”, ningun presentó de CMH y en lo que concierne los factores del riesgo, los factores condicionantes presentaronse elevado. Cuando considera el porcentaje de la gordura, se presentó en el promedio para la categoría. En qué concerne al IMC, tuvo la clasificación normal.

Palabra Llave: Combatientes de Judo; Corazón de atleta; cardiovasculares riesgos.

RESUMO

As doenças cardiovasculares constituem a principal causa de mortalidade no Brasil e no mundo. Os fatores de riscos cardiovasculares são classificados como: condicionantes, riscos causais e predisponentes. Puffer (2004) define o “coração de atleta” como uma adaptação benigna em virtude da atividade física, apresentando diâmetros cavitários e espessuras ventriculares aumentadas. **Objetivo:** Verificar a incidência de sinais de “coração de atleta” em judocas, diferenciando da cardiomiopatia hipertrófica (CMH) e diagnosticar doenças cardiovasculares. **Método:** Amostra constituída de 40 judocas de 14 a 24 anos que treinam a pelo menos 3 anos. Submetidos à avaliação antropométrica, percentual de gordura, exame Ecodoppler, questionário sobre os fatores de riscos e cáculo do IMC. Desses, 40 realizaram o exame Ecodoppler, 28 fizeram avaliação de percentual de gordura e IMC, 25 responderam ao questionário. Para análise estatística, foi realizado o modelo descritivo dos dados. **Resultado:** A análise do ECO, realizada em 40 atletas, resultou numa média de 0,1 e desvio padrão de ± 1,02. O percentual de gordura, realizado em 28 atletas, teve uma média de 14,09% e o desvio padrão de ± 9,50. O cálculo de IMC mostrou uma média de 24,48 e desvio padrão de ± 5,10. Dos 25 atletas que responderam ao questionário, 12 apresentaram fatores condicionantes, 8 predisponentes e 3 condicionantes e predisponentes. **Conclusão:** Dos 40 atletas, 4 apresentaram sinais de “coração de atleta”, nenhum apresentou sinais de CMH e no que diz respeito aos fatores de risco, os fatores condicionantes apresentaram-se elevados. Quanto ao percentual de gordura apresentaram-se na média para a categoria de luta. No que concerne ao IMC, tiveram classificação normal.

Palavras chave: Judocas; Coração de atleta; Riscos cardiovasculares.