200 - COMPARISON OF HEART HATE IN TREADMILL MAXIMUM EFFORT TEST AND HEART HATE EQUATIONS IN PHYSICAL EDUCATION STUDENTS OF UNIVERSIDADE ESTACIO DE SÁ

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INTRODUCTION

Apparently easy of being measured, the use of the HR, was popularized as a tool for lapsing of the zones of intensity of the training (TASK FORCES, 1996). We know that the maximum consumption of oxygen (VO2máx) increases in direct ratio when comparative with HR and PSE, facilitating the use of these variable as important tool for the lapsing of physical exercises (HERMAN, 2003; ACHTEN, 2003 apud CAPUTO and col, 2005). The recommendation of intensity in exercise is enters 55/65-90% of the FCmáx or 40/50-90% VO2máx, as much for the improvement phases and maintenance, with duration of twenty the sixty minutes of activity being able to be carried through of form continues or fracionada, frequently of three the five times per week (ACSM POSITION STAND, 1998). One admits that sedentary individuals enter in the academies and initiate a program of physical exercise of light intensity to the moderate one, what it corresponds the 50-76% of the FCmáx, however happen in some cases that due to orientation these thresholds of intensity are exceeded or even though ignored, increasing the risk for this individual (ACSM, 2007). The procedures for stratification of risk daily pay-exercises must be valid, cost-cash and efficient of the secular point of view according to ACSM (2007), being in the academies, the physical evaluation the main tool used for this stratification. In one it searches on security behaviors and prevention of injuries in the CI carried through by Hisses and col (2004), sees that some professionals who give these lessons do not carry through behaviors as requirement of certified doctor, physical evaluation and even though training without taking as white base zones. With the difficulty to get the results of the physical evaluation of the pupils who carry through collective activities for the raised costs (ACSM, 2007), services of evaluation without respiratory evaluation (ACSM, 2007), or not interest of the professor (IHISSES, 2004), equations of regression are used as a simpler method esteem the intensity of the training through the percentage of the HR (KARVONEM, 1957 apud ROBERGS and LANDHWER, 2002). Innumerable studies on regression equations question its efficiency showing that they can put down values or they overestimate the HR máx depending on the age, level of aptitude of the individual and type of sportive modality practiced (OLIVEIRA, 2001; ROBERGS and LANDHWER, 2002; CANNOLLY, 2002; POLICARPO and FERNANDES SON, 2004; VASCONCELOS, 2005). In a study presented for Robergs and Landwehr (2002), they are collected to all the thirty different equations of regression for it I calculate of the HR máx of training without effort test, showing the great variety of equations that exist in leaving in doubts of which must use. This exactly study tells that the equation of regression for many said of Karvonen (220-age), being it one of the equations most used for calculates of the HR máx, has its indefinite authorship. Having the hypothesis that the regression equations undergoing or overestimate cardiac the frequency waited, we verify if the same one inside meets of a white zone insurance. The study if it justifies in selecting relations of the HR and PSE of form to validate them in test, not giving utility of the practical and not onerous instrument in the lessons with bigger reliability to the aerobic training. On of the study the professionals of Physical Education they will be able to plan its lessons with more efficiency and security being shown that if it can vary in the lesson structures. Everything in intention to develop the cardio respiratory capacity. The objective of the study is to compare the reply of the HR in a test of Maximum effort in mat and to compare with 3 equations of regression for prediction of the HRmáx.

METHODS:

The present study is characterized as descriptive type (THOMAS and NELSON 2006). This characteristic is based on not having intervention in the study object. The citizens of the study were 37 individuals, pupils of the course of physical education of the university Estácio de Sá chosen of random form, using as inclusion criterion, to have done the Maximum test on Bruce protocol. They were apparently healthful and of the masculine sort (ACSM, 2007) with mean age of 27,49 ± 6,77 years. The study is limited to evaluate it individuals of the masculine sort for the stability of the HR, taking in comparison the involved hormones' factors in the menstrual cycle when compared with the feminine sort. The following materials had been used for the collection of data: For stratification of risk PARQ questionnaire was used, for corporal mass Filizola and to measurer the HR; POLAR 610. Scale mechanics of the Filizola mark with precision of 100g. For the corporal mass the evaluated one is located of coasts for the scale in ortostática position, with looking at fixture its front, using the minimum of possible clothes (POMPEU, 2004).

The equation of "Karvonen" was used by being one of the equations most popular in the world, exactly being of indefinite authorship. Of Tanaka, therefore as the Oliveira and col (2001) in study carried through in the same year it was the equation that presented minor trend in overestimating the HRmáx with the values of reference in young individuals. E equation proposal for Inbar (1994 apud ROBERGS and LANDWEHR, 2002) was used by being the equation where, in the study of Robergs and Landwehr (2002), the one that presents the best precision when esteem the HRmáx of the analyzed individuals.

The treatment of the data was made by means of statistics of form to elucidate mathematically and tables elaborated from the information (resulted) gotten in the use of the instruments. The collected data had been treated by means of the use of descriptive statistics using percentile values, to identify the biggest incidence of the gotten answers. After the mathematical analysis had been elaborated graphical and tables to allow discussion of the reached results.

ANALYSIS AND DISCUSSION OF RESULTS

In the table 1 and figure 1 the average values gotten by the accomplishment of the test of the protocol of Bruce are characterized and the values proceeding from the calculations of Karvonen, Imbar and Tanaka.

	Bruce`s Test	220-Idade	Imbar	Tanaka
Mean	188,27	192,51 *	186,97	187,76
SD	9,25	6,77	4,64	4,74

Table 1: Mean and standard deviation of HR from Bruce`s test values; "karvonen", Imbar and Tanaka`s protocols.

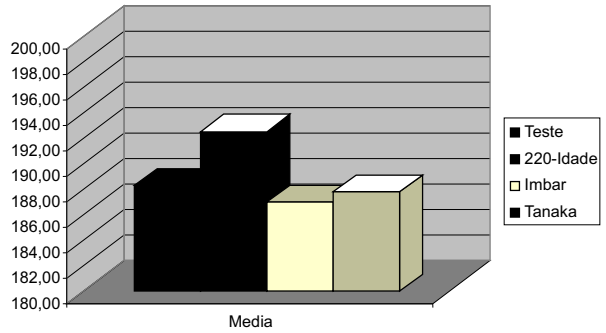

Figure1: Mean values of HR from Bruce`s test; "karvonen", Imbar and Tanaka`s protocols.

It can be observed that in all the calculations the values that had been more come close to the real value of the test had been the calculations considered for Imbar and Tanaka demonstrating that these two calculations would be of the ones of better value for use in calculations of maximum prediction of FC, for use in lapsing the exercises. Being I calculate that it of "karvonen" he was the only one that it got significant difference ($p<0,05$) with regard to the value gotten in the test.

CONCLUSIONS AND RECOMMENDATIONS

It can be observed in the results that significant difference ($p<0,05$) when compared the averages of the HR gotten in the test with the equation of Karvonen and Imbar. The first equation presented resulted average that overestimated the measured average values in test and, second presented resulted average that subestimou the medium of the test. The result of the study illustrates the importance to use equation, in case of not clinical knowledge deepened of the pupil/Customer/athlete, who subestime the FC, in the case would be and of Imbar, for elaboration of the program of exercises as form of security for the trainings.

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COMPARISON OF HEART HATE IN TREADMILL MAXIMUM EFFORT TEST AND HEART HATE EQUATIONS IN PHYSICAL EDUCATION STUDENTS OF UNIVERSIDADE ESTACIO DE SÁ

ABSTRACT: Apparently easy of being measured, the use of the Heart Hate was popularized as a tool for knowing the intensity zone training. But everybody knows that use the correct % of heart hate for practices the activity becomes necessary for we can optimizes the training with a correct control and minimizes the risks of some sort of accident. **OBJECTIVE**: The objective study it was to compare the reply of the Heart Hate in Maximum effort test in treadmill and compare with 3 regression equations for prediction of the maximum Heart Hate. **METHODOLOGY**: The present study it is descriptive type research with comparative character. It was chosen 37 individuals healthful with 27,49 ± 6,77 years average age. The 3 regression equations for prediction of the maximum Heart Hat used in the study had been" Karvonen", Tanaka and Inbar, all equations for healthful masculine individuals. **RESULTS**: Test = 188,27 bpm; 220 - idade= 192,51*bpm; Imbar= 186,97 bpm and Tanaka= 187,76 bpm. **CONCLUSION:** Can be observed that was significant difference (p<0,05) when compared the averages between Heart Hate gotten in the test with the Karvonen and Imbar equation's. With the Tanaka showing the result closes to the value reached in the test.

COMPARACIÓN DE LAS FREQUENCIAS CARDIACAS OBTENIDAS EN ECUACIONES MÁXIMAS CON AS DE LA PRUEBA DE ESFUERZO EN TAPETE ROLANTE EN ESTUDIANTES DE LA EDUCACIÓN FÍSICA DE UNIVERSIDADE ESTACIO DE SÁ

RESUMEN:

Parece fácil la medición, el uso de la frecuencia cardiaca (FC) fue popularizado como herramienta para saber el entrenamiento de la zona de la intensidad. Pero todos sabe que utilizan los % correctos de la FC para las prácticas que puede la actividad llega a ser necesaria para nosotros optimiza el entrenamiento con un control correcto y reduce al mínimo los riesgos de una cierta clase de accidente. OBJETIVO: El estudio hoi comparar la contestación de la FC en prueba máxima de esfuerzo en rueda de ardilla y comparar con 3 ecuaciones de regresión para la predicción de la FC máximo. METODOLOGÍA: El actual estudio es tipo descriptivo investigación con el carácter comparativo. Fue elegido a 37 individuos saludables con el 27.49 ± 6.77 años de edad. Las 3 ecuaciones de regresión para la predicción de la FC máximo usado en el estudio habían sido" Karvonen", Tanaka e Inbar, todas las ecuaciones para los individuos masculinos "saludables". RESULTADOS: Prueba = 188.27 bpm, 220 - idade= 192,51*bpm; de Imbar = 186.97 y Tanaka=187.76. CONCLUSIÓN: Puede ser observado que era la diferencia significativa (p<0,05) cuando está comparado los promedios entre el FC conseguido en la prueba con las ecuaciones de Karvonen e Imbar. Con el tanaka demostrar el resultado se cierra al valor alcanzado en la prueba.

COMPARAISON DE LA FRÉQUENCE CARDIAQUE DES ÉQUATIONS MAXIMUM D'ESSAI ET DE FRÉQUENCE CARDIAQUE D'EFFORT EN TAPIS ROULANT DES ÉTUDIANTS D'ÉDUCATION PHYSIQUE D'UNIVERSIDADE ESTACIO DE SÁ

RESUMÉ:

Apparent facile de l'mesure, l'utilisation de la fréquence cardiaque **(FC)** a été popularisée comme outil pour savoir la formation de zone d'intensité. Mais tout le monde sait que qui emploient les % corrects de la FC pour des pratiques que l'activité devient nécessaire pour nous peut optimise la formation avec une commande correcte et réduit au minimum les risques d'une certaine sorte d'accident. OBJECTIF : L'étude objective il était de comparer la réponse de la FC dans l'essai maximum d'effort dans le tapis roulant et de rivaliser avec 3 équations de régression pour la prévision de la FC maximum . MÉTHODOLOGIE: La présente étude c'est type descriptif recherche avec le caractère comparatif. Il a été choisi 37 individus salubres avec 27.49 ± 6.77 ans. Les 3 équations de régression pour la prévision du chapeau maximum de coeur utilisé dans l'étude avaient été Karvonen, Tanaka et Inbar, toutes les équations pour les individus masculins; salubres. RÉSULTATS: Effort Maximum = 188.27 bpm; 220 - idade= 192,51*bpm ; 'Imbar = 186.97 bpm et de Tanaka=187.76 bpm. CONCLUSION: Peut être observé qui était la différence significative (p<0,05) une fois comparé les moyennes entre la FC obtenue dans le test avec le Karvonen et l'Imbar equation´s. Avec le tanaka donner le résultat se ferme à la valeur atteinte dans le test.

COMPARAÇÃO DAS RESPOSTAS DE FC OBTIDAS EM TESTE DE ESFORÇO MÁXIMO EM ESTEIRA ERGOMÉTRICA E EQUAÇÕES DE REGRESSÃO EM ACADEMICOS DO CURSO DE EDUCAÇAO FISICA DA UNIVERSIDADE ESTACIO DE SA

RESUMO: Aparentemente fácil de ser mensurada, o uso da FC se popularizou como uma ferramenta para prescrição das zonas de intensidade do treinamento. Só que cada vez mais sabe-se que o uso de % corretos de FC para a pratica da atividade faz-se necessário pois otimiza o treinamento do individuo com um correto controle por parte do professor e minimiza os riscos de algum tipo de acidente.**OBJETIVO:** sendo assim o objetivo do estudo foi é comparar a resposta da FC em um teste de esforço Maximo em esteira e comparar com 3 equações de regressão para predição da FCmáx. **METODOLOGIA:** O presente estudo caracteriza-se como uma pesquisa do tipo descritiva com caráter comparativo. Os sujeitos do estudo foram escolhidos de forma intencional com faixa etária média entre 27,49 ± 6,77 anos 37 indivíduos ditos saudáveis (ACSM 2004). As três equações de regressão para calculo da $FC_{max.,}$ utilizadas no estudo foram "Karvonen", Tanaka e Inbar, todas equações para indivíduos "saudáveis" do sexo masculino. Para a comparação utilizou-se o teste T pareado da $FC_{máx}$ com as 3 equações. **RESULTADOS:** Teste = 188,27 bpm de media; 220- idade= 192,51*bpm de media; Imbar= 186,97 bpm e Tanaka= 187,76 bpm. **CONCLUSÃO:** Pode-se observar nos resultados que houve diferença significativa (p<0,05) quando comparadas as médias das FC obtidas no teste com as equação de Karvonen e de Imbar com a de Tanaka mostrando o resultado mais próximo da verdade atingida no teste.