202 - BEHAVIOR OF THE ARTERIAL PRESSURE, CARDIAC FREQUENCY AND OF THE HAIR GLICEMIA WITH ADULTS PRACTICING OF YOUNG SPINNING ® WHEN SUBMITTED TO THE ASTRAND PROTOCOL

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INTRODUCTION

Modern life, technology, fast-foods, professional requirements, easy access the diverse acquisitions amongst as much other situations, make with that the modern man becomes it each still more sedentary generation. As Blacksmith (2001) the sedentary being is that one that usually is seated, that is, is the individual that for diverse justifications deprives itself of simple and necessary habits for a healthful life, amongst them the ingested of adequate foods and the practical one of physical exercises. As result in this manner of living unhealthy finishes for if becoming a candidate to develop diverse types of cardiovascular and endocrines affecters, amongst them systemic arterial hypertension and diabetes mellitus. Ahead of all problematic one happened of a little healthful life it is important to point out the benefits of well based a regular physical activity and. The benefits of the physical activity well are established, and the research that if develops continues confirming the important paper of the habitual exercise in the maintenance of the global health and well-being. Evidences convincing epidemiologists and laboratories show that the regular exercise protects against the development and the progression of many chronic illnesses and that it is component important of a style of healthful life. Recent research correlating alterations in the physical activity in initially sedentary adults with subsequent reductions in mortality has confirmed the hypothesis of that the regular physical activity increases the longevity. Araújo (2000). However, before if initiating a program of physical activity a minute evaluation of the current state of the individual is necessary leading in consideration some variants of extreme importance for the good course of the activity. In result of this the protocols appear of evaluation and physical exercises, that have as main function to determine these variants to be followed during the practical one of the evaluation and the accomplishment of the physical activity, being most important: the maximum cardiac frequency (max C.F), the respiratory frequency (R.F), sistolic arterial pressure (SAP) and diastolic (DAP), max. VO2 (maximum consumption of oxygen), amongst as much other indispensable parameters for the success of one saves, beyond that it becomes it something in accordance with individualized and subject to adjustments elapsing of the sessions. According to Fronteira and Cols. (1999) in addition to the increase of sensitivity the insulin and the reduction of the glycemy, the regular exercise improves several of the recognized factors of risk of cardiovascular illnesses, as it improves of the lipidic profile (reduction of LDL, increase of the HDL, reduction of triglycerides and the hypertension). They affirm despite the acute exercise provokes an increase of sensitivity the insulin and increase in the metabolism of the glucose, that persists for varies hours after the exercise, being able to occur after thus hypoglycemia during or the exercise. On the other hand the exercise of short duration and great intensity is normally associated with the transitory increase in the glycemics levels, being able to occur a hyperglycemia picture, that will be serious the sufficient, can produce immediate and irreversible injury in the central nervous system. For these and other situations that come to occur, are that the participant individuals of the tests must be continuously monitored. Amongst as many procedures the accompaniment of the hair glycemy through the test of the "Tip of the Finger" reveals of great value that aims at the collect of a drop of blood for posterior evaluation of the circulating glucose level by means of a known device of reading as glucoses meter. Already in relation to the cardiac frequency and the arterial pressure, Araújo (2000) tells that both must be measured before, during and after the tests of graduated efforts. It tells despite to be reached max. C.F epends on some factors as: modalities of tests of efforts and different categories of individuals. How much to the arterial pressure the same author displays that the normal reply to the exercise in dynamic foot he consists of a gradual increase in the SAP, no alteration or a fast reduction of the DAP and a magnifying of the pulse pressure. Referring the comment of these answers the present article directed as objective the study of the alterations of the PAS and PAD, CF and hair glycemy in individuals submitted to the protocol of Astrand. This protocol is characterized as a test submaximum where it has an initial load of work that must vary for men between 100 and 150 Watts and for women between 50 and 100 Watts. After the election of the load the evaluated one will have to pedal during 6 minutes; the speed will have to be of 60 rpm; it is registered FC of load of 5º and 6º min and if it gets the average value; theCF will have is between 120 and 170 bpm, preferential above of 140 in the young. FILHO (2003). What it justifies the present study is that the tests of maximum effort demand that the participants if exercise the point of voluntary fatigue, which are clinically more useful for the diagnosis of CAD (coronary Arterial disease) in assintomatics individuals and aptitude is not a method of feasible cardiorespiratory evaluation for the great majority of the health professionals/. Whereas the effort tests submaximum have as objective basic to the determination of the relation it enters the reply of the FC of an individual and its max.VO2. during the gradual exercise and to use it to foresee the max.VO2 . Araújo (2000). METHOD

The present study Thomas defined itself as an almost-experimental research in accordance with and Nelson (2002) analyzes the delineations of research how much the certain factors and had classified them in three categories: daily pay-experimental delineations, true experimental delineations and almost-experimental delineations. The current study if it delimited to an almost-experimental research, for the existence of a group it has controlled and comments defined in the daily pay-test and after-test.

UNDIVIDED

18 individuals, divided in two groups of 09 had been analyzed. The criteria for choice of the participants had been: to be healthful, of legal age, inactive or moderately active and that they have signed the Term of Free and Clarified Assent; being excluded those that have history of cardiovascular or endocrine illness.

PROCEDURES

The individuals chosen for the research had passed for a first meeting where the clarifications had had all on the research, the methods that would be used, examinations and the questionnaires that would be answered, beyond reading and signature of the Term of Free and Clarified Assent. The applied questionnaires had been: Habitual Physical activities that the level

of physical activity of the individual defining it as inactive, active or moderately active evaluates, and the questionnaire PARQ YOU that evaluates the physical aptitude of the participant, and its level of tolerance to the exercise. After the analysis of the questionnaires the individuals had passed for as a meeting, each group in one day daily pay-definitive. The first group passed for the ingestion of saccharose (50 mL of orange juice) before if initiating all the procedures. Then gauging of the arterial pressure with use of tensimeter of mercury column of mark OXYGEL was carried through, the cardiac frequency through frequency meter POLAR mark A1 and of the hair glycemy for the test of the "tip of the finger" with use of glucoses meter of mark PRESTIGE. After that the protocol of Astrand was carried through that used a stationary ergometric bicycle of mark MOVIMENT, where placed an initial load of work that varied for men between 100 and 150 Watts and for women between 50 and 100 Watts. After the election of the load the evaluated one pedal during 6 minutes with speed of 60 rpm; she was registered the FC of load of 5º and 6º min and got the average value. During 5º and 6º minute of the test also was measured the arterial pressure, and to the end of the test the hair glycemy for the cited method was measured previously. As the group (group has controlled), where did not have ingestion of saccharose, was carried through the same behavior.

RESULTS

For the analysis of the data *t*-Student for pair uped data was used the test, with a level of significance of 5% having the following results: Comparing the averages of C.F of rest with the one of 5º and 6º it is verified that it had statistically significant alteration for $p< 0.05$ as shows (Graphics 01 and 02).

Gráficos:

Cardiac frequency
Difference of CF in rest for 5th minute Patient
Difference between Glucose Repose and Glucose Posttest in the Group Controls

For analysis of the data of the glucose daily pay and after test in the group it has controlled and glucose daily pay and after test in the experimental group we apply the test t-Student, with a level of significance for $p< 0.05$ where It was verified that it does not have differences between the averages of the glucose in rest and after test in the group has controlled (Graphic 5). As well as it does not have difference enters the averages of the glucose in rest and after test in the experimental group (Graphic 6)

DISCUSSION

In the analysis of the relative results the comparison of the CF of the rest with the one of 5º, as well as the comparison of the CF of the rest with the one of 6º minute had statistically significant increase. Also excellent increase statistically of the SAP occurred when the rest with the SAP of 5º and 6º was compared minute. However when the DAP of the rest with the one of 5º and 6º was compared minute, it did not occur alterations of significant increase or reduction. According to Araújo (2000), in a continuous exercise occurs an initial fast rise in relation to the level of rest of the SAP, starting to increase linearly with the intensity of the exercise, while the DAP remains steady or diminishes slightly. The accomplishment of the protocol of Astrand in this study disclosed physiological a behavior normal of these parameters. We can then hypothetical that the cardiorespiratory evaluation for the protocol of Astrand can be carried through in controlled hypertensive individuals. In relation the hair glicemy was not observed increase or reduction, statistically, significant between the glucose averages when a compared individual of the group it has tested with the group has controlled daily pay and after protocol of Astrand. Collating with literature we have in Fronteira and Cols. (1999) the affirmation that the acute exercise provokes an increase of sensitivity the insulin and increase in the metabolism of the glucose, that after persists for some hours the exercise, being able to occur after thus hypoglycemia during or the exercise. On the other hand the exercise of short duration and great intensity is normally associated with the transitory increase in the glicemy levels, being able to occur a hiperglicemy picture, that will be serious the sufficient, can produce immediate and irreversible injury in the central nervous system. Our study it showed that the evaluations with the use of the protocol of Astrand do not bring excellent repercussions in the glicemics levels, even though when provokes increase of these levels, as it was made with the ingestion of saccharose. We raise then the hypothesis of that controlled diabetic individuals perhaps do not present excellent glicemics alterations when evaluated by this protocol. Due to scarcity of literatures on the alterations caused for the use of protocols of cardiorespiratory evaluations maximum and submaximum, and being recommended to the use of the protocol submaximum without restrictions for health professionals/aptitude who work with cardiorespiratory conditioning, the study considered for not presenting an adequate directed bibliography number, denotes the importance of if carrying through research so that let us can have subsidies and security in the accomplishment of determined protocols.

CONCLUSION

The boarded research demonstrated that the protocol of Astrand does not cause excellent cardiac repercussions. It was observed that same in inactive or moderately active individuals, chosen teams previously for age, general health and level of physical aptitude, the statistical treatment discloses that the CF and the SAP statistically suffered significant rise for $p< 0.05$ but always inside from the standard of normality for the studied group. In the case of the DAP the rise did not have as much alternation statistics, as well as the hair glycemy of both the participant groups of the research. Ahead of this one sees that the used protocol can be carried through same in carrying individuals of systemic arterial hypertension or diabetes mellitus, since that all the orientations how much to the test they are followed and the participants are followed by qualified professionals.

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ABSTRACT

Nowadays the health professions worrying to organizing your evaluations and conducts in protocols, these are studied, validated and placed as consent. It is like this of great importance the study of those protocols and the alterations generated in the individual. This research has as objective evaluates blood pressure systolic (SAP) and diastolic (DAP) alterations, Heart Frequency (H.R) and Capillary Glycemy in individuals submitted to the Astrand protocol, a test of cardiopulmonary evaluation which a load submaximum is used. 20 adults people were selected, both sexes, healthy with little or any physical activity. After explanations the individuals answered to the questionnaire of Habitual Physical Activities and the PAR Q YOU, and they signed the Term of Consent. Soon after they were separate in two groups. A group control with 10 individuals and a group test with 10 that ingested sucrose (50 ml orange juice) one hour before the beginning of the protocol. In both groups it was evaluated arterial pressure, C.F in the rest, 5th and 6th minute. The measure of the capillary glycemy in the group test was accomplished before the ingestion of the sucrose and after the Astrand protocol. Statistical analysis was accomplished being used the student Test *t*. the results showed means elevation statistically of FC and rest PASin relation to C.F and PAS of the 5th and 6th minute of the test, but there was not means elevation statistically of PAD of the rest in relation of 5th and 6th minute neither of the glycemy per and post protocol of the test group in relation to the control group.

Key-Words: Blood Pressure, Heart Frequency, Capillary Glycemy.

RÉSUMÉ

De nos jours les professions médicales s'inquiétant à organiser vos évaluations et conduites dans les protocoles, ceux-ci sont étudiées, validées et placées en tant que consentement. C'est comme ceci de grande importance l'étude de ces protocoles et les changements se sont produits dans l'individu. Cette recherche a pendant que l'objectif évalue les changements systoliques (DAP) (SAP) et diastoliques de tension artérielle, la fréquence de coeur (H.R) et le Glicemia capillaire dans les individus soumis au protocole d'Astrand, un essai d'évaluation cardiopulmonaire qu'un submaximum de charge est employé. 20 personnes d'adultes ont été choisies, les deux sexes, sains avec peu d'ou n'importe quelle activité physique. Après des explications les individus répondus au questionnaire des activités physiques habituelles et du PAR Q YOU, et eux ont signé la limite du consentement. Peu après qu'ils aient été séparés dans deux groupes. Une commande de groupe avec 10 individus et un groupe examinent avec 10, ce sucrose ingéré (50 ml de jus d'orange) une heure avant le commencement du protocole. Dans les deux groupes c'était la pression artérielle évaluée, FC dans 5ème et 6ème la minute de repos. La mesure du glicemia capillaire dans l'essai de groupe a été accomplie avant l'ingestion du sucrose et après le protocole d'Astrand. L'analyse statistique était être employé accompli l'essai *t*. d'étudiant que les résultats montrés signifie l'altitude statisticly de FC et de relation de PASin de repos à F.C et à PAS de la 5ème et 6ème minute de l'essai, mais il n'y avait pas altitude de moyens statisticaly de la GARNITURE du repos dans la relation de la 5ème et 6ème minute ni l'un ni l'autre du pré de glicemia et du protocole de poteau du groupe d'essai par rapport au groupe de commande.

Mots clés : Tension artérielle, fréquence de coeur, Glicemia capillaire.

EXTRACTO

Hoy en día las profesiones médicas que se preocupan a organizar tus evaluaciones y conductas en los protocolos, éstos se estudian, se validan y se ponen como consentimiento. Es como el de la gran importancia el estudio de esos protocolos y las alteraciones generaron en el individuo. Esta investigación tiene como el objetivo evalúa las alteraciones sistólicas (SAP) y diastólicas (DAP) de la presión arterial, la frecuencia de corazón (H.R) y Glicemia capilar en los individuos sometidos al protocolo de Astrand, una prueba de la evaluación cardiopulmonar que un submaximum de la carga se utilice. seleccionaron a 20 personas de los adultos, ambos sexos, sanos con poca o cualquier actividad física. Después explicaciones los individuos contestados al cuestionario de las actividades físicas habituales y de la PAR Q YOÚ, y de ellos firmaron el término del consentimiento. Pronto después de que fueran separada en dos grupos. Un control del grupo con 10 individuos y un grupo prueban con 10, esa sucrosa injerida (50 ml de jugo anaranjado) una hora antes del principio del protocolo. En ambos grupos era la presión arterial evaluada, FC en el 5to y el 6to el minuto del resto. La medida del glicemia capilar en la prueba del grupo fue lograda antes de la ingestión de la sucrosa y después del protocolo de Astrand. El análisis estadístico era el ser utilizado logrado la prueba *t*. del estudiante que los resultados demostrados significan la elevación statisticly de FC y de la relación de PASin del resto a F.C y a PAS del 5to y 6to minuto de la prueba, pero no había elevación de los medios statisticly del COJÍN del resto en la relación del 5to y 6to minuto ni uno ni otro del pré del glicemia y del protocolo del poste del grupo de la prueba en lo referente al grupo de control.

Palabras claves: Presión arterial, frecuencia de corazón, Glicemia capilar.

RESUMO

Atualmente as profissões de saúde preocupam-se em organizar suas avaliações e condutas em protocolos, estes são estudados, validados e colocados como consenso. Assim é de grande importância o estudo desses protocolos e as alterações geradas no indivíduo. Esta pesquisa tem como objetivo avaliar alterações de Pressão Arterial Sistólica (PAS) e Diastólica (PAD), Freqüência Cardíaca (F.C) e Glicemia Capilar em indivíduos submetidos ao protocolo de Astrand, um teste de avaliação cardiorrespiratória no qual se utiliza uma carga submáxima. Foram selecionadas 20 pessoas adultas, ambos os sexos, saudáveis com pouca ou nenhuma atividade física. Após esclarecimentos os indivíduos responderam ao questionário de Atividades Físicas Habituais e o PAR Q YOU, e assinaram o Termo de Consentimento. Em seguida foram separados em dois grupos. Um grupo controle com 10 indivíduos e um grupo teste com 10, que ingeriram sacarose (50 ml de suco de laranja) uma hora antes da realização do protocolo. Em ambos os grupos avaliou-se PA e FC no repouso, 5º e 6º minuto. A medida da glicemia capilar no grupo teste foi realizada antes da ingestão da sacarose e após o protocolo de Astrand. Foi realizada análise estatística utilizando-se o Teste *t* de student. No resultado houve elevação estatisticamente signicativa da FC e PAS de repouso em relação a F.C e PAS do 5º e 6º minuto do teste, mas não houve elevação estatisticamente significava da PAD do repouso em relação 5º e 6º minuto nem da glicemia pré e pós protocolo do grupo teste em relação ao grupo controle.

Palavras-chave: Pressão Arterial, Freqüência Cardíaca, Glicemia Capilar.