113 - GLUCOSE LEVEL IN PRE AND POST-BODY WORKOUT EXERCISE IN SUBJECTS OF AGE THIRD

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INTRODUCTION

The third age is the age at which characterizes the progressive loss of social and family functions. In biomorph-functional field have physiological (certain disabilities, limited mobility among others). In the psychological field, we mainly anxiety and depression, as well as the isolation of some considerable changes to the decreased oxygen consumption, muscle strength, flexibility and balance. However, according to Shephard (2003), levels of loss of those functions can be delayed and or alleviated with regular physical exercise, though, the relevant literature, we can not find a consensus to determine which is the beginning this. However, for didactic purposes, we will adopt in this work as the minimum age criterion of 60 years, according to the status of the elderly.

Regarding the physiological changes can not but take into account that when these individuals reach the third age many begin to suffer some sort of disability as type of activity that can play, limited mobility, performing household tasks (Activities of Life daily, ADLs), climb stairs, rise up from a bed or chair alone. At the cellular level we can report a decrease in metabolic rate that can cause obesity, diabetes, aging (by excess free radicals in the cells) itself, decreased blood flow, decreased heart rate, arteriosclerosis, atherosclerosis, hypertension, osteoporosis and poor vision as an example (Shephard, 2003).

Regarding affective changes over time, older people now have a very lonely life and physical exercise in a group can act as a remedy for these, because they provide a greater social interaction. It improves self-esteem and these will also help improve their immune systems (Shephard, 2003).

According to him, regular exercise helps to improve the rehabilitation of chronic or slow them while you can, such as: stroke, peripheral vascular disease, hypertension, congestive heart failure, chronic obstructive pulmonary disease, osteoporosis, obesity, diabetes, and some types of cancer (colon, breast). For the author, the physiological functions are 20% higher in this group compared to the sedentary.

Frontera; Damson; Slovik (2001), tells us that strength training improves submaximal muscle performance (muscle strength) in older adults. Later, he tells us that in studies of older adults, lower limb in 1RM, there were considered gains in strength and an increase of 11% of the total area of the thigh, according to Computed Tomography and an increased amount of protein.

To Colberg (2003), the intensity of the individual series of weight lifting affects the release of hormones that elevate glucose. For the same, the intensity also exerts great influence on blood glucose levels by increasing it, as well as the time (as the relationship between insulin and the meal) and the duration thereof, may cause a delayed hyperglycemia.

Currently, a person to be considered diabetic, fasting glucose levels need to be above 125 mg / dL (American Diabetes Associations, 2006).

Martins (2000), states that diabetes is a metabolic syndrome that is characterized by an excess of glucose in the blood due to lack or ineffectiveness of insulin which is a hormone produced by the pancreas.

Goldberg; Elliot (2001), explains that the symptoms of diabetes are known as the three polis: polyphagia (eating), polydipsia (drinking) and polyuria (urinating). When glucose levels increase to over 180 mg / dl, excess sugar in the urine starts to be released, causing an increased need for disposal thereof requiring a greater amount of body water. The overproduction of urine causes dehydration and causes dizziness, excessive hunger and thirst (polydipsia and polyphagia).

According to Goldberg; Elliot (2001), the level of pre-exercise blood glucose (in our case the weight) is above 250 ml / dl, your practice should not be done because, probably, your muscles are in a high resistance to circulating glucose. On the other hand, if the level is less 100ml / dl, the circulating sugar failure may occur and thus increase the risk for the less severe hyperglycemia, which can progress to unconsciousness, as convulsions and brain damage.

To Frontera; Damson; Slovik (2001), says that a section after the physical training, there is an increase of 30 - 35% in the availability of glucose-stimulated insulin. This increase insulin sensitivity, due to increased uptake of glucose into muscle and an increase of GLUT4 (glucose transporter) skeletal muscle. As a consequence, there is an increase in glucose metabolism and a more effective replacement of muscle glycogen in skeletal muscle. The author also tells us about strategies to prevent hypoglycemia which are reducing the dose of insulin (DM - I), and carbohydrate ingestion before and after exercise (DM - I).

Garrett Jr; Kirkendall. (2003), tells us that regular aerobic exercises without weight loss, improve glucose tolerance, insulin stimulated the rate for glucose and that of GLUT4 in skeletal muscle in elderly subjects with impaired glucose tolerance. Also says that the union of these improvements with dietary changes are recommended as primary treatment for patients with Diabetes Mellitus. In a study conducted by the author with elderly individuals with high resistance to glucose, or not practicing physical exercises, it was proved that the group with high-carbohydrate diet and physical exercise practitioners demonstrated a significant increase in muscle glycogen concentration and the end of the training, its storage was considered saturated.

While in the MD - II patients are treated with diet do not need additional feedings before or after exercise Durantes. A third and final factor in also is said, when the author says that we need to watch for post-exercise hypoglycemia, exercise-induced hyperglycemia and exercise-induced ketosis.

Okuma (2002) reports that the benefits of physical activity for diabetes are: facilitation of glucose burning muscle, which improves the daily control of the same; increased action of drugs; reducing the amount of daily insulin; reduction of body weight; decreased resistance to insulin action in various tissues of the body; removal and increased glucose tolerance.

Martins (2000), speaks of certain benefits of exercise.

- Increase the uptake of blood glucose into the muscle.
- Increases the action of insulin and oral hypoglycemic agents.
- Collaborates in reducing cardiovascular risk factors.
- It helps in lowering cholesterol and triglycerides in the blood.
- Reduces bone loss (osteoporosis), acting as a mechanical factor in bone reconstruction.
- Improved sense of well-being, with themselves and others.
- Improvement of glucose tolerance as a result of increased insulin sensitivity.
- Reduction of body mass, especially if associated with diet.

To Shephard (2003), the cellular binding of insulin is increased by regular physical activity, while improving glucose

disposal in the active individual. The potential for storage of muscle glycogen is also enhanced by training, providing a carbohydrate reserves during periods when blood glucose may decrease. Over time, the training increases sensitivity to insulin and consequently the glucose, which is not impaired by a reduction of insulin.

To Goldberg; Elliot (2001), a set of factors such as aging, diet high in fat, obesity, family history, and aging itself are factors that increase the risk of diabetes. According to the author exercise increases, literally, the power of injected insulin because insulin is first absorbed better with practice exercises, according to the muscle acts like a vacuum, sucking the sugar molecules to use them as fuel even if there is little insulin around. She points out that people who exercise and insulin use, plan the schedules of exercise, duration of exercise, the intensity of the same and the amount of light meals to avoid a late hypoglycemia.

The regular practice of exercises can help in the treatment of type 1 diabetes ediminuir the chances of developing type 2 diabetes, leaving the body more sensitive to insulin action by enhancing the action of the same and limiting weight gain, according to which it would of one to two pounds a year after age 21.

GENERAL PURPOSE:

Analyze the influence of weight training exercises, in both pre and post-exercise blood glucose in older adults.

SPECIFIC OBJECTIVES:

- Demonstrate how exercise can act in the reduction in blood glucose levels in elderly individuals.
- Presenting as increased Glut-4 with exercise occurs.

METHODOLOGY:

This study of quantitative trait is characterized as a search

field descriptive, since according to Mattos et all (2004, p.15) "it describes the characteristics, properties, or relationships within the group or the reality in which the survey was conducted" (Fuller, 2004, p. 15).

The population of this research will consist of older bodybuilders to at least 6 months, 7 men and 4 women who agreed to participate voluntarily. Glicímetro, lancet, lancet, cotton alcohol for the local (finger) is disinfected and gloves: For data collection the following material resources will be used.

The blood glucose level will be checked before and after weight training exercises (pre and post-exercise), so you can evaluate their influence on the body of practitioners.

Second (Frontera; Danson; Slovik, 2001), peak glucose takes up to 5 minutes after the end of the year, a fact that will seek to follow in our study regarding the verification time. Criteria for a possible comparacional study, will the person on the first check, whether or not diabetic.

Inclusion criteria participate in the survey individuals who have blood glucose levels up to 250 ml / dl, fasting or not, the first check (pre-exercise), which have equal or greater age 60 years, body builders, and that wish to participate.

To the exclusion criteria have individuals who have higher levels of blood glucose 250ml / dl (Elliot, 2001), fasting or not, at the time of first blood check, individuals younger than 60 years and those who do not wish to participate.

The benefits derived from our research for these people to be that physical education professionals increase their knowledge on how blood glucose levels are changed with the practice of bodybuilding exercises, and so they can make better prescribing exercise to occur without the risk of having or exercise-induced hypoglycemia, hypoglycemia or late onset, thus providing a better quality of life for its customers.

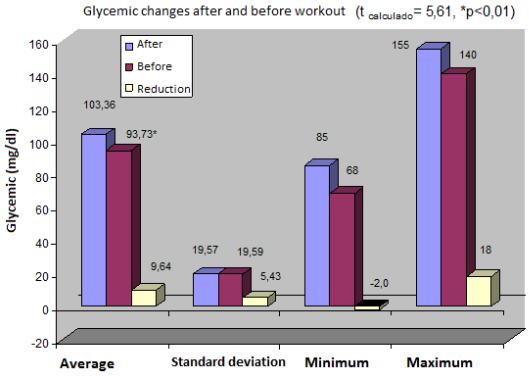
ETHICAL ASPECTS OF RESEARCH

Approved by the Board of Internal COÉTICA and Research UNIFOR Opinion N °. 468/2005.

RESULTS AND DISCUSSION:

The blood glucose level was observed before mean 103.36 mg / dl _ + 19.57 mg / dL, with the highest value of 155mg / dl and less than 85 mg / dl. A new blood sample was taken after the completion of training of those, the average values being found 93.73 mg / dl, + - 19.59 mg / dl, with the highest value of 140 mg / dl and the lowest 68 mg / dl, with a significance level of p <0.01. It is noteworthy that in our study we found that a single value had increased after the triune, since the reduction of the average values was 9,63mg / dl, + _ 5,43mg / dl, with a minimum of 2 mg + / dl and the lowest of - 18 mg / dl. The questioinário also consisted of a question about whether these individuals had ingested something two hours before practice bodybuilding, and the answers were as follows: Nothing = 4 people, 1 person = 1 banana, 2 banana with 1 cup soy milk = 1 person, 1 person = 1 melon juice, melon 1 = 1 person = 1 person lunch.

According to the data obtained, we can see that there was a fall in blood glucose levels of almost all participants, which was caused by the burning and consumption of glucose at the cellular level. One possible explanation for this drop in blood glucose levels ERICKSON second Dunstan et al, 2002, an improvement of glucose removal and metabolism that can take hours or days after a section of "acute" training. That's not right, if the improvement in insulin sensitivity after resistance training in clients with type-2 diabetes is suitable for accumulating effects of acute exercise or an individual workout specific adaptation. Dunstan et al, 2002, confirms when we speak that resistance train-ing is effective in improving glycemic control.



For the ACSM (2006), resistance exercise has similar effects in improving insulin sensitivity and glucose tolerance. He further reported that other benefits of resistance training include: increased bone mineral density, decrease insulin resistance, decrease abdominal fat, quede of fall hazards, normalization of blood pressure in patients (customers) hypertensives. He further reported that the beneficial effects suggested by physical exercise may be particularly subtle for maintenance and prevention of metabolic syndrome and diabetes-2, as well as the exercise has shown to be an important "draftsman" behavioral health, reducing the risk of many diseases , including diabetes.

Schneider (1994), in a study of elderly men and middle-aged, reported that insulin levels associated with age, may be partly responsible for physical activity in the third age. In their briefs, have been demonstrated that resistance training increased insulin action and lowered the plasma insulin levels in the elderly.

Dunstan (2002), said that insulin resistance after training may be mediated concomitant palaqueda rate of visceral fat and subcutaneous abdominal obesity or abdominal.No same study, he said that for every 1% decrease in the rate of glycosylated hemoglobin (HBAC), there is a decline of approximately 35% chance of risk of microvascular complications.

Mikines et al, 1988, tells us that prolonged moderate exercise increases the action of insulin in increasing glucose uptake in humans by decreasing the apparent KM traveled and increased VO2 max .. These effects were only observed 48 h after the last section drills, but no more in the last five days. Increased insulin action may be reported in the exercise-induced increase in the activation of glycogen synthase.

Schneider et al, 1984, said that a regular exercise program can produce a significant decrease in the levels of HBAC, in type-2 diabetic men, in most cases, and the cumulative effects of "transient" improvement in glucose tolerance that followed each individual during the year.

The position of the ACSM (2006) on PHYSICAL ACTIVITY AND DIABETES tells us that physical activity, including aerobic and resistance training are the major therapeutic modalities for type-2 diabetes. Favorable in glucose tolerance and insulin sensitivity changes deteriorate after 72h of the last section of exercise hence regular physical activities are imperative for sustaining the effect of glucose levels improve insulin action. People with type 2 diabetes should try to get to accumulate a minimum total of 1000 kcal / wk of physical activity. Individuals with type 2 diabetes usually have a low level of VO2 compared to non-diabetics. Resistance training has the potential for improved aforça muscle and aerobics, improve glucose tolerance and insulin sensitivity.

According to the Americam Diabetes Association (ADA, 2006) heavier exercise (hypertrophy) reduce the HgAc more than exercises that prioritize volume (r = -0.91, p = 0.002 vs r = -0.46, p = 0, 26) .Com over time, exite the trend of progressive decline in muscle mass called sarcopenia, decreased functional capacity, decreased metabolic rate, increased adiposity and insulin resistance.

Resistance training can have the greatest positive impact on each of them, improving sensitivity to insulin in much the same way that aerobic exercise. Because of the evidence of improved health benefits brought by resistance training in the last 10-15 years, the ACSM now recommends that resistance training be included in exercise programs to young people from the third bearing age with diabetes.

CONCLUSION

According to the data obtained in our study of blood glucose levels before and after exercise, we compare the effectiveness of the practice of bodybuilding exercises to improve blood glucose levels in elderly subjects, which necessitates the creation of yet more studies about the effectiveness "chronic" bodybuilding for these elderly individuals.

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GLUCOSE LEVEL IN PRE AND POST-BODY WORKOUT EXERCISE IN SUBJECTS OF AGE THIRD.

ABSTRACT

The present study aims to study how the regular practice of bodybuilding can help decrease blood glucose levels in elderly individuals. Participated in this study 7 men and 4 women voluntarily. Glucose levels were collected before and after a weight training section of each participant. The data of blood glucose were pretraining 103.36 mg / dl _ + 19.57 mg / dL, and posttraining were 93.73 mg / dl + - 19.59 mg / dl, with a mean reduction 9,63mg / dl + _ 5,43mg / dl. According to the data obtained we compare the efficacy of the practice of bodybuilding exercises to improve blood glucose levels in elderly subjects.

GLUCOSE NIVEAU EN PRE ET POST-CORPS EXERCISE D'ENTRAINEMENT SUR DES SUJETS D'AGE TROISIEME

RÉSUMÉ

La présente étude vise à étudier la façon dont la pratique régulière de la musculation peut aider à diminuer les niveaux de glucose dans le sang chez les personnes âgées. Participé à cette étude 7 hommes et 4 femmes volontairement. Les niveaux de glucose ont été prélevés avant et après une section de formation de poids de chaque participant. Les données de la glycémie ont été préformation 103,36 mg / dl _ + 19,57 mg / dL, et posttraining étaient 93,73 mg / dl + - 19,59 mg / dl, avec une moyenne réduction 9,63mg / dl + _ 5,43mg / dl. Selon les données obtenues, nous comparons l'efficacité de la pratique d'exercices de musculation pour améliorer les niveaux de glucose dans le sang chez les sujets âgés.

NIVEL DE GLUCOSA EN PRE Y POST-ENTRENAMIENTO CORPORAL EJERCICIO EN TEMAS DE TERCERA EDAD

RESUMEN

El presente estudio tiene como objetivo estudiar cómo la práctica regular de musculación puede ayudar a disminuir los niveles de glucosa en sangre en personas de edad avanzada. Participaron del estudio 7 hombres y 4 mujeres de manera voluntaria. Los niveles de glucosa se recogieron antes y después de una sección de entrenamiento de peso de cada participante. Los datos de glucosa en sangre fueron pre-entrenamiento 103,36 mg / dl _ + 19,57 mg / dl, y post entrenamiento fueron 93,73 mg / dl + - 19,59 mg / dl, con una media reducción 9,63mg / dl + _ 5,43mg / dl. De acuerdo con los datos obtenidos se compara la eficacia de la práctica de ejercicios de musculación para mejorar los niveles de glucosa en sangre en sujetos de edad avanzada.

NÍVEL DE GLICOSE NO PRÉ E PÓS-EXERCÍCIO DE MUSCULAÇÃO EM INDIVÍDUOS DA 3a IDADE

RESUMO

O presente estudo tem o propósito de estudar como a prática regular da musculação pode auxiliar a diminuição dos níveis de glicemia em indivíduos de terceira idade. Neste estudo participaram 7 homens e 4 mulheres de forma voluntária. Os níveis de glicose foram coletados antes e depois de uma seção de musculação de cada participante. Os dados obtidos da glicemia pré treino foram de 103,36 mg/dl,+_ 19,57 mg/dl, e no pós treino foram de 93,73 mg/dl, +- 19,59 mg/dl, tendo uma média de redução de 9,63mg/dl,+_ 5,43mg/dl. De acordo com os dados obtidos pudemos comparar a eficácia da prática dos exercícios de musculação para a melhoria dos níveis de glicemia em indivíduos idosos.