13 - RELATIONSHIP BETWEEN CHRONIC NON-COMMUNICABLE AND PHYSICAL ACTIVITY IN INDIVIDUALS OF SENESCENT MIDDLE AGED AND ELDERLY

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INTRODUCTION

The changes in the age structure of the population, due to the increase in life expectancy and declining fertility systematically altered substantially the number of people exposed to different diseases(SABRY, SAMPAIO, 2007).

There was an increase in studies of groups exposed to chronic degenerative diseases and / or chronic non-communicable diseases (NCDs), determining the growth of demand for prevention services and treatment, especially in this growing population are the elderly, not leaving aside the special attention to groups and children as is being done (SABRY, SAMPAIO, 2007). To achieve the aims of this study emphasized four major NCDs. The main level of incidence in the population and the same senescent, they are: diabetes, hypertension, obesity and heart disease. Hypertension or high blood pressure is a disease that attacks the blood vessels, heart, brain, eyes and can cause paralysis of the kidneys, occurs when the measured pressure often remains above 140 over 90 mmHg. Diabetes is a set of changes with different pathophysiological mechanisms, whose common denominator is the hyperglycemia associated with reduced action of the hormone insulin, which plays important role in the metabolic imbalance that characterizes this disease. Hypertensive heart disease is progressive hypertrophy of the left ventricular myocardium as a result of hypertension, a disease characterized by chronic and sustained increase in blood pressure. While obesity is characterized by excessive accumulation of body fat in the individual. The body mass index (BMI) is a form commonly used to observe changes in body mass in old age, Matsudo (2002) points out its important relation to the diseases associated with aging (VAISBERG; MELO 2010).

According to many gerontologists (specialists in aging), a key ingredient for a healthy aging is regular physical activity. In all age groups, older people are the most benefit from physical activity. The risk of developing certain diseases and health problems common in old age (eg, cardiovascular disease, cancer, hypertension, depression, diabetes) decreases with regular physical activity (NIEMAN, 1999; AMARAL et al., 2007). It is estimated that in Brazil, 56% of women and 37% of men do not practice any physical activity (HOOD, 1990). The practice of regular exercise and moderate intensity is recommended by several medical and scientific societies and international Brazilian (NÓBREGA et al., 1999), to promote the physical well-being, social and emotional as well as prevent and control various diseases (GRAVES, FRANKLIN, 2001).

According to the report on the World Health Organization (WHO) in 2002, the main risk factors for these health hazards are: NCD, high cholesterol, alcohol and tobacco, uncontrolled social stress and physical inactivity

The study results obtained from the comparison of what has been published about the types of physical activity and those related to benefits for individuals of middle age and old senescent. Among the various types of physical activities, physical exercise is the one that best fits the various age groups and which brings more physiological benefits. Within physical exercise, the data have pointed to resistance training as the best method of physical training for senescent population, the efficacy and safety (WINETT; CARPINELLI, 2001).

METHODOLOGY

The methodology used was a systematic review, held in electronic databases (Medline / PubMed, Lilacs, Science Direct, Biodelta, Saudetotal, GEASE) in national journals indexed or not indexed by search by specific authors and contact with researchers, books of the State University of Pará. Some important authors in the area were cited as Bruce Craig, Deborah Malta, Jose Maria Santarém, Maria Fiatarone, Paulo Gentil, Sandra Matsudo, Victor Matsudo, and others. The search for articles was conducted from Keyword: aging, quality of life, physical activity and DCNT. The research was based on articles published from 1969 to 2011. With inclusion criteria: subjects of middle age, elderly, both sexes, being article on DCNT and / or resistance training, physical activity for seniors.

RESULTS AND DISCUSSION

The types of physical activity most commonly practiced in society are the aerobic and anaerobic exercises. Aerobic exercise is continuous and prolonged, performed with very fast movements do (walking, cycling, swimming…). These exercises are characterized by having a longer duration and low intensity, can be manipulated to characterize the activity as mild, moderate or exhaustive (SANTARÉM, 2010c).

The anaerobic exercise of speed can not be smooth, because the demand overload to the body will always be considerable activity being classified as moderate or exhaustive. However, slow aerobic exercise can range from mild to very extensive in the latter case to the imposing burdens smaller body than continuous aerobic exercise (SANTARÉM, 2011).

Increased of muscle strength and joint mobility, achieved through the practice of resistance training, may be decisive for the preservation and functional rehabilitation of joints with chronic inflammatory or degenerative processes. The same factors are critical to prevent falls in situations of imbalance in the body.

Maintaining or increasing muscle mass during aging also has important metabolic effects such as activation of the basal metabolism and increased tissue glucose sensor, with important contributions to the control of body fat and for the prophylaxis or treatment of diabetes mellitus (GRAVES; FRANKLIN, 2001).Traversing so many benefits that treat or minimize the DCNT.

There was the strength and flexibility as the most important qualities of fitness for the functional independence to perform the most common tasks in the daily lives of people and the manual labor in general (GRAVES; FRANKLIN, 2001;

GURALNIK et al, 1995; GRAVES; POLLOCK; CARROL, 1994). Sitting and standing, climbing stairs, carrying objects, use tools and appliances are examples of activities that the strength and joint mobility are important. The activities like to wear clothes and take care of personal hygiene tasks are damaged by the lack of mobility in the various joints.

Because of its effectiveness in improving the strength and joint mobility, resistance training has been well studied, and is today considered the most appropriate intervention for the weak and elderly (SANTARÉM, 2010a, 2010c). Fiatarone et al. (1990) analyzing the strength and muscle cross-sectional area of the lower limbs of elderly nonagenarians observed gain 174% ± 31% increase in muscle strength and increased 9.0% ± 4.5% of the cross section area. Results similar of strength gains are described in the study of Trancoso and Farinatti (2002) who studied women from 60 years and obtained 58% gain for lower limbs and 61% for upper limbs.

The prescription of exercise for all age groups, including older people, based on the intensity, duration, frequency and progression as well as the modality chosen to be defined in order to: improve the quality of life, bio-physiological changes positive, improve motor skills and benefit shareholders, psychological and physical (CAMPOS et al., 2010; FIATARONE, 1996).

Among the various criteria for selection of exercises, which constitute an exercise program with weights for older people, is the selection of muscle groups involved in activities of daily living that occur in addition to exercise uni-and multi-joint (NÓBREGA et al, 1999). Exercises for large group of muscle, multi-joint and greater intensity should be the main parameters to determine execution order of the exercises in a training program. Although one can not ignore other ways of mounting the program, such as by joint (agonist-antagonist), alternating muscle and mixed by segment (GENTIL, 2010a; SANTAREM, 2010c).

The maintenance of force in all periods of life, and especially in the elderly who have a considerable drop after 60 years of age, is essential for the maintenance of functional capacity. It is important to remember that muscle strength gains occur in the absence of muscle hypertrophy, and its main cause neural adaptations caused by training (MOREIRA, 2001). This is important because the elderly have a different capacity for muscle hypertrophy. This difference, when compared to young people, may be due to decrease in the levels of the male hormone testosterone in relation to age. Thus, as the increase in muscle strength is much more influenced by changes in nerve, increase in strength after isometric and isokinetic strength training have been well documented in previously sedentary elderly (FLECK; KRAEMER, 1999)

The current recommendation for the ACSM suggests resistance training in older adults 1 to 3 sets per exercise, 8 to 12 repetitions, 1-3 minute break between sets, often 2 to 3 times per week (ACSM, 2009).

CONCLUSION

In view of the changing age structure of population, health care, which was aimed at children and other special groups, currently, need to be aimed at improving the quality of life of seniors as it is the fastest growing population and more sick. Knowing that the lifestyle is a variable that influences the incidence of NCDs in this context physical activity has been used both in prevention and treatment and also in the modification of sedentary lifestyle to a healthy life extension.

Among the various types of physical activities, physical exercise is the one that best fits the various age groups and which brings more physiological benefits. Within the exercise, the data have pointed to resistance training as the best method of physical training for senescent population, the efficacy and safety.

It is clear that attention must be given when associated with NCD and old senescent individuals. The regular practice of physical activity and exercise are of great importance not only in prevention, but also in the treatment and reduction of symptoms, resulting in a better quality of life, contributing in the process of aging. Therefore, the adoption of an active lifestyle can prevent, delay or prevent the onset of these and other diseases due to age.

We suggest that further work be carried out on the same line of research, practical lead to compare the effectiveness of different types of physical activities and relate to the prevention and treatment of NCDs and thus enrich the arsenal increasingly bibliographic thus contributing not only to academic community, but for society in general.

REFERENCES

ACSM. **Modelo de progressão no treinamento de resistência**. Disponível em: < http://www.cdof.com.br/acsm5.htm>. Acesso em: 23 fev 2011.

ALLSEN, P. E; HARRISON, J. M.; VANCE, B. **Exercício e qualidade de vida: Uma abordagem personalizada**. 6º edição. São Paulo: Manole, 2001.

AMARAL P. N; POMATTI D.M; FORTES V. L. F. Atividades Físicas no Envelhecimento Humano: Uma Leitura Sensível Criativa. Rio Grande do Sul, 2007. **Revista Brasileira Ciência Envelhecimento Humana**, Passo Fundo, v. 4, n. 1, p. 18-27, jan./jun. 2007.

CRAIG, B. **The importance of strength training for seniors.** Disponível em: <www.nsca-lift.org>. Parte do NSCA Hot Topic Series. Acesso em: 20 set 2011.

CAMPOS, I. S. L. Exercício Físico em Terra e Água: Uma proposta de prevenção e reabilitação. Belém: Supercores, 1998.

CAMPOS, M. A.; CORAUCCI NETO, B.; BERTANI, R. F. M**usculação: A Revolução Antienvelhecimento.** Nacional: SPRINT, 2010.

DWYER, B. G., DAVIS, S.E. **Manual do ACSM para avaliação da aptidão física relacionada à saúde.** Rio de Janeiro: Guanabara Koogan, 2006.

FIATARONE, M.A., MARKS, E.C., RYAN N.D., MEREDITH, C.N., LIPSITZ, L.A., EVANS, W.J. High intensity strength training in nonagenarians: effects on skeletal muscle. **Journal of the American Medical Association,** n.263, p.3029-3034, 1990.

FIATARONE, M **Physical activity and functional independence in aging. In: Research Quarlerly for Exercise and Sport**, v. 67, n.3 p. S70, 1996.

FLECK, S. J.; KRAEMER W. J. **Fundamentos do Treinamento de Força Muscular**. Porto Alegre: Artmed,1999.

GENTIL, P. **Bases Científicas do Treinamento de Hipertrofia.** 4ª edição. Rio de Janeiro: Sprint, 2010a.

GENTIL, P. **Emagrecimento: Quebrando Mitos e Mudando Paradigmas.** Rio de Janeiro: Sprint, 2010b.

GRAVES, J.E. FLANKLIN, B.A. A resistance training for health and rehabilitation. **Champaign Human Kinetics,** 2001.

GRAVES, J.E. POLLOCK, M.L. CARROL, J.F. Exercise, age and skeletal muscle function. **South Medical Journal**, 1994.

GURALNIK, J.M. FERRUCI, L. SIMONSICK, E.M. et al. **Lower-extremity function in persons over the age of 70 years as a predictor of subsequent disability.** New England Journal Medicine, 1995.

HOOD, D.; TERJUNG, R. Amino acid metabolism during exercise and following endurance training. **Sports**

Medicine. n.9, p.23-25, 1990.

IBGE. **Perfil dos Idosos Responsáveis pelos Domicílios**. Disponível em: http://www.ibge.gov.br/home/presidencia/noticias/25072002pidoso.shtm. Acesso em: 13 out 2010.

MATSUDO, S. M. M. Envelhecimento, atividade física e saúde. **Revista Mineira de Educação Física**. v.10, n.1, p. 193-207, 2002.

MOREIRA, C. A. **Atividade física na maturidade.** Rio de Janeiro: Shape, 2001.

NIEMAN. D. C. **Exercício e Saúde**. São Paulo: Ed. Manole, 1999.

NÓBREGA, A. C. L. et al. Posicionamento Oficial da Sociedade Brasileira de Medicina do Esporte e da Sociedade Brasileira de Geriatria e Gerontologia: atividade física e saúde no idoso. **Revista Brasileira de Medicina do Esporte.** v. 5, n. 6, nov/dez, 1999.

OLIVEIRA, R.J. **Saúde e Atividade Física: Algumas abordagens sobre atividade física relacionada à saúde.** Rio de Janeiro: Shape, 2005.

OMS. **Cuidados inovadores para condições crônicas: componentes estruturais de ação: relatório mundial/Organização Mundial da Saúde.** Brasília: OMS, p.5-31, 2003.

ROGATTO, G. P. GOBBI, S. Efeitos da atividade física regular sobre parâmetros antropométricos e funcionais de mulheres jovens e idosas. **Revista Brasileira de Cineantropometria & Desempenho Humano**. v. 3, n. 1, p. 63-69, 2001.

SABRY, M. O.D. SAMPAIO, H. A. C. **Nutrição em Doenças Crônicas: Prevenção e controle.** São Paulo: Atheneu, 2007.

SANTAREM, J. M. **Atualização em Exercícios Resistidos: exercícios com pesos e qualidade de vida.** Disponível em: < http://www.saudetotal.com.br/artigos/atividadefisica/pesos.asp> Acesso em: 15 de out 2010a.

SANTAREM, J. M. **Promoção da Saúde do Idoso.** Disponível em: <http://www.saudetotal.com.br/artigos/atividadefisica/idoso.asp.> Acesso em 15 out 2010b.

SANTAREM, J. M. **Exercícios Resistidos.** Disponível em: <http://www.biodelta.com.br/textos.asp> Acesso em: 15 Out 2010c.

SANTAREM, J. M. **Exercício aeróbio e anaeróbio**. Disponível em:< http://www.saudetotal.com.br/artigos/atividadefisica/exaerobio.asp> Acesso em: 30 mar 2011

SHARKEY, B. J. **Condicionamento Físico e Saúde.** 5ª edição Porto Alegre: Artmed, 2006.

TRANCOSO, E. S. A. F., FARINATTI, P. T. V. Efeitos de 12 semanas de treinamento com pesos sobre a força muscular de mulheres com mais de 60 anos de idade. **Revista paulita Educacão Física,** São Paulo, v. 2, n. 16, p. 220-29, jul./dez, 2002

VAISBERG, M.; MELLO, M. T. **Exercícios na saúde e na doença.** Barueri, SP: Manole, 2010.

WEINECK, J. **Atividade física e esporte: para quê? –** Barueri, SP: Manole, 2003.

WINETT, R. A.; CARPINELLI, R. A. Potential Health-Related Benefits of Resistance Training. **Preventive Medicine.** v. 33, p.503–513, 2001.

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RELATIONSHIP BETWEEN CHRONIC NON-COMMUNICABLE AND PHYSICAL ACTIVITY IN INDIVIDUALS OF SENESCENT MIDDLE AGED AND ELDERLY

ABSTRACT

For a long time the population of Brazil was characterized as rural, with a low number of inhabitants and these were young and active. This scenario has changed, the result of social, economic and cultural affecting the structure and distribution of the population. Much of the population no longer young and rural assets, and became the urban elderly and sedentary, increasing the risk factor for chronic non-communicable diseases (NCDs). The paper presents the objective, relate and analyze the characteristics of physical activities, from the standpoint of the basic principles of physical training and its relationship to NCD prevention and treatment. The methodology used by the research was a systematic review of the literature was carried out in electronic databases (Medline / PubMed, Lilacs, Scielo, Science Direct, Biodelta, GEASE) based on articles published from 1969 to 2011. It is one of the main guidelines in the scientific literature describing the regular physical activity as a potent action for the prevention and treatment of NCDs. Mainly resistance training, presenting much discussed circumstances that point to an improvement in the independence of the elderly population and a decrease of symptoms; this population. The regular practice of physical activity and exercise are important not only in the prevention and treatment of these diseases, but also in a significant improvement in symptoms and therefore the quality of life of these individuals as well as the aging process itself.

KEY WORDS: Elderly, NCD, physical activity

RELATION ENTRE DES MALADIES CHRONIQUES NON TRANSMISSIBLES ET ACTIVITÉ PHYSIQUE DANS DES PERSONNES SENESCENTES DE DEMI ÂGE ET PERSONNES ÂGÉES

RÉSUMÉ

Pendant beaucoup de temps la population du territoire brésilien était caractérisée comme agricole, avec un nombre bas d'habitants et de ils ceux-ci étaient jeunes et actifs. Ce scénario a changé, en résultant de transformations sociales, économiques et culturelles en touchant la structure et la distribution de la population. Grande partie de la population a cessé d'être jeune et agricole, active, et ont passé à être âgés du moyen urbain et sédentaires, en augmentant le facteur de risque pour maladies chroniques não-transmissíveis (MCNT). Le travail présente comme objectif, rapporter et analyser les caractéristiques des activités physiques, du point de vue des principes basiques de la formation physique et leurs relations avec prévention et traitement de MCNT. La méthodologie utilisée par la recherche a été de révision systématique de la littérature, réalisée dans des bases de données électroniques (Medline/PubMed, Lilacs, Scielo, Science Direct, Biodelta, GEASE) sur base des articles publiés entre 1969 jusqu'à 2011. S'est vérifiée comme une des principales orientations dans la littérature scientifique la description de l'activité physique régulière comme une puissante action pour la prévention et le traitement de MCNT. Principalement la formation résistée, beaucoup discuté en présentant des circonstances qui indiquent pour une amélioration dans l'indépendance de la population âgée et de la diminution de symptômes ; dans cette population. La pratique régulière

d'activités physiques et l'exercice physique sont de grande importance non seulement dans la prévention et dans le traitement de ces maladies, mais aussi dans une significative amélioration dans les symptômes et conséquentement en la capacité de vie de ces personnes ainsi qu'au processus lui-même de vieillissement.

MOTS CLÉ: Personnes âgées, MCNT, Activité physique.

RELACIÓN ENTRE LAS ENFERMEDADES CRÓNICAS NO TRANSMISIBLES Y LA ACTIVIDAD FÍSICA EN LAS PERSONAS DE MEDIANA EDAD Y ANCIANOS SENILES

RESUMEN

Durante mucho tiempo la población de Brasil se caracterizó por ser rurales, con un bajo número de habitantes y se trataba de personas jóvenes y activas. Este escenario ha cambiado, el resultado de factores sociales, económicos y culturalesque afectan a la estructura y la distribución de la población. Gran parte de la población ya no son jóvenes y activos rurales, y se convirtió en ancianos urbano y sedentario, lo que aumenta el factor de riesgo para enfermedades crónicas no transmisibles (ECNT). El documento presenta los objetivos, relacionar y analizar las características de las actividades físicas, desde el punto de vista de los principios básicos del entrenamiento físico y su relación con la prevención y el tratamiento de las ECNT. La metodología utilizada por la investigación fue una revisión sistemática de la literaturase llevó a cabo en bases de datos electrónicas (Medline/PubMed, Lilacs, Scielo, Science Direct, Biodelta, GEASE) con base en los artículos publicados desde 1969 hasta 2011. Es una de las principales directrices en la literatura científica que describe la actividad física regular como una potente acción para la prevención y el tratamiento de las enfermedades crónicas no transmisibles. Principalmente de entrenamiento de resistencia, y presenta gran circunstancias comentadas, que apuntan a una mejora en la independencia de la población de edad avanzada y una disminución de los síntomas; esta población. La práctica regular de actividad física y el ejercicio físico son importantes no sólo en la prevención y el tratamiento de estas enfermedades, sino también en una mejorasignificativa en los síntomas y por lo tanto la calidad de vida de estas personas, así comoel proceso de envejecimiento en sí mismo.

PALABRAS CLAVE: Ancianos, ECNT, actividad física.

RELAÇÃO ENTRE DOENÇAS CRÔNICAS NÃO TRANSMISSÍVEIS E ATIVIDADE FÍSICA EM INDIVÍDUOS SENESCENTES DE MEIA IDADE E IDOSOS

RESUMO

Durante muito tempo a população do território brasileiro era caracterizada como rural, com um número baixo de habitantes e estes eram jovens e ativos. Este cenário mudou, resultado de transformações sociais, econômicas e culturais afetando a estrutura e a distribuição da população. Grande parte da população deixou de ser jovem e rural, ativos, e passaram a ser idosos do meio urbano e sedentários, aumentando o fator de risco para doenças crônicas não-transmissíveis (DCNT). O trabalho apresenta como objetivo, relacionar e analisar as características das atividades físicas, do ponto de vista dos princípios básicos do treinamento físico e suas relações com prevenção e tratamento das DCNT. A metodologia utilizada pela pesquisa foi de revisão sistemática da literatura, realizada em bases de dados eletrônicas (Medline/PubMed, Lilacs, Scielo, Science Direct, Biodelta, GEASE) com base nos artigos publicados entre 1969 até 2011. Verificou-se como uma das principais orientações na literatura científica a descrição da atividade física regular como uma potente ação para a prevenção e tratamento das DCNT. Principalmente o treinamento resistido, muito discutido apresentando circunstâncias que apontam para uma melhora na independência da população idosa e diminuição de sintomas; nesta população. A prática regular de atividades físicas e o exercício físico são de grande importância não só na prevenção e no tratamento dessas doenças, mas também em uma significativa melhora nos sintomas e conseqüentemente na qualidade de vida desses indivíduos bem como ao próprio processo de envelhecimento.

PALAVRAS CHAVE: Idosos, DCNT, Atividade física.