ARTIGO ORIGINAL/ ORIGINAL ARTICLE

ATIVIDADE FÍSICA EM IDOSOS COMO COMPORTAMENTO SAUDÁVEL. AS BATERIAS DE TESTES NO EXERCÍCIO

PHYSICAL ACTIVITY IN ELDERLY AS A HEALTH BEHAVIOR: BATTERIES TESTS FOR EXERCISE

ACTIVIDAD FÍSICA EN ANCIANOS COMO COMPORTAMIENTO SALUDABLE. BATERIAS DE PRUEBAS PARA EJERCICIO

Autores
Samuel Honório¹, Marco Batista², Júlio Martins³, João Moreira de Brito⁴, Maria Goreti Honório⁵

¹ Sciences School of Rio Maior, Polytechnic Institute of Santarém ; ² School of Higher Education of Torres Novas, ³ Sports Science Department - Human and Social Sciences Faculty - University of Covilhã, ⁴ Hospital of Caldas da Rainha, Radiology Department

Corresponding Author: samuelhonorio@hotmail.com

ABSTRACT

Objective: To analyze and compare the level of functional fitness in sedentary elderly and physically active as a health behavior. Methods: The sample consists of 62 seniors, 42 female and 20 male genders. Data collection was conducted through a questionnaire about the level of physical activity and was applied the battery AAHPERD tests. Results: In the coordination test, the sedentary and physically active had an M = 85, in the Test Force upper limb an M = 24, in Agility Test and balance an M = 89, in Test Flexibility an M = 89, and finally the Test General Aerobic Resistance had an M = 23. Conclusions: As it was found that physically active elderly had favorable motor tasks once compared with sedentary on tests of coordination and Agility / Balance and lower values in the tests was more demanding physical test of upper limb strength, and aerobic endurance overall.

Keywords: Active Aging, Physical Exercise, Battery Testing, Health Behavior

RESUMO

Objetivo: Analisar e comparar o nível de aptidão funcional em idosos sedentários e fisicamente ativos como um comportamento de saúde. Metodologia: A amostra é constituída por 62 idosos, 42 do sexo feminino e 20 do sexo masculino. A colheita de dados foi realizada através de um questionário sobre o nível de atividade física e foi aplicada a bateria de testes AAHPERD. Resultados: No teste de coordenação, os sedentários e fisicamente ativos tiveram um M = 85, no Teste de Força do membro superior um M = 24, no teste de agilidade e equilíbrio um M = 89, no Teste de Flexibilidade um M = 89, e finalmente no teste de resistência aeróbia geral um M = 23 Conclusões: Tendo-se verificado que idosos fisicamente ativos tiveram tarefas motoras favoráveis, quando comparados comparados com os sedentários em testes de coordenação e agilidade / equilíbrio e valores mais baixos nos testes físicos mais exigentes, de força do membro superior e aeróbico resistência no geral.

Palavras-chave: envelhecimento activo, exercício físico, bateria de testes, Comportamento de Saúde
Introduction

To maintain everyday activities, it is important for the elderly to stay with the best fitness (Physical Activity) possible. The reduction of the PA and functional is related to aging per se, but primarily with inactivity characteristic of this age group older. For the elderly population, maintaining an active physical activity enough to tackle everyday tasks without fatigue seems to play a decisive role in the perception of a good Quality Of Life (Spirduso et al., 2005). Such PA seems to be considered as a way to enhance the QOL of the elderly, since their level of functional independence and QOL is dependent on its ability to remain autonomous in different activities of daily living (DLA).

Shephard (2002) states the definition is controversial que aging and elderly, gerontologists recognize 3 categories of elderly: new, old and very average. The new are between 65 and 75 years, average between 75 and 85 and older above 85, being more dependent and presenting more physical disabilities.

The aging process seems to affect multiple organs with different intensities. On the other hand, the aging of an organ or system may negatively influence the function of another organ, accelerating its degeneration and consequently the biomechanical effect disuse or negative. Spirduso et al (2005) argue que it is difficult to distinguish que whether it is the effects of aging on the physiological function as a result of lack of physical condition or disease.

Regular physical activity contributes to an improved emotional state, self-concept, self-esteem, to a decrease in stress levels of anxiety and depression and provides the experience of pleasurable moments. Exercise when adapted to the needs and possibilities of each individual, is crucial in the prevention of cardiovascular disease, addiction and loneliness of the elderly. The practice of physical exercise, and avoiding idleness, contributes significantly to the maintenance of physical fitness in the elderly, it can start to perform activities que no longer Performed, and may even become an independent person.

Literature

It is believed that physical activity programs for this age group are essential for presenting a set of benefits at physiological, social and psychological, to improve the wellbeing and quality of life of the subject. Increasingly these programs are an option right, and therefore, with more fans (Cardoso, 2002). According to Carvalho (2003), it is important to note that physical activity in relation to body composition is an important factor in weight control, as it increases caloric expenditure and helps maintain or increase lean body mass. Some studies have reported on the one hand, and decreases fat mass, on the other, increasing muscle mass, by regular physical activity in elderly people, regardless of gender. However, it should be noted que physical activity does not act individually, and there is a need to control food, especially for the age group we studied since the basal metabolism decreases with age (Spirduso, 1995).

Spirduso et al (2005) argue que it is difficult to distinguish que whether it is the effects of aging on the physiological function as a result of the absence of disease or physical condition. Given these definitions of aging, it is concluded que aged, is one that is 60 years or more, having passed through the physiological process of growth and development, the target of
biological changes, psychological and social changes resulting from genetic factors, lifestyle, chronic imbalances and gradual. Despite the conceptual view is not completely understood, at all settings of aging is present the concept of functional changes associated with the lifetime and disuse. Thus, all suggest the last aspect (disused) plays a decisive role in the aging process.

In the same way que different definitions of aging arise also there are several theories about the aging process. The theories of aging can be divided into two main groups: the genetic theories (considering que genes in the aging process), and the stochastic theory (which in the loss of functionality que accompanies the aging phenomenon is caused by random accumulation injuries associated with the environmental action in vital molecules, causing a progressive physiological decline). Neither group of theories fully explain the aging process, however, any theory may be discarded. These biological theories of aging have those aspects in common: progressive loss of functionality with the consequent increase in susceptibility and disease incidence, and the increased likelihood of death. Thus, it passe important to understand the main effects of aging on various components of fitness, anthropometric level, sensory organs (skin, eyes and ears) in endocrine, renal-urinary system and respiratory system in the gastrointestinal tract, the musculoskeletal system, the cardiovascular system, the immune system and the central nervous system Baths and Matsudo (1997), Spirduso (2005). According to Balcony and Freitas (1998), the process of aging and the prevalence of chronic diseases lead to physical weakness of the elderly causing him pain and functional disability, on the other

hand Sardinha (1999) tells us que this degenerative process of aging can be mitigated through physical activity. Indeed many authors assert the existence of a connection between physical exercise and the benefits to health and well - being of the elderly. The literature supports the idea que physical activity can improve mental functions, social and physical in old age. For this purpose is fully achieved, the exercise programs should be directed to improving the physical capacity of the individual, seeking to maximize the social contact of the subjects and reduce the psychological problems of this population group, such as anxiety and depression. Several authors reinforce this idea by stating que regular physical activity can attenuate the process of progressive loss of physical abilities of the elderly, helping you to maintain your daily activities independently to the possible.

Regular physical activity contributes to an improved emotional state, self-concept, self-esteem, to a decrease in stress levels of anxiety and depression and provides the experience of pleasurable moments. Exercise when adapted to the needs and possibilities of each individual, is crucial in the prevention of cardiovascular disease, addiction and loneliness of the elderly. The practice of physical exercise, and avoiding idleness, contributes significantly to the maintenance of physical fitness in the elderly, it can start to perform activities that no longer performed, and may even become an independent person. Several studies report that programs of physical activity increase the duration of life, it is believed that these improvements may result on physical capacity and quality of life for seniors are eligible for a better use of his days, after withdrawal of the
occupation. The author points to principles and recommendations of the programs will be performing moderate activities, unlike the intense activities systematically during short team. The physical activity programs very hard and undiversified, are not recommended because they can generate the monotony and lead to the abandonment of programs. From what has been explained above we can conclude that physical activity does not prevent the individual acts, but makes for an independent and healthy lifestyle, improving functional capacity and quality of life of the individual.

The concept of active aging, created by the World Health Organization (WHO) in 1997 is based on the principle of allowing the elderly to remain integrated and motivated in working and social life (WHO, 2002). At the World Conference on Ageing (WHO, 2002) for the first decade of this century, defines active aging as a process of optimizing opportunities for health, participation and security in order to increase the QOL (Quality Of Life) during aging. The word "active" refers to continuing participation in social, economic, cultural, spiritual and civil, and not just the ability to be physically active or to be part of the workforce (WHO, 2002). The scope of the definition of active aging, above, by WHO, the virtuality has multiple aspects and determinants considered. However, such coverage may be lost in the more usual appropriations of the term, that the issues circumscribe the exercise or prolongation of productive activities and does not take into account other social dynamics. Active aging applies to both individuals and population groups and allows people to realize potential to achieve their wellbeing, social and mental health throughout the life course. Which will require people to participate in the company's shares that is integrated, so that it meets their needs, desires and triggers when needed protection, security and care (WHO, 2002).

Since one of the objectives of this study is to evaluate the functional capacity, Could not fail to highlight the role and function of the PA and its relevance to the QOL of the elderly. Barbanti (1990) presents several definitions of PA mentioned by several authors:
- The ability to perform daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy the occupations of leisure time and to meet unforeseen emergencies (President's Council for Physical Fitness and Sports in the United States, 1971);
- It is the ability to endure, to keep, to withstand stress, to persist in difficult circumstances where a person untrained give up.
- It is a dynamic state of energy and vitality que allows each to not only perform everyday tasks, occupations of active leisure time and meet unforeseen emergencies without excessive fatigue, but also helps prevent hypokinetic diseases, they run at the peak intellectual ability and feeling the joy of living.
- Ability to perform daily activities with vigor and demonstration of traits and capacities associated with low risk of premature development of hypokinetic diseases Patel (1988); Mazo (2008) states that PA is a set of characteristics possessed or acquired by the individual related to the ability to perform physical activities. Riki and Jones (1999) to conceptualize the PA physiological capacity and / or physical ability to perform activities of daily living safely and independently, without revealing fatigue. The PA is the opposite of being fatigued with ordinary
effort, lack of energy to carry out life’s activities with enthusiasm. On the other hand, states que it is not as easy to measure readiness, vigor, fatigue, joy, appreciation, it is necessary to identify components that can be measured and developed separately from each other. Thus, according to the author, there are more components of the PA associated health (cardiorespiratory endurance, body composition, flexibility, muscular strength and endurance) and others more associated with sports skills (agility, balance, speed, power, coordination and reaction team).

The aging process is associated with the development of various diseases, which can be ameliorated by physical activity. However, when this activity is performed improperly, exceeding the capacity of the practitioner can bring risks. This inadequacy is mainly observed when the practice is done without guidance. The protocols of physical condition were developed and validated for young, so in certain terms is inadequacy when one wants to study the physical condition of the elderly. Any exercise program for seniors should be preceded by the evaluation of the physical condition of the elderly. Any exercise program for seniors should be preceded by the evaluation of the physical condition of the elderly is intended whom it is, and should have the primary objectives to improve the physical capacity of individuals as well as enhancing their social contact. The exercise program for seniors must have medical supervision in order to be built appropriately to individuals and which is intended to fulfill two main objectives: to improve the quality of life and promote health in the elderly. Also it will be important to note the existence of several studies que warn of a significant difference in fitness among elderly males and females. This difference in physical fitness has been explained in various ways.

Some authors argue que it is predominantly nutritional reasons that determine the more pronounced loss of fitness in women, others argue que it is the highest average life expectancy and greater predisposition to chronic disease causes que older women exhibit worse performance in terms of physical fitness. The physical assessment of the elderly should have the following components: cardiorespiratory fitness, agility / dynamic balance, flexibility and muscle strength (American Alliance for Health, Physical Education, Recreation and Dance, 1980), and can be evaluated according to the test battery developed in 2001 by Rikli and Jones, and titled "Functional Fitness Test". Components of Physical Fitness are: Morphological, Cardio-respiratory, muscular and articulate the. In order to improve the physical fitness morphological work is needed on the physical qualities fat percentage and body fat distribution. To improve the Physical Fitness Cardiorespiratory must focus on Quality Physical named Aerobic Power. Already improvement of Physical Fitness Muscle involves work on the Physical Qualities called Muscular Strength and Endurance. The Physical Fitness Articulate needs work on the Physical Quality called Flexibility to be improved. Furthermore, the fitness program is also necessary to add other exercises to develop physical skills such as balance, coordination, agility, speed, and power and reaction team.

Mazo (2008) states the concept of PA is often confused with the FPA and exercise. However, according to the same author, the PA is the understood any voluntary movement produced by muscles which leads to an energy expenditure. The energy expenditure is the understood the amount of muscle mass
involved, the intensity, duration and frequency of muscle contractions. Physical Exercise (PE) is a subcategory of PA that is planned, structured and repetitive, with the aim to improve or maintain one or more components of physical fitness. Mazo (2008) adds that there are different exercise intensities: light, moderate and vigorous. According to the model Caspersen et al. (1985), PA and exercise can be classified the behaviors, however, the FPA can be classified the performance, the ability to achieve certain performance criteria. In short, the PA is characterized as a broad concept that encompasses the performance of day-to-day activities such as housework, walking or cycling the transportation, gardening, etc. Through which the elderly expends energy. The exercise fitness is a form of PA performed with the specific purpose of maintaining or increasing physical condition or health (Shephard, 2004). Because individuals now live longer, it is essential to determine the degree and mechanisms by which PA and exercise can improve health, functional capacity, QOL and independence of this population. Regular practice on EF programs, provides significant benefits for people of all ages, whether physical, psychological social and cultural, including individuals with specific limitations and disabilities (WHO, 1996). Authors such as ACSM (2006), and Rikli and Jones (2001) state that although aging is inevitable and change the physical and functional performance, the rate and magnitude of decline in physiological function, Can be prevented or reduced, to increase or maintain active a lifestyle as it is possible at any age, even in individuals with health problems and functional improve the life quality through PA. Thus, even if it prolongs the lifetime of at least Increases the team of youth, providing better health in the next stages of life and contributes to retrieve interdependent certain bodily functions. The WHO (1996), has important benefits of having PA / EF in elderly individuals, manifested mainly at three levels: physiological, psychological and social.

Material and Methods

General and Specific Objectives:

General Objective
To understand and highlight the importance of physical activity in the elderly as a health behavior.

Specific Objective: Verify and compare levels of functional fitness in elderly sedentary and physically active, through the application of test batteries.

Sample
The sample is located in the center of 42 elderly Welfare Zone in Torres Novas. Of these 42 seniors, 15 are considered sedentary, and 27 are physically active. Also belong to this sample of 20 elderly Daily Home Centre of Entroncamento. Of these 20 seniors, 5 and 15 are sedentary are physically active. The full sample comprised of 62 elderly, 20 sedentary and 42 physically active. This full sample has aged 55 years to 96 years.

Methodology
We used a battery of tests AAHPERD (American Alliance for Health, Physical Education, Recreation and Dance) which contained the following percentiles: “0-19, Authors as Neto (2001, pg. 3) claim “that according to the Centers for Disease Control / American College of Sports Medicine (CDC / ACSM, 1995) the new paradigm of physical activity for health promotion recommends that individuals should
perform physical activity moderate intensity for at least 30 minutes per day, most days of the week, preferably all, continuous and cumulative."

Table 1- Relationship Category Aging with Time Physical Activity

Table 2 - Functional Fitness Level of sedentary elderly and
In relation to the table 2, it is found that sedentary elderly had lower values than the physically active elderly. There were 9 sedentary elderly who were classified as "regular", 9 as "good" and only one old is that achieved the "very good", with only an elderly classified as "weak".

Compared to physically active, 13 were considered elderly as "regular", 28 as "good" and a senior as "very good." By this, they have a better performance than the sedentary elderly. Having a total of 1 aged with a "weak" performance, with a 22 "regular" performance, 37 with a "good" performance "and 2 with a performance" very good. “

With table 3, it appears that the 20 sedentary elderly do not practice any kind of physical activity. Regarding the elderly physically active, 34% practice gymnastics, 2% practice walk, 4% practice gym with walking, 2 practice gymnastics along with walking. Gymnastics is the most frequent activity and more performed at the institution that seniors attend. As shown in the table 4, presents weaker values in tests of strength and resistance because they are tests that have a high physical demand. However, it is suggested that in groups with heterogeneous characteristics are applied testing battery AAHPERD, because they presented the best correlation coefficients (ICC), especially with regard to tests Coordination, Agility and Balance and Test Flexibility.

![Table 3 - Relation of type Activity with Aging Category](image)
In another study by Gobbi, S. (1980), the findings demonstrate that the test results for each component of functional fitness varied within the limits of the ranges of percentiles calculated and adopted for ratings. Scores greater than 14.5 or less than 10.1 seconds for coordination; smaller than 17 or larger than 25 repetitions for strength, smaller than 49 or larger than 71 cm for flexibility; greater than 28.9 or less than 22.7 seconds for agility and dynamic balance, and greater than 601 or less than 504/2 for aerobic capacity were classified as very weak or very good, respectively. Likewise, the sum of the percentages of all five tests less than 100 or greater than 399 was classified as functional ability or overall very good very weak, respectively. The development of normative values can serve as a reference for professionals so they can better assess, advise and prescribe physical activity.

In another study by Gonçalves, L. (2010), the aim of the study was to explore the relationship between physical fitness and functional capacity of residents in long-stay institutions for low-income seniors. Evaluation was performed in six institutions in three regions of the country. Sample consisted of 78 elderly, with a mean age of 77.4 years (SD = 7.9). The physical fitness assessment applying
AAHPERD tests adapted for institutionalized elderly, and functional capacity by Katz scale, found that physical fitness in its five components, on average was regular on flexibility, coordination, agility and aerobic endurance was good in the component strength. The results show that the greater the degree of dependence of the institutionalized elderly is lower strength and result in GFFI, and the better coordination and agility is better is the level of independence to carry out activities of daily living. The implications are to contribute to the appropriate exercise programs to maintain and / or restore functionality.

Conclusions
The demand for an improvement in the quality of life of elderly people is a very pertinent question in today's society and that has led to the realization of many studies in this area. Today we can see that the percentage of institutions that have class physical activity targeted to the elderly is quite large, however, we note that it is relatively low, the number of teachers qualified to conduct these classes. And so, in most cases the purpose of the existence of the class of physical activity is not fulfilled. Wanting to know, in the most thorough possible, the physical fitness of institutionalized elderly practitioners of physical activity, performing a quantitative assessment, we tried to enjoy the elderly in situations of practical lesson. After the presentation and discussion of the results, we can say that the main objective of this study was achieved, through it we can characterize the functional fitness of this population. You can now take their primary conclusions, highlighting the limitations of the study and indicate some suggestions for future work in the air. In an attempt to prove the number one issue (the differences with respect to basic motor skills) check that all skills showed an improvement with the exception of the variable which includes speed, agility and dynamic balance, we note that the variables Lower strength , Superior Strength and Speed, Agility and Dynamic Equilibrium statistics differ significantly. Regarding the comparison between the basic motor skills and age groups, we can see that all capacities are decreasing as age increases, although it was in the age group of elderly people over 75 years, we have obtained the best results in all components physical, with the exception of speed, agility and dynamic balance, and also noted that it was at this age that we obtained more significant differences. With regard to the issues set out who wanted to know if there was a relationship between changes in basic motor skills due to the weekly, we note that the elderly who practice only twice a week outperforming the elderly who practice three times a week in all capacities studied, with the exception of categories of flexibility. It is noteworthy that was precisely the group attending classes only twice a week obtained the largest number of statistically significant differences. We can see that, after observing the results, and subsequently the implementation of the descriptive statistics, we find that all values decreased in speed, agility and dynamic balance. These values may be due to the fact that this test was the last to be applied, with the elderly to show some fatigue. For all this, it seems able to say with certainty that the research was conducted within the parameters very acceptable from the point of view of what it was intended to accomplish, allowing us to say, with certainty, that physical activity helps...
improve of basic motor skills providing an improved quality of life for seniors.

Acknowledgements
The authors would like to thank to Lar dos Ferroviários in Entroncamento for their support in this study.

References
