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Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:
Alves, K. d. L., Patrício, A. C. F. d. A., Santos, J. d. S., Andrade, D. M. R. d., Crescêncio, L. C., & Albuquerque, K. F. d. (2016). Postural changes of elderly people that frequent a club for elderly people. *Revista de Pesquisa: Cuidado é Fundamental Online*, *8*(3), 4644-4650. https://doi.org/10.9789/2175-5361.2016.v8i3.4644-4650

REVISTA ONLINE DE PESQUISA

CUIDADO É FUNDAMENTAL

Universidade Federal do Estado do Rio de Janeiro • Escola de Enfermagem Alfredo Pinto

RESEARCH

DOI: 10.9789/2175-5361.2016.v8i3.4644-4650

Alterações posturais de idosos frequentadores de um clube para pessoas idosas

Postural changes of elderly people that frequent a club for elderly people

Cambios posturales de ancianos regulares en un club para personas mayores

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How to quote this article:
Alves KL; Patrício ACFA; Santos JS; et al. Postural changes of elderly people that frequent a club for elderly people. Rev Fund Care Online. 2016 jul/set; 8(3):4644-4650. DOI: http://dx.doi.org/10.9789/2175-5361.2016.v8i3.4644-4650

RESUMO

Objetivo: analisar alterações posturais de idosos frequentadores de um clube para pessoas idosas. **Métodos**: estudo realizado com 55 idosos, 67,2±6,6 anos de idade, sendo 65,5%(36) do sexo feminino. Utilizou-se um questionário composto de variáveis sociodemográficas e um instrumento de avaliação postural que contém itens que avaliam alterações posturais nas vistas: anterior, lateral e posterior. Os dados foram processados no programa SPSS 19.0. **Resultados:** observou-se alta prevalência de idosos com ausência de desvios posturais, no entanto algumas deformidades foram encontradas, sendo que 60% (33) dos idosos abordados nesse estudo mostraram a cabeça projetada para frente e 49,1% (27) revelaram hiperlordose. **Conclusão:** os dados demonstram que embora tenham surgido algumas alterações osteomusculares próprias do processo de envelhecimento, a maioria dos idosos apresentaram-se normais, refletindo a eficácia das atividades ou tratamentos prévios destinados a minimização de alterações posturais com consequente melhoria na qualidade de vida da pessoa idosa.

Descritores: idoso; postura; coluna vertebral.

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ABSTRACT

Objective: to analyze postural changes of elderly people that frequent a club for elderly people. **Methods:** study of 55 elderlies, 67.2 ± 6.6 years old, 65.5% (36) being female. It was used a questionnaire consisting of socio-demographic variables and a postural assessment instrument that contains items that assess postural changes in view (perspective): anterior, lateral and posterior. The data were processed in the program SPSS 19.0. **Results:** it was observed a high prevalence of elderly people with absence of postural deviations, however some deformities were found, 60% (33) of the elders analyzed in this study had their head forward and 49.1% (27) presented hyperlordosis. **Conclusion:** the data has showed that although some musculoskeletal changes specific to the aging process were present, most of the elderly were normal, reflecting the effectiveness of activities or previous treatments - intended to minimize postural alterations - with consequent improvements in the quality of life of the elderly person.

Descriptors: elderly; posture; the spine.

RESUMEN

Objetivo: el análisis postural en los cambios de los ancianos asiduos en un club para personas ancianas.**Métodos:** estudio de personas mayores de 55, 67,2 ± 6,6 años, 65,5% (36) siendo mujer. Se utilizó un cuestionario compuesto por variables socio-demográficas y un instrumento de evaluación postural que contiene elementos que evalúan cambios posturales en vistas: anterior, lateral y posterior. Los datos se procesaron en el programa SPSS 19.0. **Resultados:** se observó una alta prevalencia de ancianos con ausencia de desviaciones posturales, sin embargo, se encontraron algunas deformidades: 60% (33) fue con la cabeza para frente e hiperlordosis presente 49.1% (27). **Conclusión:** Los datos muestran que, aunque aparecieron algunos cambios musculoesqueléticos específicos para el proceso de envejecimiento, la mayoría de los ancianos era normal, lo que refleja la efectividad de las actividades o tratamientos previos destinados a minimizar alteraciones posturales, con la consiguiente mejora en la calidad de vida de la persona mayor.

Descriptores: ancianos; postura; la columna vertebral.

INTRODUCTION

Aging involves a progressive process where biological, functional and psychological changes which influence the adaptation to the environment occur, resulting in a greater fragility and increased incidence of diseases that contribute considerably to the increase of deaths in this age group. [1]

Diseases in the elderly do not comply with rigorous standards, but can vary according to socio-economic conditions and chronic manifestations. We highlight those changes in the molecular, cellular plan, and also those in the tissue, cognitive and psycoafective areas. In this way, the aging has countless interpretations that can be interwoven into daily life and with different cultural perspectives. [2]

We highlight that Estatuto do Idoso (Statute of the Elderly) (2003)[3] considers within the elderly category all of those older than 60 years. The World Health Organization (Who)[4] estimated that until 2025 Brazil will be the sixth country in the world with the highest number of elderly people. Since the decade of 1950, the world's majority of older people live in third world countries, fact still not understood by many since they continue associating elder people with more developed countries of Europe or North America.

Census (2009)[5] recorded that the elderly composed about 19 million people in Brazil, evidencing the accelerated aging process of the Brazilian society. In 2010, this amount increased to more than 20 million[6], concentrating on the Southeast (46.25%) and northeast (26.50%) Paraíba, one of the Brazilian States, is the fourth in the ranking with the highest number of elderly. [6]

This number of elderly brings with it concerns related mainly to health and quality of life of this population. With regard to the musculoskeletal system modifications, postural deviations can interfere with the body's fluctuations, making it difficult to maintain the static balance and gait, which can predispose the elderly person to fall. [7]

There are many combinations of changes resulting from bad postural habits, e.g., anatomical changes in the spine, causing reduction of about one to three centimeters in height. The articular cartilage becomes less resistant and stable, suffering from degeneration. Also, a gradual decrease in muscle mass occurs, being gradually replaced by collagen tissue and fat.

Despite finding a huge variability of postural deviations, postural changes peculiar to the elderly can be observed with some regularity, the most common being located in the thoracic and cervical region that may be caused by one or many factors such as: cognitive, acquired, psychological, bad postural habits, disorders in the central or peripheral nervous system. These modifications may, at some point, be so pronounced that they cause limitations and complaints of pain. [8]

The importance of a proper postural pattern does not interfere only in aesthetics, but physiologically benefits the individual, maintaining the functions and motion amplitudes in satisfactory standards - promoting the independence of individuals. [9]

Postural changes involve several factors that require the assistance of a multidisciplinary health team. This study focuses in nursing, so it becomes essential to analyze the practice of nursing towards postural abnormalities detection in order to guarantee the quality of life of the patient, promote health and direct the individual to the specialized assistance - providing the best care and comfort for the person needing for assistance. [10]

Considering the progress of population aging in municipality of João Pessoa/PB, considered by IBGE (2010)[6] the third city with the largest number of elderly and the first in the Northeast region, it's essential to know the postural characteristics of this population in order to contribute to the early detection of postural changes. Therefore a question is posed: in what terms the changes in postural elderly are presented?

Thus, the present study aims to analyze postural changes in elderly people that frequent a club for elderly people.

METHODS

This is an exploratory research, descriptive in nature, with quantitative approach, held in João Pessoa, Paraíba, Brazil. This study resulted from a clipping of the project entitled: "Dead Space on the Board of Cervical Immobilization: a found relevant to technological adequacy, holding as the specific objective to analyze postural changes of elderly regulars in a club for elderly person.

In this study 55 elderly people were analyzed of a population of 64 people that frequent the activities carried out on the day shift at the Club for elderly person of that municipality. The choice of this institution is justified once it's a place of sessions directed only to the elderly population. The sample was defined using the sample calculation with the Standisk Program version 11.1.0 resource USES, with the 95% confidence level and 5% margin of error.

As a criterion for inclusion participants should have 60 years or more, be registered at the Club for elderly person and accept to participate voluntarily. Excluding all those who did not sign the informed consent form.

The data were collected during the period from July to December of 2012 through a questionnaire containing socio-demographic questions (age, marital status and education) of the volunteers and a Postural Assessment instrument (IPA), made by Liposccki. [11] the IAP contains items that assess postural changes in different viewpoints: anterior, lateral and posterior. In each view bone references were observed and, to improve the visualization of such references, seniors were dressed in bathing suit. The following structuresw ere analyzed: head; shoulder; triangle of Tales; cervical, thoracic and lumbar column; Hip; knee and feet. The equipment used to assist the evaluation was the portable symmetrograph from the brand Sanny according to the Kendall and McCrery 1995 protocol.[12] Such equipment allows to observe the symmetry of the body segments from a frame of reference.

For the postural evaluation, seniors who attended the club during the period of data collection were first instructed about the goals of the research, and later invited to participate and attend the assessment through prior scheduling - and wearing a bathing suit. At the time of the assessment, the elders were directed to a room reserved for this purpose and asked to strip in order to remain only with their bathing suit - with the purpose of facilitating the successful evaluation - and told to remain in orthostatic position.

The participation of the subject in the research was formalized through the signing of the Terms of Free and Informed Consent, being in accordance with the ethical principles of the resolution 196/96 issued by the National Health Council - in force at the time.[13] This study has received a favorable opinion by the Research Ethics Committee of the Centro Universitário de João Pessoa in February 2011 16, 1602/11 record.

The collected data were processed in the *software* Statistical Package for the Social Sciences (SPSS) 19.0, and analyzed from simple statistics, checking frequency and percentage.

RESULTS AND DISCUSSION

Socio-demographic characterization of study subjects

The elderly had 67.2 ± 6.6 years old, 65.5% (36)of them being female. The majority, 47.3% (26), was married; 32.7% (18) were widowed; 14.5% (8) and 5.5% (3) were single. Regarding their schooling levels, 32.7% (18) were illiterate and 23.3% (13) were alphabetized. Table 1 demonstrates the postural changes.

Table 1: postural changes in previous view. N = 55. João Pessoa/PB .2012.

CHANGES	FA	FR (%)
Head		
Aligned	44	80%
Inclined	9	16.4%
Rotation	2	3.6%
TOTAL	**55**	**100%**
Shoulders		
Symmetrical	45	81.8%
High	10	18.2%
TOTAL	**55**	**100%**
Triangle of Thales		
Symmetrical	48	87.3%
Asymmetric	7	12.7%
TOTAL	**55**	**100%**
Trunk		
Aligned	52	94.5%
Rotation	3	5.5%
TOTAL	**55**	**100%**
Iliac crests		
Symmetrical	48	87.3%
Asymmetrical	7	12.7%
TOTAL	**55**	**100%**
Hip		
Normal	42	76.4%
Internal Rotation	3	5.5%
External Rotation	10	18.2%
TOTAL	**55**	**100%**
Knees		
Normal	42	76.4%
Genovalgo	3	5.5%
Genovaro	9	16.4%
Genovalgo and genovaro	1	1.8%
TOTAL	**55**	**100%**

It's noticed in the data found with the postural assessment regarding the anterior view (perspective), that the majority, 80% (44), of elderly showed head aligned - featured as excellent, since the aging process causes gradual and progressive degeneration of organs, tissues and metabolism. The misalignment of the head can represent an imbalance between muscles and bones from other parts of the body, especially when referring to changes in the cervical spine.[14]

Another point that deserves attention is the great quantitative - 81.8% (45) - of the elderly without changes in the shoulders. Changes may cause exteriorization of the well-being and self-esteem as well as the appearance of pain that may compromise the ability of the musculoskeletal system to perform precise movements. [7] As for the-triangle of Thales, 87, 3% (48) were symmetrical. The upper body rotation, the asymmetry of the shoulders, the triangle of Tales and the Antero-superior iliac spines can trigger side deviations or be the consequence of these.[15]

Regarding the upper body postural evaluation, 94.5% (52) of the elderly were lined up, which may be associated with physical activities and healthy eating. [16] The functional consequences of pré-vertebral and post-vertebral muscular atrophy are changes in the upper body alignment, mainly due to the decrease in muscle mass cause by the loss of water of the intervertebral discs - a consequence of the gradual decrease in the levels of hormones, pertinent to the aging process - resulting in a compression of discs that lead to the emergence of pain - which compromises the elder's posture.

The symmetry of iliac crests prevailed in 87.3% (48) of the elderly, being the result of a proper postural alignment - as the pelvic retroversion occurs due to muscle imbalance possibly caused by prolonged periods of time where one remains seated and by hypokinesia of postural muscles.[17] It was possible to observe normal hip in 76.4% (42) of the elders.

As for deviations in knee 16.4% (4) presented deformity called genovaro which consists in the arching of the legs that projects the knees and in an overload on the outer region of the feet. [18] However, the vast majority, 76.4% (42), was within the normal range, preventing changes in gait and deformities of the spine.

Facing such results we see that the human being is put through a natural wear of the musculoskeletal structures (muscles, tendons, ligaments, joints and bones) throughout the process of life. Such wear makes the movements slow and limited, compromising postural balance and therefore facilitating the occurrence of falls, influencing directly on the achievements of the activities of daily life. Postural changes in the side view are present in table 2.

Table 2: postural changes in the elderly side view. N = 55. João Pessoa/PB .2012.

CHANGES	FA	FR (%)
Head		
Normal	22	40%
Designed for front	33	60%
TOTAL	**55**	**100%**
Shoulders		
Normal	22	40%
Protaso	29	52.7%
Retracted	4	7.3%
TOTAL	**55**	**100%**
Cervical Spine		
Normal	26	47.3%
Hyperlordosis	27	49.1%
Rectification	2	3.6%
TOTAL	**55**	**100%**
Thoracic spine		
Normal	38	69.1%
Hypokyphosis	15	27.1%
Rectified	2	3.6%
TOTAL	**55**	**100%**
Lumbar Spine		
Normal	37	67.3%
Hyperlordosis	16	29.1%
Rectification	2	3.6%
TOTAL	**55**	**100%**
Pelvic girdle		
Normal	41	74.5%
Antiversion	6	10.9%
Tilted uterus	8	14.5%
TOTAL	**55**	**100%**
Knees		
Normal	38	69.1%
genu recurvate	1	1.8%
Crouching	16	29.1%
TOTAL	**55**	**100%**

As for postural deviations in side view, 60% (33) among the elderly remain with the head designed forward confirming the change triggered by the aging process, caused by the decline of strength, and especially by fibrosis and atrophies by disuse or due to pathological conditions or not, such as kyphosis.[19] However, a significant amount of elderly presented a normal posture, 40% (22), showing that it is possible to grow old and healthy. [20]

The postural change of the limbs most commonly found in the elderly is the protrusion - as confirmed by the survey - which causes painful disorders in the shoulder. Another aspect to be considered is the balance between the number of seniors who have the normal cervical spine - 47.3%

(26) - and those who present hyperlordosis - 49.1% (27) - since the lordosis is the most important deformity that arises as a consequence of the inflection of the pelvic girdle, with inclination of the sacral vertebrae set forward. [21] the hyperlordosis has also been found in study in Santo Ângelo/RS with middle-aged subjects, however, the rectification performed in highest percentage, confronting with the present study. [22]

The thoracic and lumbar spine, unlike of what was found in cervical, feature predominantly normal patterns, 69.1% (38) and 67.3% (39) respectively, which may be related to increasing levels of life expectancy combined with the best quality of life of the elderly population.

The data found with respect to pelvic girdle show that the majority - 74.5% (41) - of the elderly shows normality. Changes in the locomotor system, as a result of aging, causes loss in balance, bone fragility, joint pain and decreased function, but it can be minimized through the practice of physical activity. [23]

The result relevant to the knee changes in the elderly showed that 69.1% (38) were normal, important aspect when it comes to maintaining proper body movement once changes in the maintenance or increase of the bending angle can bring damaging consequences to the gaiting processes. Table 3 presents data containing information about the postural deviations at posterior view.

Table 3: data on the postural deviations in back view of the elderly. N = 55. João Pessoa/PB .2012.

CHANGES	FA	FR (%)
Shoulders		
Normal	48	87.3%
Winged Scapula	4	7.3%
Scapulae retracted	2	3.6%
Winged scapula and retracted	1	1.8%
TOTAL	**55**	**100%**
Vertebral column		
Normal	37	67.3%
Scoliosis	15	27.3%
"S" inverted	2	3.6%
"S"	1	1.8%
TOTAL	**55**	**100%**
Gluteal folds		
Symmetrical	45	81.8%
Asymmetrical	10	18.2%
TOTAL	**55**	**100%**
Right Foot		
Normal	33	60%
Plan	4	7.3%
Valgus	11	20%
Cave	5	9.1%
VARUS	2	3.6%
TOTAL	**55**	**100%**
Left Foot		
Normal	33	60%
Plan	4	7.3%
Valgus	11	20%
Cave	5	9.1%
VARO	2	3.6%
TOTAL	**55**	**100%**

As for postural deviations in the posterior view, data pointed out that the majority, 87.3% (48), showed normal shoulders, contrary to the senescence process that is characterized by gradual postural changes - where the disability of limbs and the osteoarthritis arise among the more associated diseases related to functional deficits in the elderly, besides the muscle-skeletal disorders.[24]

Patients with changes in the shoulders, as winged scapula, among other diversions, usually complain of pain, weakness, discomfort, decreased mobility,[25] being the most prevalent musculoskeletal pain in the elderly, may reach 72.1% of people 65 years and older,[26] interfering directly in the quality of life, being relevant to identify early deviations in this population.

Another interesting aspect to be considered is the great number - 67.3% (37) - of elder people without changes in the spine. Scoliosis affects mainly the elderly[27] once the aging process itself involve modifications of musculoskeletal nature - the musculoskeletal problems one of the most frequent causes that lead elders to search for primary health care.[28] This can be related to the increase in life expectancy of the Brazilian population and also associated with the improvement of the elderly quality of life.

Regarding the gluteal folds, 81.8% (45) are framed in symmetrical category, being relevant because the aging process results in the loss of skeletal muscle mass[29] due to the decrease in physical activity. This can be related to the change in the lifestyle of the elderly, which has been shaped in recent times.

Following to the lower limbs, normality regarding the right foot was verified in 60% (33) of the ancients, and also in 60% (33) of the elders in what regards the left foot - important aspect for the individual to keep the body in proper gear, because changes in the foot can bring consequences for the movement while walking.

Leaving those results, future research on postural changes in the elderly are required to prevent musculoskeletal disorders, and consequently to contribute towards improving the quality of life of the elderly population, since the publications in this subject are scarce.

CONCLUSION

This study sought to analyze postural changes of elderly people regular to a club for elderly people and observed some weaknesses concerning the changes found in the shoulders,

showing protruding and hyperlordosis in the cervical spine in a relevant percentage of elderly. However there was a predominance of normality in other results.

Although some musculoskeletal changes have arisen from the aging process, it is necessary to point out that most of the elderly appeared normal, contrary to what's established by the literature - that poses the several modifications of senescence.

Nevertheless, aging with greater levels of autonomy, better health and quality of life are being held in high regard nowadays. This study may be a reflection of the actions that go against the postural changes, once it testifies a high level of absence of such changes. It must be stressed that the elderly people studied by this article were regulars at a club for elderly person, which is an environment for the practice of physical and cognitive activities, contributing significantly to better postural conditions, skills and attitude.

Studies related to postural changes in the elderly are still scarce in Brazilian literature, what poses the necessity for more researches in this universe, gleaming actions of health promotions aimed at the reduction of damage caused by bad posture and other changes arising from aging.

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Received on: 09/08/2014
Required for review: No
Approved on: 17/09/2015
Published on: 15/07/2016

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