

VERTIGO COMPLAINT AND REGULAR PHYSICAL ACTIVITY IN THE ELDERLY

Queixa de vertigem e prática de atividade física regular em idosos

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ABSTRACT

Purpose: to investigate the presence of vertigo in elderly patients by associating it with the practice of regular physical activity. **Methods:** a cross-sectional study including elderly individuals with independent living. The physical exercise was assessed by a questionnaire with objective questions about the practice exercises and vertigo, Statistical analysis was performed using the chi-square and relative risk. **Results:** the sample consisted of 494 individuals from 60 to 95 years and was verify that there was a significant association ($p = 0.001$) between the lack of regular physical activity and vertigo and people who not practice activities physical are 2.38 more likely to have vertigo than those who engage in regular physical activity. It was observed an association of vertigo and lack of physical activity. There was also a correlation between lack of regular physical activity and vertigo in females, but there was no such association in males. **Conclusion:** In this study the presence of vertigo complaint was lower in elderly practitioners of regular physical activity.

KEYWORDS: Vertigo; Dizziness; Aged

■ INTRODUCTION

Dizziness is a change in the equilibrium characterized by illusion of movement in relation to oneself or the environment around you. Vertigo is dizziness with sensation of motion or spinning¹. This symptom has a high prevalence in the world population,

affecting approximately 2% of young adults, 30% in the elderly of 65 years and 50% in the elderly above 85 years². Especially in middle-aged individuals and the elderly, lack of regular physical activity and low level of physical fitness have been considered risk factors for various metabolic and circulatory changes that cause various symptoms such as dizziness^{3,4}.

Exercise is an activity performed with a systematic repetition of movements oriented, with a consequent increase in oxygen consumption due to muscular demand. Exercise is a subset of physical activity planned in order to maintain the conditioning. It can also be defined as any activity generating muscle strength and stop homeostasis⁵.

Exercise has the opposite effect to inactivity, increasing caloric expenditure, improving transport and uptake of insulin. So much aerobic exercise as the weathered promote an increased basal metabolism, known as resting metabolism. He is responsible for 60% to 70% of total energy expenditure, contributing to weight loss, and decreased risk of developing diabetes, hypertension, and other diseases, but it is necessary to remember that before starting a physical activity program, any

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individual must undergo an assessment of recent clinical history⁶. Such metabolic and circulatory can cause various symptoms, including balance changes, especially in individuals aging⁴.

The regular practice of physical activity has been recommended for the prevention and treatment of cardiovascular disease, its risk factors, and other chronic diseases, on the other hand, the decrease of physical and motor resulting from the aging process, associated with a sedentary lifestyle, can take the elderly to a condition of extreme weakness, leaving your physical independence threatened, if you experience problems such as falls, diseases, among other³.

Dizziness is among the most common complaints of the elderly population. This is an issue of great importance, since it is associated with the risk of falls, an important factor related to morbidity and mortality in this age group. It is estimated that the prevalence of dizziness in the population over 65 will reach 85% is associated with various causes and can manifest as imbalance, dizziness and / or other types of dizziness. These symptoms are attributed to senility the growing incidence of disturbances of sensory functions, integration of central and peripheral information and senescence of neuromuscular systems and skeletal function⁷.

Under current conditions of society, the elderly are devalued, considered incapable by its low productivity due to natural limitations and the decline of several vital functions such as auditory and visual acuities, the reduction of tactile and painful determined by your age⁸.

This has aroused the interest of various sectors of society as health professionals who have been engaged in iterating the various disorders that affect this age group to better serve them, providing greater comfort and adaptation to changes that occur in the process of aging⁹.

In a study of elderly researchers concluded that resistance training program for 24 weeks, was favorable in improving balance, coordination and agility in elderly¹⁰.

Physical activity reduces the deterioration of physical fitness variables such as cardiovascular endurance, strength, flexibility and balance, helping to accelerate the functional losses in the elderly¹¹.

This study aimed to investigate the presence of vertigo in elderly patients associating the practice of regular physical activity.

■ METHODS

We conducted a cross-sectional study with the participation of 519 elderly physically independent classified at level 3 or 4 as proposed by Spirduso¹².

From a population of 43,610 elderly people enrolled in the 38 primary care units in the urban area of the city, the sample size was defined at 343 subjects, considering a confidence interval of 95% and an acceptable error margin of 5%.^[19] The sample was a randomly stratified set, considering the gender and the five regions of the city (15% from the central region, 27% from the northern region, 23% from the southern region, 19% from the eastern region, and 16% from the western region). This study is part of EELO Project - Aging and Longevity Study, developed by Universidade Norte do Paraná - UNOPAR.

Of these 519 elderly, 7 individuals were excluded from this part of the study, with fewer than 60 years, 5 for not having information about regular physical activity and 13 were not data related to vertigo. In relation to the complaint vertigo, 13 patients were excluded because the interview data pertaining to said complaint. The total sample was composed of 494 elderly.

It was considered, with vertigo, in the questionnaire, those seniors who reported the presence of vertigo often during the last year. This includes the time of the study, regardless of the intensity of vertigo. Individuals who reported symptoms such as imbalance, instability, fluctuations, oscillations and visual distortions were not considered with vertigo. These distortions, with feeling of going forward or backward, than those who did not report any symptoms in relation to body balance.

Regarding the practice of regular physical activity were considered practicing all those seniors who were frequency of physical activity during the week with a frequency of sessions organized in a practical minimum of twice a week over the last year.

The EELO is the first interdisciplinary and multi-thematic project in Brazil, developed with the characteristics methodological proposals which aim to integrate wide variety of topics and health assessments, economic, and psychosocial factors that enable a comprehensive understanding of the aging process. The data were only collected after the participants become aware of the purposes of the study, voluntarily agree to participate and sign the Instrument of Consent.

The physical exercise was verified by the application of objective questions contained in the questionnaire comorbidities, considering practicing regular physical activities, that individual with physical exercise at least twice a week. Vertigo was verified by applying a standardized questionnaire and audiological history of vertigo used in the EELO project.

This study was approved by the Human Research Ethics Committee at the UNOPAR, protocol number 0070/09.

Study was performed with the chi-square and relative risk to determine possible relationships between dizziness and lack of regular physical activity. Were considered for the univariate $p < 0.01$ and for inclusion in the final model for the Chi-square test and the relative risk value of $p < 0.05$ with 95% confidence.

■ RESULTS

The sample consisted of 494 individuals 60-95 years. Of the 153 elderly people with vertigo, 55

(35.95%) were practicing regular exercise and 341 individuals who did not complain of vertigo, 162 (47.51%) were regular exercisers.

It was found that in this study there was a significant association between lack of regular physical activity and vertigo (Table 1). There was also a significant association between lack of regular physical activity and vertigo in females (Table 2). There was no significant association between lack of regular physical activity and vertigo in males (Table 3).

Therefore, in Table 1, there is a relative risk of 28% of exercisers have no vertigo. Already in table 2, there is a relative risk of 34% of the non-exercisers had vertigo. In Table 3, there is a relative risk of 8% of non-exercisers had vertigo.

Table 1 - Distribution of the complete number of patients according to the practice of physical exercise and vertigo

Practice of physical exercise	Vertigo complaint				TOTAL
	Yes		No		
	N	%	n	%	
Yes	55	11.13%	162	32.79%	217
No	98	19.84%	179	36.23%	277
TOTAL	153	30.97%	341	69.02%	494

Relative risk = [0.72]; Confidence Interval = (0.54 – 0.95); $\chi^2 = 5.730$ ($p = 0.0167$); number needed to cause adverse event in time = 10

Table 2 - Distribution of the full number of female patients second practice exercise and vertigo

Practice of physical exercise	Vertigo complaint				TOTAL
	Yes		No		
	N	%	n	%	
Yes	40	12.16%	105	31.91%	145
No	77	23.40%	107	32.52%	184
TOTAL	117	35.56%	212	64.43%	329

Relative risk = [0.66]; Confidence Interval = (0.48 – 0.90); $\chi^2 = 7.198$ ($p = 0.0073$); number needed to cause adverse event in time = 8

Table 3 - Distribution of the full number of male patients second practice exercise and vertigo

Practice of physical exercise	Vertigo complaint				TOTAL
	Yes		No		
	N	%	n	%	
Yes	15	9.09%	57	34.54%	72
No	21	12.73%	72	43.64%	93
TOTAL	36	21.82%	129	78.18%	165

Relative risk = [0.92]; Confidence Interval = (0.51 – 1.66); $\chi^2 = 0.073$ ($p = 0.7875$); number needed to cause adverse event in time = 58

■ DISCUSSION

Advancing age is directly proportional to the presence of multiple symptoms neurotological bodily balance, such as dizziness and other vertigo, hearing loss, tinnitus, imbalance, gait disturbances and occasional falls, among others, may cause falls¹³. Individuals over 60 suffer often some feeling of dizziness or loss of balance as well as strength reduction. Although the incidence of falls is also related to the decrease in strength, muscle power and balance, is still unclear in the literature, the relationship between these physical abilities¹⁴.

The changes related to the vestibular system, stands out by presbyvertigo join the process of degeneration of the structures belonging to the vestibular system, observed in the course of the old part of multiple sensory deficits of the elderly as well as senescence of neuromuscular systems and skeletal function⁴.

Studies explain that as aging is associated with a reduction in the balance, resulting in an increased risk of falls, the practice of physical activity and directed is crucial, since it modulates postural control in elderly people, exerting a beneficial relationship in their conditions health^{11,15,16}.

Study with eighty-four subjects who completed a standardized questionnaire on height, BMI and sports activity and have undergone body balance found that body height and regular physical activity did not influence the ability to balance these individuals. On the other hand, the forced physical exercise posture stability deteriorated by 44% compared to baseline ($p < 0.017$). Complete recovery occurred in only 15 minutes¹⁵.

In contrast, work that examined the potential positive effects of types of regular physical activity and sports in the area of vestibular information and its relationship to posture, found that postural control and vestibular sensitivity individuals who are best practice activities and that such activities enhance proprioception and develop or maintain a high level of vestibular sensitivity¹⁶.

Another study, with the pretense of investigating the dizziness in elderly with variables: physical activity, loneliness, health complaints and frequency of falls, concluded that exercise seems beneficial both for the improvement of dizziness as quality of life, and to decrease the risk of falling. This in turn will decrease the mortality rate, noting that people should be encouraged dizziness, if possible, to do physical activity¹⁷.

So that the balance is maintained, the postural control system must process all the visual information, vestibular and proprioceptive input and translate it into appropriate motor responses, but the

influence of bodily constitution and physical activity on motor responses and, therefore, stability postural is still uncertain¹⁶.

In reviewing the literature on the imbalance was analyzed the underlying pathophysiology of imbalance along with an assessment of how the current assessment methods and exercise protocols are used to help prevent falls in the elderly, concluding that patients should be encouraged to conduct exercises custom in a safe condition, considering their general health¹⁸.

This study agrees with the literature of the area that stresses the importance of physical activity in older adults 16-18 since association was found between vertigo and lack of regular physical activity in this population. It is noted from this finding the importance of encouragement and collaboration to practice regular physical activity in the elderly because dizziness is associated with the limitation of many clinical conditions and lower performance on tests of physical function, which may limit independence¹⁹.

Gender differences have been reported in elderly people with vertigo, dizziness and / or instability. The prevalence of symptoms of balance such as dizziness, vertigo and imbalance, was investigated in an epidemiological study of 2011 elderly in Sweden. The overall prevalence of balance problems at 70 years was 36% (women) and 29% (men). The most common symptom was lack of balance / imbalance general (11-41%) and vertigo is reported in 2-17% of this population 20. Study in Amsterdam explains the prevalence of dizziness in patients aged 65-84 was significantly higher in women than in men ($p < 0.001$)².

Another study showed a higher prevalence of moderate or severe dizziness or vertigo in women (36%) compared to men (22%) citing the severe vestibular vertigo which leads to disruption of daily activities, occupational, was reported in 8.4% of women and 3.4% of men²².

In this study^{20,21} we found a higher prevalence of vertigo in women (35.56%) than in men (21.82%), pointed out, however, that women in the group was no significance between the lack of regular physical activity and vertigo and in males was not significant. This may be due to the greater number of female subjects than males in the sample.

The use of a questionnaire to check the practice physical activity has been the most viable and used in epidemiological research on the rate of physical activity in a certain population, although bear in mind that this method is likely to have deficiencies in refers to the types of questions and responses from inadvertent manipulation²².

In this study a questionnaire was applied to verify physical activity due to the feasibility of applying this sample. Na verification of vestibular disorders, it is important to apply initial interview to verify the presence of a medical history and performed with special attention to detail the vertigo symptoms with positional. In this work we used a standardized questionnaire to verify the vertigo by feasibility of application in this population.

Through the association between lacks of regular physical activity with vertigo in this study population, cites the importance of identifying risk factors for vertigo that can be modified through specific interventions. This is essential for preventing future episodes and for the management of the process

of rehabilitation of elderly patients. The results of this research will provide the basis for health professionals involved with both the symptoms of vertigo as with physical exercise.

■ CONCLUSION

In this study the presence of vertigo was lower in the elderly practicing regular physical activity with a significant association between lack of regular physical activity and vertigo. The elderly do not practice physical activities presented in this study 2.38 more likely to have vertigo than those who practiced regular physical activity.

RESUMO

Objetivo: investigar a presença de queixa de vertigem em pacientes idosos associando-a a prática de atividade física regular. **Métodos:** foi realizado um estudo transversal com inclusão de indivíduos idosos com vida independente. A prática de exercícios físicos foi verificada por meio da aplicação de um questionário com perguntas objetivas a respeito da pratica exercícios físicos e queixa de vertigem. A análise estatística foi realizada por meio dos testes Qui-quadrado e Risco Relativo. **Resultados:** a amostra foi constituída por 494 indivíduos de 60 a 95 anos e pode-se verificar que houve a associação significativa ($p = 0,001$) entre a falta de prática de atividade física regular e queixa de vertigem e que as pessoas que não praticam atividades físicas têm 2,38 mais chances de ter vertigem do que as que praticam atividades físicas regularmente. Há constatação da associação da vertigem e falta de prática de atividade física nesta população. Houve também associação entre a falta de atividade física regular e queixa de vertigem no gênero feminino, porém, não houve esta associação no gênero masculino. **Conclusão:** Neste estudo a presença de queixa de vertigem foi menor nos idosos praticantes de atividade física regular.

DESCRIPTORIOS: Vertigem; Tontura; Idoso

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