9 - THE INFLUENCE OF THE METHOD PILATES IN BALANCE IN ELDERLY

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INTRODUCTION

According to the Ministry of Health, Brazil presenting a significant increase in the number of elderly, and the age of 60 years is the fastest growing in proportional terms. The World Health Organization shows that from 1950 to 2025, the elderly population will grow in the country, and estimates that the country will reach 32 million people aged 60 years or more, placing Brazil in sixth position in the world's elderly population (BRASIL, 2002).

Aging impairs the ability of the central nervous system to perform the signal processing vestibular, visual and proprioceptive responsible for maintaining body balance, and reduces the capacity of adaptive changes in reflexes. These degenerative processes are responsible for the occurrence of vertigo and / or dizziness and imbalance in the geriatric population (FONSECAAND RIBEIRO, 2003).

The senescence, according to Schlindwein-Zanini (2009), brings a set of neuropsychological, morphological, physiological, biochemical, psychological, social and cultural changes to the life of the person, and that the ingression in this age fase is a dynamic process that asks for to the aged person the practical of its capacity of adaptation to this process and to the environment where he is inserted.

In more than half the cases, the imbalance originates between 65 and 75 years approximately, and about 30% of elderly patients have the symptoms at this age. Falls are the most dangerous consequence of the imbalance and difficulty in walking, usually followed by fractures, leaving the elderly bedridden for days or months, responsible for 70% of accidental deaths in people over 75 years (BRASIL, 2002).

The manifestations of balance disorders have great impact on the elderly, which can lead to reduction of their social autonomy, since they have to reduce their activities of daily living, the predisposition to falls and fractures, bringing body immobility, fear of falling again and high health care costs (SILVA et al, 2008).

Pilates is one of the techniques being used by physiotherapists. It was created in the twenties of last century, but only from the nineties began to be used in physical therapy more significantly. The creator of the method, Joseph Pilates called his creation as Contrology, conceptualizing it as a new system of physical culture proposed to recover and maintain the health of those who practice it offers greater well-being (CAMARÃO, 2004).

Pilates is the art of body control and movement. The practitioner notices changes in her body in a few weeks. It is a method of physical and mental conditioning that develops strength, flexibility, endurance and motor control of the body. Through a variety of exercises performed on different devices, the method prioritizes the strengthening of the abdominal muscles and stretching of the posterior region of the body providing alignment and posture, but mainly improving balance (GALLAGHER AND KRYZANOWSKA, 2000).

The practice of Pilates involves the use of springs as a source of strength and / or of the body, producing harmonic movements, accurate, fruit concentration and control of body structures. The exercises of the method, you can gain benefits in relation to muscle strengthening, flexibility, strength and postural stability, factors normally involved in the elderly, which interfere with the ability to maintain balance (Aparicio and Perez, 2005).

Suitable for any age group, this method contains the appropriate modifications and considerations for the different bodies respecting the characteristics and limitations of home person (KUHNERT, 2002).

The objective of this study was to analyze the influence that the exercises of the Pilates method can provide the balance in the elderly.

THEORETICAL

With the increase in life expectancy is an accompanying need to maintain the health and quality of life of the elderly. Prevention is the best fighting engine, and information and awareness as the most effective weapons (BRASIL, 2002).

Among the factors that has contributed to worsening health conditions and life of the elderly population there are the falls, as are the main cause of accidents in people over 60 years. Commonly, falls occur with the elderly due to changes resulting from aging itself as postural instability, shuffling gait, short steps with legs apart, diminished reflexes and balance, disrupting the movement snapshots, as well as visual and auditory changes. There is also the development of pathological conditions, especially including postural problems, heart problems and injuries of the central nervous system (FABRÍCIO et al, 2004).

Balance is the ability to maintain stable motor activities that control the body through static or dynamic disturbances. The preservation of the balance is a complex process that requires the integration of the nervous, locomotor, sensory, and vestibular, to be able to maintain the center of gravity within the support base. Therefore, it is necessary that the movements that shift the center of gravity is raised and the vestibular sensory system, interpreted by the central nervous system and is then sent to perform a motor response to the adaptations that stability is preserved (SILVA et al , 2008).

Any failure in the process of maintaining a balance is sensory, vestibular, or CNS locomotor, will result in a high risk of falls. The elderly, the degeneration of natural systems, as a consequence of the aging process, can suffer failure in processing the information, either in the collection, interpretation or execution, or all of these systems (FONSECAAND RIBEIRO, 2003).

Pilates is an exercise system that promotes balance between body and mind. This method provides well-being, health and a better quality of life (GALLAGHER AND KRYZANOWSKA, 2000).

For Camarão (2004), the Pilates "is an exercise system that allows for greater integration of the individual in their day-to-day. It works with the body as a whole, correct posture and realign the muscles, developing the body stability necessary for a healthy life and longevity. " The individual rediscovers his own body with more coordination, balance and flexibility. Regardless of age, anyone can be benefited by this method of improving the quality of life and provides quick results. But for such benefits of Pilates have to be disciplined.

Aiming to strengthen the muscles and joints, improve flexibility of the body and provide greater equity. To achieve the

benefits and have a better efficiency in the range of activities, this technique uses six principles: concentration, breathing, alignment, control center, efficiency and smoothness of motion (APARICIO AND PEREZ, 2005).

The Pilates method was originally divided into floor exercises and devices. Floor exercises: they are made on the floor, lying down, sitting or standing. Exercises with devices: they are made with the apparatus designed by Joseph Pilates, which use springs, which assist and resist movement (KUHNERT, 2002).

In short, the Pilates method was created to achieve a body, mind and healthy life. In designing and Aparicio Perez (2005), in defining the Pilates method with a single word would be called a movement, say two words to movement control, and if they had to do it with three words would be strength, elasticity and control.

The Pilates method provides several health benefits such as encouraging healthy habits, stimulating concentration and physical and mental balance and, thus, controlling stress better. In addition to a series of alleviating pain, improves posture, which is directly linked to health and physical well-being, mental and emotional. It also reduces fatigue, discomfort, improving muscle flexibility and joint mobility. Thus, Pilates is synonymous with wellbeing, related to the harmony between mind, body and spirit. His practice increases self-confidence and self-esteem (GALLAGHER AND KRYZANOWSKA, 2000).

METHODOLOGY

This study consists of a descriptive and quantitative. According to Andrade (2010) descriptive research aims to describe the characteristics of a given populations or phenomenon. Involves the use of standard techniques of data collection: questionnaire and systematic observation. And quantitative research finds that everything can be quantified, which means in figures reviews and information to classify them and analyze them.

For this research, was appointed by the physiotherapist of a Pilates studio in the city of Lages, SC, 7 students, 5 women and 2 men who are aged 60 years or more, which are independent in activities of daily living.

All subjects were informed about the study and agreed to participate, signed the Informed Consent and answered a structured questionnaire with closed questions, with socio-demographic and clinical data, such as now has been dropped and has some pathology.

Continuing, the assessment was conducted through the balance Tinetti protocol for the elderly. This protocol is divided into two stages of evaluation: a performance-oriented balance and gait for performance. In this study we used only the first, by turning to the static equilibrium.

For each item is given a score ranging from zero to two points, zero considering the inability to perform the activity; one, the ability to perform the task with some kind of adaptation and, two, the ability to perform the activity without any problems. For the measurement, the score should be added and compared before and after the proposed intervention. For the evaluation we used a chair without arms (55 cm).

The Pilates class was held on a weekly two classes, between 21/06/2011 to 26/07/2011 totaling 11 lessons. With an average duration of 60 minutes, the sessions were conducted individually in a tranquil environment, the physical therapist's studio, using the specific method and apparatus floor. Exercises were conducted overall and intermediate-level, according to the degree of each student because each student has a receptivity to the exercises offered.

RESULTS AND DISCUSSION

The sample consisted of seven respondents, five of which are female and two males, and 6 show the age group of 60-70 years of age and one over 70 years.

Ageing should be seen as a natural process, and productive experience and not as synonymous with a disability or terminal illness. In the current study we found that most respondents had had an episode of falling.

The Brazilian population is aging at a rapid pace, and the population under 25 decreased, while the band over 65 years increased, showing that life expectancy in Brazil has been growing gradually. The rate of death in the elderly due to falls is around 15%, with a major external causes of mortality in this age group. The falls are a constant concern in the life of the elderly, since half of those over eighty years old suffer falls, and more than half of that usually fall again fall within one year (MESSIAH and NEVES, 2009).

There are many causes cited for the increased risk of falls over time. Around 30 years of life ceases to be replaced calcium in the body evenly, causing some of our local bone becomes more brittle, compromising our balance. Sensory changes at older ages, reaching vision and hearing can also impair our posture and balance. Muscle weakness and degenerative diseases may be added to the factors mentioned above. The list of factors related to changes in the human body, arising from old age, and which can facilitate the loss of bodily equilibrium is long, and with an objective correlation between all these factors is the risk of falls (KAY, 1995).

At least 30% of the elderly in Brazil suffer an episode of downtime per year, whereas women have a frequency of falls a little higher than men. The elderly in the range between 75 and 84 years who need help in some activities of daily living (ADLs) are likely to suffer decline increased by 14 times. Falls in individuals above 60 years are so frequent that have long been accepted as effects "natural" aging. The causes can be varied and be associated with, the drop is usually caused by an occasional event that can be hazardous to the elderly, especially those who already have a disability stumbling gait or balance (SIQUEIRA, 2007).

Women because they have a smaller amount of lean mass and muscle strength are more likely to fall than men of similar age, as are most exposed to extrinsic factors, due to the performance of domestic activities (MESSIAS AND NEVES, 2009).

In relation to diseases found in the respondents were grouped into physiological systems affected, and performed the following division: systemic, respiratory and orthopedic surgery, where the majority has some orthopedic pathology (57%), followed by systemic (29%) and respiratory (14 %). According to the Ministry of Health, the main diseases that occur with greater intensity among older people are to the neurological, systemic, respiratory and orthopedic. For Siqueira (2007), live longer increases the odds by 80% or more of contracting a disease, as well as physical limitations disabling. It adds that in many cases it is difficult to distinguish changes due to aging or are pathological manifestations.

The changes in structure and functional losses occur in all organs and body systems. However, for Papaleo Neto (2002), the main health problems are given at the level of central nervous system, locomotor system and respiratory system. Over the years, the body and the body they age, giving way, especially from the elderly, the seriously ill. Therefore, we need health care early in an attempt to prevent these diseases.

Some features accompany the aging process as functional and structural changes vary from one individual to another, and can be found in any old, being proper to normal aging. Muscle strength is decreased, the motion is slowed with a reduction of associated movements, the deep reflexes are diminished sensitivity and changes are noted, as well as changes in memory. In addition to loss of cell groups and decreased functional capacity of many biochemical systems, which ultimately lead

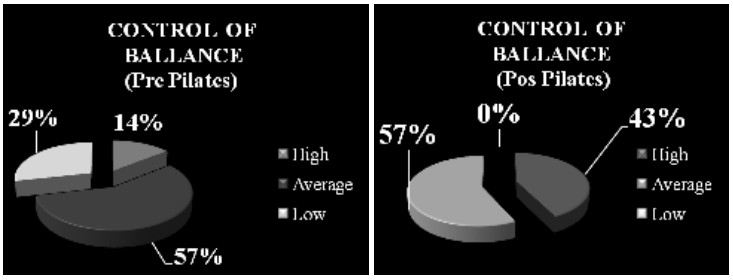
to a cognitive impairment that means without disease, madness or dementia (PAPALEO NETO, 2002).

The postural control system is quite complex, involving the reception of sensory information from vestibular, visual and proprioceptive afferent via, which are decoded in the central nervous system (CNS) changes are made where necessary to maintain balance. The following responses are issued, which were conducted by the efferent pathway, promoting the activation of the antigravity muscles, those responsible for maintaining control of body balance. One of the main factors that currently limit the life of the elderly is postural instability, leading to imbalance. In 80% of cases can not be assigned to a specific cause, but a compromise of balance as a whole (FONSECAAND RIBEIRO, 2003).

The manifestations of balance disorders have a major impact for the elderly, which can lead them to reduce social autonomy, decreasing their daily activities, the predisposition to falls and fractures, bringing suffering, body immobility, fear of falling again and costs with health care (BRASIL, 2002).

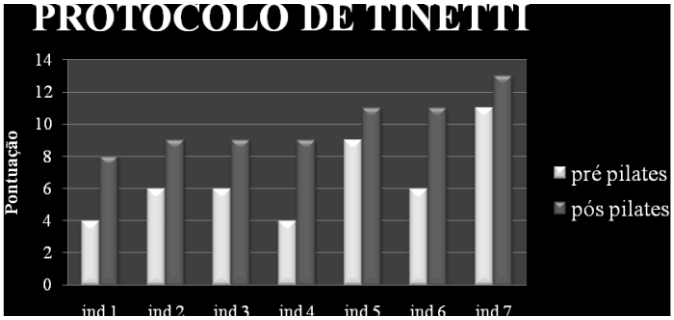
In Figure 3 we see that 57% of participants had a high rate of equilibrium after 11 pilates classes and a 43% average rate, no patient remained in the low equilibrium.

Figure 3: Control protocol as Tinetti balance



Tinetti protocol has been widely used to determine the risk factors for loss of independence and falls in the elderly. The assessment of gait and balance performance-oriented was created by Tinetti (1986). The protocol is divided into two parts: and in this study we used only the first part evaluates the balance through an evaluation with three levels of qualitative responses. The total raw score can be interpreted qualitatively as normal, adaptive and abnormal. Falls are predictive of low scores. In the third graph we see clearly the increase in the total score of points in the protocol Tinetti Pilates before and after the 11 Pilates classes, showing the gradual progress of each individual.

Chart 4: Tinetti protocol applied in the first Pilates class and last class



The exercises performed in Pilates can work effectively deeper musculature, significantly improving muscle balance, realigning posture, concentration, breathing, stretching. The purpose of Pilates can be a better quality of life of its practitioners, through optimal condition for a new position, developing greater mobility, balance and agility, basing itself on muscle tone and gain flexibility and elasticity, achieved through their specific exercises (SHRIMP, 2004).

As Kuhnert (2002), in ten sessions you can now feel the difference in balance, but the benefits really start at 10 weeks. After that time improves posture, the body becomes firmer and more elastic, more defined and postural balance.

A study by Hall et al (2003) showed significant results in relation to improving balance in older women who have undergone the practice of Pilates. These researchers obtained an improvement of the static and dynamic balance and postural stability of practitioners of Pilates, which attach to the achievements, strengthening exercises, postural correction and control and promotion of proprioceptive stimuli.

The benefits of resistance exercise, such as those featuring Pilates, were defended by Gallagher & Kryzanowska (2000). They noted that the work force provides improved physical mobility of the elderly, a positive effect on their way to perform motor actions and decreasing consequently the number of falls. Working with resistance exercise had a positive effect on improving the balance of the volunteers.

To justify the improvement of the balance of this study, we can also analyze the studies of Nadler et al (2002) which won improving balance, attributing it to postural stabilization. This stabilization is achieved by constant work of postural muscles, especially the abdominal and paraspinal, which according to Joseph Pilates, is the center of the body and therefore, once strengthened guarantee the stability posture.

For Camarão (2004), through regular practice of Pilates, the person rediscovers his own body with more coordination, balance and flexibility. Regardless of age, anyone can benefit by this method that improves the quality of life and provides quick results.

CONCLUSION

Based on the results obtained in this study, after a period of eleven classes in Pilates, you can say that for group study, training with the Pilates method has positively influenced the increase in the balance of the elderly.

During the school has always encouraged and emphasized the importance of maintaining an active lifestyle, healthy aging, where levels of independence in old age are intricately involved with the general state of health, for this, physical activity is

a valuable tool for health maintenance. Issues related to levels of independence are more complex and reach a crucial point in the human condition.

The practice of Pilates offers a positive effect on balance in elderly subjects, functioning as an important tool for reducing the risk of falls are common in the aging process, and improving the quality of life of the elderly.

Thus, it is recommended that further studies, focusing on the Pilates method in equilibrium with samples more expressive and also expanding it to other populations.

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THE INFLUENCE OF THE METHOD PILATES IN BALANCE IN ELDERLY

ABSTRACT

The Ministry of Health Brazil has had a significant increase in the number of elderly. Aging impairs the ability of the central nervous system to perform the signal processing vestibular, visual and proprioceptive responsible for maintaining body balance. In more than half the cases the imbalance originates between 65 and 75 years approximately, and about 30% of elderly patients have the symptoms at this age. The Pilates Method is a technique that is most commonly used by physiotherapists. It is an exercise system that promotes balance between body and mind. This method, developed by Joseph Hubertus Pilates, provides well-being, health and a better quality of life. The objective of this study was to analyze the influence that the exercises of the Pilates method can provide for balance in the elderly. Was indicated by the physical therapist Pilates studio in the city of Lages-SC 7 students who have aged 60 years or more of both sexes. Applied questionnaire with closed questions and protocol for Tinetti balance assessment. The Pilates class was held on a weekly two classes. The results show that 75% of respondents have had an episode of fall. And 57% have some orthopedic pathology, systemic 29% and 14% respiratory. And 57% of participants maintained a high level of balance after the 11 Pilates classes and a 43% average rate. Therefore, the practice of Pilates offers a positive effect on balance in elderly subjects, functioning as an important tool for reducing the risk of falls are common in the aging process.

KEYWORDS: elderly, balance, Pilates.

L'INFLUENCE DE LA MÉTHODE PILATES EN ÉQUILIBRE DANS PERSONNES AGEES

RÉSUMÉ

Le ministère de la Santé du Brésil a eu une augmentation significative du nombre de personnes âgées. Vieillir altere La capacite du système nerveux central pour effectuer Le traitement du signal vestibulaire, visuel et proprioceptif responsable du maintien de l'équilibre du corps. En plus de la moitié des cas le déséquilibre provient entre 65 et 75 ans environ, et environ 30% des patients âgés ont des symptômes à cet âge. La méthode Pilates est une technique qui est le plus couramment utilisé par les kinésithérapeutes. Il s'agit d'un système d'exercice qui favorise l'équilibre entre corps et esprit. Cette méthode, développée par Joseph Hubertus Pilates, procure bien-être, la santé et une meilleure qualité de vie. L'objectif de cette étude était d'analyser l'influence que les exercices de la méthode Pilates peut fournir de l'équilibre chez les personnes âgées. A été indiqué par le physiothérapeute studio Pilates dans la ville de Lages-SC 7 étudiants qui ont 60 ans ou plus des deux sexes. Questionnaire appliqué aux questions fermées et protocole pour l'évaluation bilan Tinetti. Les cours de Pilates a eu lieu sur un deux cours hebdomadaires. Les résultats montrent que 75% des répondants ont eu un épisode de l'automne. Et 57% ont une certaine orthopédie pathologie, systémique 29% et 14% des voies respiratoires. Et 57% des participants ont maintenu un haut niveau d'équilibre après le cours de Pilates 11 et un taux moyen de 43%. Par conséquent, la pratique de la méthode Pilates propose un effet positif sur l'équilibre chez les sujets âgés, fonctionnant comme un outil important pour réduire les risques de chutes sont fréquentes dans le processus de vieillissement.

MOTS-CLÉS: personnes âgées, l'équilibre, la méthode Pilates.

LA INFLUENCIA DEL MÉTODO PILATES EN EQUILIBRIO EN PERSONAS MAYORES
RESUMEN

El Ministerio de Dalud de Brasil ha tenido un aumento significativo en el número de ancianos. El envejecimiento deteriora la capacidad del sistema nervioso central para llevar a cabo el procesamiento de señales vestibular, visual y propioceptiva responsable de mantener el equilibrio del cuerpo. En más de la mitad de los casos el desequilibrio se origina entre el 65 y 75 años aproximadamente, y cerca del 30% de los pacientes ancianos tienen los síntomas de esta edad. El Método Pilates es una técnica que se usa más comúnmente por los fisioterapeutas. Se trata de un sistema de ejercicios que promueve el equilibrio entre cuerpo y mente. Este método, desarrollado por Joseph Hubertus Pilates, proporciona bienestar, la salud y una mejor calidad de vida. El objetivo de este estudio fue analizar la influencia que los ejercicios del método Pilates puede dar para mantener el equilibrio en los ancianos. Fue indicado por el terapeuta físico Pilates Studio en la ciudad de Lages, SC 7 estudiantes que tienen 60 años o más de ambos sexos. Cuestionario aplicado, con preguntas cerradas y el protocolo para la evaluación del balance de Tinetti. La clase de Pilates se llevó a cabo un programa semanal de dos clases. Los resultados muestran que el 75% de los encuestados ha tenido un episodio de la caída. Y el 57% tienen alguna patología ortopédica, sistémica del 29% y 14% de las vías respiratorias. Y el 57% de los participantes mantuvieron un alto nivel de equilibrio después de las 11 clases de pilates y una tasa media del 43%. Por lo tanto, la práctica de Pilates ofrece un efecto positivo en el equilibrio en sujetos de edad avanzada, que funciona como una herramienta importante para reducir el riesgo de caídas son comunes en el proceso de envejecimiento.

PALABRAS CLAVE: balance de ancianos, Pilates.

A INFLUÊNCIA DO MÉTODO PILATES NO EQUILÍBRIO EM IDOSOS
RESUMO

Segundo o Ministério da Saúde o Brasil vem apresentando um significativo aumento no número de idosos. O envelhecimento compromete a habilidade do sistema nervoso central em realizar o processamento dos sinais vestibulares, visuais e proprioceptivos responsáveis pela manutenção do equilíbrio corporal. Em mais da metade dos casos o desequilíbrio tem origem entre os 65 e os 75 anos aproximadamente e cerca de 30% dos idosos apresenta os sintomas nesta idade. O Método Pilates é uma das técnicas que está sendo mais usada pelos fisioterapeutas. É um sistema de exercícios físicos que promove equilíbrio entre corpo e mente. Esse método, desenvolvido por Joseph Hubertus Pilates, proporciona bem-estar, saúde e uma melhor qualidade de vida. O objetivo deste estudo foi analisar a influência que os exercícios do método Pilates podem proporcionar para o equilíbrio em idosos. Foi indicado pela fisioterapeuta do estúdio de Pilates da cidade de Lages-SC 7 alunos que possuem idade entre 60 anos ou mais de ambos os sexos. Aplicado questionário com perguntas fechadas e o protocolo de Tinetti para avaliação do equilíbrio. A aula de Pilates foi realizada com freqüência semanal de duas aulas. Os resultados obtidos mostram que 75% dos entrevistados já tiveram um episódio de queda. Sendo que 57% apresentam alguma patologia ortopédica, 29% sistêmica e 14% respiratória. E 57% dos participantes mantiveram um alto índice de equilíbrio após as 11 aulas de Pilates e 43% um médio índice. Sendo assim, a prática de Pilates oferece efeitos positivos no equilíbrio de idosos, funcionando como uma ferramenta importante para a redução do risco de quedas, comuns no processo de envelhecimento.

PALAVRAS CHAVE: idosos, equilíbrio, Método Pilates.