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THE ROLE OF THE PHYSIOTHERAPIST IN ALZHEIMER'S DEMENTIA

O PAPEL DO FISIOTERAPEUTA NA DEMÊNCIA DE ALZHEIMER

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ABSTRACT

Brazil is facing rapid population growth, resulting in no increase in the incidence of Alzheimer's disease (AD), a neurodegenerative condition that compromises memory, motor coordination and functionality. DA is classified in three stages: mild, moderate and advanced, with progressive aggravation of two symptoms.Initially, it is manifested by subtle memory deficits and discrete motor alterations. In the moderate phase, these dysfunctions become more evident, affecting daily activities. If this is not advanced, cognitive and motor impairments become severe, requiring continued assistance due to loss of autonomy. Embora incurável, physiotherapy plays an essential role in the maintenance of mobility, strength and balance, contributing to slowing down the progress of the disease and preventing complications, promoting greater independence.

Keywords: Alzheimer's Disease. Physiotherapy. Rehabilitation. Kinesiotherapy.

RESUMO

O Brasil enfrenta um rápido envelhecimento populacional, resultando no aumento da incidência da Doença de Alzheimer (DA), uma condição neurodegenerativa que compromete memória, coordenação motora e funcionalidade. A DA é classificada em três estágios: leve, moderado e avançado, com agravamento progressivo dos sintomas. Inicialmente, manifesta-se por déficits sutis de memória e discretas alterações motoras. Na fase moderada, essas disfunções tornam-se mais evidentes, afetando as atividades diárias. No estágio avançado, os comprometimentos cognitivos e motor tornam-se severos, exigindo assistência contínua devido à perda de autonomia. Embora incurável, a fisioterapia exerce um papel essencial na manutenção da mobilidade, força e equilíbrio, contribuindo para retardar a progressão da doença e prevenir complicações, promovendo maior independência.

Palavras-chave: Doença de Alzheimer. Fisioterapia. Reabilitação. Cinesioterapia.

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RESUMEN

Brasil se enfrenta a un rápido desarrollo poblacional, lo que no da como resultado un aumento de la incidencia de la enfermedad de Alzheimer (DA), una condición neurodegenerativa que compromete la memoria, la coordinación motora y la funcionalidad. A DA está clasificado en tres estados: leve, moderado y avanzado, con agravamiento progresivo de dos síntomas. Inicialmente, se manifiesta por déficits sutis de memoria y discretas alteraciones motoras. Na fase moderada, essas disfunções tornam-se mais evidentes, afetando as atividades diárias. No está avanzado, os compromisos cognitivos y motores tornam-se severos, exigindo asistencia continua devido a pérdida de autonomía. Embora incurável, a fisioterapia exerce um papel esencial na manutenção da mobilidade, força e equilíbrio, contribuyendo para retrasar el progreso de la docencia y prevenir complicaciones, promovendo mayor independencia.

Palabras clave: Doña de Alzheimer. Fisioterapia. Rehabilitación. Cinesioterapia.

1 INTRODUCTION

The Brazilian population is aging rapidly, according to the Brazilian Institute of Geography and Statistics (IBGE), the number of people aged 65 and over has increased by 57.4% in just twelve years. In addition, the group of elderly people aged 60 and over reached 32.1 million persons, representing 15.8% of the entire population of Brazil. These figures reflect the demographic transition in Brazil, where the proportion of older people is growing at a rapid pace due to factors such as increased life expectancy and reduced birth rates (Marri, et al, 2023).

Aging is not just a matter of time, but involves transformations that affect the body in several dimensions. It is a continuous and progressive process characterized by changes in different aspects of the body and mind, including changes in physical form, organ functioning, biochemical processes, and psychological aspects, these changes lead to a decrease in the individual's ability to adapt to the environment, a phenomenon known as senescence. One of the biological changes associated with aging is the degeneration of the central nervous system, which can lead to the development of dementias, the most prevalent of these conditions is Alzheimer's Disease (AD) (Dias CQ, Barros JAS, Graciani Z, Amato CAH, Rodrigues E, Vianna DL et al.2020).

Alzheimer's disease was first described in 1906 by the German neurologist Dr. Alois Alzheimer, who identified pathological changes in the brain tissue of a patient with a rare and progressive clinical picture. These changes were later recognized as characteristic markers of the disease. Risk factors for the development of

AD include advanced age (≥ 65 years), female gender, cardiovascular conditions (hypertension, stroke, and dyslipidemia), diabetes, malnutrition, low educational attainment, exposure to adverse environments, and genetic predisposition (Giordano et al., 2007).

As Alzheimer's disease progresses through its stages — mild, moderate and advanced — patients face not only cognitive losses, but also an increasingly evident motor and physical decline. At first, difficulties with memory, attention, and reasoning may seem subtle, but they may already be accompanied by small changes in balance and coordination. With the evolution to the moderate phase, the degeneration of the cortical and subcortical areas begins to affect the control of movements more, making day-to-day tasks more challenging. In the advanced stage, the loss of executive functions and planning capacity intensifies, leading to an almost total dependence on care, in addition

to severe difficulties in mobility and in performing basic activities (Oliveira et al.2025).

The main motor problems include changes in gait, such as reducing speed, shortening strides, and decreasing spacing between them. In addition, there may be a loss of strength in the upper and lower limbs, as well as difficulties in postural control. These changes can appear in the early stages of dementia or even before the most evident symptoms of Alzheimer's disease. Older adults with mild cognitive impairment tend to have poorer balance and coordination, in addition to a reduction in physical activity levels, which increases the risk of falls, fractures, and other injuries (Melissa; Cynthia; Narahana; Paulo; Alexander; Jerson; Andrea et. Al, 2012).

Although Alzheimer's Disease has no cure, physiotherapy plays an essential role in the management of the condition, contributing to the improvement of the quality of life of patients at different stages of the disease. Physical therapy interventions seek to slow down the progression of the disease, preserve motor functions, prevent deformities and shortenings, and stimulate mobility and the patient's interaction with the environment (Marteli et al., 2023).

2 METHODOLOGY

This study is an integrative literature review on physical therapy rehabilitation in different stages of Alzheimer's Disease, focusing on therapeutic interventions and physical exercises. To carry out this review, a search was carried out in the PubMed, LILACS and PEDro databases, using the descriptors "Physiotherapeutic Rehabilitation", "Alzheimer's Disease", "Therapeutic exercises", "Cognitive and motor functions" and "Therapeutic strategies". The selected articles went through two stages of analysis: the initial screening, in which the titles and abstracts were evaluated to ensure compliance with the inclusion criteria, and the complete reading, to confirm the relevance and methodological quality of the studies.

The inclusion criteria were: articles published between 2010 and 2024, studies in Portuguese that address physical therapy interventions in patients with Alzheimer's Disease, with a focus on motor and cognitive rehabilitation. Randomized controlled trials, systematic reviews, cross-sectional studies, and therapeutic protocols were included. Articles in other languages, studies that do not deal with rehabilitation or Alzheimer's, as well as articles without a description of therapeutic interventions or that were narrative reviews, opinion articles, or incomplete abstracts were excluded.

Data analysis focused on identifying the type of intervention (therapeutic exercises, dual tasks, specific protocols), the stage of Alzheimer's disease addressed, and the effects of the interventions on cognitive and motor functions. The methodological quality of the studies was assessed using the criteria of the PEDro tool for randomised controlled trials and the STROBE tool for observational studies, ensuring the validity and consistency of the results found.

3 RESULTS AND DISCUSSIONS

3.1 DISCUSSION

The stages of Alzheimer's Disease (AD) manifest themselves progressively, causing significant impacts on the quality of life of affected individuals and on the challenges faced by caregivers and health professionals. As evidenced in the literature, AD is classically subdivided into three phases: mild, moderate and severe, characterized by different degrees of cognitive and functional impairment, this classification is essential to direct personalized and effective therapeutic approaches. (Alves et al., 2020)

Life expectancy after the diagnosis of Alzheimer's Disease varies between 8 and 10 years, and can reach 20 years in some cases. However, the progression of the disease is not the same for everyone. On average, patients can take 2 to 5 years to advance from one stage to another. Factors such as age, general health, and access to treatment influence this time. Studies show that patients diagnosed younger tend to live longer than those diagnosed at older ages (BVS MS et al, 2024).

The early stage of Alzheimer's disease is characterized by pre-dementia and usually begins 10 or 15 years before people show symptoms, so this factor can be confused with aging. The patient may be independent, however, he may forget words or places immediately and every diagnosis is given according to a detailed medical consultation, capable of detecting the difficulties that these people present. Regarding the form of treatment, during this stage the use of prescribed medications is made to treat and minimize symptoms. (Ballard et al. 2022)

The role of the physiotherapist is related to delaying the progression of the disease, since it affects the central nervous system (CNS). Generally, the physiotherapist uses the practice of physical exercises aimed at the cognitive and physical, as well as: avoiding falls, delaying neurological impairment and improving functionality. (ELO SENIOR et al. 2022).

In this way, cognitive deficits progress silently and can be suspected in the aging phase. Among all the symptoms present in the disease, we can mention: constant memory loss, difficulty performing daily activities, personality change, difficulty developing projects, and anxiety. (Ballard et al. 2022).

In the second stage of Alzheimer's disease, cognitive and functional deficits become more evident, directly affecting the patient's ability to perform daily tasks. Memory loss intensifies, making it difficult to recall recent events or recognize people close to you. In addition, there is a growing impairment of language, with difficulties in finding words or following conversations. (Research, Society and Development, v. 11, n. 8, e19811830788, et al. 2022).

Another striking aspect of this phase is the impact on mobility and motor control. Studies indicate that patients with Alzheimer's at this stage have difficulties in coordinating and executing simple movements, as well as changes in gait pattern and balance. These factors increase the risk of falls and contribute to a greater dependence on day-to-day activities. The advancement of these symptoms signals the transition to the next stage, where autonomy becomes even more limited. (Research, Society and Development, v. 11, n. 8, e19811830788, et al. 2022).

The advanced stage of Alzheimer's disease, also known as the terminal stage, is marked by the significant progression of cognitive and functional deficits, leading to complete dependence on the patient. At this stage, the need for continuous care becomes essential due to severe neurological impairments. The individual has marked resistance to performing basic activities, such as eating and personal hygiene. In addition, motor deterioration progresses, resulting in immobility and severe impairment of verbal communication, which can progress to mutism. (Portalentropia, et al, 2023).

In addition, cardiorespiratory problems become more evident, with arrhythmias, postural hypotension, and heart failure being common due to autonomic dysfunction and loss of the body's ability to regulate vital functions. Muscle weakness, including respiratory muscles, contributes to reduced ventilatory capacity, increasing the risk of hypoventilation and hypoxia. (SOS Vida, et al, 2024).

Intercurrent infections, especially pneumonia, are frequent due to prolonged immobility and difficulty swallowing correctly, favoring the aspiration of food or liquids into the lungs. Bronchial aspiration, together with the effective reduction of cough and the accumulation of secretions, contributes to respiratory failure, being one of the main

causes of death in these patients. (Pelegrino, et al, 2023).

Given the severity of this condition, palliative care is essential to ensure patient comfort, minimizing suffering and offering respiratory and nutritional support and adequate pain control. (Jenny Abbey, et al, 2006).

3.2 PHYSIOTHERAPY INTERVENTIONS

Physical therapy plays a crucial role in the rehabilitation of patients with Alzheimer's Disease, promoting improved quality of life and maintaining motor functions. Its main objective is to preserve and optimize mobility, muscle strength, balance and coordination, as well as to reduce the risk of falls and promote functional independence. The interventions are carefully adjusted according to the stage of the disease and the specific needs of each patient, ensuring a personalized and effective approach for each case. (Marinho, et al, 2020).

Kinesiotherapy is a key component of physical therapy for AD patients, encompassing a range of exercises that aim to optimize mobility, muscle strength, and functionality. Depending on the stage and functional capacity of the patient, kinesiotherapy can include active, passive, or assisted movements. This approach aims to improve the range of motion of the joints, prevent muscle stiffness, strengthen the musculature, and promote overall mobility. (Thais Ferraz, et al, 2014).

PNF stimulates the development of motor behavior through the receptors of the nervous system, being particularly useful in the context of Alzheimer's Disease (AD). It activates muscles efficiently, improving motor control and coordination. In addition, by incorporating proprioceptive stimuli, PNF contributes to the recovery of independence in daily activities, promoting functional movements and facilitating the performance of everyday tasks. This approach can also reduce spasticity, improve balance, and increase body awareness, making it a valuable tool for AD patients at different stages of the disease. (Rodrigues, et al, 2010).

When combined, these therapeutic approaches offer an integral approach that aims not only to treat motor symptoms, but also to prevent complications, promote functionality, and improve the quality of life of patients with Alzheimer's disease. (Katharina Brueggen, Elisabeth Kasper, Sina Ochmann, Henrike Pfaff, Steffi Webel, Wolfgang Schneider, Stefan Teipel, et al. 2016).

4 CONCLUSION

Therefore, physiotherapists play a key role in mitigating the progression of Alzheimer's disease, acting directly to slow down its progression and minimize its complications. The earlier the intervention, the greater the possibility of preserving the patient's functionality for an extended period. Physical therapy is essential in all phases of the disease, contributing to the maintenance of mobility, balance and functional independence.

In addition, it is essential to have a multidisciplinary team composed of dentists, nurses, nutritionists, psychologists, speech therapists, occupational therapists, physiotherapists and social workers. This integrated approach enables broader care, focused on the maintenance of cognitive and motor functions, favoring the patient's quality of life.

Thus, it is understood that AD presents a progressive evolution, significantly impacting functionality. The practice of physical activities, especially under physical therapy guidance, is essential for the preservation of functional capacity and physical and mental health. Thus, physiotherapy stands out as an indispensable therapeutic strategy, promoting stability in the clinical picture, reducing complications and providing greater well-being to the patient.

REFERENCES

Aguirre, F. (2020). Religión popular: Fiesta e imagen. *Veritas, (47)*, 169–205.

Barthes, R. (1966). Introducción al análisis estructural de las narrativas. *Presentaciones, 8*(1), 1–27.

Barthes, R. (1970). *Mythologies* (1st ed., Vol. 1). Points.

Bericat Alastuey, E. (2011). Imagen y conocimiento: Retos epistemológicos de la sociología visual. *Empiria: Revista de Metodología de Ciencias Sociales, 22*, 113–140.

Brito Aguirre, A., Brito Aguirre, J., Landívar Ruíz, A., & López, M. (2011). *Gráfica popular guayaquieña* [Bachelor's thesis, ESPOL, EDCOM].

Chaparro, E. (2013). Apropiaciones de la gráfica popular urbana. *Designia, 2*(1), 68–84.

Debray, R. (1998). *Vida y muerte de la imagen*. Paidós.

Dondis, D. A. (1976). *La sintaxis de la imagen: Introducción al alfabeto visual*.

Barcelona: Gustavo Gili.

Figueroa, F. (2007). Estética popular y espacio urbano: El papel del graffiti, la gráfica y las intervenciones de calle en la configuración de la personalidad de barrio. *Disparidades: Revista de Antropología, 62*(1), 111–144.

De la Flor, F. R. (2010). The culture of images and the decline of text-based writing. *Arbor-Ciencia Pensamiento y Cultura, 186*(743), 365–375.

Godás, L. (2007). Promoción y comunicación: Importancia de la venta personal. *Offarm, 26*(5), 80–84.

Goetz, J. P., & LeCompte, M. D. (1988). *Etnografía y diseño cualitativo en investigación educativa* (Vol. 1). Madrid: Morata.

Hernández-Sampieri, R., & Mendoza Torres, C. P. (2018). *Metodología de la investigación: Las rutas cuantitativa, cualitativa y mixta* (1st ed.). McGraw-Hill.

Jakobson, R. (1975). *Lingüística general*. Buenos Aires: Ariel.

Kotler, P. (2011). Reinventing marketing to manage the environmental imperative. *Journal of Marketing, 75*(4), 132–135.

Magariños de Morentin, J. (2001). La(s) semiótica(s) de la imagen visual. *Cuadernos de la Facultad de Humanidades y Ciencias Sociales, Universidad Nacional de Jujuy, (17)*, 295–320.

Morón Donayre, J. (2012). *Signos de identidad: De la gráfica popular limeña a la identidad gráfica peruana*.

Pellicer, L. (2010). Análisis semiótico-lingüístico del discurso de la marca moderna (I): El caso Moviline en España. *Pensar la Publicidad, 3*(2), 149–166.

Péninou, G. (1976). *Semiótica de la publicidad* (1st ed.). Gustavo Gili.

Romero Urréa, H., Real Cotto, J. J., Ordoñez Sánchez, J. L., Gavino Díaz, G. E., & Saldarriaga, G. (2021). *Metodología de la investigación* (1st ed.). Editorial Corporativa Edicumbre. Retrieved from https://acvenisproh.com/libros/index.php/Libros_categoria_Academico/article/view/22/29

Ruiz Olabuénaga, J. I. (2007). *Metodología de la investigación cualitativa*. Bilbao: Universidad de Deusto.

Saussure, F. (1945). *Lingüística general*. Buenos Aires: Losada.

Secretaría de Integración Social. (2018). *Localidad Antonio Nariño narrativa de caracterización territorial territorio 3 Restrepo social e incluyente*. Alcaldía Mayor de Bogotá, Secretaría de Integración. Retrieved September 8, 2023, from https://old.integracionsocial.gov.co/anexos/documentos/1_entidad/gsi/15_antonio

_narino_lectura_de_realidades_restrepo_social.pdf

Triquell, A. (2016). Hacer (lo) visible: La imagen fotográfica en la investigación social. *Revista Reflexiones, 94*(2), 121–132. https://doi.org/10.15517/rr.v94i2.25462

Valencia, C. S., Riaño, V. S., Daza, N. R. G., & Pinzón, S. L. (2015). *La publicidad como espejo de la sociedad*. Bogotá: Universidad Jorge Tadeo Lozano.

Vega Pindado, E. (2017). *Gráfica popular en la era digital* [Tesis de doctorado, Universidad Complutense de Madrid].

Vidal, A. V. (2019). La chiva: Lienzo identitario de la gráfica popular caucana. *Encuentros de Investigación Formativa RAD, (2)*, 164–173.

Yalán Dongo, E. (2020). Trayectos de la publicidad popular: Semiótica de la gráfica publicitaria en espacios visualmente contaminados en el centro de Lima, Perú. *Global Media Journal México, 17*(33), 5.