

EXERCÍCIO FÍSICO NA PESSOA COM DEMÊNCIA: REVISÃO SISTEMÁTICA DE LITERATURA.

EJERCICIO FÍSICO EN LA PERSONA CON DEMENCIA: REVISIÓN SISTEMÁTICA DE LA LITERATURA.

PHYSICAL EXERCISE IN A PERSON WITH DEMENTIA: SYSTEMATIC REVIEW OF LITERATURE

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RESUMO

Introdução: A demência é caracterizada por um conjunto de transtornos que englobam uma perda progressiva das funções cognitivas e afeta a destreza que é necessária ao desenvolvimento normal das atividades de vida diária.

Objetivo: Identificar os benefícios do exercício físico a nível cognitivo, sensorial e motor na pessoa com demência.

Método: revisão sistemática da literatura com a questão de pesquisa “Quais os benefícios do exercício físico em pessoas com demência?”. A pesquisa foi realizada com recurso a plataformas de bases de dados eletrónicas EBSCOHost e Biblioteca Virtual em Saúde, tendo sido identificados, selecionados, avaliados na qualidade metodológica e incluídos artigos de acordo com as recomendações do PRISMA.

Resultados: Foram incluídos 7 estudos que cumpriam os critérios de inclusão, ou seja, estudos primários experimentais, que abordam a prática de exercício físico em pessoas com demência, publicados nos últimos 5 anos (2014-2018), em português, inglês e espanhol, com texto integral de livre acesso.

Conclusões: Esta revisão sistemática de literatura revela evidência dos efeitos benéficos do exercício sobre cognição, agitação, depressão e capacidade motora em pessoas com demência.

Descritores: Atividade Física; Exercício Físico; Demência; Doença Alzheimer; Enfermagem em Reabilitação.

RESUMEN

Introducción: La demencia es caracterizada por un conjunto de trastornos que engloban una pérdida progresiva de las funciones cognitivas y afecta la destreza que es necesaria para el desarrollo normal de las actividades de vida diaria.

Objetivo: Identificar los beneficios de ejercicio físico a nivel cognitivo, sensorial y motor en la persona con demencia.

Método: Revisión Sistemática de la Literatura con la cuestión de la investigación “¿Cuáles son los beneficios del ejercicio físico en las personas con demencia?”. La investigación fue realizada con recurso a plataformas de bases de datos electrónicas EBSCOHost y Biblioteca Virtual en Salud, habiendo sido identificados, seleccionados, evaluados en la calidad metodológica e incluidos artículos de acuerdo con las recomendaciones del PRISMA.

Resultados: Se incluyeron siete estudios que cumplieron los criterios de inclusión, es decir, estudios primarios experimentales que aborden el ejercicio físico en personas con demencia, publicado en los últimos cinco años (2014-2018), en portugués, Inglés y Español, con texto integral de libre acceso.

Conclusiones: Esta revisión sistemática de la literatura revela evidencia de los efectos del ejercicio sobre cognición, agitación, depresión y capacidad motora en personas con demencia.

Descritores: Actividad Física; Ejercicio físico; Demencia; Enfermedad Alzheimer; Enfermería en Rehabilitación.

ABSTRACT

Background: Dementia is characterized by a set of disorders involving a progressive loss of cognitive functions as well as affecting the skill necessary for the normal development of activities of daily living.

Objective: To identify the benefits of physical exercise at the cognitive, sensory and motor level in the person with dementia.

Method: Systematic Review of literature, started with the question: "What are the benefits of physical exercise in people with dementia?". The research was carried out using the electronic database platforms: EBSCOHost and BVS,

having been identified, selected, evaluated in a methodological quality and included articles that take into account the PRISMA recommendations.

Results: There were included seven studies meeting the inclusion criteria, that is, primary experimental studies, addressing the practice of physical exercise in people with dementia and Alzheimer Disease, published in the last 5 years (2014-2018), in Portuguese, English and Spanish, were included, with full text of free access.

Conclusions: This Systematic Review reveals evidence of the beneficial effects of physical exercise on cognition and motor ability in people with dementia.

Keywords: Physical Activity; Physical exercise; Dementia; Alzheimer Disease; Rehabilitation Nursing

INTRODUCTION

Health at a Glance 2017, from the Organization for Economic Co-operation and Development (OECD), reports that dementia is one of the leading causes of death. In 2015, it represented 4.5% in women and 2.1% in men. The same study places Portugal in 4th place with 19.9 cases per thousand inhabitants, only surpassed by Germany, Italy and Japan, the latter occupying the top of the table with 23.3 cases per thousand inhabitants, while the OECD average is situated in the 14.8. As average life expectancy increases in Portugal, the number of dementia cases increases, and it is estimated that this number will increase to 31.3 per thousand inhabitants by 2037⁽¹⁾.

Although it mostly affects the elderly, dementia is not a normal consequence of aging. Dementia is a group of disorders that comprise a progressive loss of cognitive functions and affect the dexterity that is necessary for the normal development of activities of daily living (ADL)⁽²⁻³⁾ among them, attention, short- and long-term memory, activity and movement planning⁽⁴⁾, which leads to person's development loss, causing changes in their family and social environment, due to their dependence state⁽⁵⁾.

Alzheimer's disease is the most common form, accounting for about 60-70% of dementia cases. Among the less frequent forms of dementia, we can highlight vascular, mixed, Lewy body and Parkinson's disease dementias, among others⁽⁵⁾.

Thus, Alzheimer's Disease of still unknown cause, leads to neurodegeneration and the consequent (progressive and irreversible) worsening of brain functions, culminating in the total loss of autonomy⁽⁶⁾.

The initial symptoms include memory loss, spatial and temporal disorientation, confusion and problems regarding reasoning and thinking, causing changes in the person's behavior, personality and functional capacity, and hindering the performance of their ADL⁽⁶⁾.

At the moment, there is no treatment to stop the progression of the disease and pharmacological treatment is limited to alleviating the symptoms caused by dementia⁽⁷⁾.

The studies carried out indicate that changes in lifestyles and physical exercise can prevent or delay the onset of dementia^(8,9). These data suggest that physical exercise improves neuropsychological functioning, although leisure activities can also bring

improvements. Thus, an aerobic physical exercise program can be an adjuvant alternative to maintain and improve these functions⁽⁹⁾.

The Specialist Nurse in Rehabilitation Nursing (SNRN), according to the Regulation of Specific Competences, has the competence to design, implement, evaluate and reformulate motor and cardiorespiratory training programs, depending on the expected results⁽¹⁰⁾ in which the prescription of physical exercise is inserted.

The starting question of this systematic literature review (SLR) is: what are the benefits of physical exercise in people with dementia?

The objective of the SLR is to identify the benefits of physical exercise at the cognitive, sensory and motor levels in people with dementia.

MATERIAL AND METHODS

Among the various types of reviews, SLR is the most used, and is defined "*as a systematic, explicit and reproducible method that allows the identification, evaluation and synthesis of studies carried out by researchers, academics and health professionals*"^(11: 47) in order to reduce biases. It is a method that allows for a rigorous synthesis of all research related to a specific question, thus making it possible to obtain the best evidence, which is why it is considered one of the pillars for evidence-based practice⁽¹¹⁾.

To perform an SLR, seven steps must be taken into account: 1) construction of the research protocol; 2) formulation of the question; 3) research studies; 4) selection and review of studies; 5) critical evaluation of each of the articles; 6) data collection; 7) synthesis of results/data⁽¹¹⁾.

To formulate the research question, we used the recommendations of the Joanna Briggs Institute (JBI)⁽¹²⁾ based on the PICO strategy. Each dimension of the PICO contributed to define the inclusion criteria: Population (P) - People with dementia including Alzheimer's Disease as it is a more frequent typology of dementia; Intervention (I) - Physical exercise; Comparison (C) and Results (O) - Benefits of exercise.

This resulted in a research question: "What are the benefits of physical exercise for people with dementia?"

The descriptors related to each of the components of the PICO strategy were: Dementia; Alzheimer Disease; Physical Exercise; Physical Activity, previously

validated in the Health Sciences Descriptors and Medical Subject Headings platform.

The inclusion criteria were defined as: experimental and quasi-experimental primary studies, which address the practice of physical exercise in people with dementia and Alzheimer's disease, published over the last 5 years (2014-2018), in Portuguese, English and Spanish, with free access full text.

The survey was conducted during the months of October and November 2018 through the EBSCOHost electronic database platforms (CINAHL Complete; Cochrane Collection Plus; Nursing & Allied Health Collection: Expanded; MEDLINE® Complete; Library, Information Science & Technology Abstracts; Medic Latina), Virtual Health Library (VHL).

The search was carried out by two people simultaneously, from October 20th to November 24th, 2018, taking into account the following Boolean conjugation with the descriptors in English:

((Physical Exercise) OR (Physical Activity)) AND ((Alzheimer Disease) OR Dementia))

Table 1 describes the process of combining descriptors and keywords for searching the databases. Figure 1 illustrates the PRISMA flowchart corresponding to the identification, analysis, selection and inclusion of articles.

Boolean Conjugation	EBSCO	BVS
((Physical Exercise) OR (Physical Activity)) AND ((Alzheimer Disease) OR (Dementia))	3430	1019

Table1 – Boolean Conjugation

The articles selected for full reading were independently evaluated by two investigators, according to methodological quality criteria proposed by the JBI⁽¹²⁾, with only articles with more than 75% of the criteria being selected.

Information was extracted from the articles about authors, year, country, sample, data on modality, intensity, volume, frequency and duration of physical exercise. The classification of the levels of evidence of the included studies was based on the criteria of the Registered Nurses Association of Ontario⁽¹³⁾.

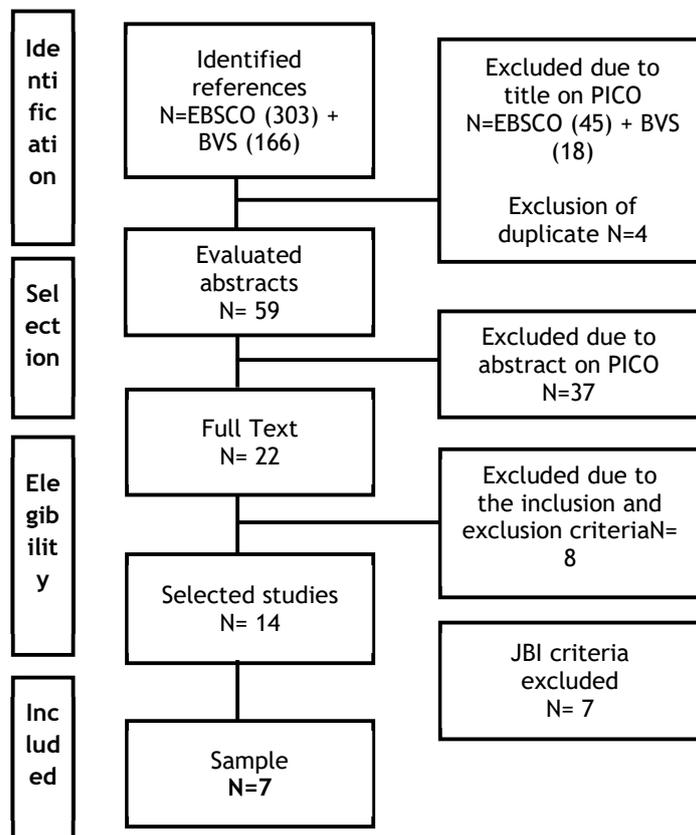


Figure 1 – Identification, analysis and selection of articles ⁽¹⁴⁾.

RESULTS

Seven articles were included in this RSL, published in the following years 2015^(15,16,17,19), 2016^(18,21) and 2017⁽²⁰⁾, the sample of people varied between 30⁽²¹⁾ and 170⁽¹⁵⁾. Regarding the control group, it ranged between 15^(16,21) and 116⁽¹⁹⁾. Duration of studies between 8 weeks⁽¹⁸⁾ and 15 months⁽¹⁹⁾. All studies included (Table 2) are experimental primary studies according to the Nurses Association of Ontario with levels of evidence Ib, that is, evidence obtained from at least one controlled study⁽¹³⁾.

Author, year, country	Participants	Objective	Intervention	Results	Evidence Level
Telenius E., et al. 2015, Norway(15)	Total (n=170) Experimental group (n=87) Control group (n=83)	To investigate the effect of a high-intensity functional exercise program on balance, mobility, and activities of daily living and neuropsychiatric symptoms in nursing home residents.	Duration of study: 12 weeks Experimental group: Modality - Muscle strengthening exercises (five minutes of warm-up, at least two strength exercises for the lower limb muscle and two balance exercises) Intensity - High Frequency - twice a week Volume - two sets and 12 reps Duration - 50 to 60 minutes Control group: Recreational activities (reading, games, listening to music and socializing)	The results demonstrate that the high intensity muscle strengthening exercise program has statistically positive effects on balance, mobility and activities of daily living and reduced apathy and agitation. In the control group there was a decline in the function of activities of daily living.	lb
Holthoff VA., et al. 2015, Germany(16)	Total (n=30) Experimental group (n = 15) Control group (n = 15)	To investigate the effects of physical activity in people with Alzheimer's Disease and its benefits in activities of daily living in the home environment.	Duration of study: 12 weeks Experimental group: Modality - Use of the pedalboard Intensity-two to four, degree of difficulty 0-20 Frequency - three times a week Volume - not defined Duration - 30 to 60 minutes Control group: Monthly visit by a doctor for counseling and change of sedentary habits and its implications.	The results demonstrated considerable benefits in the participants' physical activity and cognitive function. They suggest that physical exercise in Alzheimer's Disease contributes to reducing the caregiver's burden on ADL at home.	lb
Morris JK., et al. 2015 USA(17)	Total (n=76) Experimental group (n = 39) Control group (n = 37)	To investigate the benefits of aerobic exercise on functional capacity and people with Alzheimer's Disease.	Study duration: 26 weeks Experimental group: Modality - aerobic exercise Intensity - heart rate (HR) gradually increasing from 40-55% to 60-75% of HR in reserve. Borg (6-20) Frequency - three to five sessions per week Volume - not defined Duration - 150 minutes Control group: Modality - non-aerobic exercise Intensity - HR<100bpm Frequency - three to five sessions per week Volume - not defined Duration - 150 minutes	The results demonstrate benefits in functional capacity (Caring for Activities of Daily Living) in people with Alzheimer's Disease	lb
Lee HJ, Kim KD. 2016 Republic of Korea(18)	Total n=60 Experimental group (n = 30) Control group (n=30)	To determine the effect of a physical and cognitive exercise program on cognitive functions and activities of daily living in an environment of elderly people with dementia admitted to a day care center.	Duration of study: eight weeks Experimental group: Modality - Otago exercises, (Motor coordination and balance exercises) Intensity - Frequency - Three times a week Volume - not defined Duration -30 minutes Control group: Performed the same activities as the Experimental Group except physical exercise	The results demonstrate that the physical exercise program improves cognitive function and activities of daily living in an environment in people with mild dementia.	lb
Cancela JM., et al. 2015. Spain(19)	Total n=189 Experimental group n= 73 Control group (n= 116)	To identify the effects of an exercise program on cognitive decline, memory, depression, functional dependence and neuropsychiatric disorders in institutionalized people with dementia.	Duration of study: 15 months Experimental group: Modality - aerobic physical activity on a static bicycle Intensity - Low Daily frequency Volume - not defined Duration - Minimum 15 minutes Control group: Sedentary recreational activities (card games, reading, crafts).	The results demonstrate that there was a significant decrease in cognitive function in the control group, while in the exercise group there was a slight improvement in neuropsychiatric symptoms, memory function and functional mobility.	lb
Souto Barreto P., et al. 2017 France(20)	Total (n=98) Experimental group (n=48) Control group (n=50)	To compare the effects of physical exercise on the ability to perform activities of daily living in the environment, physical activities and cognitive function compared to a non-physical intervention (social intervention) in people with dementia living in nursing homes.	Duration of study: 24 weeks Experimental group: Modality - Combined exercises for coordination, balance, muscle strengthening, aerobic and cooling exercises Intensity - moderate Frequency - twice a week Volume - not defined Duration - 60 minutes	The study did not show statistically significant differences between the performance of physical exercise and recreational activities. However, it showed that people who practiced physical exercise had fewer falls than in the social intervention group.	lb

			Control group: Group activities twice a week for 60 minutes. The activities were new to the participants and included music therapy and arts and crafts activities.		
Menezes AV., et al. 2016, Brazil(21)	Total (n = 30) Experimental group (n=15) Control group (n=15)	To identify the effect of physical exercise on cognition, mobility and functional independence of elderly people with cognitive impairment and mild dementia living in a nursing home.	Duration of study: four months Experimental group: Modality - Stretching followed by muscle strengthening exercises, motor coordination, balance and gait training with cognitive stimulation (music therapy) Intensity - blood pressure and respiratory rate were measured at the beginning and end of each session Frequency - once a week Volume - not defined Duration - 60 minutes Control group: Did not perform physical activity	The results showed a positive effect on balance and mobility, however, they did not show significant effects on cognition and functional independence, although in the control group there was a decline in functional capacities that was not reflected in the experimental group.	lb

Table 2: Systematization of the information provided by the articles

DISCUSSION

The analysed studies present a variety of results, namely: cognitive function and memory^(16,18-19); balance and risk of falling^(15,20-21); mobility^(15-16,19,21); ADL^(15-18,21) and role of the caregiver^(15-16,19,21); apathy, agitation and depression⁽¹⁹⁾. Regarding the modalities, studies were carried out through muscle strengthening exercise programs^(15,20-21), aerobic exercises^(17,19-20), combined motor coordination and balance exercises⁽²⁰⁻²¹⁾ (Otago's exercises)⁽¹⁸⁾, gait⁽²¹⁾, use of pedalboard⁽¹⁶⁾ and static bicycle⁽¹⁹⁾, which encompass different characteristics in terms of frequency, intensity, volume and duration. Otago's Exercise program consists of a set of lower limb muscle strengthening exercises, balance exercises and a walking plan. They are prescribed individually, take about 30 minutes and are performed three times a week, however, walking it is performed at least twice a week, and the progression increases throughout the sessions.⁽²²⁾

The intensity varies between mild^(16,19), moderate⁽²⁰⁾ and high⁽¹⁵⁾, despite being little explored in the presented articles. It is observed that the ways of prescribing intensity varied a lot, with seven predictors: Maximum Heart Rate (HRmax); Maximum Oxygen Consumption (VO₂max); Resting Heart Rate (FCR); Peak Oxygen Consumption (VO₂peak); Thresholds: T1: Anaerobic threshold and T2: Respiratory Compensation Point (CRP); Peak Heart Rate (HRpeak) and Useful Functional Capacity.⁽²³⁾ And, according to the guidelines of the American College of Sports Medicine for Exertion tests and their prescription⁽²⁴⁾, the intensity should be categorized by cardiorespiratory exercises, resistance exercises, flexibility exercises and neuro-motor exercises, being recommended for the latter, two or three days a week, 20-30 minutes a day and should involve motor skills, namely balance, agility, coordination, training with proprioceptive exercises and multifaceted activities, to improve coordination skills and reduce the risk of falls in the elderly. It recommends aerobic activity with an intensity of 40 to 60% of the reserve heart rate, or 11 to 13 on the Borg scale⁽²⁵⁾. It also states that the duration is related to the intensity of the exercise, thus, a lower intensity should be maintained for a longer period of time and due to

the potential risks associated with high intensity exercises, light to moderate intensity with greater duration for the non-athlete adult.

Cognitive function and memory

Cognitive and memory benefits have been documented in other studies⁽²⁶⁻²⁷⁾. Through this review, the performance of exercises using a crankset, 3 times a week for 30 to 60 minutes⁽¹⁶⁾, Otago exercises⁽¹⁸⁾ 3 times a week and exercise bike for 15 minutes daily⁽¹⁹⁾ showed positive results in cognitive functions and memory. It is noteworthy that after 15 months of study there was a decline in cognitive abilities and memory in the group where only recreational activities were practiced⁽¹⁹⁾.

Apathy, depression and agitation

One of the benefits of exercise found in the analysed studies was a slight improvement in depression⁽¹⁹⁾, and this result was achieved through the implementation of aerobic exercise training on a static bicycle for 15 minutes a day over a period of 15 months. In turn, the improvements in apathy and agitation⁽¹⁵⁾ were achieved through muscle strengthening exercises (five minutes of warm-up, at least two strength exercises for the lower limb muscle and two balance exercises), for 50 minutes two times a week for a period of 12 weeks.

According to other studies⁽²⁸⁾, the practice of physical exercise represents a way to treat depression and improve agitation and apathy, in addition to providing significant improvements in other physiological parameters. Furthermore, these results do not agree with the study carried out by DeVreede⁽²⁹⁾, where he states that there seems to be weak or non-existent evidence in the improvement of apathy.

Mobility

Mobility is an important factor with regard to the ability to perform basic activities of daily living and tasks such as walking, transferring, climbing and descending stairs and dressing the lower body⁽³⁰⁾.

With regard to mobility, this was mentioned as one of the benefits of physical exercise in studies^(15,16,19,21), where there were several modalities used, muscle strengthening exercises^(15,21), aerobic exercise^(16,19), motor coordination⁽²¹⁾, balance^(15,21) and gait training⁽²¹⁾. However, the intensity, frequency and duration of the exercises were different in all studies, so it is not possible to establish a comparison with the different modalities in order to understand which one presents the most benefits in terms of physical exercise.

These results are in line with other studies⁽³¹⁾ that report that physical exercise is a viable intervention for people with dementia and that the benefits far outweigh the risks, in addition to highlighting the use of physical exercise to improve mobility.

Balance and Falls

According to analyzed articles, people with dementia have a double increase in falls risk compared to non-demented people⁽³²⁾. The consequences of falls are in many cases harmful. The fear of falling itself is a risk factor for inactivity and can create a vicious circle⁽³³⁾. Therefore, increasing mobility through muscle strengthening exercises improves balance, potentially reducing the risk of falls⁽³⁴⁾.

Regarding what was verified in the studies that include this research, it is verified that there is an improvement in balance when implementing a high-intensity muscle strengthening exercise program and a combined program of motor coordination, balance and gait^(15,18,20). Regarding the intensity, it varies from moderate to high, at a frequency that varies between 2 to 5 times a week^(15,18,20) with 2 sets of 12 repetitions⁽¹⁵⁾.

It is noteworthy that the use of music therapy when performing the exercises can produce benefits in carrying out the activity⁽²¹⁾.

In a 24-week study there was no statistical evidence of motor or cognitive benefits, however there was a significant reduction in the number of falls⁽²⁰⁾.

Activity of daily living and the Caregiver's role

People with dementia have higher levels of dependence than others and are more likely to need assistance with activities of daily living^(35,36).

Exercise leads to improved ability to perform activities of daily living e por sua vez improves functional capacity. The studies that demonstrate these results have resorted to implementing aerobic exercise three to five times a week with a progressive intensity, through a heart rate gradually increased from 40-55% to 60-75% of the reserve heart rate for a duration of 150 minutes in total⁽¹⁷⁾ and the use of pedalboards three times a week⁽¹⁶⁾. In these studies, there is a decrease in the caregiver burden, while in the control group there was a considerably increased effect⁽¹⁶⁾. Some studies have shown that behavioral symptoms in dementia are a source of anguish and a burden for family and professional caregivers and are associated with the

rapid increase in institutionalization of people with dementia⁽³⁷⁾.

Physical exercise is of fundamental importance, as it improves functional physical capacities and reintegrates the person into daily tasks, which enables their social reintegration⁽³⁸⁾.

Practical implications

The Regulation of Specific Competences of the SNRN recognizes competences to design, implement, evaluate and reformulate motor and cardiorespiratory training programs⁽¹⁰⁾. In this sense, the SNRN has theoretical and practical knowledge that allows him to develop skills in the area of physical exercise prescription in populations with special needs (such as people with dementia) and specific goals.

The SNRN should use physical exercise in order to be able to extract its benefits. Therefore, we recommend the implementation of aerobic exercise and muscle strengthening exercises in people with dementia, demonstrating that the improvement of cardiorespiratory fitness through this type of exercise can be important to reduce disease progression and bring clear benefits in improving their functional capacity, in addition to that, this type of exercises offer a low-cost, low-risk and widely available intervention⁽¹⁷⁾. For this, it is essential that physical exercise is included as a therapeutic and/or prophylactic resource in Rehabilitation Nursing plans for people with dementia.

Study limitations

This study has some limitations; firstly, the access to databases, as the limited number of studies prevented us from investigating other potential studies to be included.

Another limitation that we consider important is the fact that only one study was carried out at home, as well as the severity of functional incapacity and the burden of caregivers being poorly explored, which does not allow us to sustainably conclude the benefit of physical exercise for the people with dementia who remain at home as well as for their their caregivers.

Another limitation of the study refers to the small number of included studies, its heterogeneity and the wide range of exercise interventions prevented the analysis of the best exercise. Parameters such as modality and intensity are superficially addressed in most of the studies carried out; in relation to the volume it was only referenced in one study, making it difficult to make a connection between the modality adopted and the expected results in order to guide the exercise practice with a view to achieving certain benefits. Once this issue is addressed, in the future, the SNRN will be able to establish specific guidelines for the prescription of physical exercise in people with dementia.

CONCLUSION

The initial goal of this SLR was achieved as evidence is revealed of the beneficial effects of physical exercise on cognition and motor skills in people with dementia.

Thus, we were able to answer the research question and realize that interventions that combine aerobic exercise, strength, endurance, balance and motor coordination are essential interventions to produce improvements in the health and well-being of people with dementia, not only over time, but also when compared to other interventions, such as sedentary social and recreational activities.

Studies have shown significant improvements in areas such as cognition, agitation, mood, mobility and functional capacity. Although the frequency, intensity and volume of the studied exercises vary and even though the optimal parameters have not yet been determined, the analysis of this review concludes that a physical activity program based on aerobic exercises, such as the use of pedalboards at a frequency of 3 to 5 times a week, at an intensity that goes up to 60 to 75% of the reserve heart rate and with a duration of 30 to 50 minutes, it can bring benefits in terms of increased capacity to perform ADL. It is also concluded that a program of high intensity muscle strengthening exercises with emphasis on the lower limbs, with 2 sets of 12 repetitions at a frequency of 2 to 5 times a week can have effects on balance and motor coordination.

In future studies, an activity plan that includes specific exercises with well-defined characteristics should be instituted, as well as the possibility of being carried out at home with the training and intervention of caregivers to be taken into account.

Finally, it remains to be recognized that despite the countless knowledge that is already possessed, doubts still remain concerning the physical exercise to be prescribed, namely the duration, volume and intensity needed, and thus extracting the maximum benefits from it for people with dementia. Answering these questions is fundamental for exercise prescription by the SNRN.

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