

**50 - ACTION OF PHYSICAL EXERCISE AS NON-PHARMACOLOGICAL INTERVENTION TO IMPROVE SLEEP QUALITY**WASHINGTON RODRIGUES<sup>1</sup>JULIANA MARIA MITIDIERO<sup>2</sup>

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**INTRODUCTION**

Every individual feels the need to rest. The word rest means rest, stillness or the pause (interval) that is done to temporarily or temporarily cease natural motor activities (ARAÚJO et al., 2014). The human organism, despite all its complexity, is not a machine and needs to resynthesize its energies through nutrition and sleep (ANDERSEN & BITTENCOURT, 2008).

Sleep is one of the most important times of the day. It works as a food. During sleep, in addition to resting, the body rebuilds itself by balancing the immune, endocrine, neurological, and other functions, restoring the ability to maintain daily activities (ZANUTO et al., 2015).

The term sleep refers to the act of resting a living organism, which opposes the waking state. It is a complex biological process, associated with reduced physiological activity (heartbeat, blood pressure and respiration) and low response to external stimuli, and its duration varies according to age, acting as a restorer of organic functions, leading to a condition essential for growth (childhood and adolescence), learning and the proper functioning of the organism (ARAÚJO et al., 2014).

According to Reimão (2000), poor sleep quality is associated with difficulty sleeping and maintaining sleep. Routine habits such as waking up very early in the morning, increased by psychological, social, environmental and factors such as: smoking; hypochondria; Alcoholism and consumption of caffeine-containing beverages may decrease the quality of sleep.

The most prevalent model of behavior in today's society is competitiveness. People are encouraged to produce more and more, accumulating insufficient hours of work to achieve prominence in the professional environment, or economic and social status. Often, bedtime is replaced by work taken home, in addition to extra hours, arriving early or leaving later, and also the obligation to work on weekends (SIQUEIRA & PADOVAM, 2008).

When the individual goes into sleep deprivation, they begin to have serious flaws in their professional and personal conduct. The so-called "Insufficient Sleep Syndrome", caused by overwork or bad conditions, stress situations (traffic, noise pollution and excessive information), as well as anxiety, which combined with sleep deprivation, cause intense physical and mental exhaustion (BACELAR & PINTO Jr, 2013).

Lack of sleep can cause fatigue, irritability, and memory lapses beyond known morning fatigue. The main manifestation of chronic problems is exaggerated daytime sleepiness, passing mood changes, loss of concentration and mental abilities, such as learning, reasoning and thinking (REIMÃO, 2000; BACELAR & PINTO Jr, 2013).

There are studies stating that the regular practice of physical training, with proper professional supervision, is very effective in reducing stress and has great benefits at bedtime, as long as it is not very close to bedtime, being an alternative management (ROKE et al., 2018).

Physical exercise and a good quality of night sleep are complementary habits that, being in balance, that is, so that one does not sacrifice the other, become vital to health (ROPKE et al., 2018). Sleeping well, about 7 to 8 hours a night can improve the effects of exercise, as metabolism works better (MARTINS et al., 2001).

For O'connor & Youngstedt (2008), regular exercise, at the intensity appropriate to the practitioner's fitness level and at the right time, can improve the factors that influence sleep quality, such as insomnia and restless leg syndrome, for example.

Quality sleep enhances the loss of body fat, increases the willingness to perform daily tasks, improves performance during exercise, and even the quality and regularity of sexual activity (DRIVER & TAYLOR, 2011).

Regular exercise is a non-pharmacological intervention recommended by the American Sleep Association to promote adequate sleep. This study aimed to search scientific data to verify the action of physical exercise as a non-pharmacological treatment effective in sleep quality, to present the factors related to sleep disturbance, as well as recommendations for sleep hygiene that guarantee well-being and quality of life.

**METHODS**

This is a research that used the theoretical technical procedures of non-systematic literature review, by searching for articles in the Pubmed, Scielo and Medline databases. The descriptors used for the search were: physical exercise, sleep quality, exercise and insomnia. The articles found by duplication in the databases were filtered by title, abstract, languages (Portuguese, English), and finally the full analysis of the articles considered of interest.

The selected articles underwent systematic readings and information recording through bibliographic records, adopted as exclusion criteria, the works that did not correspond with the objectives of the present study. Eight current and most relevant articles that present coherent data and results addressing the subject: action of physical exercise as a non-pharmacological intervention to improve sleep quality were included in the research. For inclusion, the article had to contain reports of intervention or research on physical exercise related to sleep quality in adults, as well as recommendations for sleep hygiene.

**RESULTS**

In the search, 51 articles were identified, 12 in the Medline database, 17 in the Pubmed database, 22 in the Scielo database. Being excluded those who did not address the subject (physical exercise, sleep quality and adults). In all, abstracts of 38 articles were read and 19 articles were included for full reading. Among these, seven more recent articles were selected,

taking into account the theme associated with sleep quality and the type of physical exercise performed, highlighted in the objectives of each selected study, in addition to the methodological basis and conclusions. All of this information is highlighted in the table below.

Table: Recent studies associated with the importance of exercise to improve sleep quality.

According to the American Academy of Sleep Medicine (2005), some disorders may contribute to the poor quality of sleep and aggravate the cited conditions. Among them are:

- Insomnia: is the difficulty of starting sleep, keeping it continuously at night or waking up before the desired time. These episodes may be related to various factors, including anxiety (commitments, travel, financial, affective issues, etc.). But it can become chronic and cause a great deal of suffering over the years, especially when the difficulty of sleeping is associated with a series of behaviors: elaboration of thoughts and planning at bedtime, concerns, attention to environmental phenomena (noise and people), sleeping), causing an overvaluation of these facts, an effort to sleep, or staying in bed just to rest.

- Snoring: is a noise caused by narrowing or obstruction of the upper airways during sleep, hindering the passage of air and causing the vibration of these structures. Snoring overloads the respiratory muscles as well as the heart. Over time the snoring individual may become hypertensive and / or have myocardial infarction (MI) and stroke. Some common causes include anatomical variation of the nose and soft palate or alcohol consumption.

- Obstructive Sleep Apnea: characterized by obstruction of the airway at the throat level during sleep, leading to a halt of breathing lasting on average 20 seconds. After this stop, the person wakes up, emitting a very loud snore. This apnea may occur several times at night, every one or two minutes. In the long term it can develop metabolic syndrome, which is the occurrence of disorders of fat and blood sugar, high blood pressure and increased waist circumference, increasing the chance of disease in the arteries caused by the accumulation of cholesterol in their walls, and also cause IM and stroke.

- Restless leg syndrome: This is a disorder characterized by involuntary shaking of the lower limbs, but may also occur with the arms in the most severe cases. In general, the symptoms are more intense at night, compromising the quality of sleep, leaving the person drowsy the next day tired, unwell and irritated.

- Metabolic problems: associated with increased functioning of the Sympathetic Nervous System, due to the activation of the functional axis that exists in the brain, which goes from the hypothalamus to the pituitary gland producing cortisol,

due to poor sleep quality, affecting the immune functions. These metabolic changes can also speed up the heart, raise blood pressure and insulin resistance, cause mood disorders such as depression, and contribute to obesity.

Signs of Sleep Deprivation: (SOMERS, et al. 2008)

- Difficulty concentrating
- Difficulty expressing emotions
- Inability to solve problems
- Irritability and mood swings
- Memory issues
- Excessive daytime sleepiness
- Fatigue
- Loss of libido

According to Driver & Taylor (2011), a good night's sleep is essential to invigorate the body. When difficulty sleeping becomes constant, metabolism and physical and mental performance are affected. Before bedtime, regular daily activities must be interrupted to help stop adrenergic discharge and ensure restful sleep. The best way to achieve this is by keeping the environment calm, in low or no light, to stimulate melatonin production without as much stimulation and as comfortable as possible. It is recommended to establish a bedtime routine with regular times and habits.

Tips for Better Sleep - Sleep Hygiene (ROPKE, et al. 2018)

Have an appropriate sleep environment (adequate lighting, temperature, mattress and pillows).

Eating low-fat evening meals, if possible, up to two hours before bedtime.

Avoid alcohol consumption.

Maintaining regular sleeping and waking times.

You should avoid going to bed sleepless or using the bed to plan the next day, read, use the smartphone or watch TV.

Avoid ambient noise.

Avoid consuming caffeine drinks at night.

Keep the environment at a low temperature and free of noise.

A good sleeping position is important: aligning the pillow to shoulder height and sleeping in the fetal position helps to prevent neck and spine pain and also reduce snoring and apnea; In case of reflux, it is ideal to sleep on your back with a high pillow and a support under the knees to avoid lower back pain.

In addition, relaxation exercises such as meditation, stretching, warm bathing and breathing techniques can be of great help before bedtime. If sleep continues to be poor, a professional assessment with a sleep therapy specialist is best for the best course of treatment.

Sleep benefits, according to Yang et al. (2000):

Having a regulating sleep, providing a full and carefree rest, is one of the most important things for a healthy life. Many of the essential processes in the body occur during sleep, such as:

Memory: Increased absorption of information. During the hours of sleep occurs the production of proteins responsible for neural connections, fundamental for learning and memory. Sleeping well allows the brain to better process new experiences and knowledge. During sleep, the brain consolidates the memories of the day.

Improve mood: People who sleep well at night are happier and more cheerful during the day. On the contrary, an insufficient night's sleep causes restlessness and moodiness the next day. When bad sleep becomes a chronic problem, it can cause long-term mood disorders such as depression or anxiety.

Improve cognitive function: Increases attention and ability to concentrate and facilitates decision making, making it easier to solve logic or math problems and reducing the chance of making mistakes or certain forgetting lapses.

Prevents obesity: During sleep, the body produces the hormone leptin, responsible for the feeling of satiety. In addition, it allows higher caloric expenditure at rest.

Prevents diabetes: A good quality of sleep increases insulin sensitivity, presenting itself as one of the physiological factors that influence the regulation of blood glucose.

Hypertension: Sleep improves the feeling of well-being and disposition by reducing blood pressure and avoiding hypertension.

It has a rejuvenating effect: Sleeping well helps to rejuvenate the skin, reducing wrinkles and fine lines, as at night skin cells renew and rest, and melatonin production helps prevent aging.

Prevents depression: Sleep, through its restorative and revitalizing effect, helps in the production of parasympathetic neurotransmitters that alleviate and even prevent certain psychic and behavioral disorders such as depression.

#### FINAL CONSIDERATIONS

Through the composition of this study it was possible to conclude that physical exercise is healthy in sleep quality, being advantageous to practitioners and can be used as a therapeutic treatment alone or as an adjunct in the treatment of sleep disorders. However, there are few studies outlined, randomized and using standardized protocols to strengthen this evidence.

Sleep quality is also related to mental disorders, associated with the presence of depression, anxiety and other psychopathological symptoms. Thus, physical exercise intervenes in these pathologies, minimizing and assisting in the treatment of sleep disorders, being an infallible indicator in the promotion of health and quality of life.

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#### ACTION OF PHYSICAL EXERCISE AS NON-PHARMACOLOGICAL INTERVENTION TO IMPROVE SLEEP QUALITY

**Abstract:** This study aimed to search scientific data to verify the action of physical exercise as an effective non-pharmacological treatment for sleep quality. This is a research that used the theoretical technical procedures of non-systematic literature review, by searching for articles in the Pubmed, Scielo and Medline databases. It was concluded that physical exercise is healthy in the quality of sleep, being advantageous to practitioners and can be used as a therapeutic treatment alone or as an adjunct in the treatment of sleep disorders.

**Keywords:** physical exercise, sleep quality, exercise and insomnia.

#### ACTION DES EXERCICES PHYSIQUES EN TANT QU'INTERVENTION NON PHARMACOLOGIQUE POUR AMÉLIORER LA QUALITÉ DU SOMMEIL

**Résumé:** Cette étude visait à rechercher des données scientifiques pour vérifier l'action de l'exercice physique en tant que traitement non pharmacologique efficace de la qualité du sommeil. Il s'agit d'une recherche qui a utilisé les procédures techniques théoriques de la revue de littérature non systématique, en recherchant des articles dans les bases de données Pubmed, Scielo et Medline. Il a été conclu que l'exercice physique avait des effets bénéfiques sur la qualité du sommeil, qu'il était avantageux pour les praticiens et qu'il pouvait être utilisé comme traitement thérapeutique seul ou en complément du traitement des troubles du sommeil.

**Mots-clés:** exercice physique, qualité du sommeil, exercice et insomnie.

#### ACCIÓN DEL EJERCICIO FÍSICO COMO INTERVENCIÓN NO FARMACOLÓGICA PARA MEJORAR LA CALIDAD DEL SUEÑO

**Resumen:** Este estudio tuvo como objetivo buscar datos científicos para verificar la acción del ejercicio físico como un tratamiento no farmacológico eficaz para la calidad del sueño. Esta es una investigación que utilizó los procedimientos técnicos teóricos de la revisión de literatura no sistemática, buscando artículos en las bases de datos Pubmed, Scielo y Medline. Se concluyó que el ejercicio físico es saludable en la calidad del sueño, es ventajoso para los profesionales y se puede usar como un tratamiento terapéutico solo o como un complemento en el tratamiento de los trastornos del sueño.

**Palabras clave:** ejercicio físico, calidad del sueño, ejercicio e insomnio.

#### AÇÃO DO EXERCÍCIO FÍSICO COMO INTERVENÇÃO NÃO FARMACOLÓGICA PARA MELHORAR A QUALIDADE DO SONO

**Resumo:** Este estudo teve por objetivo buscar dados científicos, para verificar a ação do exercício físico como tratamento não farmacológico eficaz na qualidade do sono. Trata-se de uma pesquisa que se utilizou dos procedimentos técnicos teóricos de revisão bibliográfica não sistemática da literatura, através da busca de artigos nas bases de dados Pubmed, Scielo e Medline. Concluiu-se que o exercício físico é salubre na qualidade do sono, sendo vantajoso aos praticantes, podendo ser utilizado como tratamento terapêutico isolado ou como coadjuvante nos tratamentos dos distúrbios do sono.

**Palavras Chave:** exercício físico, qualidade do sono, exercício e insônia.