

## The correlation between physical activity and individuals diagnosed with epilepsy: A literature review

A correlação entre a atividade física e indivíduos diagnosticados com epilepsia: Uma revisão de literatura

La correlación entre la actividad física y los individuos diagnosticados con epilepsia: Una revisión de la literatura

Received: 04/21/2025 | Revised: 04/30/2025 | Accepted: 05/01/2025 | Published: 05/03/2025

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### Abstract

Epilepsy is the second most impactful neurological condition in terms of years of life lost, with an approximately sixfold increase in mortality and one-third of patients being refractory to treatment despite recent advances. Physical activity is a promising and safe therapeutic possibility for these patients, as it reduces seizures, and improves quality of life. However, there are still many barriers to this approach, such as fear of increased seizures, lack of time, and insufficient knowledge and training among healthcare professionals. This article aims to conduct a comprehensive literature review of the benefits and risks of this therapeutic approach. This study consists of a literature review based on structured database research and analysis of articles published between 2018 and 2023 in PubMed and Scielo, aiming to explore the benefits and potential risks of physical exercise in individuals with epilepsy. Conclusively, when performed appropriately and under supervision, physical activity offers significant advantages in controlling epileptic seizures, including enhanced quality of life, reduced anxiety symptoms, improved cognitive function, and increased brain plasticity.

**Keywords:** Epilepsy; Physical exercise; Quality of life; Social stigma.

### Resumo

A epilepsia configura-se como a segunda condição neurológica de maior impacto em termos de anos de vida perdidos, apresentando um aumento aproximado de seis vezes na mortalidade e um terço dos pacientes permanecendo refratários ao tratamento, mesmo diante dos avanços recentes. A atividade física desponta como uma possibilidade terapêutica promissora e segura para esses pacientes, uma vez que contribui para a redução das crises epilêpticas e promove melhorias na qualidade de vida. Contudo, ainda persistem diversas barreiras à adoção dessa abordagem, como o medo de aumento das crises, a escassez de tempo e a insuficiência de conhecimento e capacitação entre os profissionais de saúde. Este artigo tem como objetivo realizar uma revisão abrangente da literatura sobre os benefícios e riscos dessa abordagem terapêutica. O presente estudo consiste em uma revisão de literatura, baseada em pesquisa estruturada em bases de dados e análise de artigos publicados entre 2018 e 2023 nas plataformas PubMed e Scielo, com o objetivo de explorar os benefícios e os potenciais riscos do exercício físico em indivíduos com epilepsia. Conclui-se que, quando realizada de forma adequada e sob supervisão, a atividade física oferece vantagens significativas no controle das crises epilêpticas, incluindo a melhora da qualidade de vida, a redução de sintomas ansiosos, o aprimoramento da função cognitiva e o aumento da plasticidade cerebral.

**Palavras-chave:** Epilepsia; Exercício físico; Qualidade de vida; Estigma social.

### Resumen

La epilepsia se considera la segunda condición neurológica de mayor impacto en términos de años de vida perdidos, presentando un aumento aproximado de seis veces en la mortalidad, y con un tercio de los pacientes permaneciendo

refractarios al tratamiento a pesar de los avances recientes. La actividad física surge como una posibilidad terapéutica prometedora y segura para estos pacientes, ya que contribuye a la reducción de las crisis epilépticas y mejora la calidad de vida. Sin embargo, aún existen múltiples barreras para la implementación de esta estrategia, como el miedo al aumento de las convulsiones, la falta de tiempo y la insuficiencia de conocimientos y formación entre los profesionales de la salud. Este artículo tiene como objetivo realizar una revisión exhaustiva de la literatura sobre los beneficios y riesgos de este enfoque terapéutico. El presente estudio consiste en una revisión de la literatura, basada en una búsqueda estructurada en bases de datos y en el análisis de artículos publicados entre 2018 y 2023 en las plataformas PubMed y Scielo, con el objetivo de explorar los beneficios y los posibles riesgos del ejercicio físico en individuos con epilepsia. Se concluye que, cuando se realiza de forma adecuada y bajo supervisión, la actividad física ofrece ventajas significativas en el control de las crisis epilépticas, incluyendo la mejora de la calidad de vida, la reducción de los síntomas de ansiedad, el fortalecimiento de la función cognitiva y el aumento de la plasticidad cerebral.

**Palabras clave:** Epilepsia; Ejercicio físico; Calidad de vida; Estigma social.

## 1. Introduction

Epilepsy is a neurological condition that affects 3.4 million people in the United States (Casassa et al., 2021) and 50-65 million worldwide (Casassa et al., 2021; Feter et al., 2020; Kumar et al., 2022). It is classified as the fourth most common neurological condition (Collard & Ellis-Hill, 2019) and the second with the greatest impact in terms of years lived (Casassa et al., 2021).

The World Health Organization warns that 70% of people living with epilepsy could be free of seizures if properly diagnosed and treated (Feter et al., 2020). However, despite therapeutic advances, up to one-third of patients remain refractory to treatment (Alexander et al., 2023).

A therapeutic strategy with numerous benefits for patients with epilepsy is physical activity, particularly exercises associated with higher cardiovascular frequency (Tedrus & Leandro-Merhi, 2023). Physical exercise programs have demonstrated improvements in seizure control, reduction of medication side effects, improvement in sleep quality, and overall quality of life (Häfele et al., 2021).

However, restriction of physical activities is a common concern among individuals with epilepsy and is often associated with fear of seizures during exercise (Ben et al., 2021; Szałwińska et al., 2021). Therefore, this article aims to conduct a comprehensive literature review of the benefits and risks of this therapeutic approach.

## 2. Methodology

A bibliographical research was carried out (Snyder, 2019), of a quantitative nature in relation to the number of articles selected and, qualitative in relation to the discussion held (Pereira et al., 2018). This research is of the specific type of integrative review (Anima, 2014; Crossetti, 2012).

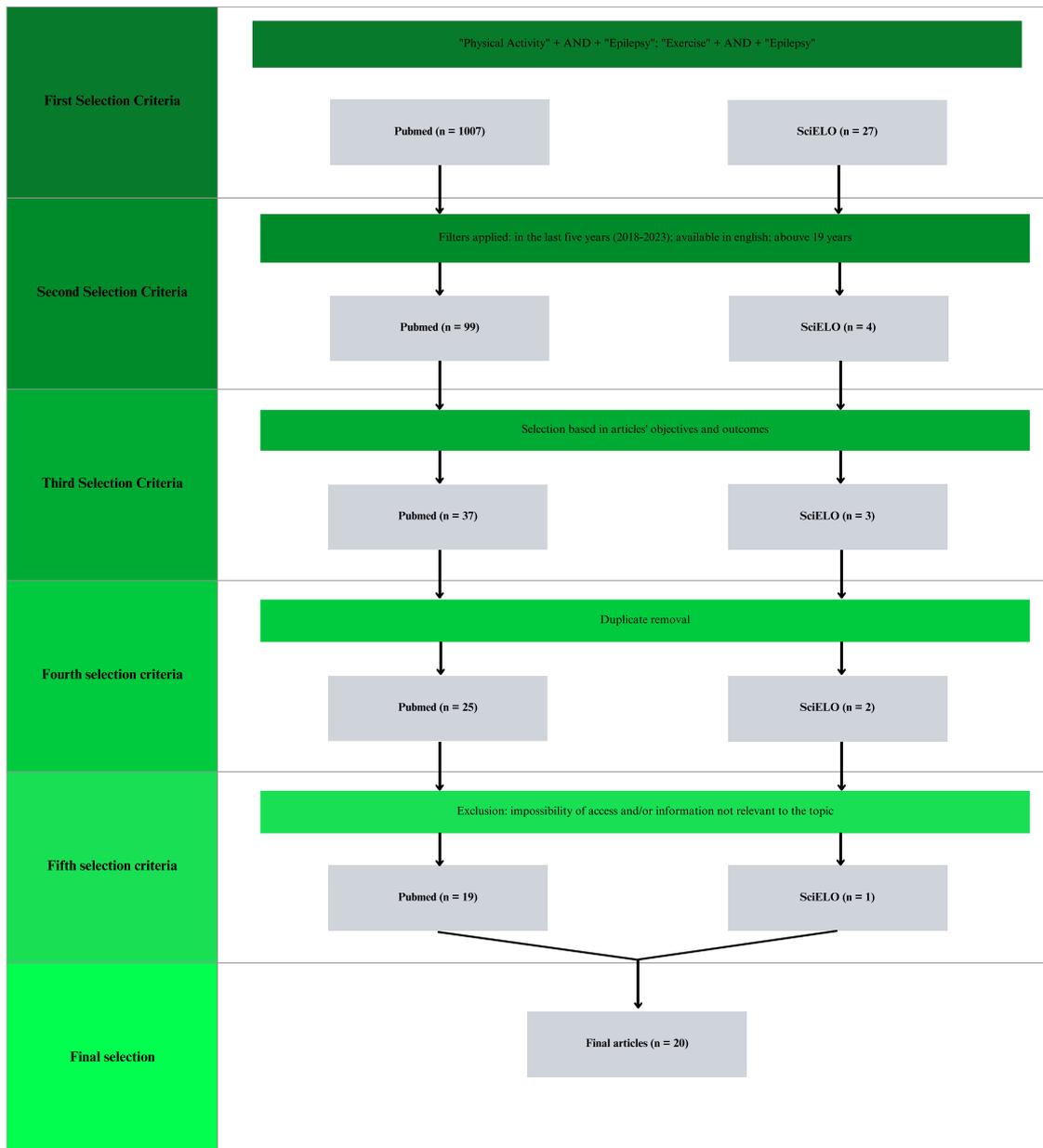
The present study is a literature review of scientific articles published between 2018 and 2023 in PubMed and Scielo databases.

Initially, using Boolean operators, a search was conducted using the terms “Physical activity” + AND (Boolean operator) + “Epilepsy”; and “Exercise” + AND (Boolean operator) + “Epilepsy”. In the second stage, search filters were applied: 2018-2023 (last five years), available in English, and aged 19+.

Subsequently, the titles of the texts were read, and duplicate articles were removed. Finally, the articles were read in full, eliminating texts that were not accessible (two articles), and those not related to physical exercise or epilepsy (five articles).

In the end, 20 articles were selected for inclusion in the review (Figure 1).

**Figure 1 - Article selection process.**



Source: Authors (2025).

### 3. Results and Discussion

Table 1 presents the list of the twenty selected articles included in the analysis, specifying the authors, year of publication, article title, and the journal in which each study was published:

**Table 1** - Selected articles.

Article Number	Author, year	Title of the selected article	Name of the journal
1	Alexander et al., 2023	A single-center survey on physical activity barriers, behaviors and preferences in adults with epilepsy	Epilepsy & Behavior
2	Alexander et al., 2020	Incidence of seizure exacerbation and injury related to football participation in people with epilepsy	Epilepsy & Behavior
3	Allendorfer et al., 2019	A pilot study of combined endurance and resistance exercise rehabilitation for verbal memory and functional connectivity improvement in epilepsy	Epilepsy & Behavior
4	Asadi-Pooya et al., 2019	Complementary and integrative medicine in epilepsy: What patients and physicians perceive	Epilepsy & Behavior
5	Ben et al., 2021	Employment status as a major determinant for lower physical activity of patients with epilepsy: A case-control study	Epilepsy & Behavior
6	Casassa et al., 2021	Epilepsy during the COVID-19 pandemic lockdown: a US population survey	Epileptic Disorders
7	Collard & Ellis-Hill, 2019	'I'd rather you didn't come': The impact of stigma on exercising with epilepsy	Journal of Health Psychology
8	Dustin et al., 2019	The Feasibility and Impact of the EMOVE Intervention on Self-efficacy and Outcome Expectations for Exercise in Epilepsy	Journal of Neuroscience Nursing
9	Feter et al., 2020	Effect of combined physical training on cognitive function in people with epilepsy: Results from a randomized controlled trial	Epilepsia
10	Green et al., 2021	Physical activity status and quality of life in patients with epilepsy – Survey from level four epilepsy monitoring units	Epilepsy Research
11	Häfele et al., 2021	Effects of an exercise program on health of people with epilepsy: A randomized clinical trial	Epilepsy & Behavior
12	Kumar et al., 2022	Impact of exercise as a complementary management strategy in people with epilepsy: A randomized controlled trial	Epilepsy & Behavior
13	Popp et al., 2021	Relationships between cognitive function, seizure control, and self-reported leisure-time exercise in epilepsy	Epilepsy & Behavior
14	Shawahna & Abdelhaq, 2020	Exploring perceived benefits, motives, barriers, and recommendations for prescribing yoga exercises as a nonpharmacological intervention for patients with epilepsy: A qualitative study from Palestine	Epilepsy & Behavior
15	SudhindraVooturi et al., 2020	Evaluation of factors influencing obesity and the effect of a 12-week home-based exercise program in people with epilepsy — Randomized control trial	Epilepsy & Behavior
16	Szatwińska et al., 2021	Dietary and lifestyle behavior in adults with epilepsy needs improvement: a case-control study from northeastern Poland	Nutrition Journal
17	Tedrus & Leandro-Merhi, 2023	Physical activity in adults with epilepsy: clinical aspects and relationship with cognition and quality of life	Dementia & Neuropsychologia
18	Vancampfort & Ward, 2021	Physical activity correlates across the lifespan in people with epilepsy: a systematic review	Disability and Rehabilitation
19	Vancampfort et al., 2019a	Physical activity and sedentary levels among people living with epilepsy: A systematic review and meta-analysis	Epilepsy & Behavior
20	Vancampfort et al., 2019b	Physical fitness levels and moderators in people with epilepsy: A systematic review and meta-analysis	Epilepsy & Behavior

Source: Authors (2025).

In a general context, people with epilepsy are more likely to be physically inactive than those without the condition (Ben et al., 2021; Vancampfort & Ward, 2021). A study revealed that seizure frequency is inversely related to participation in physical activities, indicating that patients with a higher frequency of epileptic seizures tend to participate less in physical activities (Alexander et al., 2023).

Thus, the relationship between physical exercise and epilepsy has been the subject of various studies, highlighting the

benefits of an active lifestyle for controlling the condition, with a significant percentage of patients and healthcare professionals advocating its importance (Asadi-Pooya et al., 2019; Casassa et al., 2021).

During the coronavirus disease 2019 (COVID-19) pandemic, a study revealed an increase in the number of seizures in a significant portion of patients, with the reduction in physical activity being cited as one of the main causes for this increase (Casassa et al., 2021). Another study conducted in 2021 demonstrated statistically significant differences in the reduction of seizures in the group that participated in a physical activity program compared with the control group. The participants in the intervention group showed improvements not only in seizures but also in medication side effects, sleep quality, stress, and various aspects of quality of life (Häfele et al., 2021).

Some studies did not find differences between groups of patients who engaged in physical exercise and control groups. An example is the Epilepsy-Motivate and Outcome Expectations for Vigorous Exercise (EMOVE), a methodology aimed at increasing physical activity in people with epilepsy, which was not effective in reducing body mass index, seizure frequency, quality of life, and physical activity behavior (Dustin et al., 2019). However, even in the absence of improvement, it is important to note that physical activity did not worsen epilepsy or increase the risk of injury in most studies (Kumar et al., 2022; Popp et al., 2021).

### **3.1 Types of Physical Activity for People with Epilepsy**

The physical activities usually evaluated in the literature included cardiovascular training, resistance training using weight machines, and flexibility training for stretching. These programs lasted 12 weeks and were adapted according to the progress of each patient with epilepsy (Allendorfer et al., 2019; Feter et al., 2020; Häfele et al., 2021; SudhindraVooturi et al., 2020).

Alexander et al. (2023) questioned the study participants about their preferred physical activity, and walking was the most preferred modality, with strength exercises in second place, demonstrating a potential type of exercise that can be encouraged.

Nonconventional exercises have also been explored as complementary approaches to epilepsy management. Studies indicate that yoga can reduce stress, anxiety, and seizure frequency, as well as improve sleep quality and the overall quality of life (Shawahna & Abdelhaq, 2020).

In the context of football, a study demonstrated no substantial increase in the risk of seizure exacerbation and injuries associated with practicing this sport. Thus, the study highlighted the need for individual evaluation by healthcare professionals and did not discourage participation by citing the diagnosis of epilepsy as an absolute impediment to sports practice (Alexander et al., 2020).

### **3.2 Precautions for Patients with Epilepsy When Engaging in Physical Activities**

During the COVID-19 pandemic, it was observed that a sudden interruption of exercise can increase the number of seizures (Casassa et al., 2021). Therefore, patients need to undergo a comprehensive medical evaluation to determine their suitability for different types of exercise and to assess the type of epilepsy, its severity, and any other underlying medical conditions (Alexander et al., 2020).

Moreover, patients should inform their supervisors about their neurological condition to receive effective guidance on physical exercise practices (Collard & Ellis-Hill, 2019). It is recommended that patients avoid high-risk activities, such as intense contact sports, which can increase the risk of injury, unless a thorough evaluation by a healthcare professional is performed (Vancampfort et al., 2019a).

### **3.3 Effects of Physical Activity on Different Aspects of Health**

Physical exercise has been recognized as a lifestyle modifier in various evaluative criteria, including overall well-being, mood, and quality of life. Additionally, exercise provides physiological benefits, such as weight reduction, improved cardiovascular fitness (CRF), and increased muscle mass percentage (SudhindraVooturi et al., 2020).

The Quality-of-Life Inventory (QOLIE-31) has shown a significant improvement in the quality of life of patients who engaged in physical exercise compared with those who did not (Green et al., 2021; Häfele et al., 2021). Regarding cardiovascular health, low fitness levels strongly predict cardiovascular disease risk and all-cause mortality (Vancampfort et al., 2019b).

As a mood modifier, physical activity is associated with a reduction in depressive and anxiety symptoms in people with epilepsy (Green et al., 2021; Shawahna & Abdelhaq, 2020). Additionally, sleep quality also improves with physical intervention in patients with the same diagnosis (Häfele et al., 2021; Shawahna & Abdelhaq, 2020).

Regarding neurological benefits, patients with epilepsy who participated in regular physical exercise sessions—including strength training and aerobic activities—showed improvements in verbal learning and memory. This evidence was associated with exercise-induced changes in functional connectivity of the paracingulate cortex in the left and right inferior parietal lobes, as well as in the cerebellum (Allendorfer et al., 2019).

Positive effects on cognitive function are crucial in epilepsy, particularly due to structural changes following epileptic seizures and cognitive side effects from antiepileptic drugs. With physical activity, these patients could experience improvements, especially in attention and verbal fluency, thereby enhancing their quality of life (Feter et al., 2020; Szałwińska et al., 2021; Tedrus & Leandro-Merhi, 2023). Additionally, physical exercise influences frontal lobe functions, showing a positive correlation with executive attention (Popp et al., 2021).

### **3.4 Opinions and Attitudes of People with Epilepsy Regarding Physical Activity**

For people with epilepsy, physical activity has been perceived to have benefits for quality of life and to reduce anxiety and depression (Dustin et al., 2019; Green et al., 2021; Häfele et al., 2021; Shawahna & Abdelhaq, 2020). There is also a belief among patients that physical activity is beneficial for managing epileptic seizures (Alexander et al., 2023; Asadi-Pooya et al., 2019). However, individuals with this diagnosis still engage in physical activity less frequently (Szałwińska et al., 2021; Tedrus & Leandro-Merhi, 2023).

One reported barrier is the stigma associated with the condition, where fear of discrimination or restrictions on certain activities discourages individuals from more frequently engaging and seeking professional guidance (Collard & Ellis-Hill, 2019). Another obstacle is the fear of seizure during exercise, which creates a perception of accident risk (Alexander et al., 2023; Collard & Ellis-Hill, 2019). Ben et al. (2021) reported that 80% of participants feared seizures during exercise.

In yoga, individuals with epilepsy experienced reduced stress and anxiety and improved physical strength, energy, and sleep quality. However, this category still faces challenges, such as financial constraints, discipline, motivation, time, and accessibility, as reported by the patients (Shawahna & Abdelhaq, 2020).

Additionally, a longer duration of epilepsy comorbidity was correlated with lower levels of sports activity, whereas patients from higher socioeconomic backgrounds and higher educational levels showed a positive correlation with greater participation in sports activities (Tedrus & Leandro-Merhi, 2023).

### **3.5 Evidence on the Relationship Between Physical Activity and Oxidative Stress**

Oxidative stress leads to reduced antioxidant levels in the hippocampus. In patients with epilepsy, this reduction impairs neurotransmission and promotes mitochondrial dysfunction, resulting in neuronal hyperexcitability (Häfele et al., 2021). Regular physical exercise can increase hippocampal volume (Feter et al., 2020), as well as levels of brain-derived neurotrophic factor

(BDNF) and its tyrosine kinase receptors (trkB) in this structure. Additionally, it can normalize synaptic plasticity and the GABAergic system, which are dysfunctional during epileptic seizures (Häfele et al., 2021), thereby reducing oxidative stress in the brain (Feter et al., 2020; Häfele et al., 2021). These changes may act as a mechanism to prevent seizures, highlighting the importance of physical exercise in epilepsy management (Häfele et al., 2021).

#### 4. Conclusion

In conclusion, physical activity for individuals diagnosed with epilepsy offers significant benefits beyond seizure control. Benefits include improved quality of life, reduced anxiety symptoms, enhanced cognitive function, and brain plasticity. Although there are still stigmas and barriers associated with physical exercise, the literature has shown that exercise is a safe and effective strategy when performed appropriately and under supervision.

#### Abbreviations

PWE – People With Epilepsy

EMOVE - Epilepsy-Motivate and Outcome Expectations for Vigorous Exercise

COVID-19 - Coronavirus disease 2019

CRF - Cardiovascular Fitness

QOLIE-31 - The Quality-of-Life Inventory

BDNF - Brain-derived Neurotrophic Factor

trkB - tyrosine kinase receptors

#### References

- Alexander, H. B., Arnel, M., O'Connell, N., Munger Clary, H. M., Fanning, J., Brubaker, P., Fountain, N. B., & Duncan, P. (2023). A single-center survey on physical activity barriers, behaviors and preferences in adults with epilepsy. *Epilepsy & Behavior, 149*, 109491. <https://doi.org/10.1016/j.yebeh.2023.109491>
- Alexander, H. B., Wright, C. J., Taplinger, D. H., & Fountain, N. B. (2020). Incidence of seizure exacerbation and injury related to football participation in people with epilepsy. *Epilepsy & Behavior, 104*, 106888. <https://doi.org/10.1016/j.yebeh.2019.106888>
- Allendorfer, J. B., Brokamp, G. A., Nenert, R., Szaflarski, J. P., Morgan, C. J., Tuggle, S. C., Ver Hoef, L., Martin, R. C., Szaflarski, B. A., Kaur, M., Lahti, A. C., & Bamman, M. M. (2019). A pilot study of combined endurance and resistance exercise rehabilitation for verbal memory and functional connectivity improvement in epilepsy. *Epilepsy & Behavior, 96*, 44–56. <https://doi.org/10.1016/j.yebeh.2019.04.020>
- Anima. (2014). Manual revisão bibliográfica sistemática integrativa: a pesquisa baseada em evidências. Grupo Anima. [https://biblioteca.cofen.gov.br/wp-content/uploads/2019/06/manual\\_revisao\\_bibliografica-sistematica-integrativa.pdf](https://biblioteca.cofen.gov.br/wp-content/uploads/2019/06/manual_revisao_bibliografica-sistematica-integrativa.pdf)
- Asadi-Pooya, A. A., Homayoun, M., & Sharifi, S. (2019). Complementary and integrative medicine in epilepsy: What patients and physicians perceive. *Epilepsy & Behavior, 101*, 106545. <https://doi.org/10.1016/j.yebeh.2019.106545>
- Ben, J., Pagani, A. G., Marques, B. S., Fialho, G. L., Wolf, P., Walz, R., & Lin, K. (2021). Employment status as a major determinant for lower physical activity of patients with epilepsy: A case-control study. *Epilepsy & Behavior, 115*, 107655. <https://doi.org/10.1016/j.yebeh.2020.107655>
- Casassa, C., Moss, R., & Goldenholz, D. M. (2021). Epilepsy during the COVID-19 pandemic lockdown: a US population survey. *Epileptic Disorders, 23*(2), 257–267. <https://doi.org/10.1684/epd.2021.1259>
- Collard, S. S., & Ellis-Hill, C. (2019). 'I'd rather you didn't come': The impact of stigma on exercising with epilepsy. *Journal of Health Psychology, 24*(10), 1345–1355. <https://doi.org/10.1177/1359105317729560>
- Crossetti, M. G. M. (2012). Revisión integradora de la investigación en enfermería el rigor científico que se le exige. *Maria Da Graça Oliveira Crossetti. Rev. Gaúcha Enferm.*33(2):8-9. 9
- Dustin, I. H., Resnick, B., Galik, E., Klinedinst, N. J., Michael, K., Wiggs, E., & Theodore, W. H. (2019). The Feasibility and Impact of the EMOVE Intervention on Self-efficacy and Outcome Expectations for Exercise in Epilepsy. *Journal of Neuroscience Nursing, 51*(2), 95–100. <https://doi.org/10.1097/JNN.0000000000000425>
- Feter, N., Alt, R., Häfele, C. A., da Silva, M. C., & Rombaldi, A. J. (2020). Effect of combined physical training on cognitive function in people with epilepsy: Results from a randomized controlled trial. *Epilepsia, 61*(8), 1649–1658. <https://doi.org/10.1111/epi.16588>

- Green, R., Abe, C., Denney, D. A., Zhang, R., Doyle, A., Gadelmola, K., Cullum, C. M., Simon, J., Neaves, S., Perven, G., Dieppa, M., Hays, R., Agostini, M., & Ding, K. (2021). Physical activity status and quality of life in patients with epilepsy – Survey from level four epilepsy monitoring units. *Epilepsy Research*, 173, 106639. <https://doi.org/10.1016/j.eplepsyres.2021.106639>
- Häfele, C. A., Rombaldi, A. J., Feter, N., Häfele, V., Gervini, B. L., Domingues, M. R., & da Silva, M. C. (2021). Effects of an exercise program on health of people with epilepsy: A randomized clinical trial. *Epilepsy & Behavior*, 117, 107904. <https://doi.org/10.1016/j.yebeh.2021.107904>
- Kumar, M., Ramanujam, B., Barki, S., Dwivedi, R., Vibha, D., Singh, R. K., & Tripathi, M. (2022). Impact of exercise as a complementary management strategy in people with epilepsy: A randomized controlled trial. *Epilepsy & Behavior*, 129, 108616. <https://doi.org/10.1016/j.yebeh.2022.108616>
- Pereira A. S. et al. (2018). Metodologia da pesquisa científica. [free e-book]. Editora UAB/NTE/UFSM
- Popp, J. L., Szaflarski, J. P., Kaur, M., Martin, R. C., Brokamp, G. A., Terry, D. M., Diggs, M. D., & Allendorfer, J. B. (2021). Relationships between cognitive function, seizure control, and self-reported leisure-time exercise in epilepsy. *Epilepsy & Behavior*, 118, 107900. <https://doi.org/10.1016/j.yebeh.2021.107900>
- Shawahna, R., & Abdelhaq, I. (2020). Exploring perceived benefits, motives, barriers, and recommendations for prescribing yoga exercises as a nonpharmacological intervention for patients with epilepsy: A qualitative study from Palestine. *Epilepsy & Behavior*, 106, 107041. <https://doi.org/10.1016/j.yebeh.2020.107041>
- SudhindraVooturi, Lakshmi, A. N. R., & Jayalakshmi, S. (2020). Evaluation of factors influencing obesity and the effect of a 12-week home-based exercise program in people with epilepsy — Randomized control trial. *Epilepsy & Behavior*, 110, 107148. <https://doi.org/10.1016/j.yebeh.2020.107148>
- Szałwińska, K., Cyuńczyk, M., Kochanowicz, J., & Witkowska, A. M. (2021). Dietary and lifestyle behavior in adults with epilepsy needs improvement: a case-control study from northeastern Poland. *Nutrition Journal*, 20(1), 62. <https://doi.org/10.1186/s12937-021-00704-6>
- Tedrus, G. M. de A. S., & Leandro-Merhi, V. A. (2023). Physical activity in adults with epilepsy: clinical aspects and relationship with cognition and quality of life. *Dementia & Neuropsychologia*, 17. <https://doi.org/10.1590/1980-5764-dn-2022-0107>
- Vancampfort, D., & Ward, P. B. (2021). Physical activity correlates across the lifespan in people with epilepsy: a systematic review. *Disability and Rehabilitation*, 43(10), 1359–1366. <https://doi.org/10.1080/09638288.2019.1665113>
- Vancampfort, D., Ward, P. B., & Stubbs, B. (2019a). Physical activity and sedentary levels among people living with epilepsy: A systematic review and meta-analysis. *Epilepsy & Behavior*, 99, 106390. <https://doi.org/10.1016/j.yebeh.2019.05.052>
- Vancampfort, D., Ward, P. B., & Stubbs, B. (2019b). Physical fitness levels and moderators in people with epilepsy: A systematic review and meta-analysis. *Epilepsy & Behavior*, 99, 106448. <https://doi.org/10.1016/j.yebeh.2019.106448>