**Conflict of interest:** The authors declare no conflict of interest.
**Funding:** Not applicable.
**Ethics committee approval:** Not applicable.
**Registration:** Not applicable.

https://doi.org/10.1016/j.bjpt.2025.101318

**56**

## IMPACTS OF A PILATES, ZUMBA AND THORACOABDOMINAL REBALANCING PROTOCOL ON THE CARDIORESPIRATORY CONDITIONS OF WOMEN WITH BREAST CANCER: PILOT STUDY

Mariana Clepf Sandrini, Rafaela de Oliveira Martins, Lara da Costa Moreira, Andrew Kenny Araújo dos Santos, Sophia Braga dos Santos, Lívia De Cássia Braz Silveira, Ligia de Souza Marino, Juliana Bassalobre Carvalho Borges
*Universidade Federal de Alfenas (UNIFAL), Alfenas, MG, Brazil*

*Background:* Breast cancer represents a relevant health problem both in Brazil and globally, bringing several adverse effects due to treatments, which may include surgeries and/or complementary therapies. Among these consequences, cardiorespiratory changes stand out and require special attention. Therefore, it is essential to develop rehabilitation strategies that promote adherence and effectiveness, through the implementation of a specific and detailed protocol for this population, which includes a combined global training of Mat Pilates, Zumba and Thoracoabdominal Rebalancing with the aim of improving the patients' cardiorespiratory condition.
*Objectives:* To evaluate the impacts of an exercise protocol consisting of Mat Pilates, Zumba and Thoracoabdominal Rebalancing on the cardiorespiratory conditions of women undergoing breast cancer treatment.
*Methods:* Controlled and randomized clinical trial, carried out with women after surgery and undergoing breast cancer treatment, randomized to the intervention group (IG = 8) that received the Zumba, Mat Pilates and Thoracoabdominal Rebalancing protocol and the control group (CG = 8) that did not receive the protocol. The protocol was carried out in 10 sessions, 2 per week on alternate days. Protocol consisting of monitoring initial and final signs (heart rate, diastolic and systolic blood pressure), reeducation of respiratory biomechanics using the Thoracoabdominal Rebalancing Method, 10 minutes of Zumba and 10 minutes of Mat Pilates. Before and after the protocol period, general and clinical characteristics, the physical activity questionnaire (IPAQ) and cardiorespiratory conditions were evaluated considering respiratory muscle strength (maximum inspiratory and expiratory pressures), peripheral muscle strength (handgrip test) and functional capacity using the sit-to-stand test. The variables were analyzed using specific intra (Wilcoxon) and intergroup (Mann-Whitney) statistical tests.
*Results:* The IG was 43.2 $\pm$ 7.2 years old and the CG was 59.3 $\pm$ 5.5 years old. 75% of the IG and 25% of the CG practiced physical activity. In the intragroup analysis, the IG showed a significant improvement in sit-to-stand test ($p = 0.048$), while the CG showed a significant worsening in maximum inspiratory pressure ($p = 0.039$) and in handgrip of the dominant hand ($p = 0.030$). In the intergroup analysis, there was a significant difference in systolic blood pressure ($p = 0.019$), with the CG having higher values ??and in the handgrip of the dominant hand ($p = 0.048$), with the IG having higher values. This indicates that the protocol has the potential to improve or maintain the variables analyzed in the study, since in participants who did not follow the protocol, a reduction in these variables was observed over time.
*Conclusion:* The treatment protocol had a positive impact on the cardiorespiratory conditions of the IG, considering sit-to-stand test and blood pressure, in addition to maintaining respiratory and peripheral muscle strength variables. While the patients in the CG, who did not undergo the intervention, had a negative impact on the inspiratory and peripheral muscle strength of the dominant hand.
*Implications:* The results found demonstrate the potential that this protocol has in providing improvements in the cardiorespiratory conditions of this population, through the combination of specific and well-structured exercises, improving recovery and functionality.
*Keywords:* Breast Neoplasms, Breathing Exercises, Exercise Movement Techniques

**Conflict of interest:** The authors declare no conflict of interest.
**Funding:** CAPES - Finance Code 001.
**Ethics committee approval:** CAAE: 63879522700005504.
**Registration:** Not applicable.

https://doi.org/10.1016/j.bjpt.2025.101319

**57**

## CELLULAR INTEGRITY OF PEOPLE WITH LUNG OR HEAD AND NECK CANCER UNDERGOING A HOME-BASED PHYSICAL TRAINING PROGRAM DURING ONCOLOGICAL TREATMENT

Karina Marcela Morro Pozo[a], Luís Alberto Gobbo[a], Isis Grigoletto[a], Elisabetta Marini[b], Ercy Mara Cipulo Ramos[a]
[a] *Faculdade de Ciências e Tecnologia (FCT), Universidade Estadual Paulista "Júlio de Mesquita Filho" (UNESP), Presidente Prudente, SP, Brazil*
[b] *Università Degli Studi di Cagliari, Italia*

*Background:* Lung and head cancer have high incidence and mortality rates. Chemotherapy and radiotherapy are widely used therapeutic modalities in cancer treatment, acting by destroying tumor cells. However, these treatments can also affect healthy cells, leading to adverse effects and damage to cellular integrity and function. Considering the difficulty of going to a training center, the immunosuppression of this population and the benefits of physical exercise in healthy people, home physical training can be a complement to cancer treatment.
*Objectives:* To evaluate the cell integrity of people with lung or head and neck cancer undergoing a home-based physical training program during cancer treatment.
*Methods:* People with primary lung or head and neck cancer were randomized into a training group (TG) and a control group (CG). The TG performed home-based physical training during cancer treatment. Aerobic training was performed through daily walks of at least 20 minutes, seven times a week, and resistance training of elbow flexion, knee flexion and extension with a green elastic band (2.3 kg of resistance), twice a week. The training time followed the duration of cancer treatment established individually by the oncologist. The CG performed only cancer treatment without any type of physical exercise. The groups were evaluated before and after cancer treatment, regarding the cell integrity (phase angle of the bioelectrical impedance analysis). The paired t-test was used to verify the intragroup difference and the independent t-test for intergroup analysis. In addition, a linear regression with the cell integrity and training adherence was performed.
*Results:* Fifty-four people were evaluated, most were diagnosed with head and neck cancer (60%), men (78%), with overweight and in an advanced stage of the disease (74%). The TG performed the home physical training program for a mean of 14 weeks, with 52%

mean adherence. Both groups showed a decrease in the phase angle, but this decrease was significant only in the CG (TG = Baseline: 4.96 ± 0.68; Final: 4.72 ± 0.69; p = 0.060) (CG = Baseline: 5.05 ± 0.96; Final: 4.59 ± 0.82; p = 0.001), but there was no difference between the groups (p = 0.210). When stratifying the sample, a significant decrease in the CG was also observed in men (p = 0.005), people with lung cancer (p = 0.045), head and neck cancer (p = 0.016) and advanced stage cancer (p = 0.003). However, there was no statistical difference between groups. In addition, the linear regression demonstrated that greater adherence to home training (> 60%) was associated with a smaller reduction or better maintenance of the cell integrity.
*Conclusion:* People with lung or head and neck cancer who underwent home physical training during cancer treatment appear to have maintenance of cellular integrity, especially in individuals with greater adherence to physical training.
*Implications:* These findings highlight the potential of home exercise programs as a strategy to complement oncological care. Additionally, these results reinforce the need for healthcare policies that promote physical activity as an adjunct therapy in cancer care.
*Keywords:* Bioelectrical Impedance, Physical Training, Lung Neoplasms

**Conflict of interest:** The authors declare no conflict of interest.
**Funding:** CAPES - Finance Code 001, FAPESP.
**Ethics committee approval:** CAAE: 79033024.8.0000.0068.
**Registration:** Not applicable.

https://doi.org/10.1016/j.bjpt.2025.101320

**58**

## SLEEP QUALITY AND MUSCLE STRENGTH IN CANCER PATIENTS: A NARRATIVE REVIEW

Aline Georgina Oliveira De Oliveira, Laerte Jônatas Leray Guedes, Laura Maria Tomazi Neves
*Universidade Federal do Pará (UFPA), Belém, PA, Brazil*

*Background:* Sleep disorders are prevalent among cancer patients. Reduced nighttime sleep, as a type of sleep disorder, diminishes quality of life and is associated with depression, anxiety disorders, fatigue and irritability. This directly impacts the musculoskeletal quality, leading to muscle weakness. Both shorter or longer sleep durations are significant factors influencing changes in body composition. These changes increase the risk of obesity and sarcopenia— a musculoskeletal disorder characterized by a generalized loss of muscle strength and mass. Cascades of anabolic and catabolic hormones, mediated by growth hormone, insulin-like growth factor I, cortisol, testosterone, and insulin— critical to the improvement and restoring muscle fibers, functionality, and strength—are influenced by sleep quality. Chronic insomnia can also disrupt the hypothalamic-pituitary-adrenal axis, leading to endocrine changes.
*Objectives:* This narrative review aimed to analyze the influence of sleep quality on muscle strength in cancer patients.
*Methods:* This descriptive review focused on studies conducted between 2021 and 2025. A total of 25 studies were selected from databases including LILACS, MEDLINE via PubMed, SciELO, and PEDro. The search utilized a combination of terms and keywords with Boolean operators OR and AND. The selected descriptors were derived from the MeSH platform: Sleep Quality, Sleep Wake Disorders, Muscle Strength, and Cancer Survivors.
*Results:* The results showed that sleep quality issues, such as insomnia, obstructive sleep apnea syndrome (OSAS), and excessive daytime sleepiness, are common and significant complaints among cancer patients. These issues may be related to pre-existing sleep disorders, psychological conditions associated with cancer, or side effects of cancer treatment. Reduced sleep duration and quality disrupt cellular functions by inhibiting protein synthesis pathways and activating muscle degradation pathways. Physiotherapists also face challenges in effectively screening and identifying these contributing factors.
*Conclusion:* Poor sleep quality is a significant public health concern, as it is both widespread and associated with numerous adverse effects on the quality of life of cancer patients. The use of validated assessment tools is essential to guide physiotherapeutic interventions and promote health.
*Implications:* This review has the potential to significantly advance oncology physiotherapy research by addressing an underexplored yet highly relevant area. Nonetheless, additional research is needed to better understand the relationship between sleep quality and muscle strength in cancer patients, and to enhance clinical practices. This review underscores the importance of evaluating these connections to identify the underlying causes of patient conditions, ultimately aiming to deliver holistic and comprehensive care.
*Keywords:* Sleep Quality, Muscle Strength, Cancer Survivors

**Conflict of interest:** The authors declare no conflict of interest.
**Funding:** PIBIC-UFPA.
**Ethics committee approval:** No. 3.401.241.
**Registration:** Not applicable.

https://doi.org/10.1016/j.bjpt.2025.101321

**59**

## EFFECT OF SLEEPER STRETCH AND CROSSBODY STRETCH ON PAIN AND GLENOHUMERAL MOBILITY IN SYMPTOMATIC OVERHEAD ATHLETES: A RANDOMIZED CLINICAL TRIAL

Mayara Ribeiro da Silva, Danyelle Leite Furtado de Araújo, Gabriel Alves Dos Santos, Janaynna Nunes de Araújo, Bruna Gabriella Nascimento Bezerra, Danilo Harudy Kamonseki, Valéria Mayaly Alves De Oliveira
*Programa de Pós-Graduação em Fisioterapia, Departamento de Fisioterapia, Universidade Federal da Paraíba (UFPB), João Pessoa, PB, Brazil*

*Background:* Various techniques for stretching the posterior shoulder capsule have been incorporated into rehabilitation and injury prevention programs for overhead athletes. The Cross-body Stretch and Sleeper Stretch techniques are discussed in literature with the aim of relieving pain and increasing internal rotation (IR) range of motion. However, there are still no studies comparing the effects of these stretches on overhead athletes with pain and glenohumeral movement limitations.
*Objectives:* To compare two techniques for stretching the posterior capsule in terms of pain relief and glenohumeral range of motion in overhead athletes.
*Methods:* This is a randomized, controlled clinical trial with two parallel arms. The sample consisted of competitive-level overhead athletes who exhibited a minimum difference of 20° in IR limitation compared to the non-dominant side and reported pain during daily or sports activities of at least 2/10 on the Numeric Visual Scale (NVS). Participants underwent the following steps: (a) eligibility screening; (b) outcome assessment (pain, IR range of motion) by blind evaluators; and (c) intervention. All participants were evaluated twice during the study (baseline and after four weeks). After evaluation and randomization (1:1), participants were allocated to either the Cross-body Stretch group (GCB) or the Sleeper Stretch group (GSS). The exercises were performed three times a week, in 5 sets of 30 seconds each, with a 30-second rest between sets, for 4 weeks. The first session was conducted in person, with a