The importance of a continuum of rehabilitation from diagnosis of advanced cancer to palliative care

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The continuum of rehabilitation in advanced cancer

Purpose: Identifying the evidence found in the international scientific literature, referring to the concept of rehabilitation in the setting of oncologic palliative care. **Methods:** Integrative literature review based on articles published in indexed journals on the electronic databases: LILACS, CINAHL and PubMed/MEDLINE, WEB OF SCIENCE, OTSEEKER and PEDRO, following the PRISMA criteria. The quantitative articles were evaluated using the McMaster form for quantitative studies and the qualitative studies were assessed by the Critical Appraisal Skills Program. The studies were inserted in the Rayyan™ application. **Results**: The final sample was composed of 21 qualitative and quantitative articles published in the period from 2004 to 2021, in nine different countries. Three thematic units were defined addressing the interface between palliative care and rehabilitation, the concept of palliative rehabilitation and the barriers to its implementation. The quality of the articles reviewed varied from 31% to 100% of the criteria met. **Conclusion:** The international scientific production reinforces the importance of including rehabilitation in care in oncologic palliative care, highlighting the concept of palliative rehabilitation, but there is a need for expanding and divulging new research on the theme and the results.

Keywords: Rehabilitation, cancer, oncologic, palliative care, palliative rehabilitation, review.

Background

Cancer is a life-limiting chronic disease that involves pain and complex symptoms, such as increased fatigue, generalized weakness, dyspnea, delirium, nausea, vomiting, anxiety, and depression [1-2]. With the progression of the disease, the affected people experience functional decline, disabilities, and several forms of physical, emotional, social, and spiritual distress. It has a negative impact on their quality of life

and contributes to the loss of dignity and the increase of their dependence on daily activities [3-5].

Although cure rates are increasingly higher due to scientific and therapeutic advances, people with cancer need palliative care (PC), particularly (not exclusively) when they present the disease in advanced stages. However, few people are referred to PC services or, when they are referred; it usually happens late [6-8].

Flawless control of pain and symptoms and maintenance of comfort, wellness and quality of life of the people living with oncologic or non-oncologic conditions and their family are the key aspects of the PC approach [9-10].

Nevertheless, in the setting of palliative care, rehabilitation is still poorly known and it is misunderstood by healthcare providers and society [11-13]. The lack of conceptual clarity may be a barrier to the engagement of professionals and recognition by the patient and their families about the importance of providing rehabilitation in PC [14]. Therefore, it is necessary to explore further this relevant topic of PC and rehabilitation practice.

The aim of this review was to present the evidence found in the international scientific literature, referring to the concept of rehabilitation in the setting of oncologic palliative care.

Methods

The present study characterizes as an integrative literature review referring to the understanding of the concept of rehabilitation in the setting of oncologic PC.

The integrative literature review synthetizes the discovery of a wide range of primary methods of experimental and non-experimental research to offer broader perspectives and more comprehensive understanding of a complex health problem [15].

Procedures:

The procedures followed in this review are presented below in Figure 1.

Figure 1. Procedures steps

The guiding question of this review was defined according to the PICo (acronym for P: population/patients; I: interest; Co: context) research strategy to guide the development of the question for investigation and definition of inclusion and exclusion criteria [16]. What is the evidence available in the literature related to the concept of rehabilitation in the setting of oncologic palliative care?

The authors followed the steps suggested in the literature for performing literature reviews and the processes informed by the PRISMA standard of systematic reviews [17-18], as shown below in Figure 2.

Figure 2. PRISMA flow diagram. Adapted from, Moher et al., 2009.

The bibliographic search was conducted throughout October 2021 on the electronic databases: *CINAHL, PubMed/MEDLINE, WEB OF SCIENCE, LILACS, OTSEEKER* and *PEDRO*, there was no restriction of language.

For the selection of articles in order to answer the research guiding question, the authors developed the search strategies with different combinations in terms of research according to the consulted databases. The following descriptors were used: *"palliative care", "supportive care", "terminal care", "hospice care", "end of life care", "life care end", "rehabilitation", "reabilitação", "habilitation", "neoplasm", "neoplasia", "cancer", "cancro", "tumor", "onco",* with the truncated root (* ou $) in the word

Neoplas. All the search terms were combined among themselves through the Boolean connectors *"AND"* and *"OR"*.

The previously defined inclusion criteria of the articles were: original articles, published until October 2021, conducted with human beings over 18 years; articles conceptualizing or defining rehabilitation in the setting of oncologic palliative care. We excluded literature reviews, editorials/comments, guidelines, letters, conference abstracts, articles of pharmacological approaches, and medical interventions, such as surgeries or invasive technology.

The authors used the selected search terms and adopted the previously established eligibility (inclusion and exclusion) criteria for conducting the literature search, followed by the definition of relevant information from the selected studies, evaluation of findings, and synthesis of results.

To complete the thorough selection of the studies that responded to the search criteria and for excluding repeated articles, the software Mendeley was used to manage bibliographic references. The results were attached to the software Rayyan™ developed by the Qatar Computing Research Institute [19]. For the final selection of material, two reviewers assessed the titles and abstracts in a blinded and independent way and the final consensus was achieved together with a third reviewer.

Due to the nature of the question, quantitative and qualitative studies were included to offer a more comprehensive perspective on the subject. To reach a consensus among team members over the methodological quality of the articles and strength of evidence each article was assessed independently using an adapted score system based on the guidelines developed in the studies by Barras (2005) and Cipriani (2013) [20-21].

The quantitative studies were critically evaluated using the McMaster's Critical Review Form (MQCRF) [22-23].

The qualitative studies were analysed through the checklist of the Critical Appraisal Skills Program (CASP) [24], which is widely used in the health domain and offers instructions for the critical assessment in terms of reliability, results, and relevance of the selected studies.

Results:

The consultation on the six databases mentioned above was performed with methodological rigour. The findings represent the international scientific production about the central issue of the study. The synthesis of the articles included in the study is shown in table 1.

Table 1: Articles selected according to the strategies of literature review (N=21).

Among the 21 articles selected and included in the study, five (23.80%) were produced in the United Kingdom, five (23.80%) in Canada, three (14.28%) in Denmark, two (9.52%) in Australia, two (9.52%) in Japan, one (4.76%) in Northern Ireland, one (4.76%) in Poland, one (4.76%) in South Korea, and one (4.76%) in Costa Rica, as shown in graphic 1. There were 14 (66.66%) quantitative studies and seven (33.33%) qualitative studies.

Graphic 1: Frequency of Countries

Concerning the quality analysis of the reviewed articles, MQCRF scores of the quantitative studies ranged from 31% to 100% of the criteria met. The mean congruence score of the studies was 78.2%. About the evaluation of the qualitative articles by CASP, the variation was from 70% to 100% of the criteria met and the mean score of the studies was 91.4%.

The studies were classified according to the strength of the evidence. Therefore, 16 (76%) articles were evaluated as having strong evidence; four (19%) showed moderate evidence, and one (5%) presented insufficient evidence. In summary, the majority of the 21 research studies included in this review had appropriate methodological quality.

According to the analysis of content, the synthesis of results pointed three key themes that describe concepts of rehabilitation in the setting of oncologic palliative care, as shown below.

Interface between Palliative Care and Rehabilitation

Oncologic rehabilitation was described by Dietz in 1969, including four subtypes: preventive, restoration, supportive, and palliative rehabilitation to produce considerable improvements in the function and quality of life of patients and their families and reduce psychological and spiritual distress [25]. Cicely Saunders, the precursor of the movement of modern hospice, also incorporated the theme of rehabilitation in PC in the empowerment of the patient in a terminal process; to live as fully as possible until death occurs, at the limit of their physical and mental capacity with autonomy and independence according to their possibilities [25].

The median survival time of patients with advanced cancer, calculated from the date of diagnosis until death, is improving, which turns the discussion of a continuum rehabilitation of this group of patients more and more relevant [26-27].

One of the main concerns shown by patients in PC is the fear of disability, not being able to follow the desired occupations or the loss of autonomy and independence. In this regard, rehabilitation is a valuable component of PC and can be offered for both therapeutic purposes and control of symptoms, aiming to maximize physical and emotional well-being, increase social participation, and minimize stress for the caregiver

through interdisciplinary care. Even in the most advanced stages of the disease, rehabilitation can contribute to maintaining the quality of life and human dignity [28-31].

Therefore, the integration between rehabilitation and PC is paramount to help the patient to adapt to the disease, find a purpose in life, increase their sense of control, reduce psychological and spiritual distress, and live as fully as possible, in a meaningful way until their last days of life [32-34]. Furthermore, research is necessary to develop a tool of universal holistic evaluation and measurement of results to offer rehabilitation in the setting of oncologic PC [35], as well as the construction of evidence about the efficacy in the implementation of rehabilitation to these patients [36]. Thus, the approach of rehabilitative PC should be present in all the phases of the oncologic treatment, aiming at the collaboration between the interdisciplinary team, the patient and their family, focusing on establishing agreed goals and working to reach them [37].

Definition of Palliative Rehabilitation

The concept of Palliative Rehabilitation was presented in 15 studies, published from 2010, that composed this review.

Palliative Rehabilitation is an educational process of problem resolution focused on the limitation of activity imposed by the illness, aiming to optimize social participation and well-being and reduce the stress of the caregiver/family in the context of a progressive disease that threatens the continuity of life [38]. In this regard, it is a paradigm that integrates rehabilitation, empowerment, self-management, and self-care in the holistic model of PC, empowering people to adapt to their new state of being with dignity and to deal constructively with the losses resulting from health deterioration [34, 39].

Based on the definition of PC by the World Health Organization, palliative rehabilitation aims to empower individuals and their families to be active participants in their care and improve their general functioning and promote quality of life. Its objective

is to promote independence and participation whenever possible, looking to minimize the impact of advanced disease through treatment with realistic goals based on patients' needs and the relief of the intensity of their symptoms on psychological health and quality of life. It aims to improve and maintain the levels of physical, mental, social, and intellectual performance and to prevent the loss of functions related to daily living activities to support independence and self-management [27, 32, 40-42].

The approach of rehabilitative PC should be offered in all the phases of the oncologic treatment, requiring collaboration between the healthcare interdisciplinary team, the patient, and their family, with goals to be achieved within a limited time, aligned with the values of patients who may present intense and dynamic symptoms, emotional and spiritual stress [29].

The interdisciplinary team aims to empower individuals suffering from functional losses, fatigue, malnutrition, psychological distress or other symptoms as a result of cancer or treatment. It is necessary to improve their quality of life and general health condition, maintain the patient as active as possible in their daily life for a longer time, encouraging their social participation [32, 43-45]. The goals aligned with the values of patients, is recommended in this approach [45].

In conclusion, the quality of life of patients with advanced cancer improves significantly through integrated palliative rehabilitation providing by an interdisciplinary and qualified team. [38, 45].

Barriers to the implementation of rehabilitation in palliative care services

Due to the advance of the disease and worsening of clinical conditions, it is more difficult to determine the real impact of rehabilitation when patients are in palliative care. Rehabilitation may be misinterpreted by patients, family members, and healthcare

providers. In some cases, the word "rehabilitation" may refer to the hope of a cure [25, 30].

The literature review indicated several factors that may serve as barriers to offering rehabilitation services to PC patients: the absence of disability evaluation and functional impairment of patients, lack of clarity and understanding about rehabilitation and its benefits by healthcare providers, lack of accessibility, availability and referral to these services, adverse financial implications, and also personal factors, such as limited expectations of the benefit of rehabilitation [46-48].

Due to the lack of protocols and consensus between models and concepts of palliative rehabilitation, it is necessary to explore further and conduct research on this area and establish definitions, structures of care and evidence-based guidelines for clinical practice [25, 33, 45].

Discussion:

This integrative review's results and primary outcomes reinforce the importance of reflecting on the understanding of rehabilitation in palliative care. It is already known that PC goes beyond ensuring patient comfort during the dying process. Currently, the importance and benefits of this approach have been recognized throughout incurable or long-term illnesses. [26-27].

According to the American Society of Clinical Oncology (ASCO), PC concomitant with usual cancer care is recommended for all patients with advanced cancer. It should be started within 8 weeks of diagnosis and provided by a multidisciplinary team. [49].

> Although, among patients with cancer with high symptom burden, high expectant needs, or great anticipation of experiencing overlapping phases of care, (diagnosis, staging, treatment, and end of life), outpatient programs of cancer care should provide and use dedicated resources to deliver palliative care services to complement existing program tools [49].

The concept of palliative rehabilitation is still not widespread and controversial around the world. However, it is known that it is recognized as a key element in the treatment of people with oncological diseases and throughout illness. [50]. Barriers to implementing palliative rehabilitation in services are due to the variability of techniques at the international level or lack of knowledge on the part of health professionals. These factors create barriers in the incorporation of rehabilitation into the setting of oncological PCs and referrals to specialized rehabilitation services. Therefore, the offering of this approach is largely neglected in the distribution of health resources and primary care. [50-53].

With the increasing number of rehabilitation proposals in the PC scenario in recent years, its relevance has been progressively recognized. However, the implementation of a rehabilitation program is a challenge both for clinical care and for research. [25].

Rehabilitation is an essential component of the PC approach, regardless of life expectancy and involves several professions, such as nutritionists, occupational therapists, physiotherapists, speech therapists, nurses, and doctors, among others. It is the responsibility of every professional in the health and social area. [54-57].

Functional decline is common among PC patients, may cause depression, loss of quality of life, increased need for caregivers, use of health resources and need for institutionalization. When occurs reduced functionality, from the perspective of

traditional rehabilitation (under the biopsychosocial model), the health condition can be impaired by conditions of body function and structure, limitation in activities, restriction of participation, factors related to the environment and/or personal factors [58].

Thus, the interventions have objectives of recovery and return to the previous premorbid functional level (if possible), which is considered inappropriate for patients in PC. In palliative rehabilitation interventions, the goals are to optimization of the remaining skills, improve function, and reduce the burden of care for family members and caregivers. Thus, it becomes possible to improve the quality of life and patient satisfaction in terms of health care, management of distressing symptoms such as pain and anxiety, and preparation for the end of life [10, 13, 38, 53, 59]. However, unrealistic expectations can be created around the word "rehabilitation" in this context. It can cause frustration and dissatisfaction with the treatment results by the patients and health professionals. [47, 52].

As a result of the scarce evidence regarding integrative models of palliative rehabilitation, the United Kingdom established a document of guidelines for clinical practice. According to this guideline, rehabilitation is offered as a component of PC [13]. Thus, the integration between rehabilitation and PC, particularly in the oncological population, found its fullest expression in the recent explanation of the term: palliative rehabilitation [59].

Palliative rehabilitation can be defined as a care approach oriented towards functionality and quality of life. It should be aligned with the values of the patient and their family in contexts marked by intense and dynamic symptoms, to achieve potentially limited goals regarding timing, progression and worsening of the disease.

This approach aims to maximize function and independence, reducing dependence on mobility and self-care activities, in association with comfort and

emotional support, despite the intensification of disability as the disease progresses [14, 59].

Although it is a common perception that little or no improvement can occur in the physical functionality in PC, the autonomy and maintenance of independence are important for people diagnosed with advanced disease. Rehabilitation in the early stages of the disease usually aims to restore function during or after anticancer therapy. In advanced stages, the goals can change. The patients may prioritize improving mobility, autonomy, independence in activities of daily living, symptom relief, and prevention of complications, as well as the quality of life [48].

Both rehabilitation and PCs have become topics of health policy documents from the World Health Organization (WHO), which in 2017 published the document “Rehabilitation in Health Systems”, advocating a greater focus on rehabilitation for the world population. This document recommends that the rehabilitation should be integrated into health systems, contributing to the provision of person-centred care across the continuum of care [60].

Thus, rehabilitation and palliative care are related in the continuum of care, through cultural understandings associated with stigma, inclusion and integration, functionality, fear, suffering and pain, also responding to the influence of the perceptions of change in the important clinical framework of "disability" and "terminal illness". While rehabilitation aimed to overcome adversities, chronic diseases and disabilities, opening new possibilities for life, palliation aimed to relief the suffering, not to cure or modify its underlying cause, and thus bring acceptance and improvement in the quality of life, in the face of inevitable death [61].

The main connection between the two approaches refers to the notion of universal health coverage, which has been defined by the WHO as ensuring that all people

have access to necessary health services, including prevention, promotion, rehabilitation and palliation of sufficient quality to be effective. [62].

Thus, rehabilitation in cancer patients should begin at the time of diagnosis and trace a continuum during and beyond treatment. This care model should be able to favour the early identification of symptoms, as well as their referral and management, increasing the quality of life during the trajectory of the disease. [63].

We emphasize the importance of research on palliative rehabilitation within a clinical setting to understand barriers and enablers for behavior change during advanced cancer treatment. As the prevalence of people living with advanced disease continues to increase, interventions aimed at improving function and quality of life must be systematically researched so that people can maintain their personal goals in terms of quality of life. Investigating the potential benefits of palliative rehabilitation is essential for healthcare professionals dealing with patients with life-limiting illnesses [64-67].

The challenges and next steps in scientific production include the use of terminology and the consensus on the role of rehabilitation in PC, clear communication with patients, working with the expectations and perceptions of the patient and the team, training the team so that it can acquire the skills needed to supervise and work in palliative rehabilitation programs. Then, determine interventions and protocols in an appropriate and beneficial way for an increasingly heterogeneous population of palliative care, looking at the continuum of care in rehabilitation considering the natural history of the disease aiming at the individual's functionality and independence.

Therefore, it is necessary to establish evidence-based models so that palliative rehabilitation is widely accepted and understood in all palliative care services through relevant policies in a comprehensive and integrated strategy. [25].

Therefore, the reflection on the inclusion of rehabilitation in oncological PC care, in addition to emphasizing the need for definitions and clarifications of approaches and protocols, the emergence and international dissemination of the concept of palliative rehabilitation, evidenced in the most recent studies of this revision. As a process of transforming the current reality that involves PCs and rehabilitation based on improving the training of health professionals and the care provided to these patients, palliative rehabilitation gains more and more space and evidence to become more recognized and used both in clinical practice and research.

Implications for practice and research

Current research underscores palliative rehabilitation as a way of bringing scientific evidence in relation to this concept that is expanding and standing out in international literature. Through these palliative rehabilitation programs, we expect to achieve a more effective organization and provision of this approach in PC services and the education/training for the involved healthcare providers, so they can perform an early referral to PC and to rehabilitation programs in this setting. However, it is necessary wider dissemination of this subject and of the benefits that palliative rehabilitation can offer as the disease evolves.

Strengths and limitations of this review

The strength of this review is that it includes both quantitative and qualitative research studies, without delimitation of language and time, allowing a broader scope of studies conducted on this subject. It offers important and valid rationale of the conceptualization of rehabilitation in the setting of oncologic PC. Furthermore, this review

was carried out by peers, in a blinded and independent way, minimizing possible bias in the process of selection of the final sample of the studies.

This study has some limitations. Given the specific objective and the exclusion criteria of review articles, relevant manuscripts referring to the research conducted with non-oncologic population in PC were not included in this proposal. We suggest the need as well for new investigations to continue to develop the basis of evidence about palliative rehabilitation and its benefits in the care of oncologic and non-oncologic patients in PC.

Conclusion

This integrative review allowed to elucidate the importance of knowledge, conceptualization, and approach of rehabilitation in the setting of PC, both in the level of scientific research and optimization of clinical practices. The international scientific production showed to be relevant to the advance and consolidation of rehabilitation in the field of knowledge in PC, as seen through the conceptualization of palliative rehabilitation strongly used in other countries like United Kingdom, Canada, Denmark, Australia, South Korea.

Rehabilitation is one of the care modalities that should be part of the plan of care to meet the needs and demands of people in PC and stands out as an important approach to be used to improve the quality of life of patients and family members and the quality of the provided care and of the organization of PC services. We emphasize the importance of the early referral of patients with advanced oncologic disease to a PC service that has rehabilitation as a care component, in addition to potentiating and strengthening the definition and diffusion of the concept and protocols of palliative rehabilitation.

The evidence shown broaden the understanding of healthcare professionals and researchers about offering this modality of care to benefit patients in the maintenance of

a more active and autonomous life within the possibilities and with higher quality of life and relief of pain, symptoms, and distress.

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References:

1. Tsai JS, Wu CH, Chiu TY, Hu WY, Chen CY. Symptom patterns of advanced cancer in patients in a palliative care unit. *PalliatMed*. 2006;20(6):617-22. doi: doi: 10.1177/0269216306071065.
2. Peters L, Sellick K. Quality of life of cancer patients receiving inpatient and home-based palliative care. *J AdvNurs*. 2006; 53(5):524-33.doi: 10.1111/j.1365-2648.2006.03754.x.
3. Morgan DD, Currow DC, Denehy L, Aranda SA. Living actively in the face of impending death: constantly adjusting to bodily decline at the end-of-life. *BMJ Support Palliat Care*. 2017;7(2):179-188. doi: 10.1136/bmjspcare-2014-000744.
4. Vanbutsele G, Deliens L, Cocquyt V, Cohen J, Pardon K, Chambaere K. Use and timing of referral to specialized palliative care services for people with cancer: A mortality follow-back study among treating physicians in Belgium. *PLoS ONE*. 2019;14(1):e0210056. doi: 10.1371/journal.pone.0210056.
5. Wæhrens EE, Brandt Å, Peoples H, la Cour K. Everyday activities when living at home with advanced cancer: A cross-sectional study. *Eur J Cancer Care*. 2020;29:e13258. doi: 10.1186/s12904-020-00671-5
6. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2018;68(6):394–424. doi: 10.3322/caac.21492.

7. Salins N, Ghoshal A, Hughes S, Preston N. How views of oncologists and haematologists impacts palliative care referral: a systematic review. *BMC Palliative Care*. 2020;19(175). https://doi.org/10.1186/s12904-020-00671-5
8. Michael N, Beale G, O'Callaghan C, et al. Timing of palliative care referral and aggressive cancer care toward the end-of-life in pancreatic cancer: A retrospective, single-centre observational study. *BMC Palliat* Care. 2019;28;18(1):13. doi: 10.1186/s12904-019-0399-4.
9. World Health Organization. Palliative Care. Key facts. 2018. http://www.who.int/news-room/fact-sheets/detail/palliative-care. Acessed 1 October 2021 em: 20/11/2018.
10. Santiago-Palma, J.; Payne, R. Palliative care and rehabilitation. *Cancer*. 2001:92(4):1049-1052. doi: 10.1002/1097-0142(20010815)92:4+<1049::AID-CNCR1418>3.0.CO;2-H
11. Silver JK, Raj VS, Fu JB, Wisotzky EM, Smith SR, Kirch RA. Cancer rehabilitation and palliative care: critical components in the delivery of high-quality oncology services. *Support Care Cancer*. 2015; 23(12):3633-43. doi: 10.1007/s00520-015-2916-1.
12. Eyigor, S. Physical activity and rehabilitation programs should be recommended on palliative care for patients with cancer. *J Palliat Med.* 2010; 3(10):1183-4. doi: 10.1089/jpm.2010.0064
13. Tiberini R, Richardson H. *Rehabilitative palliative care: enabling people to live fully until they die: a challenge for the 21st century*.Hospice UK, London; 2015.
14. Harding Z, Hall C, Lloyd A. Rehabilitation in palliative care: a qualitative study of team professionals. *BMJ Supportive & Palliative Care*. 2019. doi: 10.1136/bmjspcare-2019-002008.
15. Whittlemore R, Knafl K. The integrative review: updated methodology. *J Adv Nurs* 2005; 52(5):546-53. doi: 10.1111/j.1365-2648.2005.03621.x.
16. Stern C, Jordan Z, Mcarthur A. Developing the review question and inclusion criteria: The first steps in conducting a systematic review. *Am J Nurs.* 2011;114(4):53-6. doi: 10.1097/01.NAJ.0000445689.67800.86.
17. Mendes, KDS, Silveira RCCP, Galvão CM. Integrative literature review: a research method to incorporate evidence in health care and nursing. *Texto Contexto Enferm.* 2008;17(4):758-64,. doi: 10.1590/S0104-07072008000400018

18. Moher D, Liberati A, Tetzlaff J, Altman DG. The PRISMA Group. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med* 2009;6(6): e1000097. doi:10.1371/journal.pmed1000097.
19. Ouzzani M, Hammady H, Fedorowicz Z, et al. Rayyan-a web and mobile app for systematic reviews. *Syst Rev*. 2016;5(1):210. doi: 10.1186/s13643-016-0384-4
20. Barras S. A systematic and critical review of the literature: The effectiveness of occupational therapy home assessment on a range of outcome measures. *Aust. Occup. Ther. J*. 2005;52(4):326–336. doi: 10.1111/j.1440-1630.2005.00496.x
21. Cipriani J, Cooper M, Digiovanni NM, Litchkofski A, Nichols A.L, Ramsey A. Dog-Assisted Therapy for Residents of Long-Term Care Facilities: An Evidence-Based Review with Implications for Occupational Therapy. *Phys. Occup. Ther. Geriatr*. 2013;31(3):214–240. doi: 10.3109/02703181.2013.816404.
22. Law M, Pollock N, Letts L, Bosch J, Westmorland M (1998a) Critical review form–quantitative studies. McMaster University Occupational Therapy Evidence-Based Practice Research Group. Available from: http://www-fhs.mcmaster.ca/rehab/ebp/pdf/ quanreview.pdf. Accessed 8 October 2021].
23. Law M, Stewart D, Pollock N, Letts L, Bosch J, Westmorland M (1998b) Guidelines for critical review form–quantitative studies. McMaster University Occupational Therapy Evidence-Based Practice Research Group. Available from: http://www.fhs. mcmaster.ca/rehab/ebp/pdf/quanguidelines.pdf .Accessed 8 October 2021].
24. Critical Appraisal Skills Programme (CASP). CASP Qualitative Checklist. CASP Checklists 2018. Checklist. [online] Available at: https://casp-uk.net/wp-content/uploads/2018/03/CASP-Qualitative-Checklist-2018_fillable_form.pdf. Accessed: 8 October 2021.
25. Runacres F, Gregory H, Ugalde A. 'The horse has bolted I suspect': a qualitative study of clinicians' attitudes and perceptions regarding palliative rehabilitation. *Palliat Med*. 2017; 31(7):642–650. doi: 10.1177/0269216316670288
26. Malcolm L, Mein G, Jones A, Talbot-Rice H, Maddocks M, Bristowe K. Strength in numbers: patient experiences of group exercise within hospice palliative care. *BMC Pallia Care.* 2016; 15(97), doi: 10.1186/s12904-016-0173-9.
27. Nottelmann L, Groenvold M, Vejlgaard TB, Petersen MA, Jensen LH. A parallel-group randomized clinical trial of individually tailored, multidisciplinary,

palliative rehabilitation for patients with newly diagnosed advanced cancer: the Pal-Rehab study protocol. *BMC Cancer*. 2017;17(1):560. doi: 10.1186/s12885-017-3558-0.

28. Pop T, Adamek J. The dynamics of physical activity in palliative care patients. *Ortop Traumatol Rehabil* 2010;12:80–89. Available from: https://pubmed.ncbi.nlm.nih.gov/20203348. Accessed 2 October 2021.
29. Lee CH, Kim JK, Jun HJ, Lee DJ, Namkoong W, Oh JH. Rehabilitation of Advanced Cancer Patients in Palliative Care Unit. *Ann Rehabil Med*. 2018;42(1):166-174. doi: 10.5535/arm.2018.42.1.166.
30. Saotome T, Iwase S, Nojima M, Hewitt B, Chye R. Assessment of activities of daily living and quality of life among palliative care inpatients: A preliminary prospective cohort study. *Prog. Palliat. Care.* 2018;26(1):14-21. doi: 10.1080/09699260.2018.1427677.
31. Hasegawa T, Goto N, Matsumoto N, *et al.* Prevalence of unmet needs and correlated factors in advanced-stage cancer patients receiving rehabilitation. *Support Care Cance*r. 2016;24(11):4761-7. doi: 10.1007/s00520-016-3327-7.
32. Villalobos VU, Jimenez LM, Sánchez AM. Descripción de la población de personas con cáncer de mama referida al Programa de Rehabilitación en Cáncer y Cuidados Paliativos del Servicio de Fisiatría del Hospital Dr. Rafael Ángel Calderón Guardia, 01 de junio del 2012 al 31 de mayo del 2013. *Rev. costarric. salud pública.* 2016;2(1):30-44. Available from: http://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S1409-14292017000100030&lng=en. Accessed 1 October 2021.
33. Loughran K, Rice S, Robinson L. Living with incurable cancer: what are the rehabilitation needs in a palliative setting? *Disabil Rehabil*. 2017; 770-778. doi:10.1080/09638288.2017.1408709.
34. Miller B, McCarthy A, Hudson S. The impact of physical activity on self-management in palliative patients: A collaborative service evaluation and a step towards becoming research active. Progress in Palliative Care. 2018;26(3):142-147. doi:10.1080/09699260.2018.1467604
35. Belchamber CA, Gousy MH. Rehabilitative care in a specialist palliative day care centre: a study of patients' perspectives. *Int J Ther Rehabil*. 2004; 11(9): 425–434. Available from: https://core.ac.uk/download/pdf/75195.pdf . Accessed 1 October 2021

36. Nishiyama N, Matsuda Y, Fujiwara N. et al. The efficacy of specialised rehabilitation using the Op-reha Guide for cancer patients in palliative care units: protocol of a multicentre, randomised controlled trial (JORTC-RHB02). *BMC Palliat Care* 2020;19(164). doi:10.1186/s12904-020-00670-6.
37. Boa S, Duncan E, Haraldsdottir E, Wyke S. Mind the gap: Patients' experiences and perceptions of goal setting in palliative care. *Prog. Palliat. Care*. 2019;27(26):291 - 300. doi: 10.1080/09699260.2019.1672131
38. Payne C, McIlfatrick S, Larkin P, Dunwoody L, Gracey J. A qualitative exploration of patient and healthcare professionals' views and experiences of palliative rehabilitation during advanced lung cancer treatment. *Palliat Med.* 2018;32(10):1624-1632. doi: 10.1177/0269216318794086
39. Nottelmann L, Groenvold M, Vejlgaard TB, Petersen MA, Jensen LH. Early, integrated palliative rehabilitation improves quality of life of patients with newly diagnosed advanced cancer: The Pal-Rehab randomized controlled trial. *Palliat Med.* 2021;35(7):1344-1355. doi: 10.1177/02692163211015574.
40. Feldstain A, Lebel S, Chasen MR. An interdisciplinary palliative rehabilitation intervention bolstering general self-efficacy to attenuate symptoms of depression in patients living with advanced cancer. *Support Care Cancer.* 2016;24(1):109-117. doi: 10.1007/s00520-015-2751-4.
41. Feldstain A, Lebel S, Chasen M. The longitudinal course of depression symptomatology following a palliative rehabilitation program. *Qual Life Res.* 2017 Jul;26(7):1809-1818. doi: 10.1007/s11136-017-1531-7.
42. Feldstain A, MacDonald N, Bhargava R, Chasen M. Reported distress in patients living with advanced cancer: changes pre-post interdisciplinary palliative rehabilitation. *Support Care Cancer*. 2017;25(10):3191-3197. doi: 10.1007/s00520-017-3728-2.
43. Chasen MR, Feldstain A, Gravelle D, Macdonald N, Pereira J. An interprofessional palliative care oncology rehabilitation program: effects on function and predictors of program completion. *Curr Oncol*. 2013;20(6):301-9. doi: 10.3747/co.20.1607.
44. Rutkowski NA, Lebel S, Richardson K, et al. A little help from my friends: Social support in palliative rehabilitation. *Curr Oncol.* 2018; 25(6):358-365. doi: 10.3747/co.25.4050.

45. Nottelmann L, Jensen LH, Vejlgaard TB, Groenvold M. A new model of early, integrated palliative care: palliative rehabilitation for newly diagnosed patients with non-resectable cancer. *Support Care Cancer*. 2019 Sep;27(9):3291-3300. doi: 10.1007/s00520-018-4629-8.
46. McCartney A, Butler C, Acreman S. Exploring access to rehabilitation services from allied health professionals for patients with primary high-grade brain tumours. *Palliat Med.* 2011;25(8):788-96. doi: 10.1177/0269216311398699.
47. Nwosu AC, Bayly JL, Gaunt KE, Mayland CR. Lung cancer and rehabilitation--what are the barriers? Results of a questionnaire survey and the development of regional lung cancer rehabilitation standards and guidelines. *Support Care Cancer*. 2012;20(12):3247-54. doi: 10.1007/s00520-012-1472-1.
48. Pace A, Villani V, Parisi C, Di Felice S, Lamaro M, Falcicchio C, Bonucci A, Pugliese P, di Napoli A, Di Lallo D. Rehabilitation pathways in adult brain tumor patients in the first 12 months of disease. A retrospective analysis of services utilization in 719 patients. *Support Care Cancer*. 2016;24(11):4801-6. doi: 10.1007/s00520-016-3333-9.
49. Smith CB, Phillips T, Smith TJ. Using the New ASCO Clinical Practice Guideline for Palliative Care concurrent with oncology care using the TEAM Approach. *Am Soc Clin Oncol Educ Book*. 2017; 37:714-723. doi: 10.1200/EDBK_175474. PMID: 28561696.
50. Oldervoll LM, Loge JH, Paltiel H, Asp MB, Vidvei U, Hjermstad MJ, Kaasa S. Are palliative cancer patients willing and able to participate in a physical exercise program? *Palliat Support Care.* 2005;3(4):281-7. doi: 10.1017/s1478951505050443.
51. Silver JK, Gilchrist LS. Cancer rehabilitation with a focus on evidence-based outpatient physical and occupational therapy interventions. Am J Phys Med Rehabil. 2011 May;90(5 Suppl 1):S5-15. doi: 10.1097/PHM.0b013e31820be4ae.
52. Schleinich MA, Warren S, Nekolaichuk C, Kaasa T, Watanabe S. Palliative care rehabilitation survey: a pilot study of patients' priorities for rehabilitation goals. *Palliat Med.* 2008;22(7):822-30. doi: 10.1177/0269216308096526.
53. Leslie P, Sandsund C, Roe J. Researching the rehabilitation needs of patients with life-limiting disease: Challenges and opportunities. *Prog. Palliat. Care*. .2014; 22(6):313-318, Doi: 10.1179/1743291X14Y.0000000087.

54. Eva G, Payne C. Developing research capital in palliative rehabilitation: a ten point manifesto. *Prog Palliat Care*. 2014;22(6):311-312. doi: 10.1179/0969926014Z.00000000013.
55. Kanach FA, Brown LM, Campbell RR. The role of rehabilitation in palliative care services. *Am J Phys Med Rehabil.* 2014;93(4):342-5. doi: 10.1097/PHM.0000000000000005..
56. Wosahlo P, Maddocks M. Benchmarking the provision of palliative rehabilitation within the hospice setting. *Palliat Med.* 2015;29(5):477-8. doi: 10.1177/0269216314564240..
57. Taniwaki L, Serrano Usón Junior PL, Rodrigues de Souza PM, Lobato Prado B. Timing of palliative care access and outcomes of advanced cancer patients referred to an inpatient palliative care consultation team in Brazil. *Palliat Support Care*. 2019 Aug;17(4):425-430. doi: 10.1017/S1478951518000597.
58. World Health Organization (WHO). International Classification of Functioning, Disability and Health (ICF). Geneva: *WHO*; 2001.
59. Montagnini M, Javier N, Mitchinson A. The Role of Rehabilitation in Patients Receiving Hospice and Palliative Care. *Rehabilitation Oncology*. 2020: 38(1):9–21, 2020. doi: 10.1097/01.REO.0000000000000196
60. World Health Organization. Rehabilitation in Health Systems. Geneva: *World Health Organization*; 2017.
61. Timm H, Thuesen J, Clark D. Rehabilitation and palliative care: histories, dialectics and challenges. *Wellcome Open Res.* 2021;2(6):171. doi: 10.12688/wellcomeopenres.16979.1. World Health Organization.
62. The Impact of the COVID-19 Pandemic on Non-Communicable Disease Resources and Services: Results of a Rapid Assessment. Geneva: *WHO*; 2020.
63. Alfano, C. M., Cheville, A. L., & Mustian, K. Developing High-Quality Cancer Rehabilitation Programs: A Timely Need. *American Society of Clinical Oncology Educational Book*, 2016 (36), 241–249. doi:10.1200/edbk_156164
64. Padgett LS, Asher A, Cheville A. The intersection of rehabilitation and palliative care: patients with advanced cancer in the inpatient rehabilitation setting. *Rehabil Nurs*.2018;43(4): 219-228. doi: 10.1097/rnj.0000000000000171.
65. Garrard P, Farnham C, Thompson AJ, Playford ED. Rehabilitation of the Cancer Patient: Experience in a Neurological Unit. *Neurorehabilitation and Neural Repair*. 2004;18(2):76-79. doi:10.1177/0888439004266306.

66. Sekine R, Ogata M, Uchiyama I et al. Changes in and associations among functional status and perceived quality of life of patients with metastatic/locally advanced cancer receiving rehabilitation for general disability. *Am J Hosp Palliat Care.* 2015;32(7):695-702. doi: 10.1177/1049909114537871.
67. Barawid E, Covarrubias N, Tribuzio B, Liao S. The benefits of rehabilitation for palliative care patients. *Am J Hosp Palliat Care*. 2015;32(1):34-43. doi: 10.1177/1049909113514474.

Supplement 1. Search strategy for the integrative review.

Search terms or key words	**CINAHL:** ((rehabilitation OR habilitation) AND (palliative* OR Terminal Care OR Hospice Care OR End of Life Care OR Life Care End) AND (cancer* OR neoplasia* OR neoplasm* OR tumor*)) **LILACS:** Reabilitação OR rehabilitation OR Rehabilitación OR habilita$ [Words] and paliativ$ OR palliative [Words] and câncer$ OR neoplasia$ OR neoplasm$ OR tumor$ OR cancro$ [Words] **PUBMED:** ("Palliative Care"[Mesh] OR "Hospice Care"[Mesh] OR "Terminal Care"[Mesh]) AND "Neoplasms"[Mesh] AND "Rehabilitation"[Mesh] **WEB OF SCIENCE:** TS=("palliative care" OR "supportive care" OR "terminal care" OR "hospice care" OR "end of life care") AND TS=("rehabilitation") AND TS=(neoplasm* OR cancer OR tumor). Stipulated time: all the years. Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI. **OTSEEKER / PEDRO:** rehab* palliative* onco*
Inclusion criteria	Studies with no delimitation of period or language Original qualitative and quantitative articles Adults (> 18 years old) Studies conceptualizing, defining rehabilitation in the setting of oncologic palliative care.
Exclusion criteria	Grey literature: editorials/comments, guidelines, letters, conference abstracts. Literature review articles. Articles of pharmacological approaches, medical interventions, such as surgeries or invasive technology.

Table 1. Articles selected according to the strategies of literature review (N=21).

Author, Publication and Year	Method	Place of the study	Critical evaluation	Concept and Primary endpoints
Nottelmann et al. Palliative Medicine 2021	Quantitative study	Oncology of a hospital in Vejle, Denmark	**MQCRF** 12/13 92%	Definition of palliative rehabilitation based on the United Kingdom definition: paradigm integrating rehabilitation, empowerment, self-management, and self-care in the holistic model of PC. It is enables people to adapt to their new state of being with dignity and constructively deal with the losses resulting from health deterioration.
				The early integration of palliative rehabilitation into standard oncologic treatment significantly improved the quality of life over 12 weeks. A number significantly higher of patients in the group that received palliative rehabilitation reported that it had helped with their problem after 12 weeks in comparison with the group of standard treatment.
Nishiyama et al. BMC Palliative Care 2020	Quantitative study	PC units throughout Japan	**MQCRF** 11/13 87%	It is recommended that rehabilitation is performed in patients with terminal cancer, even in their last days. The content and specific methods of rehabilitation interventions, such as frequency, duration and type of rehabilitation that should be used in these patients, are poorly documented. Rehabilitation therapists currently provide treatment to patients based on their own experiences.
				It is the first study to evaluate the effectiveness of rehabilitation for patients with terminal cancer hospitalised in PC units. It will contribute to the evidence about the effectiveness of the implementation of rehabilitation for patients with terminal cancer.
Boa et al. Progress in Palliative Care 2019	Qualitative study	Hospice in Scotland, United Kingdom	**CASP** 10/10 100%	The approach of rehabilitating palliative care aims to optimize function and well-being and to allow them to live as independently and fully as possible, with autonomy, within the limitations of the disease advance. It requires collaboration among the multi-professional team, the patients and their families, focused on establishing and working to reach the agreed goals.
				The results demonstrate that establishing goals is part of PC, but it may be hard to reach. Professionals concentrate on symptoms and problems instead of goals based on the activity.

Table 1: Articles selected according to the strategies of literature review (N=21) (cont.).

Author, Publication and Year	Method	Place of the study	Critical evaluation	Concept and Primary endpoints
Nottelmann et al. Supportive Care in Cancer 2019	Quantitative study	Department of Oncology of a hospital in Denmark	**MQCRF** 12/13 92%	Palliative rehabilitation is the care aligned with the values of patients who present severe and incurable diseases in a context marked by intense and dynamic symptoms, psychological stress and medical morbidity, to carry out goals potentially limited in time.
				This model of palliative rehabilitation allowed to consider individual needs of patients and caregivers. The use of resources was low; patient's satisfaction was very high. The main themes of individual visits were pain management, confrontation, and nutrition. The patients who joined the group program had high adherence.
Lee et al. Annals of Rehabilitation Medicine 2018	Quantitative study	Unit of Palliative Care and hospitals in Seul South Korea	**MQCRF** 12/13 92%	Rehabilitation is important in all phases of cancer, including the terminal phase, providing benefits to patients with incurable cancer. Rehabilitation medicine improves human dignity and is effective for patients close to death.
				Patients with longer survival presented best adherence to the program. Patients with the best score in the performance score show greater satisfaction.
Miller et al. Progress in Palliative Care 2018	Quantitative study	Five hospices in Hertfordshire, England, UK.	**MQCRF** 4/13 31%	Rehabilitating palliative care emphasizes physical rehabilitation, empowerment, self-management, and self-care and is integrated into the holistic model of palliative care.
				The classes had a positive effect on the treatment. They gained confidence in independent exercising and continual activity out of the group, although 38% did not have limited access to resources to make independent exercising easier.

Table 1: Articles selected according to the strategies of literature review (N=21) (cont.).

Author, Publication and Year	Method	Place of the study	Critical evaluation	Concept and Primary endpoints
Payne et al. Palliative Medicine 2018	Qualitative study	Regional Cancer Centre in the United Kingdom	**CASP:** 10/10 100%	Palliative rehabilitation was defined as an educational process for problem resolution, focused on the limitations of activities with the aim of optimizing social participation and well-being and, thus, reducing the stress of the caregiver/family in the context of living with a life-limiting disease.
				Patients described the personal benefits associated with establishing their own goals for physical activity and food consumption. The health providers, who had initially expressed a negative or indifferent attitude towards palliative rehabilitation, changed their mind and are willing to expand the basis of evidence.
Saotome et al. Progress in Palliative Care 2018	Quantitative study	PC infirmary and support at a public hospital in Sydney, Australia	**MQCRF** 11/13 87%	The rehabilitation has the aim of maximizing physical and emotional well-being, increasing social participation and minimizing the stress for the caregiver and the control of symptoms.
				Hospitalized patients receiving PC and rehabilitation did not present significant improvements in their physical function, subjective or objective symptoms throughout the study. However, the quality of life was maintained.
Rutkowski et al. Current Oncology 2018	Qualitative study	Palliative Rehabilitation Program of a hospital in Ottawa, Canada	**CASP:** 8/10 80%	Palliative rehabilitation uses an interdisciplinary approach to help to meet the different needs of patients with advanced cancer.
				The main sources of support were team members and spouse, family or friends, people participating in the program, and spiritual beliefs.

Table 1: Articles selected according to the strategies of literature review (N=21) (cont.).

Author, Publication and Year	Method	Place of the study	Critical evaluation	Concept and Primary endpoints
Feldstain et al. Quality of Life Research 2017	Quantitative study	Hospital in Ottawa, Canada	**MQCRF** 13/13 100%	Palliative rehabilitation offers an personalised interdisciplinary approach for patients with advanced cancer, reducing the symptomatology and depressive aspects.
				Patients undergoing a palliative rehabilitation program may experience relief from the mild depressive symptomatology.
Feldstain et al. Supportive Care in Cancer 2017	Quantitative study	Palliative Rehabilitation Program in Ottawa, Canada	**MQCRF** 12/13 92%	The palliative rehabilitation team aims to empower individuals and their families to participate actively in their care and to improve their general functioning and quality of life. Palliative rehabilitation also needs to treat non-physical factors of the pain.
				The results support that palliative rehabilitation may benefit the levels of affliction and improvement of function and quality of life.
Loughran et al. Disability and Rehabilitation 2017	Qualitative study	Community service specialized in PC in England - United Kingdom	**CASP:** 10/10 100%	Palliative rehabilitation is recognized as a key element of the treatment for whom lives with cancer. The education of the health team should include more about how living with the disease and how rehabilitation may help to live well so the patients can receive better rehabilitation within and out of the services in cancer.
				Although highly valued among participants, rehabilitation services had difficult access, were poorly used and sporadic referrals. It is indicative of the unawareness of the rehabilitation for people with incurable cancer.
Nottelmann et al. BMC Cancer 2017	Quantitative study	Department of Oncology of the Hospital in Vejle, Denmark	**MQCRF** 10/12 83%	Palliative rehabilitation improves and keeps the levels physical, mental, social, and intellectual and on the functional loss related to daily living activities to support independence and self-management.
				The results will contribute to the evidence about early PC in the standard oncologic treatment and offer new knowledge and future guidance on a palliative rehabilitation program.

Table 1: Articles selected according to the strategies of literature review (N=21) (cont.).

Author, Publication and Year	Method	Place of the study	Critical evaluation	Concept and Primary endpoints
Runacres et al. Palliative Medicine. 2017	Qualitative Study	PC units in Melbourne, Australia	**CASP:** 10/10 100%	Palliative rehabilitation is defined as a paradigm that integrates rehabilitation, empowerment, self-management and self-care in the holistic model of palliative care and an approach that empowers people to adapt to their new state of being with dignity and to deal constructively with the losses.
				Most participants report that rehabilitation is an important aspect of PC, but few recognized appropriate rehabilitation programs. There is a lack of consensus on the definition and the term rehabilitation is something useful (giving hope and helping transitions) and as misleading (creating unrealistic expectations).
Villalobos et al. Revista Costarricense de Salud Pública 2017	Quantitative study	Hospital of Physiatrics in Costa Rica	**MQCRF** 6/11 54%	Palliative rehabilitation tries to limit the impact of advanced disease with a realistic treatment based on meeting patients' needs and reducing the intensity of their symptoms.
				The rehabilitation of breast cancer patients has a fundamental role to promote their full care and, in consequence, their quality of life.
Feldstain et al. Supportive Care in Cancer. 2016	Quantitative study	Hospital in Ottawa, Ontario - Canada	**MQCRF** 11/13 85%	Palliative rehabilitation aims to restore, improve and/or keep their functioning, empowering individuals who are suffering from function loss, fatigue, malnutrition, psychological distress or other symptoms.
				Exercise increased self-effectiveness and depression scores decreased significantly. A self-effectiveness structure may be a useful component in interdisciplinary intervention to diminish depressive symptomatology.
Malcolm et al. BMC Palliative Care. 2016	Qualitative study	Hospice in London, England - UK	**CASP:** 9/10 90%	Palliative rehabilitation is considered an integrating part of PC. Exercising may help to reduce risks, manage the symptoms of advanced diseases, and improve psychosocial well-being and quality of life.
				Patients report a positive experience in the physical function, daily living activities, humour improvement, and promotion of self-management, space and opportunity for reflection, support, and communication.

Table 1: Articles selected according to the strategies of literature review (N=21) (cont.).

Author, Publication and Year	Method	Place of the study	Critical evaluation	Concept and Primary endpoints
Hasegawa et al. Supportive Care in Cancer. 2016	Quantitative study	Hospital in Gifu, Japan	**MQCRF** 6/11 54%	Rehabilitation in palliative care is not only managing physical pain, but also relieving psychological, social, and spiritual pain, as well to other symptoms.
				Psychosocial factors are important to understanding support care and the unmet needs of cancer patients receiving rehabilitation interventions.
Chasen et al. Current Oncology. 2013	Quantitative study	Hospital in Ottawa, Ontario – Canada	**MQCRF** 12/13 92%	Palliative rehabilitation aims to empower individuals suffering from function loss, fatigue, malnutrition, psychological distress or other symptoms, keeping people as active as possible in everyday life for a longer period.
				Patients who lived with advanced cancer showed a significant improvement in several domains, burden of symptoms; daily life; nutrition; physical and functional status and general well-being.
Pop T, Adamek J. Traumatologia Rehabilitacja. 2010	Quantitative study	PC infirmary and home hospice - Poland	**MQCRF** 7/13 54%	Palliative rehabilitation aims to improve motor and functional status in addition to preventing respiratory pulmonary, vascular, and lymphatic complications. In the terminal period, it focuses on pain relief, symptom reduction, a decrease of muscular strength deficit and maintenance of physical activity and capacity for self-management.
				The study confirms that rehabilitation is necessary, regardless of the baseline clinical status of patients, because it significantly improves their quality of life.
Belchamber et al. Journal of Therapy and Rehabilitation. 2004	Qualitative study	Day center specialized in PC in London	**CASP:** 7/10 70%	The rehabilitation approach in PC setting enables the incorporation of social, emotional, and vocational matters, offering a holistic approach to the patient and their family, and promoting relief of physical symptoms and quality of life.
				The approach of rehabilitative care effectively promotes the management of oncologic symptoms. However, it requires resources, wiliness, and enthusiasm to offer this prolonged care.