

# Systematic Review of Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Impact of Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return-to-Work Interventions

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This article is the second part of a systematic review of evidence for the effectiveness of cancer rehabilitation interventions within the scope of occupational therapy that address the activity and participation needs of adult cancer survivors. This article focuses on the use of multidisciplinary rehabilitation and interventions that address psychosocial outcomes, sexuality, and return to work. Strong evidence indicates that multidisciplinary rehabilitation benefits cancer survivors and that psychosocial strategies can reduce anxiety and depression. Moderate evidence indicates that interventions can support survivors in returning to the level of sexuality desired and help with return to work. Part 1 of the review also appears in this issue.

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**A**dvances in treatment have improved survival rates in patients with cancer, including those who emerge from cancer treatment needing rehabilitation. Consequently, patients are living longer with the physical impairments that result from their disease and its treatment in addition to comorbidities they acquire as they age (American Cancer Society, 2015; Ries et al., 2002). As of January 2014, the United States had nearly 14.5 million cancer survivors (American Cancer Society, 2015). The number of survivors is projected to grow to 18 million by 2022 (Howlader et al., 2009). Cancer can now be categorized as a chronic condition for many people, resulting in a stronger focus on return to function, participation, and quality of life (Howlader et al., 2009).

The potential for cancer to result in disability can increase the cost and burden for cancer survivors, highlighting the importance of long-term health outcomes (Cohen, 2010; Extermann, 2007). Research has shown that functional measures are strong predictors of survival for older adults living in the

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*Note.* Each issue of the 2017 volume of the *American Journal of Occupational Therapy* features a special Centennial Topics section containing several articles related to a specific theme; for this issue, the theme is occupational therapy's role in cancer treatment and recovery. The goal is to help occupational therapy professionals take stock of how far the profession has come and spark interest in the many exciting paths for the future. For more information, see the editorial in the January/February issue, <https://doi.org/10.5014/ajot.2017.711004>.

community (Keeler, Guralnik, Tian, Wallace, & Reuben, 2010). Functional decline increases significantly among people with cancer age  $\geq 65$  yr, and older cancer survivors experience more functional decline than older adults without cancer (Lunney, Lynn, Foley, Lipson, & Guralnik, 2003; Sweeney et al., 2006). Cancer and its treatment can cause interruptions to daily routines, self-care, work, and leisure and social activities (Longpre & Newman, 2011).

## Objective of the Systematic Review

The objective of this review was to systematically search for and assess the evidence supporting interventions within the scope of occupational therapy to improve occupational engagement. The focused question guiding selection of research studies for review was “What is the effectiveness of cancer rehabilitation interventions within the scope of occupational therapy practice to address the activity and participation needs of adult cancer survivors in activities of daily living (ADLs), instrumental activities of daily living, work, leisure, social participation, and rest and sleep?”

This systematic review was supported by the American Occupational Therapy Association (AOTA) as part of the Evidence-Based Practice (EBP) Project (Lieberman & Scheer, 2002). Because of the breadth of the systematic review, the results were divided into two parts. This article presents Part 2 of the systematic review, which is focused on the benefits of multidisciplinary rehabilitation and interventions that address psychosocial outcomes, sexuality, and return to work.

## Method

### Process

Search terms for the reviews were developed by the methodology consultant to the AOTA EBP Project and AOTA staff, along with the review authors and the advisory group. The search terms were related to population (adult cancer survivors), types of intervention, outcomes, sequelae, and types of study design to be included in the systematic review. Databases and sites searched included Medline, PsycINFO, CINAHL, and OTseeker. In addition, consolidated information sources, such as the Cochrane Database of Systematic Reviews, were included in the search.

### Eligibility Criteria

Included in the review were peer-reviewed scientific articles on adults with cancer published in English between

1995 and 2014 and within the scope of practice of occupational therapy. The review excluded data from presentations, conference proceedings, non-peer-reviewed research literature, dissertations, and theses. The review also excluded studies focusing on caregivers, family members, or friends rather than cancer survivors; studies of childhood cancer; and interventions that required an academic degree other than occupational therapy (e.g., music therapy). AOTA uses standards of evidence modeled on those developed in evidence-based medicine (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996):

- Level I: Systematic reviews, meta-analyses, randomized controlled trials (RCTs)
- Level II: Two-group, nonrandomized studies (e.g., cohort, case control)
- Level III: One-group, nonrandomized studies (e.g., pretest and posttest)
- Level IV: Descriptive studies that include analysis of outcomes (e.g., single-subject design, case series)
- Level V: Case reports and expert opinion that include narrative literature reviews and consensus statements.

Studies included in the review provide Level I, II, and III evidence. Level IV evidence was included only when higher level evidence on a given topic was not found; no Level V evidence was included in this part of the review.

### Data Extraction

A team of three reviewers (Hunter, Gibson, and D'Amico) worked together to evaluate all articles at all stages of the review. The synthesis entailed a detailed reading of the studies and the completion of the evidence table describing each study specifically. Figure 1 in Part 1 of the review depicts the flow of abstracts and articles through the process (Hunter, Gibson, Arbesman, & D'Amico, 2017; see <https://doi.org/10.5014/ajot.2017.023564>). The evidence table for Part 2 is provided in Supplemental Table 1 (available online at <http://otjournal.net>; navigate to this article, and click on “Supplemental”). The articles were grouped into themes and analyzed and reported by theme.

### Analysis

Analysis of study design, outcomes, and risk of bias determined which studies were assessed as strong or moderate evidence. Strong evidence typically includes two or more well-designed RCTs. Moderate evidence includes one RCT, two or more studies providing lower level evidence, or inconsistent findings from well-designed projects. Only selected articles from the systematic review are mentioned in this article.

## Results

The review team identified a total of 138 articles for inclusion in the final qualitative synthesis; 52 articles are described in this article (Part 2). Forty-five articles provide Level I evidence, 3 provide Level II evidence, 3 provide Level III evidence, and 1 provides Level IV evidence. Articles were organized into four broad intervention areas: multidisciplinary rehabilitation (18 articles), psychosocial outcomes (29 articles), sexuality (2 articles), and return to work (3 articles).

### Risk of Bias

Risk of bias was assessed using the Cochrane risk-of-bias guidelines described by Higgins, Altman, and Sterne (2011; see Supplemental Table 2, online). The method for assessing the risk of bias of systematic reviews was based on the Assessment of Multiple Systematic Reviews system developed by Shea et al. (2007; see Supplemental Table 3, online).

### Outcome Measures

Although many studies discussed ADLs, function, return to work, participation, and sleep as a goal, few if any measured these constructs. Instead, the measurement tools used addressed quality of life (e.g., SF-12, SF-36) and symptom control, which many authors indicated would allow return to previous activities. Other studies discussed these constructs generically in their findings as wellness, health, and quality of life. Most studies discussed the interventions provided, even occupation-based interventions, in terms of addressing mental or emotional health, physical activity, symptom management, and well-being. Only a few studies discussed occupation-based outcomes or outcome measures.

### Interventions in Multidisciplinary Rehabilitation Programs

Multidisciplinary rehabilitation programs use a team approach that includes occupational therapy, physical therapy, and other allied health professions. Eighteen articles related to the use of multidisciplinary rehabilitation programs met the criteria and were included in the review; 2 were Level I systematic reviews, 12 were Level I RCTs, 2 were Level II studies, 1 was a Level III study, and 1 article provided Level IV evidence.

**Strong Evidence.** Strong evidence indicates that rehabilitation programs benefit survivors with many types of cancer. Multidisciplinary rehabilitation programs resulted in improved function and participation regardless of type of cancer, stage of cancer, or age of survivor (Level I: Cinar

et al., 2008; Khan, Amatya, Pallant, Rajapaksa, & Brand, 2012; Lapid et al., 2007; Scott et al., 2013; Level II: Gordon, Battistutta, Scuffham, Tweeddale, & Newman, 2005; Level III: Hanssens et al., 2011).

**Moderate Evidence.** Moderate evidence indicates that rehabilitation can be beneficial both before and after treatment (Level I: Benzo et al., 2011). Cognitive rehabilitation improved attention and overall quality of life (Level I: Cherrier et al., 2013). Aquatic therapy and exercise were beneficial for breast cancer survivors (Level I: Cuesta-Vargas, Buchan, & Arroyo-Morales, 2014). Rehabilitation in advanced, progressive, recurrent cancer was found to be cost-effective and to increase quality of life (Level I: Jones, Fitzgerald, et al., 2013).

### Psychosocial Interventions

Twenty-nine articles related to psychosocial interventions met the criteria for the review: 6 Level I systematic reviews, 21 Level I RCTs, 1 Level II, and 1 Level III studies. Such interventions included life review, stress management, expressive or disclosure groups, problem-solving therapy, mindfulness-based therapy, and cognitive-behavioral therapy.

**Strong Evidence.** Strong evidence indicates that psychosocial strategies, including cognitive-behavioral and educational interventions (e.g., problem solving, knowledge of illness and side effects), reduce anxiety  $>3$  mo posttreatment and depression 1–3 mo posttreatment (Level I: Chien, Liu, Chien, & Liu, 2014).

**Moderate Evidence.** Moderate evidence supports a variety of psychosocial interventions. A systematic review found that psychosocial interventions increased quality of life for people with advanced-stage cancer (Level I: Uitterhoeve et al., 2004). Short-term life review increased spiritual well-being for people with terminal cancer (Level I: Ando, Morita, Akechi, & Okamoto, 2010), and stress management groups increased psychosocial adjustment among breast cancer survivors (Level I: Antoni et al., 2006).

Problem-solving therapy using home-based care training by phone helped women with breast cancer reduce stress (Level I: Allen et al., 2002), and cognitive-behavioral therapy decreased symptom limitations for people undergoing chemotherapy and those with advanced-stage cancer (Level I: Doorenbos et al., 2005; Sherwood et al., 2005). Self-management training was beneficial in both group and individual interventions for improving quality of life (Level I: Korstjens et al., 2008). Expressive writing about one's breast cancer experience significantly improved quality of life outcomes for early-stage breast cancer survivors (Level I: Craft, Davis, & Paulson, 2013).

## *Interventions for Sexuality*

Two articles related to sexuality and sexual function met the criteria for the review, 1 Level I systematic review and 1 Level I RCT.

**Moderate Evidence.** Moderate evidence supports exercise as beneficial for prostate cancer patients reporting an interest in sex (Cormie et al., 2013). The systematic review pointed to three types of intervention used for return to sexual function: exercise, medical, and psychoeducational.

**Limited Evidence.** Limited evidence supports the effectiveness of couple-based and psychoeducational interventions (Taylor, Harley, Ziegler, Brown, & Velikova, 2011).

## *Interventions for Return to Work*

Three articles related to intervention for return to work met the criteria for the review: 1 Level I systematic review, 1 Level I RCT, and 1 Level III study. Moderate evidence indicates that high-intensity exercise (strength, interval, and home based) helped patients minimize the decrease in work ability after cancer and treatment (Thijs et al., 2012) and that multidisciplinary interventions that include physical and psychological aspects in addition to vocational support provided return-to-work benefits (de Boer et al., 2011). Finally, a Level III study provided limited evidence related to an occupational therapy intervention to help cancer patients return to work (Désiron, 2010).

## Discussion

This systematic review examined the evidence for the effectiveness of interventions within the scope of occupational therapy practice to improve the activity and participation needs of adult cancer survivors in all areas of occupation. Part 2 is focused on the effects of multidisciplinary rehabilitation and interventions for psychosocial outcomes, sexuality, and return to work.

Strong evidence indicates that multidisciplinary rehabilitation programs are helpful for cancer survivors regardless of cancer type or stage of cancer. Such programs may be beneficial before treatment of some types of cancer and are beneficial during and after treatment. Moderate to strong evidence indicates that addressing the psychosocial components of cancer survivorship is beneficial for survivors regardless of age or type or stage of cancer and can improve anxiety, depression, and quality of life.

Limited research has been conducted on interventions related to sexuality. This area of rehabilitation is relevant for occupational therapists, and more high-quality studies

should be conducted in this area in the future. Moderate evidence supports interventions to address sexuality in cancer patients and survivors. The strongest evidence related to sexuality supports physical exercise for survivors, an important area to address for numerous types of cancer. Return to prediagnosis sexual ability and activity is a goal for many cancer survivors.

Moderate evidence supports rehabilitation interventions addressing return to work for cancer patients and survivors. Return to work is an important part of recovery and rehabilitation for many adults with cancer, but limited research has addressed this component of return to participation. Return to the valued and needed role of worker is important for occupational therapy practitioners to facilitate.

## Implications for Occupational Therapy Practice

Cancer rehabilitation interventions benefit patients and survivors with a wide variety of cancers. The evidence demonstrates that this impact takes place at all stages of cancer and at all points on the cancer survivorship continuum. Consequently, occupational therapy practitioners should be involved in all stages of cancer rehabilitation.

The types of services occupational therapy practitioners might provide are broad. Interventions such as problem solving and stress reduction address survivorship issues such as depression, anxiety, and cancer-related fatigue. Return to work is an up-and-coming area in cancer survivorship interventions; current evidence regarding effective strategies for return to work is limited. Research describing the negative effects of not returning to work highlights how important it is to address this area of participation. Finally, occupational therapy providers can work with multidisciplinary teams to address the variety of issues related to psychosocial issues associated with cancer, return to work, and sexuality among cancer survivors.

## Implications for Research

In general, more rigorous, well-designed research is needed to understand which people need what type of intervention at what point in their cancer care and survivorship. Specifically, increased research is needed addressing occupational therapy interests such as participation and occupation-based outcomes and interventions. All of the research projects evaluated in this review were within the purview of occupational therapy; however, very few addressed return to participation or included occupation-based interventions.

Rehabilitation services can potentially be incorporated before, during, and after medical treatment. However, little research evidence is available to support clinical decisions such as when to assess survivors, at what point in the cancer continuum services would be optimal, and which survivors are in greatest need of rehabilitation. Sexuality and return to work are two specific areas that are open to opportunities for new research.

Finally, very few of the studies reviewed used specific assessments of function other than health-related quality of life. The majority of studies did not include assessments or outcome measures specifically addressing return to meaningful activity and participation. Future research needs to specifically include participation and return to meaningful activities rather than simply global quality of life.

## Limitations

Limitations of the systematic review include the design and methodology of the individual studies, such as small sample sizes, short intervention periods, limited use of standardized assessments, and short follow-up periods. Many of the studies included multiple interventions, so pinpointing the effects of each individual intervention was not always possible. Finally, although comprehensive literature search strategies were used, it is possible that eligible studies were missed and that publication selection bias may have resulted.

## Conclusion

Occupational therapy practitioners working with cancer survivors of all types, stages, and points on the survivorship trajectory (diagnosis through long-term survivorship) have some evidence to support practice. The interventions presented in this review are part of an emerging body of research; more research is needed to support occupation-based interventions for this growing population. Occupational therapy practitioners are well suited to investigate occupational performance, occupation-based strategies, quality of life, and participation status to support client-centered interventions before, during, and after treatment of clients with cancer diagnoses. ▲

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**Supplemental Table 1 Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Ahlberg et al. (2011) <a href="https://doi.org/10.3109/000164882010.532157">https://doi.org/10.3109/000164882010.532157</a>	Level I RCT <i>N</i> = 374 patients with head and neck cancer. Intervention group, <i>n</i> = 184. Control group, <i>n</i> = 190.	Multidisciplinary Rehabilitation  <i>Intervention</i> Early preventive rehabilitation by speech-language pathology and PT to reduce swallowing problems, mouth opening, and neck stiffness.  <i>Control</i> Usual care.	• QOL • Anxiety and depression • Weight loss • 2-yr survival • Self-reported function • Return to work	More intervention group participants had not returned to work 6 mo after treatment. The control group reported significantly less swallowing difficulty, and the intervention group had more speech problems. No difference was found in neck and shoulder stiffness at 6 mo. No positive effect was found on self-care.
Benzo et al. (2011) <a href="https://doi.org/10.1016/j.lungcan.2011.05.011">https://doi.org/10.1016/j.lungcan.2011.05.011</a>	Level I RCT <i>N</i> = 28 patients who underwent lung cancer resection by open thoracotomy or video-assisted thoracoscopy and who had moderate to severe COPD. Intervention Group 1, <i>n</i> = 5. Control Group 1, <i>n</i> = 4. Intervention Group 2, <i>n</i> = 10. Control Group 2, <i>n</i> = 9.	<i>Intervention</i> Group 1: 4 wk of guideline-based pulmonary rehabilitation. Group 2: 10 preoperative pulmonary rehab sessions using a customized protocol with nonstandard components (exercise prescription based on self-efficacy, inspiratory muscle training, and slow breathing).  <i>Control</i> Groups 1 and 2: Usual care.	• Length of stay • Postoperative complications	No differences were found between Group 1 and the control group. Group 2 had shorter mean length of hospital stay by 3 days ( $p = .058$ ), fewer prolonged chest tubes (11% vs. 63%, $p = .03$ ), and fewer days needing a chest tube (8.8 vs. 4.3 days, $p = .04$ ) compared with the control group.
Buss et al. (2010) <a href="https://doi.org/10.1007/s00520-009-0709-0">https://doi.org/10.1007/s00520-009-0709-0</a>	Level I RCT <i>N</i> = 49 participants in hospice for cancer. Intervention group, <i>n</i> = 30. Control group, <i>n</i> = 19.	<i>Intervention</i> Exercises individually supervised by a PT following a carefully worked out plan, 20–30 min 3×/wk for 3–4 wk.  <i>Control</i> No PT.	• Fatigue • QOL • Rotterdam Symptom Checklist • Brief Fatigue Inventory • VAS fatigue	Intensity of fatigue decreased significantly in the intervention group after 3 wk of PT. Intensity of physical symptoms decreased significantly after 2 wk of PT in the intervention group and increased in the control group after 2 wk of observation.
Cherrier et al. (2013) <a href="https://doi.org/10.1016/j.jfs.2013.08.011">https://doi.org/10.1016/j.jfs.2013.08.011</a>	Level I RCT <i>N</i> = 28 participants ( $M$ age = 58 yr) a median of 3 (±6) yr after primary or adjuvant treatment for various cancers (breast, bladder, prostate, colon, uterine).	<i>Intervention</i> Group cognitive rehabilitation workshop. 7 1-hr sessions over 7 consecutive wk. Content included memory aids (e.g., calendar, reminders, note taking, study aids), memory skills (e.g., habit formation, method of loci, chunking, learning names), and 1 session on	• Symptom questionnaires • Neurocognitive tests (e.g., FACT-Cog)	Compared with baseline, the intervention group demonstrated improvements in perceived cognitive impairments ( $p = .01$ ), cognitive abilities ( $p = .01$ ), overall QOL with regard to cognitive symptoms ( $p = .01$ ), and objective measures of attention ( $p = .05$ ) and showed a trend toward improvement on verbal memory.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Cinar et al. (2008) <a href="https://doi.org/10.1097/01.NCC.00000305696.12873.0e">https://doi.org/10.1097/01.NCC.00000305696.12873.0e</a>	Intervention group, $n = 14$ . Control group, $n = 14$ . <i>Control</i> Standard care.	<i>Intervention</i> mindfulness meditation. Participants were also assigned homework. <i>Control</i> Standard care.	• ROM of shoulder joint • Upper-extremity circumferential differences • Functional status	The intervention group experienced greater improvement in measures of flexion, abduction, and adduction of the shoulder joint and functional questionnaire scores compared with the control group.
Cuesta-Vargas, Buchan, & Arroyo-Morales (2014) <a href="https://doi.org/10.11111/ecc.12114">https://doi.org/10.11111/ecc.12114</a>	Level I RCT $N = 57$ women after mastectomy. Intervention group, $n = 27$ . Control group, $n = 30$ .	<i>Intervention</i> 15 sessions of individual rehabilitation and home-based physical activity program. <i>Control</i> Home exercise.	• PFS-R • Physical and mental general health • QOL	Neither group experienced significant differences in lymphedema and postoperative complications.
Gordon, Battistutta, Scuffham, Tweeddale, & Newman (2005) <a href="https://doi.org/10.1007/s10549-005-5151-5">https://doi.org/10.1007/s10549-005-5151-5</a>	Level II Nonrandomized clinical trial $N = 275$ women (age range = 25–74 yr) with primary unilateral breast cancer who had no cognitive problems. Group 1, $n = 36$ . Group 2, $n = 31$ . Control group, $n = 208$ .	<i>Intervention</i> Multimodal PT program incorporating deep water running and education based on cognitive-behavioral principles, 1-hr sessions 3×/wk for 8 wk. <i>Control</i> Leaflet containing instructions to continue with normal activities.	• FACT-B HRQOL • FACT-B Arm Morbidity	Significant differences between groups were found in PFS-R total score ( $d = 0.7, p = .001$ ) and in the behavioral/severity ( $d = 0.6, p = .05$ ), affective/meaning ( $d = 1.0, p = .001$ ), and sensory ( $d = 0.3, p = .03$ ) domains. Significant differences between groups were also found for general health ( $d = 0.5, p < .05$ ) and QOL ( $d = 1.3, p < .05$ ). Multimodal PT incorporating deep water running decreased cancer-related fatigue and improved general health and QOL in breast cancer survivors. The high level of adherence and lack of adverse events indicate such a program is safe and feasible.
		<i>Intervention</i> Group 1: Early home-based PT intervention. Group 2: Group-based exercise and psychosocial intervention. <i>Control</i> No intervention.	• FACT-B HRQOL • FACT-B Arm Morbidity	Group 1 experienced benefits in functional well-being, including reductions in arm morbidity and upper-body disability, at 1–2 mo after diagnosis. Group 2 showed minimal changes at 4 mo after diagnosis. Mean HRQOL scores (adjusted for age, chemotherapy, hormone therapy, high blood pressure, and occupation type) improved gradually in all groups at 6 and 12 mo after diagnosis, and no prominent differences were found.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Hanssens et al. (2011) <a href="https://doi.org/10.1188/11.ONF.E418-E424">https://doi.org/10.1188/11.ONF.E418-E424</a>	Level III One-group pre–post <i>N</i> = 36 patients who had completed cancer treatment with a curative potential.	<i>Intervention</i> 12-wk program combining physical exercise, psychoeducation, and individual counseling. <i>Control</i> No control group.	• EORTC QLQ-C30 • FACT-F • HADS • SF-36 • Tampa Scale for Kinesiophobia • Distress Barometer • Tecumseh Step Test	Significant improvement was observed in QOL ( $p < .001$ ), physical condition ( $p = .007$ ), fatigue ( $p = .01$ ), and depression ( $p = .012$ ). Kinesiophobia ( $p = .229$ ), distress ( $p = .344$ ), and anxiety ( $p = .101$ ) did not change significantly. Multidisciplinary rehabilitation should be part of the total care plan for patients with cancer.
Hegel et al. (2011) <a href="https://doi.org/10.1002/pon.1830">https://doi.org/10.1002/pon.1830</a>	Level I RCT pilot <i>N</i> = 31 rural breast cancer patients (Stages I–III) undergoing chemotherapy. Intervention group, <i>n</i> = 15. Control group, <i>n</i> = 16.	<i>Intervention</i> OT telephone problem-solving intervention in 6 weekly sessions. A patient manual contained a lay description of the problem-solving process, worksheets to be used during treatment sessions, guidelines for energy conservation to address fatigue, and a compact disc with a progressive muscle relaxation exercise personally recorded by the OT. <i>Control</i> Usual care.	• Satisfaction • Completion rate for homework • Function • QOL • Emotional state	OT intervention was found to be feasible and beneficial, and an efficacy RCT should be conducted.
Jones, Fitzgerald, et al. (2013) <a href="https://doi.org/10.1002/pon.2060">https://doi.org/10.1002/pon.2060</a>	Level I RCT <i>N</i> = 41 patients with advanced, recurrent hematological and breast malignancies.	<i>Intervention</i> Complex rehabilitation intervention delivered by a hospice-based multidisciplinary team. <i>Control</i> Usual care. Intervention group, <i>n</i> = 21. Control group, <i>n</i> = 20.	• Psychological, Physical, and Patient Care subscales of the Supportive Care Needs Survey • Psychological status • Continuity of care • QOL • Resource use	Psychological, physical, and patient care measures and self-reported health state improved significantly in the intervention group. The incremental cost-effectiveness ratio was £19,390 per quality-adjusted life year.
Khan, Amaya, Pallant, Rajapakse, & Brand (2012) <a href="https://doi.org/10.2340/16501977-1020">https://doi.org/10.2340/16501977-1020</a>	Level I RCT <i>N</i> = 85 women who had completed definitive breast cancer treatment in an Australian community cohort.	<i>Intervention</i> Individualized high-intensity rehabilitation program. <i>Control</i> Usual activity. Intervention group, <i>n</i> = 43. Control group, <i>n</i> = 42.	• Depression Anxiety Stress Scale • Restriction in participation • Perceived Impact Problem Profile • CARES-SF • FIM® Motor subscale	Significant differences favoring the intervention group were found in depression, mobility, and participation and in CARES–SF Global score. No difference between groups was noted in FIM scores.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Lemoignan, Chasen, & Bhargava (2010) <a href="https://doi.org/10.1007/s00520-009-0782-4">https://doi.org/10.1007/s00520-009-0782-4</a>	Level IV Retrospective review  <i>N</i> = 62 patients with cancer who had received interventions by an OT.  <i>Control</i> No control group.	<i>Intervention</i> OT sessions addressing self-care, productivity, and leisure.  <i>Control</i> No control group.	Checklist measuring intervention use	36% of the OTs time was spent assessing patients' functional capacity and 64% in providing interventions. The OTs interventions addressed leisure and exercise (54%), productive activities such as housework and paid employment (32%), and basic ADLs (14%).
Ruff, Adamson, Ruff, & Wang (2007) <a href="https://doi.org/10.1682/JRRD.2005.10.0168">https://doi.org/10.1682/JRRD.2005.10.0168</a>	Level II Nonrandomized  <i>N</i> = 42 veterans who were nonambulatory after spinal epidural metastasis treatment.  Intervention group, <i>n</i> = 12.  Control group, <i>n</i> = 30.	<i>Intervention</i> Directed rehabilitation for 2 wk.  <i>Control</i> Historical control group of paraplegic veterans who did not receive rehabilitation.	• Pain level • Depression • Satisfaction with life • Consumption of pain medication	The intervention group had less pain, consumed less pain medication, were less depressed, and had higher satisfaction with life. These benefits persisted until participants' death.
Schofield & Payne (2003) <a href="https://doi.org/10.12968/ijpn.2003.9.3.11485">https://doi.org/10.12968/ijpn.2003.9.3.11485</a>	Level I RCT pilot  <i>N</i> = 26 palliative day care patients with advanced cancer.	<i>Intervention</i> Snoezelen room (lights, music, aromas, tactile stimulation, taste).  <i>Control</i> Quiet room.  Intervention group, <i>n</i> = 13.  Control group, <i>n</i> = 13.	• Anxiety • Depression	The intervention group experienced a significant reduction in anxiety but no difference in QOL.  Results should be viewed with caution because of differences between the groups.
Scott et al. (2013) <a href="https://doi.org/10.1002/14651858.CD007730.pub2">https://doi.org/10.1002/14651858.CD007730.pub2</a>	Level I Systematic review  <i>N</i> = 12 RCTs.  <i>N</i> = 1,669 adult cancer survivors.	<i>Intervention</i> Multidisciplinary rehabilitation programs to maintain or improve physical and psychosocial well-being.	• Physical health • Psychosocial health	The most effective mode of service delivery was face-to-face contact supplemented with at least 1 follow-up telephone call.  No evidence indicated that multidisciplinary rehabilitation programs lasting >6 mo improved outcomes beyond the level attained at 6 mo.  No evidence suggested that services were more effective if delivered by a particular type of health professional.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Smeenk, Van Haastregt, de Witte, & Crebolder (1998) <a href="https://doi.org/10.1136/bmj.316.7149.1939">https://doi.org/10.1136/bmj.316.7149.1939</a>	Level I Systematic review  <i>N</i> = 9 prospective controlled studies.  <i>N</i> = 4,249 participants with incurable cancer.	<i>Intervention</i> Comprehensive home care programs to maintain QOL and reduce readmission time.  <i>Control</i> Standard care.	QOL	None of the studies showed a negative influence of home care interventions on QOL. A significantly positive influence on the outcome measures was seen in 2 of the 5 studies measuring patients' satisfaction with care, in 3 of 7 studies measuring physical dimensions of QOL, in 1 of 6 studies measuring psychosocial dimensions, and in 2 of 5 studies measuring readmission time.
Stigt et al. (2013) <a href="https://doi.org/10.1097/JTO.0b013e318279d52a">https://doi.org/10.1097/JTO.0b013e318279d52a</a>	Level I RCT  <i>N</i> = 49 patients who had undergone a thoracotomy for lung cancer.  Intervention group, <i>n</i> = 23. Control group, <i>n</i> = 26.	<i>Intervention</i> Rehabilitation consisting of training 2×/wk for 12 wk starting 1 mo after hospital discharge, scheduled visits to pain specialists, and medical social work.  <i>Control</i> Usual care.	• QOL • Pain • Exercise tolerance	Rehabilitation did not result in better QOL. Exercise tolerance improved at the cost of more pain and more limitations because of physical problems.  The authors suggested that rehabilitation is better postponed for 3–4 mo after hospital discharge.  This study closed prematurely because of the introduction of video-assisted thoracoscopic surgery.
Yang, Lim, Rah, & Kim (2012) <a href="https://doi.org/10.1016/j.gyno.2012.03.045">https://doi.org/10.1016/j.gyno.2012.03.045</a>	Level I RCT  <i>N</i> = 24 patients with gynecological cancers.  Intervention group, <i>n</i> = 12. Control group, <i>n</i> = 12.	<i>Intervention</i> Pelvic Floor Rehabilitation Program consisting of a 45-min exercise session (biofeedback and core exercise) and a 30-min counseling session 1×/wk for 4 wk.  <i>Control</i> Usual care.	• Pelvic floor strength • MEFs elicited by sacral and transcranial magnetic stimulation • Pelvic Floor Questionnaire • EORTC QLQ-C30 and QLQ-CX24	The intervention group experienced significantly improved pelvic floor strength and sexual functioning.  The intervention group experienced significantly improved physical and sexual function compared with the control group.
Allen et al. (2002) <a href="https://doi.org/10.1002/cnr.10586">https://doi.org/10.1002/cnr.10586</a>	Level I  <i>N</i> = 164 women (age ≤50 yr) with no history of breast carcinoma diagnosed with Stage I–IIA tumors who had recently initiated a first course of chemotherapy.  Intervention group, <i>n</i> = 87. Control group, <i>n</i> = 77.	<i>Intervention</i> 2 in-person and 4 telephone sessions with an oncology nurse who provided problem-solving skills training and informational materials over a 12-wk period.  <i>Control</i> Standard care.	• CARES • Unmet need for assistance • Mental Health Inventory • Impact of Event Scale • Social Problem-Solving Inventory	The intervention group experienced improvements in a range of problems related to cancer and its treatment, including physical side effects, marital and sexual difficulties, and psychological problems.  Intervention group participants with poor problem-solving skills before the intervention were less likely than the control group to resolve cancer-related problems.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Ando, Morita, Akechi, & Okamoto (2010) <a href="https://doi.org/10.1016/j.jpainsymman.2009.11.320">https://doi.org/10.1016/j.jpainsymman.2009.11.320</a>	Level I RCT  <i>Intervention</i> <i>N</i> = 68 terminally ill cancer patients.  <i>Control</i> Usual care.  Intervention group, <i>n</i> = 34. Control group, <i>n</i> = 34.	<i>Intervention</i> Short-term life-review interview group.  <i>Control</i> Usual care.	<ul style="list-style-type: none"> <li>• FACIT-Sp Meaning of Life domain</li> <li>• HADS</li> <li>• Numeric scale for psychological suffering</li> <li>• Hope, Burden, Life Completion, and Preparation items from the Good Death Inventory</li> </ul>	The intervention group showed significantly greater improvement than the control group in Meaning of Life, Hope, Life Completion, and Preparation scores ( $p < .001$ ). HADS ( $p < .001$ ), Burden ( $p < .007$ ), and Suffering ( $p < .001$ ) scores suggested greater alleviation of suffering in the intervention group compared with the control group.
Antoni et al. (2006) <a href="https://doi.org/10.1037/0022-006X.74.6.1143">https://doi.org/10.1037/0022-006X.74.6.1143</a>	Level I RCT  <i>Intervention</i> <i>N</i> = 199 women with nonmetastatic breast cancer (Stage I–III) who had surgery for primary breast cancer in the 8 wk before initial assessment.  Intervention group, <i>n</i> = 92. Control group, <i>n</i> = 107.	<i>Intervention</i> Closed, structured, manualized group intervention using cognitive-behavioral stress management techniques with didactics, including in-session experiential exercises and out-of-session assignments (e.g., practicing relaxation) in 2-hr sessions 1×/wk for 10 wk.	<ul style="list-style-type: none"> <li>• Illness-related interpersonal disruption</li> <li>• State of mind</li> <li>• Perceived stress management skills</li> </ul>	The intervention group experienced substantial and durable improvements in diverse aspects of psychosocial adjustment. Effects emerged across diverse domains; many were sustained 9 mo after the intervention.
Carmack et al. (2011) <a href="https://doi.org/10.1002/cnr.26110">https://doi.org/10.1002/cnr.26110</a>	Level I RCT  <i>Intervention</i> <i>N</i> = 40 posttreatment patients with colorectal cancer (Stages I–III) identified as psychologically distressed with the BSI.  Intervention group, <i>n</i> = 25. Control group, <i>n</i> = 15.	<i>Intervention</i> Healthy Expressions intervention consisting of journal writing and discussion facilitated by 2 master's-level interventionists in 12 1-hr sessions over 4 mo.  <i>Control</i> Standard care.	<ul style="list-style-type: none"> <li>• BSI Global Severity Index</li> <li>• CES-D</li> <li>• EORTC QLQ-C30</li> </ul>	The intervention group demonstrated significantly greater changes in distress compared with the control group at 2 mo. Outcome measures showed significant ( $p < .05$ ) improvements at 4 mo.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Chien, Liu, Chien, & Liu (2014) <a href="https://doi.org/10.1016/j.jinurstu.2012.12.019">https://doi.org/10.1016/j.jinurstu.2012.12.019</a>	Level I Systematic review  <i>N</i> = 14 studies.  <i>N</i> = 1,363 participants with prostate cancer.	<i>Intervention</i> Psychosocial strategies to address anxiety and depression.	• Depression • Anxiety	Only 5 studies were regarded as high quality. 12 studies delivered informational and educational or cognitive-behavioral interventions.  The results show that psychosocial strategies substantially reduced anxiety 3 mo after intervention ( $p < .0001$ ) and had a short-term effect on depression (immediately after intervention, $p < .001$ ; 3 mo after intervention, $p = .04$ ).
Cimprich et al. (2005) <a href="https://doi.org/10.1002/pon.891">https://doi.org/10.1002/pon.891</a>	Level I RCT  <i>N</i> = 49 participants (age $\geq 25$ yr) who had completed primary treatment of newly diagnosed early Stage I or II breast cancer and had no history of cognitive impairment, no affective disorder within the previous year, no previous history of cancer, and no terminal or debilitating illness.  Intervention group, $n$ = 25.  Control group, $n$ = 24.	<i>Intervention</i> Taking CHARGE, a self-management intervention consisting of 2 small-group sessions and 2 individual telephone sessions at 2-wk intervals over 7 wk.  <i>Control</i> Usual care.	Process evaluation questionnaire including program content and materials (e.g., usefulness of the self-regulation approach, session content, and workbook), program format and delivery (e.g., usefulness of group sessions and telephone sessions), and suggestions for additional topics.	100% of the intervention group reported working on a personal problem or management concern. The most frequently selected areas were physical activity (50%), stress (27%), and fatigue (18%). 20 of the 22 women who completed the program developed a specific plan to reach a goal and felt confident that they could reach their goal; more than half ( $n$ = 13) were very confident.
Craft, Davis, & Paulson (2013) <a href="https://doi.org/10.1111/j.1365-2648.2012.06088.x">https://doi.org/10.1111/j.1365-2648.2012.06088.x</a>	Level I  Group 1, $n$ = 30. Group 2, $n$ = 30. Group 3, $n$ = 30.  Control group, $n$ = 30.	<i>Intervention</i>  <i>Group 1</i> : Writing about cancer as a traumatic event for 20 min on 4 consecutive days.  <i>Group 2</i> : Writing about a self-selected traumatic event for 20 min on 4 consecutive days.  <i>Group 3</i> : Writing about a neutral topic (facts, no feelings) for 20 min on 4 consecutive days.  <i>Control</i> No writing.	FACT-B  QOL.	Group 1 experienced significantly improved QOL.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Dale, Adair, & Humphris (2010) <a href="https://doi.org/10.1002/pon.1598">https://doi.org/10.1002/pon.1598</a>	Level I Systematic review  <i>N</i> = 11 studies.	<i>Intervention</i> Posttreatment psychosocial and behavior change interventions.  <i>Control</i> <i>N</i> = 1,037 men with cancer.	• Depression • Anxiety • Global health	All studies had some positive results; however, lack of reporting of intervention content and methodological issues limit the findings.  No studies intervened with single men, and none provided comparative outcomes for marital status.
Doorenbos, Given, & Verbitsky (2006) <a href="https://doi.org/10.1097/00006199-200605000-00002">https://doi.org/10.1097/00006199-200605000-00002</a>	Level I RCT  <i>N</i> = 237 participants newly diagnosed with solid tumor cancers undergoing chemotherapy.  Intervention group, <i>n</i> = 118.  Control group, <i>n</i> = 119.	<i>Intervention</i> Cognitive-behavioral symptom management intervention delivered in 10 contacts.  <i>Control</i> Usual care.	SF-36 Physical Functioning subscale	Women with breast cancer had significantly better physical functioning than women with lung cancer. Chronic health conditions, symptom limitation, and depressive symptoms at baseline were found to moderate the effect of intervention on physical function. No overall (direct or indirect) effect of the intervention on physical functioning was detected.
Doorenbos et al. (2005) <a href="https://doi.org/10.1002/pon.874">https://doi.org/10.1002/pon.874</a>	Level I RCT  <i>N</i> = 237 participants (age range = 31–87 yr) newly diagnosed with solid tumor cancers.  Intervention group, <i>n</i> = 118.  Control group, <i>n</i> = 119.	<i>Intervention</i> Cognitive-behavioral intervention focused on cancer- and chemotherapy-related symptoms in 10 contacts over 18 wk.  <i>Control</i> Usual care.	• Physical Symptom Experience Tool • Comorbidity Questionnaire • CES-D	The intervention group significantly reduced symptom limitations compared with the control group after 10 wk and maintained this advantage over the course of treatment.
Faller et al. (2013) <a href="https://doi.org/10.1200/JCO.2011.40.8922">https://doi.org/10.1200/JCO.2011.40.8922</a>	Level I Systematic review  <i>N</i> = 198 studies.  <i>N</i> = 22,238 adults with cancer.	<i>Intervention</i> Psycho-oncologic interventions for emotional distress and QOL.  <i>Control</i> Radiation therapy only.	• Emotional distress • Anxiety • Depression • QOL	Significant small to medium effects were observed for individual and group psychotherapy and psychoeducation. These effects were sustained, in part, in the medium ( $\leq 6$ mo) and long term ( $> 6$ mo).  Short-term effects were observed for relaxation training.
Guo et al. (2013) <a href="https://doi.org/10.1186/1477-7525-11-121">https://doi.org/10.1186/1477-7525-11-121</a>	Level I RCT  <i>N</i> = 178 patients with cancer undergoing radiation therapy.  Intervention group, <i>n</i> = 89.  Control group, <i>n</i> = 89.	<i>Intervention</i> Psychosocial care during radiation therapy.  <i>Control</i> Radiation therapy only.	• Zung Self-Rating Depression Scale • Zung Self-Rating Anxiety Scale • EORTC QLQ-C30	The intervention group showed significant improvements in symptoms of depression ( $p < .05$ ), anxiety ( $p < .05$ ), and HRQOL ( $p < .05$ , i.e., better global health status and physical and emotional functioning, less insomnia) compared with the control group.  Psychosocial intervention is cost-effective and can improve patients' mood and QOL during and after radiation therapy.

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**Supplemental Table 1 Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Hayama & Inoue (2012) <a href="https://doi.org/10.1016/j.ctcp.2011.10.001">https://doi.org/10.1016/j.ctcp.2011.10.001</a>	Level I RCT  <i>N</i> = 23 Japanese women with gynecological cancer undergoing adjuvant chemotherapy.  Intervention group, <i>n</i> = 11.  Control group, <i>n</i> = 12.	<i>Intervention</i> 10-min deep breathing program comprising abdominal breathing, thoracic breathing, and breathing with arms raised.  <i>Control</i> Usual care.	• Japanese POMS-SF • Cancer Fatigue Scale	Both groups showed a significant reduction in “tension-anxiety” ( $p = .00$ ).  In the intervention group, the median score for fatigue decreased from 1.00 to 0.00 after chemotherapy ( $p = .06$ ); this score did not change significantly in the control group ( $p = .76$ ).  Tension-anxiety and fatigue were more reduced in the intervention group than in the control group.
Henderson et al. (2012) <a href="https://doi.org/10.1007/s10549-011-1738-1">https://doi.org/10.1007/s10549-011-1738-1</a>	Level I RCT  <i>N</i> = 163 women (age range = 20–65 yr) with Stage I or II breast cancer.  Group 1, <i>n</i> = 53.  Group 2, <i>n</i> = 52.  Control group, <i>n</i> = 58.	<i>Intervention</i> Group 1: 8-wk MBSR program  Group 2: Nutrition education program.  <i>Control</i> Usual care.	• Beck Depression Inventory • Beck Anxiety Inventory • Symptom Checklist-90-Revised • Rosenberg Self-Esteem Scale • UCLA Loneliness Scale • Min-MAC • FACT-B	Group 1 experienced a significant improvement in QOL, active behavioral coping, and active cognitive coping compared with the other groups. Significant between-groups differences favoring Group 1 at 4 mo included measures of meaningfulness, depression, paranoid ideation, hostility, anxiety, unhappiness, and emotional control.
Hopko et al. (2011) <a href="https://doi.org/10.1037/a0025450">https://doi.org/10.1037/a0025450</a>	Level I RCT  <i>N</i> = 80 patients with breast cancer and major depression.  Intervention group, <i>n</i> = 40.  Control group, <i>n</i> = 40.	<i>Intervention</i> 8 sessions of behavioral activation treatment for depression.  <i>Control</i> Problem-solving therapy.	• Depression • Environmental reward • Anxiety • QOL • Social support • Medical outcomes	Results revealed strong treatment integrity, excellent patient satisfaction with treatment protocols, and low patient attrition (19%).  Across both treatments, gains were associated with strong effect sizes, and on the basis of response and remission criteria, a reliable change index, and numbers-needed-to-treat analyses, approximately three-quarters of patients exhibited clinically significant improvement.  No significant group differences were found at posttreatment.
Jones, Cheng, et al. (2013) <a href="https://doi.org/10.1002/pon.2060">https://doi.org/10.1002/pon.2060</a>	Level I RCT  <i>N</i> = 442 patients with breast cancer who were completing adjuvant radiotherapy.	<i>Intervention</i> Single-session group psychoeducational intervention.  <i>Control</i> Standard print material (usual care).	• Content questionnaire developed by researchers • Perceived Preparedness for Re-entry Scale	The intervention group showed significant improvement in knowledge regarding the reentry transition period ( $d = 0.31$ ) and their feelings of preparedness for reentry ( $d = 0.37$ ).

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Kangas, Milross, Taylor, & Bryant (2013) <a href="https://doi.org/10.1002/pon.3208">https://doi.org/10.1002/pon.3208</a>	Intervention group, $n = 216$ . Control group, $n = 226$ .	<i>Intervention</i> Multimodal CBT, 7 sessions. <i>Control</i> Nondirective supportive counseling.	• Self-Efficacy for Managing Chronic Disease Scale • POMS-SF • Medical Outcomes Study Health Distress Scale	No differences between groups over time were found in health-related distress or mood.
Korsjens et al. (2008) <a href="https://doi.org/10.1097/PSY.0b013e31816e03bf">https://doi.org/10.1097/PSY.0b013e31816e03bf</a>	Level I RCT $N = 35$ patients with head and neck cancer and elevated levels of PTSD, depression, or anxiety.  Intervention group, $n = 18$ .  Control group, $n = 17$ .	<i>Intervention</i> <i>Group 1:</i> 12-wk group-based multidisciplinary self-management rehabilitation program combining physical training (2×/wk) and cognitive-behavioral training (1×/wk).  <i>Group 2:</i> 12-wk group-based physical training (2×/wk).  <i>Control</i> Wait list.	• QOL (SF-36)	Multidisciplinary rehabilitation did not outperform physical training in role limitations because of emotional problems (primary outcome) or any other domains of QOL ( $p > .05$ ).  Compared with the control group, both intervention groups showed significant and clinically relevant improvements in role limitations because of physical problems and in physical functioning, vitality, and health change ( $p < .01$ ).
Korsjens, Mesters, van der Peet, Gijssen, & van den Borne (2006) <a href="https://doi.org/10.1097/01.cej.0000220625.77857.95">https://doi.org/10.1097/01.cej.0000220625.77857.95</a>	Level III  Pre-post, longitudinal cohort $N = 658$ cancer patients (all cancer types).	<i>Intervention</i> 12-wk rehabilitation group program combining physical exercise and psychoeducation.  <i>Control</i> No control group.	• EORTC QLQ-C30	Halfway through the intervention, significant improvements were found in all domains except cognitive functioning. At the end of rehabilitation, participants had significant improvements in global QOL, emotional functioning, cognitive functioning, and fatigue level.  Non-breast cancer patients showed clinically relevant improvement in physical and social functioning, and nonworking patients showed a clinically relevant improvement in role functioning.

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Lapid et al. (2007) <a href="https://doi.org/10.1017/S1478951507070174">https://doi.org/10.1017/S1478951507070174</a>	Level I RCT  <i>N</i> = 103 newly diagnosed cancer patients with an estimated 5-yr survival rate of 0%–50% who required radiation therapy.  Intervention group, <i>n</i> = 49.  Control group, <i>n</i> = 54.	<i>Intervention</i> Structured, multidisciplinary program addressing the QOL domains of cognitive, physical, emotional, spiritual, and social functioning, 8 90-min sessions.  <i>Control</i> Standard care.	• QOL (Spitzer Uniscale and linear analog self-assessment)	The intervention group had consistently higher overall QOL scores throughout the study and significantly higher scores at 4 wk than the control group ( $p = .0461$ ).  The older adults in the intervention group demonstrated clinically significant improvement in QOL scores at 4 and 8 wk compared with older adults in the control group.
Lloyd-Williams, Cobb, O'Connor, Dunn, & Shielis (2013) <a href="https://doi.org/10.1016/j.jad.2012.11.013">https://doi.org/10.1016/j.jad.2012.11.013</a>	Level I RCT pilot  <i>N</i> = 100 patients with advanced metastatic cancer.  Intervention group, <i>n</i> = 49.  Control group, <i>n</i> = 51.	<i>Intervention</i> Focused narrative interview intervention addressing patients' sense of meaning; psychological, physical, social, and spiritual well-being; and sense of suffering, with an emphasis on allowing patients to tell their story.  <i>Control</i> Usual care.	• Numerical scale for suffering • Brief Edinburgh Depression Scale • Edmonton Symptom Assessment Scale • FACIT-Sp	Results suggest that the focused narrative interview can improve anxiety and depression scores.  The intervention group demonstrated a significant improvement in pain at 8 wk ( $p < .01$ ) but no significant change in depression.
Luckett, Britton, Clover, & Rankin (2011) <a href="https://doi.org/10.1007/s00520-011-1119-7">https://doi.org/10.1007/s00520-011-1119-7</a>	Level I Systematic review  <i>N</i> = 9 studies.  <i>N</i> = 630 participants with head and neck cancer.	<i>Intervention</i> Psychological interventions.	• Recruitment • Anxiety • Depression • Distress	Results suggest it is feasible to recruit people with head and neck cancer to psychological interventions and to evaluate their progress through repeated-outcome measures. The evidence is limited by the small number of studies, methodological problems, and poor comparability.
Manos, Sebastián, Mateos, & Bueno (2009) <a href="https://doi.org/10.1111/j.1365-2354.2008.00978.x">https://doi.org/10.1111/j.1365-2354.2008.00978.x</a>	Level II Controlled trial  <i>N</i> = 188 women (age range = 25–70 yr) who had undergone nonmetastatic breast cancer surgery, were diagnosed with breast cancer for the first time, and were treated with chemotherapy, radiation therapy, and/or hormonal therapy.  Intervention group, <i>n</i> = 94.  Control group, <i>n</i> = 94.	<i>Intervention</i> Psychosocial intervention program combining educational and cognitive-behavioral interventions and social support in 14 weekly 2-hr sessions. The sessions were organized around preparation for chemotherapy, health education, body image, stress management and coping skills, communication skills, and goal setting.  <i>Control</i> No intervention (choose not to participate).	• EORTC QLQ-C30 • MAC	Both groups experienced significant ( $p = .00$ ) improvement in functional level over time, but there was no significant difference between groups at any time.  Physical symptoms diminished over time for both groups, but they diminished more for the intervention group than the control group from posttreatment to follow-up ( $p = .000$ ).  The intervention group had significantly less depression from 1 measure to the next ( $p = .005$ ) and significantly less than the control group at both posttreatment and follow-up ( $p = .000$ ).

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Pitceathly et al. (2009) <a href="https://doi.org/10.1093/annonc/mdn708">https://doi.org/10.1093/annonc/mdn708</a>	Level I RCT  <i>N</i> = 465 cancer patients free of anxiety or depressive disorder. Group 1, <i>n</i> = 156. Group 1, <i>n</i> = 155.  Control group, <i>n</i> = 154.	<i>Intervention</i> <i>Group 1:</i> CBT at the start of cancer treatment in 3 structured sessions over 6 wk. The first 90-min session was conducted face-to-face with the therapist; the subsequent sessions, 2 and 6 wk later, lasted 45 min and were conducted by telephone.  <i>Group 2:</i> CBT began 8 wk after starting treatment in 3 structured sessions over 6 wk. The first 90-min session was conducted face-to-face with the therapist; the subsequent sessions, 2 and 6 wk later, lasted 45 min and were conducted by telephone.  <i>Control</i> Usual care.	• Standardized psychiatric interview to detect anxiety and depression	No between-groups difference was found at 12 mo. High-risk patients who received the intervention were less likely to develop an anxiety or depressive disorder compared with those who received usual care. In low-risk patients, there was no difference.
Pool, Nadrian, & Pasha (2012) <a href="https://doi.org/10.1097/SGA.0b013e3182905186">https://doi.org/10.1097/SGA.0b013e3182905186</a>	Level I RCT  <i>N</i> = 105 patients with esophageal cancer under chemotherapy and with a history of surgery.  Intervention group, <i>n</i> = 55. Control group, <i>n</i> = 50.	<i>Intervention</i> Group educational program consisting of group discussion, lectures, and pamphlets.  <i>Control</i> Pamphlet about self-care before and after surgery for esophageal cancer and during chemotherapy.	• EORTC QLQ-C30 • EORTC QLQ-OES18	The intervention group experienced significantly improved QOL ( $p = .001$ ), whereas QOL decreased in the control group. The authors concluded that self-care education programs have positive effects on the QOL of patients with esophageal cancer.
Schofield et al. (2013) <a href="https://doi.org/10.1002/pon.3306">https://doi.org/10.1002/pon.3306</a>	Level I RCT  <i>N</i> = 108 patients with inoperable lung or pleural cancer (including mesothelioma).  Intervention group, <i>n</i> = 55. Control group, <i>n</i> = 53.	<i>Intervention</i> Tailored intervention comprising 2 sessions, at treatment commencement and completion, that included a self-completed needs assessment, active listening, self-care education, and communication of unmet psychosocial and symptom needs to the multidisciplinary team for management and referral.  <i>Control</i> Usual care.	• Needs Assessment for Advanced Lung Cancer Patients • HADS • Distress Thermometer • EORTC QLQ-C30	None of the primary differences of interest were significant (all $p > .10$ ), although change score analysis indicated a relative benefit from the intervention for unmet symptom needs at 8 and 12 wk postassessment (effect sizes = .55 and .40, respectively).
Semple et al. (2013)	Level I	<i>Intervention</i>	• Anxiety • QOL	No evidence suggests that psychosocial intervention promotes global QOL or reduces

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**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
https://doi.org/10.1002/1465-1858.CD009441.pub2	Systematic review <i>N</i> = 7 studies.	Psychosocial interventions to improve QOL and psychosocial well-being. <i>N</i> = 542 participants with head and neck cancer.	• Depression	anxiety or depression for patients with head and neck cancer. At present, the evidence is insufficient to refute or support the effectiveness of psychosocial intervention for patients with head and neck cancer.
Sherwood et al. (2005) https://doi.org/10.1188/05.ONF.1190-1198	Level I RCT <i>N</i> = 124 patients age ≥21 yr newly diagnosed with Stage III, Stage IV, or recurrent cancer (solid tumor or non-Hodgkin lymphoma) undergoing chemotherapy. Intervention group, <i>n</i> = 62. Control group, <i>n</i> = 62.	<i>Intervention</i> CBT nursing intervention aimed at teaching patients problem-solving techniques to affect symptom severity, 5 contacts over 8 wk. <i>Control</i> Usual care.	• Symptom severity • CES-D	The intervention group and participants with lower symptom severity at baseline had significantly lower symptom severity at 10 and 20 wk; the difference at 20 wk occurred primarily in intervention participants age ≤60 yr.
Uitterhoeve et al. (2004) https://doi.org/10.1038/sj.bjc.6602103	Level I Systematic review <i>N</i> = 10 RCTs involving 13 trials. <i>N</i> = 812 participants with advanced cancer.	<i>Intervention</i> Psychosocial interventions to improve QOL.	• QOL	12 of the trials evaluated behavior therapy and found positive effects on 1 or more indicators of QOL. The results of the review support use of behavior therapy in the care of patients with advanced cancer.
de Boer et al. (2011) https://doi.org/10.1002/1465-1858.CD007569.pub2	Level I Systematic review <i>N</i> = 14 articles reporting 14 RCTs and 4 controlled pre-post studies. <i>N</i> = 1,652 participants with cancer.	<i>Intervention</i> Interventions aimed at enhancing return to work. <i>Control</i> Usual care.	• Return-to-work rate or sick leave duration • QOL	Moderate-quality evidence showed that employed patients with cancer experienced return-to-work benefits from multidisciplinary interventions compared with care as usual.
Désirón (2010) https://doi.org/10.1179/orb.2010.61.1.013	Level III One group, pre-post <i>N</i> = 13 participants (age range = 16–65 yr) with breast cancer who were no longer receiving treatment and were employed part time or full time.	<i>Intervention</i> 3-step intervention including job analysis, establishment of work tolerance baseline (Worker Role Inventory), and individual work hardening plan (developed on a case-by-case basis). <i>Control</i> No control group.	• Qualitative questionnaire • EORTC QLQ-C30	By the end of the project, 7 participants had returned to work, 1 quit because of medical problems, 3 used OT support to develop a focused return-to-work program with the employer involved, and 2 used the results of the first session to evaluate for themselves whether return to work fit their QOL. Participants provided unanimously positive evaluations of the program.

**Supplemental Table 1. Evidence Table for Occupational Therapy and Adult Cancer Rehabilitation: Part 2. Multidisciplinary Rehabilitation and Psychosocial, Sexuality, and Return to Work Intervention Studies (cont.)**

Author/Year	Level of Evidence/Study Design/Participants	Intervention and Control Groups	Outcome Measures	Results
Thiis et al. (2012) <a href="https://doi.org/10.1007/s10926-011-9341-1">https://doi.org/10.1007/s10926-011-9341-1</a>	Level I RCT  <i>N</i> = 110 cancer survivors from 1 hospital.	<i>Intervention</i> 18-wk rehabilitation program including strength and interval training and home-based activities.  <i>Control</i> Standard medical care only.	• Change in work hr/wk • Time until return to work	The intervention group showed significantly less reduction in working hours per week. No significant difference was found in time until return to work.
Cormie et al. (2013) <a href="https://doi.org/10.1038/pcan.2012.52">https://doi.org/10.1038/pcan.2012.52</a>	Level I RCT  <i>N</i> = 57 prostate cancer patients undergoing androgen suppression therapy.	<i>Intervention</i> Exercise program consisting of moderate-to high-intensity resistance and aerobic exercise conducted in small groups and supervised by an exercise physiologist, 2×/wk for 12 wk.  <i>Control</i> Usual care.	• Sexual activity (EORTC QLQ-PR25)	No baseline differences in sexual activity were found between groups. A significant ( $p = .045$ ) adjusted group difference in sexual activity was found after the 12-wk intervention; sexual activity decreased in the control group and was maintained in the intervention group.
Taylor, Harley, Ziegler, Brown, & Velikova (2011) <a href="https://doi.org/10.1007/s10549-011-1722-9">https://doi.org/10.1007/s10549-011-1722-9</a>	Level I Systematic review  <i>N</i> = 21 studies.	<i>Intervention</i> Interventions for sexual problems.  <i>N</i> = 2,876 participants who completed breast cancer treatment.	• Sexual function	After the intervention, a higher percentage of the intervention group (17.2%) than the control group (0%) reported a major interest in sex ( $p = .024$ ).  3 types of interventions were identified: exercise ( $n = 2$ ), medical ( $n = 2$ ), and psycho-educational ( $n = 17$ ). Many of the interventions used more than 1 of these components.  Methodological variability prevents conclusions about which interventions work for whom.  Tentative findings suggest that the most effective interventions are couple-based psychoeducational interventions that include an element of sexual counseling.

Note. ADLs = activities of daily living; BSI = Brief Symptom Inventory; CARES = Cancer Rehabilitation Evaluation System; CARES-SF = Cancer Rehabilitation Evaluation System–Short Form; CBT = cognitive–behavioral therapy; CES-D = Center for Epidemiologic Studies Depression Scale; COPD = chronic obstructive pulmonary disease; EORTC = European Organization for Research and Treatment of Cancer; FACIT–Sp = Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being; FACT-B = Functional Assessment of Cancer Therapy–Breast; FACT-Cog = Functional Assessment of Cancer Therapy–Cognitive Function; FACT-F = Functional Assessment of Cancer Therapy–Fatigue; HADS = Hospital Anxiety and Depression Scale; HRQOL = health-related quality of life;  $M$  = mean; MAC = Motor Adjustment to Cancer Scale; MBSR = mindfulness-based stress reduction; MEPS = motor evoked potentials; Mini-MAC = Mini–Mental Adjustment to Cancer Scale; OI = occupational therapy/occupational therapist; PFS-R = Piper Fatigue Scale–Revised; POMS-SF = Profile of Mood States–Short Form; PT = physical therapy/physical therapist; PTSD = posttraumatic stress disorder; QLQ-C30 = Quality of Life Cervical Questionnaire; QLQ-OES18 = Quality of Life Oesophageal Questionnaire; QLQ-QC30 = Quality of Life Core 30 Questionnaire; QLQ-RC36 = Quality of Life Prostate Questionnaire; QOL = quality of life; RCT = randomized controlled trial; ROM = range of motion; SF-36 = Medical Outcomes Study Short Form–36; UCLA = University of California, Los Angeles; VAS = visual analog scale.

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**Supplemental Table 2. Risk-of-Bias Table for Studies Included in Part 2 of the Cancer Rehabilitation Systematic Review (Except Systematic Reviews)**

Citation	Selection Bias		Performance Bias		Blinding of Outcome Assessment (Detection Bias)		Incomplete Outcome Data (Attrition Bias)		Reporting Bias Selective Reporting
	Random Sequence Generation	Allocation Concealment	Blinding of Participants and Personnel	Patient-Reported Outcome	All-Cause Mortality	Short Term (2–6 wk)	Long Term (>6 wk)		
<b>Multidisciplinary Rehabilitation</b>									
Ahlberg et al. (2011)	—	—	—	—	—	—	—	NA	+
Benzo et al. (2011)	+	+	+	—	—	—	+	+	+
Buss et al. (2010)	+	+	—	—	—	—	NA	+	+
Cherrier et al. (2013)	+	+	+	?	?	—	NA	+	+
Cinar et al. (2008)	+	+	+	—	—	—	+	+	+
Cuesta-Vargas, Buchan, & Arroyo-Morales (2014)	+	+	+	—	—	—	+	+	+
Gordon, Battistutta, Scuffham, Tweeddale, & Newman (2005)	—	—	—	—	—	—	+	+	+
Hanssens et al. (2011)	—	—	—	—	—	—	—	—	—
Hegel et al. (2011)	—	—	—	—	—	—	—	—	—
Jones, Fitzgerald, et al. (2013)	—	—	—	—	—	—	—	—	—
Khan, Amatya, Pallant, Rajapaksa, & Brand (2012)	—	—	—	—	—	—	—	—	—
Lemoignan, Chasen, & Bhargava (2010)	—	—	—	—	—	—	—	NA	—
Ruff, Adamson, Ruff, & Wang (2007)	—	—	—	—	—	—	—	NA	—
Schofield & Payne (2003)	—	—	—	—	—	—	—	NA	—
Stigt et al. (2013)	—	—	—	—	—	—	—	+	—
Yang, Lim, Rah, & Kim (2012)	—	—	—	—	—	—	—	—	—
<b>Psychosocial Interventions</b>									
Allen et al. (2002)	+	?	?	?	—	—	—	—	—
Ando, Morita, Akechi, & Okamoto (2010)	—	—	—	—	—	—	—	NA	—
Antoni et al. (2006)	+	—	—	—	—	—	—	—	+
Carmack et al. (2011)	—	—	—	—	—	—	—	NA	—
Cimprich et al. (2005)	—	—	—	—	—	—	—	—	—
Craft, Davis, & Paulson (2013)	—	—	—	—	—	—	—	—	—
Doorenbos, Given, Given, & Verbitsky (2006)	—	—	—	—	—	—	—	—	—
Doorenbos et al. (2005)	—	—	—	—	—	—	—	—	—
Guo et al. (2013)	—	—	—	—	—	—	—	—	—
Hayama & Inoue (2012)	—	—	—	—	—	—	—	NA	—
Henderson et al. (2012)	—	—	—	—	—	—	—	—	—
Hopko et al. (2011)	+	—	—	—	—	—	—	—	—
Jones, Cheng, et al. (2013)	—	—	—	—	—	—	—	NA	—
Kangas, Millross, Taylor, & Bryant (2013)	—	—	—	—	—	—	—	—	—
Korstjens et al. (2008)	—	—	—	—	—	—	—	—	—
Korstjens, Masters, van der Peet, Gijsen, & van den Borne (2006)	—	—	—	—	—	—	—	—	—
Lapid et al. (2007)	—	—	—	—	—	—	—	NA	—

(Continued)

**Supplemental Table 2. Risk-of-Bias Table for Studies Included in Part 2 of the Cancer Rehabilitation Systematic Review (Except Systematic Reviews) (cont.)**

Citation	Selection Bias		Performance Bias		Blinding of Outcome Assessment (Detection Bias)		Incomplete Outcome Data (Attrition Bias)		Reporting Bias Selective Reporting	
	Random Sequence Generation	Allocation Concealment	Blinding of Participants and Personnel	Patient-Reported Outcome	All-Cause Mortality	Short Term (2–6 wk)	Long Term (>6 wk)			
		—			—		—			
Lloyd-Williams, Cobb, O'Connor, Dunn, & Shiels (2013)	+	—	—	—	?	—	—	—	+	
Manos, Sebastián, Mateos, & Bueno (2009)	+	—	—	—	+	?	?	?	+	
Pitceathly et al. (2009)	+	—	—	—	—	—	+	—	+	
Pool, Nadrian, & Pasha (2012)	+	—	—	—	—	+	+	?	+	
Schofield et al. (2013)	+	—	—	—	—	—	—	—	+	
Sherwood et al. (2005)	+	—	—	—	+	NA	—	—	+	
Return to Work Interventions										
Désirion (2010)	—	—	—	—	?	+	+	+	+	
This et al. (2012)	—	—	—	—	?	+	+	+	+	
Sexuality Interventions										
Cormie et al. (2013)	+	—	—	—	?	+	+	+	+	

*Note.* Categories for risk of bias: + = low risk of bias; ? = unclear risk of bias; — = high risk of bias. NA = not applicable. Risk-of-bias table format adapted from "Assessing Risk of Bias in Included Studies," by J. P. T. Higgins, D. G. Altman, and J. A. C. Sterne, in *Cochrane Handbook for Systematic Reviews of Interventions* (Version 5.1.0), by J. P. T. Higgins and S. Green (Eds.), 2011, London: Cochrane Collection. Retrieved from <http://handbook.cochrane.org>

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**Supplemental Table 3. Risk-of-Bias Table for Systematic Reviews Included in Part 2 of the Cancer Rehabilitation Systematic Review**

Citation	“A Priori Design” Included?	Duplicate Study Selection/Data Extraction?	Comprehensive Literature Search Performed?	Status of Publication as Inclusion Criteria? Studies Provided?	List of Included/Excluded Studies Provided?	Characteristics of Included Studies Assessed and Documented?	Quality of Studies Assessed and Documented?	Assessment Used Appropriately?	Methods Used to Combine Results Appropriate?	Likelihood of Publication Bias Assessed?	Conflict of Interest Stated?
Multidisciplinary Rehabilitation											
Scott et al. (2013)	+	+	+	+	+	+	+	+	+	+	+
Smeenk, van Haastregt, de Witte, & Gribbler (1998)	+	+	+	+	-	+	+	+	+	-	+
Psychosocial Outcomes											
Chien, Liu, Chien, & Liu (2014)	+	+	+	+	+	+	+	+	+	-	+
Dale, Adair, & Humphris (2010)	+	?	+	-	+	+	-	-	+	-	-
Faller et al. (2013)	+	+	+	+	+	+	+	+	+	+	+
Luckett, Britton, Glover, & Rankin (2011)	+	?	+	+	-	+	+	+	+	-	+
Semple et al. (2013)	+	+	+	+	+	+	+	+	+	?	+
Uitterhoeve et al. (2004)	+	+	+	+	+	+	+	+	+	+	-
Return to Work											
de Boer et al. (2011)	+	+	+	+	+	+	+	+	-	+	?
Sexuality											
Taylor, Harley, Ziegler, Brown, & Velikova (2011)	+	?	+	+	+	+	+	+	-	-	+

*Note.* Categories for risk of bias: + = low risk of bias; ? = unclear risk of bias; - = high risk of bias. NA = not applicable. Risk-of-bias table format adapted from “Development of AMSTAR: A Measurement Tool to Assess the Methodological Quality of Systematic Reviews,” by B. J. Shea, J. M. Grimshaw, G. A. Wells, M. Boers, N. Andersson, C. Hamel, . . . L. M. Boutron, 2007, *BMC Medical Research Methodology*, 7, p. 10. <http://dx.doi.org/10.1186/1471-2288-7-10>

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