Fysisk aktivitet under stråle-behandling

Notat fra Kunnskapssenteret
Systematisk litteratursøk med sortering
September 2014

kunnskapssenteret

Nasjonalt kunnskapssenter for helsetjenesten
Postboks 7004, St. Olavs plass
N-0130 Oslo
(+47) 23 25 50 00
www.kunnskapssenteret.no
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Forfattere	Åse Skår, prosjektleder, s*eniorrådgiver* Lene Juvet, *forsker* Sari S Ormstad, *forskningsbibliotekar*
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Nasjonalt kunnskapssenter for helsetjenesten fremskaffer og formidler kunnskap om effekt av metoder, virkemidler og tiltak og om kvalitet innen alle deler av helsetjenesten. Målet er å bidra til gode beslutninger slik at brukerne får best mulig helsetjenester. Kunnskapsenteret er formelt et forvaltningsorgan under Helsedirektoratet, men har ingen myndighetsfunksjoner og kan ikke instrueres i faglige spørsmål.

Nasjonalt kunnskapssenter for helsetjenesten
Oslo, september 2014

Hovedfunn

Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Oslo universitetssykehus HF, ved spesialfysioterapeut Ingvild Haavik, å utføre et systematisk litteratursøk med påfølgende sortering etter publiserte forskningsresultater om effekter av fysisk aktivitet og trening under pågående strålebehandling. Det er også søkt etter kunnskapsbaserte retningslinjer som omhandler dette spesielt.

Metode

Vi utarbeidet en søkestrategi for et systematisk litteratursøk etter oppsummert forskning i form av systematiske oversikter. Det ble i november 2012 søkt i Cochrane Database of Systematic Reviews, DARE og HTA database. Søket ble oppdatert oktober 2013.

Det ble også søkt i følgende databaser og nettsteder etter retningslinjer for fysisk aktivitet under strålebehandling :

- G-I-N (Guidelines International Network)
- NHS (NICE - National Institute for Clinical Excellence, UK)
- NGC (National Guidelines Clearinghouse, USA)
- CancerWiew (Canada)

I tillegg ble det søkt i Best Practice, Clinical Evidence og UpToDate samt på nettsidene til Nasjonalt kunnskapssenter for helsetjenesten, SBU (Sverige), Sundhedsstyrelsen (Danmark) , FINOHTA (Finland) og PROSPERO.

Resultater:

- 18 systematiske oversikter ble vurdert som mulig relevante
- En norsk omtale av Cochrane systematisk oversikt
- Fire retningslinjer

Tittel:
Fysisk aktivitet under strålebehandling

Publikasjonstype:

Systematisk litteratursøk med sortering

Systematisk litteratursøk med sortering er resultatet av å
- søke etter relevant litteratur ifølge en søkestrategi og
- eventuelt sortere denne litteraturen i grupper presentert med referanser og vanligvis sammendrag

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Svarer ikke på alt:

- Ingen kritisk vurdering av studienes kvalitet
- Ingen analyse eller sammenfatning av studiene
- Ingen anbefalinger

Hvem står bak denne publikasjonen?

Kunnskapssenteret har gjennomført oppdraget etter forespørsel fra OUS,HF

Når ble litteratursøket utført?

Søk etter studier ble avsluttet Oktober 2013.

Key messages

The Norwegian Knowledge Centre for the Health Services has on behalf of Oslo University Hospital HF by specialist physiotherapist Ingvild Haavik, searched for publications on effects of physical activity during radiotherapy.

Method

We performed a systematic search in various medical databases for systematic reviews and guidelines in October 2013. Two authors screened the identified references for relevance in accordance with the inclusion criteria.

Results

- 18 systematic reviews
- One Norwegian Dissemination of international (Cochrane) reviews
- Four Clinical Guidelines

Title:
Physical activity during raditherapy treatment

Type of publication:

Systematic reference list

A systematic reference list is the result of a search for relevant literature according to a specific search strategy. The references resulting from the search are then grouped and presented with their abstracts.

Doesn't answer everything:

- No critical evaluation of study quality
- No analysis or synthesis of the studies
- No recommendations

Publisher:

Norwegian Knowledge Centre for the Health Services

Updated:

Last search for studies: October 2013.

Innhold

Forord

Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Oslo Universitetssykehus HF ved spesialfysioterapeut Ingvild Haavik å finne litteratur om fysisk aktivitet og trening under strålebehandling. Litteraturen i vår referanseliste kan utgjøre et relevant dokumentasjonsgrunnlag i arbeid med retningslinjer og prosedyrer.

Prosjektgruppen har bestått av:

- Åse Skår, seniorrådgiver, Kunnskapssenteret
- Lene Juvet, forsker, Kunnskapssenteret
- Sari Ormstad, forskningsbibliotekar, Kunnskapssenteret

Gro Jamtvedt	Brynjar Fure	Åse Skår
Avdelingsdirektør	*Seksjonsleder*	*Prosjektleder*

Innledning

Styrker og svakheter ved litteratursøk med sortering og begrunnelse for valg av søkestrategi

Ved litteratursøk gjennomfører vi systematiske litteratursøk for en gitt problemstilling. Søkeresultatet er gjennomgått før overleveringen og ikke-relevante artikler er sortert ut. Dette gjøres basert på tittel og sammendrag. De fleste av de relevante publikasjonene vi har funnet, er innhentet i fulltekst, men ikke gjennomgått på annen måte enn at man har sett at oversikten inkluderer minst én studie som omhandler fysisk aktivitet under pågående strålebehandling. Det gjør at vi kan ha inkludert titler som ville vist seg ikke å være relevante ved nøye gjennomlesning av fulltekst. Vi kan ha gått glipp av andre relevante systematiske oversikter ved å ikke søke i flere databaser enn vi har gjort. Vi fikk imidlertid mange treff i dette søket, og på bakgrunn av de resultater som framkommer i publikasjonene, finner vi det lite sannsynlig at et utvidet søk i andre databaser eller søk etter primærstudier, ville gitt andre konklusjoner når det gjelder fysisk aktivitet under pågående strålebehandling. Søk i referanselister, kontakt med eksperter på fagfeltet og upublisert litteratur, er heller ikke utført i dette oppdraget.

Det gjennomføres ingen kvalitetsvurdering av publikasjonene i et litteratursøk som dette.
Ved en full systematisk kunnskapsoppsummering ville vi ha innhentet artiklene i fulltekst for endelig vurdering opp mot inklusjonskritene. Inkluderte studier ville så blitt kvalitetsvurdert i henhold til våre sjekklister, og resultater sammenstilt og diskutert.

Problemstilling

I prosjektet har vi søkt etter litteratur som skal underbygge anbefalinger knyttet til fysisk aktivitet og trening under pågående strålebehandling. Ved tolkning av data må man være oppmerksom på at strålebehandling ikke er en enhetlig behandling. Det samme gjelder fysisk aktivitet og trening. Både effekt og bivirkninger av de to tiltakene hver for seg og hvordan disse samvirker, vil avhenge av hvilke organer som

blir bestrålt, hvor store volumer som blir bestrålt, hvordan strålebehandlingen doseres og fraksjoneres, hva slags trening som gis og hvilken kreftdiagnose det er snakk om. De fleste av de systematiske oversiktene vi har inkludert, har inkludert studier som ser på fysisk aktivitet og trening i alle faser av en kreftsykdom og behandling av denne; ikke bare under pågående strålebehandling. Dette må man ha i mente dersom man skal bruke forskningsresultatene til å utarbeide anbefalinger.

Metode

Litteratursøking

Forskningsbibliotekar Sari Ormstad planla og utførte søket etter systematiske oversikter i:

- Cochrane Databaseof Systematic Reviews
- DARE
- HTA databasen

I tillegg ble det søkt etter relevante publikasjoner på nettsidene til Nasjonalt kunnskapssenter for helsetjenesten, SBU (Sverige), Sundhedsstyrelsen (Danmark),FINOHTA (Finland) og PROSPERO. Seniorrådgiver Åse Skår har søkt etter retningslinjer. Den fullstendige søkestrategien er gitt ut i vedlegg til denne rapporten. Søk etter systematiske oversikter ble avsluttet i oktober 2013. Søk etter retningslinjer ble avsluttet i januar 2014.

Vi la bestillingen til grunn ved utarbeiding av litteratursøket og søkte etter publiserte systematiske oversikter som oppfylte våre inklusjonskriterier for populasjon og intervensjon.

Inklusjonskriterier

Populasjon:	Voksne pasienter som får strålebehandling
Tiltak:	Definert fysisk aktivitet eller trening
Sammenlikning:	Ingen spesiell fysisk aktivitet eller trening
Utfall:	Vevstilheling. Akutte bivirkninger som hudsårhet, diaré, kvalme. Langtidsbivirkninger som vevsatrofi, hudforandringer, osteonekrose, malabsorbsjon, sekundærcancer. Fatigue. Livskvalitet. Eventuelle andre relevante utfall.
Studiedesign	Systematiske oversikter, kunnskapsbaserte retningslinjer
Språk:	Engelsk eller skandinavisk

Utvelging av systematiske oversikter

To medarbeidere (ÅS og LJ) gikk gjennom alle titler og sammendrag for å vurdere relevans i henhold til inklusjonskriteriene. Systematiske oversikter som inkluderte minst én studie som omhandlet fysisk aktivitet under strålebehandling, ble inkludert. Utvelging ble hovedsakelig basert på tittel og sammendrag. Ved tvil ble det gjort en vurdering av fulltekst, der det var mulig å innhente. Vurderingene ble gjort uavhengig av hverandre og sammenlignet i etterkant. Der det var uenighet om vurderingene, ble inklusjon eller eksklusjon avgjort ved konsensus.

Utvelging av retningslinjer

En medarbeider (ÅS) gikk gjennom databasene for retningslinjer. Det er kun søkt etter retningslinjer som omhandler fysisk aktivitet under kreft generelt, og ikke diagnosespesifikke retningslinjer.

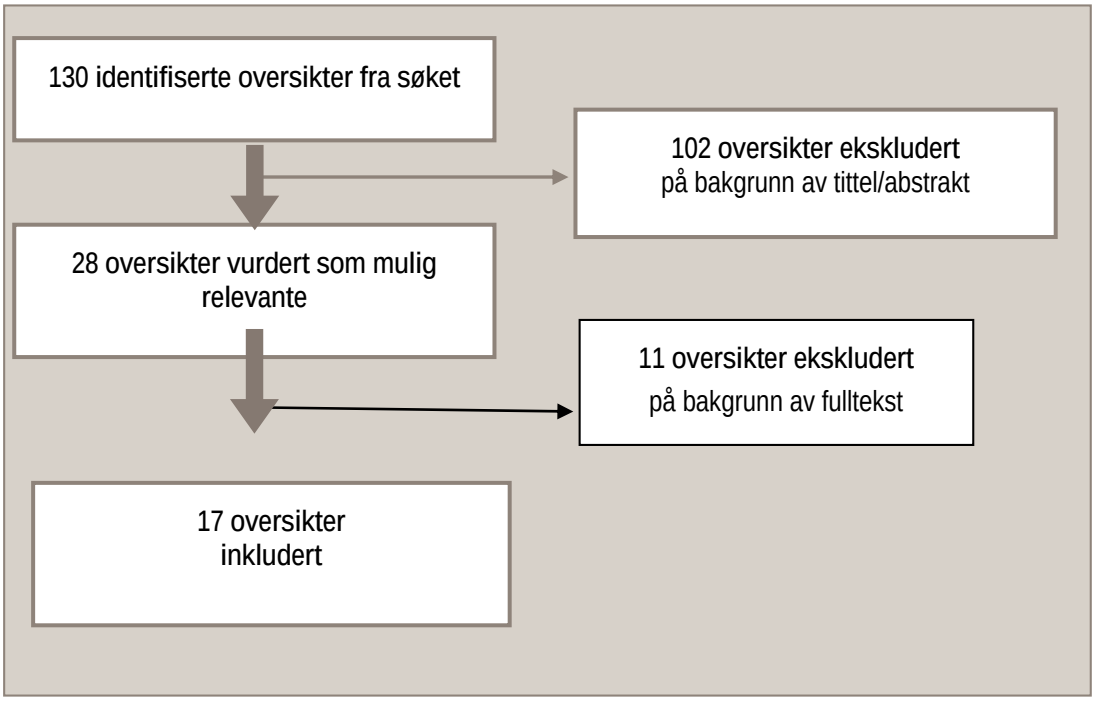
Det ble utført søk i utvalgte kilder med evidensbaserte kliniske oppslagsverk (Best Practice, Clinical Evidence, UpToDate) og i følgende databaser for retningslinjer:

- G-I-N (Guidelines International Network)
- NICE (National Institute for Clinical Excellence)
- NGC (National Guidelines Clearinghouse, USA)
- NCCN (The National Comprehensive Cancer Network, USA)
- CancerWiew (Canada)

Resultat

Resultat av søk

1. Søket etter systematiske oversikter i Cochrane-databasen resulterte i 130 unike referanser. Vi vurderte 28 av de identifiserte referansene til å være mulig relevante i henhold til inklusjonskriteriene. 17 av disse ble inkludert. Hovedårsaken til eksklusjon var at de systematiske oversiktene ikke hadde inkludert noen studier hvor definert fysisk aktivitet eller trening ble gitt som intervensjon under pågående strålebehandling.



Figur 1. Flytdiagram over identifisering av systematiske oversikter som tilfredsstilte inklusjonskriteriene i Cochrane-databasen

2. Kunnskapssenteret
    - En omtale av en av de inkluderte Cochrane-oversiktene (Cramp et al 2012); «Trening er nyttig for å redusere tretthet hos kreftpasienter" (Dahm KT, Giske L, 2013)
    - En systematisk oversikt; «Fysioterapi og trening ved stråleskader i muskel- /skjelettapparatet» (Dahm KT, Reinar LM, 2008)

3. SBU, FINOTHA, Sundhedsstyrelsen og PROSPERO: ingen relevante treff

4. Retningslinjer
   Totalt 533 retningslinjer som omhandler strålebehandling ble identifisert, men kun fire av disse vurderes å ha relevans for problemstillingen fysisk aktivitet under pågående strålebehandling.

Liste over referanser med abstrakt

Systematiske oversikter

1. Baumann FT, Zopf EM, Bloch W. **Clinical exercise interventions in prostate cancer patients: a systematic review of randomized controlled trials**. Supportive Care in Cancer 2012;20:221-233.
   Record no: 78
   Abstract: Introduction: Urinary incontinence, erectile dysfunction, fatigue as well as fears and depression rank among the most common complaints in patients with prostate cancer, resulting in a reduced participation in daily life and social isolation. Consequently, the quality of life of prostate cancer patients is strongly affected in a negative way. Numerous studies focusing on physical exercise interventions in prostate cancers patients demonstrate positive physiological and psychological effects. Our objective was to evaluate the evidence of randomized controlled studies which examined exercise during medical treatment and in the aftercare of a prostate cancer disease. Methods: Twenty-five randomized controlled trials regarding physical activities in patients with prostate cancer were obtained by systematic literature research (Medpilot). Twenty-one studies examined clinical exercise interventions during the phase of medical treatment (irradiation, pre- and/or post-op, androgen deprivation therapy) and four studies during the aftercare. In order to evaluate the evidence of the included studies, the evaluation system of the Oxford Centre for Evidence-Based Medicine was used. Within this systematic review, we differentiated between “supervised clinical exercise” and “non-supervised clinical exercise.” Results and discussion: Current data suggest that incontinence, fitness, fatigue, body constitution, and also quality of life can be improved by clinical exercise in patients during and after prostate cancer. Studies were mostly ranked evidence level “2b.” Only four studies, all conducted during medical treatment, reached the level “1b.” It seems to be that “supervised exercise” is more effective than “non-supervised exercise.” For future research, further randomized controlled
   trials with high methodological quality need to be conducted in order to establish evidence-based recommendations particularly for prostate cancer patients.

2. Carayol M, Bernard P, Boiche J, Riou F, Mercier B, Cousson-Gelie F, et al. **Psychological effect of exercise in women with breast cancer receiving adjuvant therapy: what is the optimal dose needed?** Database of Abstracts of Reviews of Effects 2013:291-300.
Record no: 45
Abstract: Background: Several meta-analyses have examined the role of exercise interventions in improving psychological outcomes in cancer survivors but most did not focus on adjuvant therapy period and did not investigate the optimal dose of exercise needed. The present meta-analysis examines the impact of exercise interventions delivered at this particular period on fatigue, anxiety, depression, and quality of life (QoL) as well as dose–response relationships between volume of prescribed exercise and these psychological outcomes.
Materials and methods: Randomized, controlled trials that proposed an exercise intervention to patients with breast cancer undergoing chemotherapy and/or radiotherapy were systematically identified and coded. Psychological outcomes effect sizes were calculated and analyzed for trends using linear and quadratic regressions.
Results: Pooled effects of the 17 included studies revealed improvement for all outcomes, significant for fatigue, depression, and QoL with pooled estimates ranging from 0.2 to 0.5 favoring intervention. Significant inverse associations of the volume of prescribed exercise with fatigue and QoL were observed.
Conclusions: Exercise intervention improved fatigue, depression, and QoL in patients with breast cancer receiving adjuvant therapy. Prescription of relatively low doses of exercise (<12 MET h/week) consisting in ~90–120 min of weekly moderate physical exercise seems more efficacious in improving fatigue and QoL than higher doses.

3. Cramp F, Byron-Daniel J. **Exercise for the management of cancer-related fatigue in adults**. cochrane database of systematic reviews 2012 (11):CD006145.
Record no: 6
Abstract: Background: Cancer-related fatigue is recognised as an important symptom associated with cancer and its treatment. A number of studies have investigated the effects of physical activity in reducing cancer-related fatigue. This is an updated version of the original Cochrane review published in The Cochrane Library (2008, Issue 1). The original review identified some benefits of physical activity on fatigue in cancer both during and after adjuvant treatment. We identified a number of limitations in the evidence, providing clear justification for an updated review.Objectives: To evaluate the effect of

exercise on cancer-related fatigue both during and after cancer treatment.Search methods: We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (Issue 1, 2011), MEDLINE (1966 to March 2011), EMBASE (1980 to March 2011), CINAHL (1982 to March 2011), British Nursing Index (January 1984 to March 2011), AMED (1985 to March 2011), SIGLE (1980 to March 2011) and Dissertation Abstracts International (1861 to March 2011) using key words. We also searched reference lists off all studies identified for inclusion and relevant reviews. In addition, we handsearched relevant journals and contacted experts in the field of cancer-related fatigue.Selection criteria: We sought and included randomised controlled trials (RCTs) that investigated the effect of exercise on cancer-related fatigue in adults.Data collection and analysis: Two review authors independently assessed the risk of bias of studies and extracted data based upon predefined criteria. Where data were available we performed meta-analyses for fatigue using a random-effects model.Main results: For this update we identified a total of 56 studies (4068 participants) for inclusion (28 from the original search and 28 from the updated search), with the majority carried out in participants with breast cancer (28 studies). A meta-analysis of all fatigue data, incorporating 38 comparisons, provided data for 1461 participants who received an exercise intervention and 1187 control participants. At the end of the intervention period exercise was seen to be statistically more effective than the control intervention (standardised mean difference (SMD) -0.27, 95% confidence interval (CI) -0.37 to -0.17). Benefits of exercise on fatigue were observed for interventions delivered during or post-adjuvant cancer therapy. In relation to diagnosis, we identified benefits of exercise on fatigue for breast and prostate cancer but not for those with haematological malignancies. Finally, aerobic exercise significantly reduced fatigue but resistance training and alternative forms of exercise failed to reach significance.Authors' conclusions: The findings of the updated review have enabled a more precise conclusion to be made in that aerobic exercise can be regarded as beneficial for individuals with cancer-related fatigue during and post-cancer therapy, specifically those with solid tumours. Further research is required to determine the optimal type, intensity and timing of an exercise intervention

4. Focht BC, Clinton SK, Devor ST, Garver MJ, Lucas AR, Thomas-Ahner JM, et al. **Resistance exercise interventions during and following cancer treatment: a systematic review**. J Support Oncol 2013;11(2):45-60.
Record no: 132
Abstract: Findings from prior systematic reviews suggest that exercise results in meaningful improvements in many clinically relevant physiologic and quality of life (QOL) outcomes during and following cancer treatment. However, the majority of exercise-cancer studies have focused upon the benefits

of aerobic exercise (AE) and knowledge of the efficacy of resistance exercise (RE) alone as a supportive care intervention for cancer patients and survivors remains limited. Consequently, the purpose of this review was to provide the first systematic evaluation of the effects of RE alone upon clinically relevant physiologic and QOL outcomes during and following cancer treatment. Literature searches were conducted to identify studies examining RE interventions in cancer patients and survivors. Data were extracted on physiologic (fitness, physical function, and body composition) and QOL (fatigue, psychological well-being, and cancer-specific and global QOL outcomes. Cohen's d effect sizes were calculated for each outcome. A total of 15 studies (6 in samples undergoing active cancer treatment and 9 in samples having completed cancer treatment) involving 1,077 participants met the inclusion criteria. Findings revealed that, on average, RE resulted in large effect-size improvements in muscular strength (d = 0.86), moderate effect-size improvements in physical function (d = 0.66), and small effect-size improvements in body composition (d = 0.28) and QOL (d = 0.25) outcomes. The effect sizes observed following RE are comparable in magnitude to the effects of exercise interventions reported in prior comprehensive reviews of the exercise-cancer literature, which primarily focused upon AE. Additionally, the methodologic quality of the studies was generally strong. Taken collectively, results of this systematic review suggest that RE is a promising supportive care intervention that results in meaningful improvements in clinically relevant physiologic and QOL outcomes during and following cancer treatment.

5. Galvao DA, Newton RU. **Review of exercise intervention studies in cancer patients**. Journal of Clinical Oncology 2005;23:899-909.
Record no: 74
Abstract: PURPOSE: To present an overview of exercise interventions in cancer patients during and after treatment and evaluate dose-training response considering type, frequency, volume, and intensity of training along with expected physiological outcomes.
METHODS: The review is divided into studies that incorporated cardiovascular training, combination of cardiovascular, resistance, and flexibility training, and resistance training alone during and after cancer management. Criteria for inclusion were based on studies sourced from electronic and non-electronic databases and that incorporated preintervention and postintervention assessment with statistical analysis of data.
RESULTS: Twenty-six published studies were summarized. The majority of the studies demonstrate physiological and psychological benefits. However, most of these studies suffer limitations because they are not randomized controlled trials and/or use small sample sizes. Predominantly, studies have been conducted with breast cancer patients using cardiovascular training rather than resistance exercise as the exercise modality. Recent evidence sup-

ports use of resistance exercise or "anabolic exercise" during cancer management as an exercise mode to counteract side effects of the disease and treatment.
CONCLUSION: Evidence underlines the preliminary positive physiological and psychological benefits from exercise when undertaken during or after traditional cancer treatment. As such, other cancer groups, in addition to those with breast cancer, should also be included in clinical trials to address more specifically dose-response training for this population. Contemporary resistance training designs that provide strong anabolic effects for muscle and bone may have an impact on counteracting some of the side effects of cancer management assisting patients to improve physical function and quality of life.

6. Jacobsen PB, Donovan KA, Vadaparampil ST, Small BJ. **Systematic review and meta-analysis of psychological and activity-based interventions for cancer-related fatigue**. Health Psychology 2007;26:660-667.
Record no: 119
Abstract:
Context: Fatigue is among the most common and distressing symptoms experienced by cancer patients.
Objective: This systematic review and meta-analysis evaluates the efficacy of psychological and activity-based interventions against cancer-related fatigue in cancer patients.
Data Sources: MEDLINE, PsycINFO, and CINAHL. Study Selection: Randomized controlled trials of psychological and activitybased interventions involving adult cancer patients in which fatigue was an outcome were reviewed.
Extraction: Forty-one trials were reviewed and 30 were included in a meta-analysis.
Data Synthesis: Fifty percent of psychological trials and 44% of activity-based trials rated fair or better in quality yielded significant findings favoring the intervention condition. Meta-analysis yielded an overall effect size of 0.09 (95% CI _ .02 – .16) favoring nonpharmacological conditions. Further analysis indicated that effect sizes were significant for psychological interventions (dw _ .10, 95% CI _ .02–.18) but not activitybased interventions (dw _ .05, 95% CI__.08 – .19). Conclusions: Findings provide limited support for use of nonpharmacological interventions to manage cancer-related fatigue. The lack of research with heightened fatigue as an eligibility criterion is a notable weakness of the existing evidence base.

7. Kim CJ, Kang DH, Park JW. **A meta-analysis of aerobic exercise interventions for women with breast cancer**. Western Journal of Nursing Research 2009;31:437-461.

Record no: 93
Abstract: The purpose of this meta-analysis was to examine the effectiveness of aerobic exercise interventions on cardiopulmonary function and body composition in women with breast cancer. Of 24 relevant studies reviewed, 10 studies (N = 588) met the inclusion criteria. The findings indicated that aerobic exercise significantly improved cardiopulmonary function as assessed by absolute VO2 peak (standardized mean difference [SMD] .916, p < .001), relative VO2 peak (SMD .424, p < .05), and 12-minute walk test (SMD .502, p < .001). Similarly, aerobic exercise significantly improved body composition as assessed by percentage body fat (SMD —.890, p < .001), but body weight and lean body mass did not change significantly. Aerobic exercise during or after cancer adjuvant therapy seems to be an effective means of improving cardiopulmonary function and decreasing percentage body fat in women with breast cancer. Further studies are needed to examine the long-term benefits of aerobic exercise.

8. Knols R, Aaronson NK, Uebelhart D, Fransen J, Aufdemkampe G. **Physical exercise in cancer patients during and after medical treatment: a systematic review of randomized and controlled clinical trials**. J Clin Oncol 2005;23(16):3830-3842.
Record no: 139
Abstract: PURPOSE: To systematically review the methodologic quality of, and summarize the evidence from trials examining the effectiveness of physical exercise in improving the level of physical functioning and psychological well-being of cancer patients during and after medical treatment. METHODS: Thirty-four randomized clinical trials (RCTs) and controlled clinical trials were identified, reviewed for substantive results, and assessed for methodologic quality. RESULTS: Four of 34 trials met all (seven of seven) methodologic criteria on the Delphi criteria list. Failure to conceal the sequencing of treatment allocation before patient recruitment, failure to blind the outcome assessor, and failure to employ an intention-to-treat analysis strategy were the most prevalent methodologic shortcomings. Various exercise modalities have been applied, differing in content, frequency, intensity, and duration. Positive results have been observed for a diverse set of outcomes, including physiologic measures, objective performance indicators, self-reported functioning and symptoms, psychological well-being, and overall health-related quality of life. CONCLUSION: The trials reviewed were of moderate methodologic quality. Together they suggest that cancer patients may benefit from physical exercise both during and after treatment. However, the specific beneficial effects of physical exercise may vary as a function of the stage of disease, the nature of the medical treatment, and the current lifestyle of the patient. Future RCTs should use larger samples, use appropriate comparison groups to rule out the possibility of an attention-placebo ef-

fect, use a comparable set of outcome measures, pay greater attention to issues of motivation and adherence of patients participating in exercise programs, and examine the effect of exercise on cancer survival.

9. Markes M, Brockow T, Resch K. **Exercise for women receiving adjuvant therapy for breast cancer**. cochrane database of systematic reviews 2006 (4):CD005001.
Record no: 3
Abstract: Background: A huge clinical research database on adjuvant cancer treatment has verified improvements in breast cancer outcomes such as recurrence and mortality rates. On the other hand, adjuvant therapy with agents such as hormone therapy, chemotherapy and radiotherapy impacts on quality of life due to substantial short- and long-term side effects.Objectives: To assess the effect of aerobic or resistance exercise interventions during adjuvant treatment for breast cancer on treatment-related side effects such as physical deterioration, fatigue, psychosocial distress and physiological, morphological and biological changes.Search methods: We searched the Cochrane Breast Cancer Specialised Register (16 July 2004) and the following electronic databases: MEDLINE (1966 to 2004), EMBASE (1988 to 2004), CINAHL (1982 to 2004), SPORTDiscus (1975 to 2004), PsycINFO (1872 to 2003), SIGLE (1880 to 2004), ProQuest Digital Dissertations (1861 to 2004) and Conference Papers Index (1973 to 2004). Furthermore, we screened references in relevant reviews and clinical trials and handsearched relevant journals.Selection criteria: We included randomised and non-randomised controlled trials that examined aerobic or resistance exercise, or both, in women undergoing adjuvant treatment for breast cancer.Data collection and analysis: Two authors independently extracted data and assessed methodological quality and adequacy of the training stimulus following a set of standardised criteria. Meta-analyses were performed for physical fitness, fatigue and weight gain using a random-effects model.Main results: Nine trials involving 452 women met the inclusion criteria. Meta-analysis for cardiorespiratory fitness (involving 207 participants) suggested that exercise improves cardiorespiratory fitness (SMD 0.66, 95% CI 0.20 to 1.12). Meta-analysis for fatigue (317 participants) found statistically non-significant improvements for participants in the exercise intervention groups compared to control (non-exercising) groups (SMD -0.12, 95% CI -0.37 to 0.13); the same applied for the meta-analysis of weight gain (147 participants) (SMD -1.11, 95% CI -2.44 to 0.22). Evidence for other outcomes remains limited. Adverse effects (lymphedema and shoulder tendonitis) were observed in two trials. The results from non-randomised controlled trials are similar to those of randomised controlled trials and do not appear to produce any bias. This review is based on a small number of trials with a considerable degree of clinical heterogeneity regarding adjuvant cancer treatments and exercise interventions.Authors' conclusions: Exercise during adjuvant treatment for breast

cancer can be regarded as a supportive self-care intervention which results in improved physical fitness and thus the capacity for performing activities of daily life, which may otherwise be impaired due to inactivity during treatment. Improvements in fatigue were ambiguous and there was a lack of evidence for improvement with exercise for other treatment-related side effects. Since exercise interventions (for sedentary participants) require behaviour change, strategies for behaviour change should underpin these interventions. Furthermore, long-term evaluation is required due to possible long-term side effects

10. McNeely ML, Campbell K, Ospina M, Rowe BH, Dabbs K, Klassen TP, et al. **Exercise interventions for upper-limb dysfunction due to breast cancer treatment**. cochrane database of systematic reviews 2010 (6):CD005211.
Record no: 7
Abstract: Background: Upper-limb dysfunction is a commonly reported side effect of treatment for breast cancer and may include decreased shoulder range of motion (the range through which a joint can be moved) (ROM) and strength, pain and lymphedema.Objectives: To review randomized controlled trials (RCTs) evaluating the effectiveness of exercise interventions in preventing, minimi sing, or improving upper-limb dysfunction due to breast cancer treatment.Search methods: We searched the Specialised Register of the Cochrane Breast Cancer Group, MEDLINE, EMBASE, CINAHL, and LILACS (to August 2008); contacted experts, handsearched reference lists, conference proceedings, clinical practice guidelines and other unpublished literature sources.Selection criteria: RCTs evaluating the effectiveness and safety of exercise for upper-limb dysfunction.Data collection and analysis: Two authors independently performed the data abstraction. Investigators were contacted for missing data.Main results: We included 24 studies involving 2132 participants. Ten of the 24 were considered of adequate methodological quality.Ten studies examined the effect of early versus delayed implementation of post-operative exercise. Implementing early exercise was more effective than delayed exercise in the short term recovery of shoulder flexion ROM (Weighted Mean Difference (WMD): 10.6 degrees; 95% Confidence Interval (CI): 4.51 to 16.6); however, early exercise also resulted in a statistically significant increase in wound drainage volume (Standardized Mean Difference (SMD) 0.31; 95% CI: 0.13 to 0.49) and duration (WMD: 1.15 days; 95% CI: 0.65 to 1.65).Fourteen studies examined the effect of structured exercise compared to usual care/comparison. Of these, six were post-operative, three during adjuvant treatment and five following cancer treatment. Structured exercise programs in the post-operative period significantly improved shoulder flexion ROM in the short-term (WMD: 12.92 degrees; 95% CI: 0.69 to 25.16). Physical therapy treatment yielded additional benefit for shoulder function post-intervention (SMD: 0.77; 95% CI: 0.33 to 1.21) and at six-

month follow-up (SMD: 0.75; 95% CI: 0.32 to 1.19). There was no evidence of increased risk of lymphedema from exercise at any time point.Authors' conclusions: Exercise can result in a significant and clinically meaningful improvement in shoulder ROM in women with breast cancer. In the post-operative period, consideration should be given to early implementation of exercises, although this approach may need to be carefully weighed against the potential for increases in wound drainage volume and duration. High quality research studies that closely monitor exercise prescription factors (e.g. intensity), and address persistent upper-limb dysfunction are needed

11. Mishra S, I, Scherer RW, Snyder C, Geigle PM, Berlanstein DR, Topaloglu O. **Exercise interventions on health-related quality of life for people with cancer during active treatment**. cochrane database of systematic reviews 2012 (8):CD008465.
Record no: 1
Abstract: Background: People with cancer undergoing active treatment experience numerous disease- and treatment-related adverse outcomes and poorer health-related quality of life (HRQoL). Exercise interventions are hypothesized to alleviate these adverse outcomes. HRQoL and its domains are important measures of cancer survivorship, both during and after the end of active treatment for cancer.Objectives: To evaluate the effectiveness of exercise on overall HRQoL outcomes and specific HRQoL domains among adults with cancer during active treatment.Search methods: We searched the Cochrane Central Register of Controlled Trials (CENTRAL), PubMed MEDLINE, EMBASE, CINAHL, PsycINFO, PEDRO, LILACS, SIGLE, SportDiscus, OTSeeker, Sociological Abstracts from inception to November 2011 with no language or date restrictions. We also searched citations through Web of Science and Scopus, PubMed's related article feature, and several websites. We reviewed reference lists of included trials and other reviews in the field.Selection criteria: We included all randomized controlled trials (RCTs) and quasi-randomized controlled clinical trials (CCTs) comparing exercise interventions with usual care or other type of non-exercise comparison intervention to maintain or enhance, or both, overall HRQoL or at least one distinct domain of HRQoL. Included trials tested exercise interventions that were initiated when adults with cancer were undergoing active cancer treatment or were scheduled to initiate treatment.Data collection and analysis: Five paired review authors independently extracted information on characteristics of included trials, data on effects of the intervention, and assessed risk of bias based on predefined criteria. Where possible, we performed meta-analyses for HRQoL and HRQoL domains for the reported difference between baseline values and follow-up values using standardized mean differences (SMDs) and a random-effects model by length of follow-up. We also reported the SMD at follow-up between the exercise and control groups. Because investigators used many different HRQoL and HRQoL domain instruments

and often more than one for the same domain, we selected the more commonly used instrument to include in the SMD meta-analyses. We also report the mean difference for each type of instrument separately.Main results: We included 56 trials with 4826 participants randomized to an exercise (n = 2286) or comparison (n = 1985) group. Cancer diagnoses in trial participants included breast, prostate, gynecologic, hematologic, and other. Thirty-six trials were conducted among participants who were currently undergoing active treatment for their cancer, 10 trials were conducted among participants both during and post active cancer treatment, and the remaining 10 trials were conducted among participants scheduled for active cancer treatment. Mode of exercise intervention differed across trials and included walking by itself or in combination with cycling, resistance training, or strength training; resistance training; strength training; cycling; yoga; or Qigong. HRQoL and its domains were assessed using a wide range of measures.The results suggest that exercise interventions compared with control interventions have a positive impact on overall HRQoL and certain HRQoL domains. Exercise interventions resulted in improvements in: HRQoL from baseline to 12 weeks' follow-up (SMD 0.33; 95% CI 0.12 to 0.55) or when comparing difference in follow-up scores at 12 weeks (SMD 0.47; 95% CI 0.16 to 0.79); physical functioning from baseline to 12 weeks' follow-up (SMD 0.69; 95% CI 0.16 to 1.22) or 6 months (SMD 0.28; 95% CI 0.00 to 0.55); or when comparing differences in follow-up scores at 12 weeks (SMD 0.28; 95% CI 0.11 to 0.45) or 6 months (SMD 0.29; 95% CI 0.07 to 0.50); role function from baseline to 12 weeks' follow-up (SMD 0.48; 95% CI 0.07 to 0.90) or when comparing differences in follow-up scores at 12 weeks (SMD 0.17; 95% CI 0.00 to 0.34) or 6 months (SMD 0.32; 95% CI 0.03 to 0.61); and, in social functioning at 12 weeks' follow-up (SMD 0.54; 95% CI 0.03 to 1.05) or when comparing differences in follow-up scores at both 12 weeks (SMD 0.16; 95% CI 0.04 to 0.27) and 6 months (SMD 0.24; 95% CI 0.03 to 0.44). Further, exercise interventions resulted in a decrease in fatigue from baseline to 12 weeks' follow-up (SMD -0.38; 95% CI -0.57 to -0.18) or when comparing difference in follow-up scores at follow-up of 12 weeks (SMD -0.73; 95% CI -1.14 to -0.31). Since there is consistency of findings on both types of measures (change scores and difference in follow-up scores) there is greater confidence in the robustness of these findings.When examining exercise effects by subgroups, exercise interventions had significantly greater reduction in anxiety for survivors with breast cancer than those with other types of cancer. Further, there was greater reduction in depression, fatigue, and sleep disturbances, and improvement in HRQoL, emotional wellbeing (EWB), physical functioning, and role function for cancer survivors diagnosed with cancers other than breast cancer but not for breast cancer. There were also greater improvements in HRQoL and physical functioning, and reduction in anxiety, fatigue, and sleep disturbances when prescribed a moderate or vigorous versus a mild exercise program.Results of the review need to be interpreted cautiously owing to the

risk of bias. All the trials reviewed were at high risk for performance bias. In addition, the majority of trials were at high risk for detection, attrition, and selection bias.Authors' conclusions: This systematic review indicates that exercise may have beneficial effects at varying follow-up periods on HRQoL and certain HRQoL domains including physical functioning, role function, social functioning, and fatigue. Positive effects of exercise interventions are more pronounced with moderate- or vigorous-intensity versus mild-intensity exercise programs. The positive results must be interpreted cautiously because of the heterogeneity of exercise programs tested and measures used to assess HRQoL and HRQoL domains, and the risk of bias in many trials. Further research is required to investigate how to sustain positive effects of exercise over time and to determine essential attributes of exercise (mode, intensity, frequency, duration, timing) by cancer type and cancer treatment for optimal effects on HRQoL and its domains.

12. Oldervoll LM, Kaasa S, Hjermstad M, Lund JA, Loge JH. **Physical exercise results in the improved subjective well-being of a few or is effective rehabilitation for all cancer patients**. European Journal of Cancer 2004;40:951-962.
Record no: 86
Abstract: Physical exercise as an intervention in cancer patients has attracted increasing interest. This review examines the published randomised controlled trials on physical exercise, during and after cancer treatment, focusing primarily on recruitment of patients, patient compliance, content of the intervention programmes and outcome measures. We performed systematic searches of PubMed, PsychInfo, Cancerlit and the Cochrane Library using the MESH terms exercise, neoplasms, cancer, rehabilitation and intervention. We identified 12 randomised trials with sample sizes ranging from 21 to 155 patients. Only four studies reported the number of patients assessed for eligibility and the reasons for exclusion; 15% to 30% of patients assessed for eligibility were randomised into the intervention programmes. Drop-out rates in the trials ranged from 0% to 34%. Most studies included female breast cancer patients (nine studies, 62% of total number of patients). Interventions included aerobic exercise training (10 studies) and resistance exercise (two studies). The studies used a wide range of instruments to assess health-related quality of life (HRQOL) and the physical exercise capacity. The studies indicated promising effects on both physiological and psychological outcomes. Randomised clinical studies are few, small in scope, and mainly focus on breast cancer patients. Complete knowledge about the type of physical exercise most beneficial for patients at different stages of the disease progression is still lacking. Future work should identify fewer and more specific endpoints.

13. Puetz TW, Herring MP. **Differential effects of exercise on cancer-related fatigue during and following treatment: a meta-analysis**. American Journal of Preventive Medicine 2012;43:e1-e24.
Record no: 98
Abstract: Context: Exercise-induced improvements in cancer-related fatigue may be moderated differentially in patients during and following treatment. These effects have not been reviewed systematically. In accordance with PRISMA guidelines, the population effect size for exercise training on cancer-related fatigue during and following treatment was estimated and the extent to which the effect is differentiated across the time course of treatment and recovery was determined.

Evidence acquisition:Articles published before August 2011 were retrieved using Google Scholar, MEDLINE, PsycINFO, PubMed, and Web of Science databases. Seventy studies involving 4881 cancer patients during or following treatment were selected. Articles included a cancer-related fatigue outcome measured at baseline and post-intervention and randomized allocation to exercise or non-exercise comparison. From August to October 2011, Hedges' d effect sizes were computed, study quality was evaluated, and random effects models were used to estimate sampling error and population variance.

Evidence synthesis: Exercise significantly reduced cancer-related fatigue by a mean effect ? (95% CI) of 0.32 (0.21, 0.43) and 0.38 (0.21, 0.54) during and following cancer treatment, respectively. During treatment, patients with lower baseline fatigue scores and higher exercise adherence realized the largest improvements. Following treatment, improvements were largest for trials with longer durations between treatment completion and exercise initiation, trials with shorter exercise program lengths, and trials using wait-list comparisons.

Conclusions: Exercise reduces cancer-related fatigue among patients during and following cancer treatment. These effects are moderated differentially over the time course of treatment and recovery. Exercise has a palliative effect in patients during treatment and a recuperative effect post-treatment.

14. Speck RM, Courneya KS, Masse LC, Duval S, Schmitz KH. **An update of controlled physical activity trials in cancer survivors: a systematic review and meta-analysis**. Journal of Cancer Survivorship 2010;4:87-100.
Record no: 69
Abstract: INTRODUCTION: Approximately 11.1 million cancer survivors are alive in the United States. Activity prescriptions for cancer survivors rely on evidence as to whether exercise during or after treatment results in improved

health outcomes. This systematic review and meta-analysis evaluates the extent to which physical activity during and post treatment is appropriate and effective across the cancer control continuum.
METHODS: A systematic quantitative review of the English language scientific literature searched controlled trials of physical activity interventions in cancer survivors during and post treatment. Data from 82 studies were abstracted, weighted mean effect sizes (WMES) were calculated from 66 high quality studies, and a systematic level of evidence criteria was applied to evaluate 60 outcomes. Reports of adverse events were abstracted from all studies.
RESULTS: Quantitative evidence shows a large effect of physical activity interventions post treatment on upper and lower body strength (WMES = 0.99 & 0.90, $p < 0.0001$ & 0.024, respectively) and moderate effects on fatigue and breast cancer-specific concerns (WMES = -0.54 & 0.62, $p = 0.003$ & 0.003, respectively). A small to moderate positive effect of physical activity during treatment was seen for physical activity level, aerobic fitness, muscular strength, functional quality of life, anxiety, and self-esteem. With few exceptions, exercise was well tolerated during and post treatment without adverse events.
CONCLUSIONS: Current evidence suggests many health benefits from physical activity during and post cancer treatments. Additional studies are needed in cancer diagnoses other than breast and with a focus on survivors in greatest need of improvements for the health outcomes of interest.

15. Stene GB, Helbostad JL, Balstad TR, Riphagen, II, Kaasa S, Oldervoll LM. **Effect of physical exercise on muscle mass and strength in cancer patients during treatment-A systematic review**. Crit Rev Oncol Hematol 2013;88(3):573-593.
Record no: 134
Abstract: Cancer treatment and its side effects may cause muscle wasting. Physical exercise has the potential to increase muscle mass and strength and to improve physical function in cancer patients undergoing treatment. A systematic review was conducted to study the effect of physical exercise (aerobic, resistance or a combination of both) on muscle mass and strength in cancer patients with different type and stage of cancer disease. Electronic searches were performed up to January 11th 2012, identifying 16 randomised controlled trials for final data synthesis. The studies demonstrated that aerobic and resistance exercise improves upper and lower body muscle strength more than usual care. Few studies have assessed the effect of exercise on muscle mass. Most studies were performed in patients with early stage breast or prostate cancer. Evidence on the effect of physical exercise on muscle strength and mass in cancer patients with advanced disease is lacking. More exercise studies in patients with advanced cancer and at risk of cancer cachexia are warranted.

16. Stevinson C, Lawlor DA, Fox KR. **Exercise interventions for cancer patients: systematic review of controlled trials**. Cancer Causes and Control 2004;15:1035-1056.
Record no: 85
Abstract: OBJECTIVE: To systematically review controlled trials investigating the effects of exercise interventions in cancer patients.
METHODS: Studies were located through searching seven electronic databases (Medline, Embase, Cochrane Library, CancerLit, PsycInfo, Cinahl, SportDiscus), scanning reference lists of relevant articles, contacting experts (n = 20), and checking the contents lists of journals available through ZETOC (Electronic Table of Contents). To be included, trials had to be prospective, controlled, involve participants diagnosed with cancer and test an exercise intervention. Types of outcome were not restricted. Two reviewers independently applied the selection criteria.
RESULTS: Thirty-three controlled trials (including 25 randomized trials) were included in the review. There was some evidence that physical function was increased among those who exercised. Furthermore, symptoms of fatigue did not appear to be increased and there were few adverse effects reported. There was insufficient evidence to determine effects on other outcomes, such as quality of life, with results hampered by the heterogeneity between studies as well as poor methodological quality. Data were also lacking on the long term effects of exercise relating to cancer recurrence or survival.
CONCLUSIONS: There is preliminary evidence that exercise interventions for cancer patients can lead to moderate increases in physical function and are not associated with increased symptoms of fatigue. However, it is impossible from current evidence to determine whether exercise has long term beneficial effects on survival or quality of life.

17. Velthuis MJ, Agasi-Idenburg SC, Aufdemkampe G, Wittink HM. **The effect of physical exercise on cancer-related fatigue during cancer treatment: a meta-analysis of randomised controlled trials**. Clinical Oncology 2010;22:208-221.
Record no: 83
Abstract: The aim of this meta-analysis was to evaluate the effects of different exercise prescription parameters during cancer treatment on cancer-related fatigue (CRF). We also aimed to gain insight into the safety and feasibility of exercise during adjuvant cancer treatment. A systematic search of CINAHL, Cochrane Library, Embase, Medline, Scopus and PEDro was carried out. Randomised controlled trials studying the effects of exercise during cancer treatment on CRF were included. In total, 18 studies (12 in breast, four in prostate and two in other cancer patients) met all the inclusion criteria. During breast cancer treatment, home-based exercise lead to a small,

non-significant reduction (standardised mean difference 0.10, 95% confidence interval -0.25 to 0.45), whereas supervised aerobic exercise showed a medium, significant reduction in CRF (standardised mean difference 0.30, 95% confidence interval 0.09 to 0.51) compared with no exercise. A subgroup analysis of home-based (n=65) and supervised aerobic (n=98) and resistance exercise programmes (n=208) in prostate cancer patients showed no significant reduction in CRF in favour of the exercise group. Adherence ranged from 39% of the patients who visited at least 70% of the supervised exercise sessions to 100% completion of a home-based walking programme. In more than half the studies (12 of 18; 67%) adverse events were reported. Eight events in total (0.72%) occurred in these studies.

Nasjonalt kunnskapssenter for helsetjenesten

1. Dahm KT, Giske L. **Trening er nyttig for å redusere tretthet hos kreftpasienter**. Nasjonalt Kunnskapssenter for helsetjenesten. Available from: http://www.kunnskapssenteret.no/publikasjoner/trening-er-nyttig-for-%C3%A5-redusere-tretthet-hos-kreftpasienter
   Record no: 145

Abstract: Omtale av : Cramp F, Byron-Daniel J. Exercise for the management of cancer-related fatigue in adults. Cochrane Database of Systematic Reviews 2012, Issue 11.

2. Dahm KT, Reinar LM. **Fysioterapi og trening ved stråleskader i muskel-/skjelettapparatet**. Oslo: Nasjonalt kunnskapssenter for helsetjenesten; 2008.
   http://www.kunnskapssenteret.no/publikasjoner/fysioterapi-og-trening-ved-str%C3%A5leskader-i-muskel-skjelettapparatet
   Record no: 131

Abstract: Bakgrunn: Nasjonalt kunnskapssenter for helsetjenesten fikk i oppdrag fra Norsk Fysioterapeutforbund å lage en systematisk kunnskapsoversikt over forskning som belyser effekten av fysioterapi på bevegelighet, smerte og funksjon hos kreftpasienter med stråleskader i hud og muskel-/skjelettapparat.
Problemstilling: Hensikten med rapporten er å besvare følgende hovedspørsmål: Hva er effekten av fysioterapi på bevegelighet, smerte, fatigue og funksjon hos kreftpasienter med stråleskader i hud og muskel-/skjelettapparatet?
Metode: Vi søkte systematisk etter systematiske oversikter og enkeltstudier i internasjonale forskningsdatabaser. Vi valgte ut studier som oppfylte våre inklusjonskriterier, vurderte kvaliteten og oppsummerte resultatene.

Resultater: Vi fant ingen studier som undersøkte effekten av fysioterapi til pasienter med stråleskader. Vi fant én Cochrane-oversikt og fem enkeltstudier som undersøkte effekten av fysioterapi og trening til pasienter som får strålebehandling. Den systematiske oversikten undersøkte effekten av trening på bivirkningene av tilleggsbehandling for brystkreft. To enkeltstudier undersøkte effekten av fysioterapibehandling for pasienter med brystkreft, to undersøkte effekten av egentrening etter et gangtreningsprogram for menn med prostatakreft, og én undersøkte effekten av en tverrfaglig intervensjon (mye fysioterapi) for pasienter med ulike former for fremskreden kreft.

Etter å ha vurdert kvaliteten på dokumentasjonsgrunnlaget i den inkluderte oversikten med GRADE fikk vi følgende resultater:
• Det er mulig at trening bedrer utholdenheten hos brystkreftpasienter under strålebehandling.
• Det er liten eller ingen forskjell i fatigue hos brystkreftpasienter som trener under strålebehandling sammenlignet med dem som ikke trener.
• Kvaliteten på forskningen er for lav til å avgjøre om trening øker bevegelighet og muskelstyrke, reduserer smerte og bedrer livskvalitet hos brystkreftpasienter under strålebehandling.

Resultatene fra enkeltstudier:
• Gangtrening ser ut til å bedre utholdenheten for pasienter med prostatakreft under strålebehandling
• Det er motstridende resultater fra to nyere studier hvorvidt gangtrening reduser fatigue for pasienter med prostatakreft under strålebehandling
• Én studie viste ingen signifikant reduksjon av fatigue for pasienter med fremskreden kreft som fikk tverrfagligbehandling (mye fysioterapi) sammenlignet med pasienter som fikk standard behandling.

Konklusjon: Oversikten og enkeltstudiene kan bare delvis besvare vår problemstilling, og rapporten viser at det er behov for forskning som evaluerer effekten av fysioterapi.
Det foreligger lite forskning om effekt av fysioterapi til kreftpasienter som får strålebehandling, og vi har ikke funnet forskning om effekt av fysioterapi til pasienter med stråleskader i hud og muskel-/skjelettapparatet. De fleste enkeltstudiene i den systematiske oversikten undersøkte bare effekten av gangtrening, og vi vet lite om effekten av andre former for fysioterapitiltak.
Det er mulig at trening bedrer utholdenheten hos kreftpasienter som får strålebehandling.

Retningslinjer

1. Doyle C, Kushi LH, Byers T, Courneya KS, Demark-Wahnefried W, Grant B, et al. **Nutrition and Physical Activity During and After Cancer Treatment: An American Cancer Society Guide for Informed Choices**. CA: A Cancer Journal for Clinicians 2006;56(6):323-353.
Record no: 141
Abstract: Cancer survivors are often highly motivated to seek information about food choices, physical activity, and dietary supplement use to improve their treatment outcomes, quality of life, and survival. To address these concerns, the American Cancer Society (ACS) convened a group of experts in nutrition, physical activity, and cancer to evaluate the scientific evidence and best clinical practices related to optimal nutrition and physical activity after the diagnosis of cancer. This report summarizes their findings and is intended to present health care providers with the best possible information from which to help cancer survivors and their families make informed choices related to nutrition and physical activity. The report discusses nutrition and physical activity issues during the phases of cancer treatment and recovery, living after recovery from treatment, and living with advanced cancer; select nutrition and physical activity issues such as body weight, food choices, and food safety; issues related to select cancer sites; and common questions about diet, physical activity, and cancer survivorship. Available from:
http://onlinelibrary.wiley.com/doi/10.3322/canjclin.56.6.323/pdf

2. KCE - Belgian Healthcare Knowledge Centre. **Supportive treatment for cancer - Part 2: Prevention and treatment of adverse events related to chemotherapy and radiotherapy**. Available from: https://kce.fgov.be/publication/report/supportive-treatment-for-cancer-part-2-prevention-and-treatment-of-adverse-events
Record no: 142
Abstract:

3. KCE - Belgian Healthcare Knowledge Centre. **Supportive treatment for cancer - Part 1: exercise treatment**. Available from: https://kce.fgov.be/publication/report/supportive-treatment-for-cancer-part-1-exercice-treatment
Record no: 143
Abstract:

4. Network NCC. **Survivorship. NCCN Guideline**. NCCN Guidelines 2013;1.2013.
Record no: 135
Abstract:

Available from: http://www.nccn.org/professionals/physician_gls/pdf/survivorship.pdf

Vedlegg

Søkestrategier

Cochrane Library

Dette er en oppdatering av vignetten som ble laget 27.11.2012. Den opprinnelige søkestrategien ble kjørt på nytt i Cochrane Library, uten noen justeringer. Søket ble utført 11. oktober 2013.

Søkestrategi

1. MeSH descriptor: [Neoplasms] explode all trees
2. cancer or neoplasm*:ti,ab,kw
3. 1 or 2
4. MeSH descriptor: [Radiotherapy] explode all trees
5. radiotherap* or radiation or adjuvant*:ti,ab,kw
6. 4 or 5
7. 3 or 6
8. MeSH descriptor: [Motor Activity] this term only
9. MeSH descriptor: [Exercise] explode all trees
10. MeSH descriptor: [Exercise Therapy] explode all trees
11. MeSH descriptor: [Exercise Movement Techniques] explode all trees
12. exercis* or (physical next activit*):ti,ab,kw
13. 8 or 9 or 10 or 11 or 12
14. 7 and 13

Referanser

Antall treff i de ulike databasene:

- Cochrane Database of Systematic Reviews: 41
- DARE: 86
- HTA database: 3

Totalt antall treff: 130

Søk etter retningslinjer

Søkeord: Radiotherapy, eventuelt i kombinasjon med physical activity OR exercise.
I noen databaser kun søkt i guidelines for Supportive Care.

Best Practice: 86 / 1

Clinical Evidence : 13 /0

UpToDate: 150 / 0

G-I-N (Guidelines International Network): 125 / 2

NICE (National Institute for Clinical Excellence): 16 / 0

NCCN (The National Comprehensive Cancer Network, USA), Guidelines for supportive care: 10 /1

NGC (National Guidelines Clearinghouse, USA): 124 / 0

CancerWiew (Canada), Guidelines for supportive care: 9 / 0