

An assessment of study characteristics, quality and reporting in cancer prehabilitation literature: a scoping review

WELFARE, Samantha <<http://orcid.org/0009-0000-4071-5172>>, MADEN-WILKINSON, Thomas <<http://orcid.org/0000-0002-6191-045X>>, COPELAND, Robert <<http://orcid.org/0000-0002-4147-5876>>, HUMPHREYS, Liam John <<http://orcid.org/0000-0002-9279-1019>>, DALTON, Caroline <<http://orcid.org/0000-0002-1404-873X>> and MYERS, Anna <<http://orcid.org/0000-0001-6432-8628>>

Available from Sheffield Hallam University Research Archive (SHURA) at:

<https://shura.shu.ac.uk/35923/>

This document is the Accepted Version [AM]

Citation:

WELFARE, Samantha, MADEN-WILKINSON, Thomas, COPELAND, Robert, HUMPHREYS, Liam John, DALTON, Caroline and MYERS, Anna (2025). An assessment of study characteristics, quality and reporting in cancer prehabilitation literature: a scoping review. *BMJ Open*, 15 (7), bmjopen-2024. [Article]

Copyright and re-use policy

See <http://shura.shu.ac.uk/information.html>

Supplementary Material 4:

Table 2) TIDieR Derived Cancer Prehabilitation Intervention Characteristics

What			How Much				How/Where		Outcome Measures
Study	Modality	Multimodal (Y/N)	Duration	Frequency (Days/Week)	Time (mins)	Intensity	Supervised (Y/N)	Setting	
Allen et al., 2022	Concurrent	Y (Psychological & nutritional counselling)	N.S	2 Centre-Based 3 Home-Based	25 Centre 60 Home	Light to moderate (RPE)	Y	Centre & home	<ul style="list-style-type: none"> • Cardiopulmonary Exercise Test (CPET) • CT scan for body composition and sarcopenia • Grip strength dynamometry • European Organisation for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) • Becks' Anxiety Inventory (BAI) • Becks' Depression Inventory II (BDI II) • 30-day hospital readmission • 3-year mortality • Chemotherapy completion rates • Treatment toxicity rates
Baima et al., 2017	Resistance	None	1 month	7	N.S	Light	Y	Centre & home	<ul style="list-style-type: none"> • Chart documentation of seroma formation
Berkel et al., 2022	Concurrent	Y (Nutritional counselling & smoking cessation)	3 weeks	3	40 Aerobic 20 Resistance	Moderate to high (workload)	Y	Centre	<ul style="list-style-type: none"> • Grip and quadricep strength dynamometry • Range of motion (0 to 180°) • Timed-up-and-go • CPET • Gronigen frailty indicator • Simplified Nutritional Appetite Questionnaire (SNAQ) • Treatment complication rates • Complication Grade CDC • Length of hospital stay • 30-day hospital readmission rates
Blackwell et al., 2019	Aerobic	N	4 weeks	3–4	10	High (workload)	Y	Centre	<ul style="list-style-type: none"> • DEXA body composition • Ultrasound of muscle architecture • CPET • Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)

									<ul style="list-style-type: none"> • European Quality of Life Five Dimension (EQ-5D-5L) • Dukes Activity Status Index (DASI) • CPET • Blood Pressure
Boereboom et al., 2019	Aerobic	N	19 days	3–4	10	High (workload)	Y	Centre	
Brahmbhatt et al., 2020	Concurrent	Y (BCTs -Social support)	N.S	3-5 Aerobic 2-3 Resistance	30-40	Light to moderate (RPE)	Y	Home	<ul style="list-style-type: none"> • Range of motion (0 to 180°) • Six Minute Walk Test (6MWT) • Grip strength dynamometry • Lean mass • Body Mass Index (BMI) • Waist and limb circumference • Disabilities of the arm, shoulder and hand (DASH) • Interviews on perceived quality of life • Brief pain inventory (BPI) • Functional Assessment of Cancer Therapy (FACT) • 36-Item Short Form Survey (SF-36) • Godin–Shephard Leisure Time Exercise Questionnaire-Leisure Score Index (GLTEQ-LSI) • World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0)
Burke et al., 2013	Aerobic	Y (BCTs - Motivational interviewing)	6 weeks	3	20-30	Moderate to high (workload)	N	Centre	<ul style="list-style-type: none"> • Interviews on perceived quality of life • Hospital Anxiety and Depression Scale (HADS)
Cavalheri et al., 2018	Concurrent	Y (BCTs- Risk/benefit education)	N.S	2–3	30-40	High (workload)	N	Centre	<ul style="list-style-type: none"> • 6MWT • 30-day mortality rates • Treatment complication rates
Chen et al., 2017	Concurrent	Y (Nutritional counselling & anxiety relief)	4 weeks	3	20 Aerobic 20 Resistance	Moderate to high (HR)	N	Home	<ul style="list-style-type: none"> • 6MWT • Community Healthy Activities Model Programme for Seniors questionnaire (CHAMPS)
Christensen et al., 2019	Concurrent	None	N.S	2	75	Moderate to high	Y	Centre	<ul style="list-style-type: none"> • Exercise intensity reduction rates • DEXA derived body composition • Incremental test • 1 repetition max test (1RM) • FACT

									<ul style="list-style-type: none"> • Incidence of unscheduled hospitalisation • Dose reduction rates • Treatment disruption rates • Treatment toxicity rates • Complication Grade CDC • Immuno score for resected tumour • Intratumoral T-cell densities • Infiltration of the resection margin • Pathological tumour stage (pTNM) • Tumour regression grade • Length of hospital stay
Ferreira et al., 2021	Concurrent	Y (Nutritional counselling & anxiety relief)	4 weeks	3	30	Moderate (RPE)	N	Home	<ul style="list-style-type: none"> • 6MWT • Health-Related Quality of Life Questionnaire (HRQoL) • HADS • FACT • CHAMPS • SF-36 • Length of hospital stay • 30-day hospital readmission rates • Complication Grade CDC
Gillis et al., 2014	Concurrent	Y (Nutritional counselling & anxiety relief)	4 weeks	3	50	Moderate (RPE & HR)	N	Home	<ul style="list-style-type: none"> • 6MWT • HADS • CHAMPS • SF-36 • Complication Grade CDC
Halliday et al., 2021	Concurrent	Y (BCTs -Self-monitoring, self-regulation, goal setting & social support).	16 weeks	N.S	N.S	Moderate to high	N	Home	<ul style="list-style-type: none"> • CPET • Chester step test • Postoperative pneumonia incidence - CDC
Huang et al., 2016	Concurrent	N	N.S	3–5	20-45	Moderate to high (HR)	N	Centre & home	<ul style="list-style-type: none"> • Major postoperative complication rates (Clavien-Dindo grade >3)
Jensen et al., 2016	Concurrent	Y (BCTs -Social Support, goal setting & outcome expectations)	2 weeks	7	>30	N.S	N	Home	<ul style="list-style-type: none"> • Leg extension power
Jones et al., 2007	Aerobic	N	4 weeks	5	20-30	Moderate (VO2 Max)	Y	Centre	<ul style="list-style-type: none"> • CPET

Loughney et al., 2019(a)	Concurrent	N	3-4 weeks	3-5	30-40 Aerobic 20 Resistance	Moderate to high (RPE)	Y	Centre & home	<ul style="list-style-type: none"> • 6MWT • 6MWT • 10-repetition sit to stand test • Grip strength dynamometry • EORTC QLQ-C30 • EQ-5D-5L
Loughney et al., 2021(b)	Concurrent	N	3-4 weeks	3-5	30-40 Aerobic 20 Resistance	Moderate to high (RPE)	Y	Centre & home	<ul style="list-style-type: none"> • Interviews on perceived quality of life
Machado et al., 2023 (a)	Concurrent	Y (BCTs - Risk/benefit education)	3 weeks	5	30-40 Aerobic NS Resistance	Moderate to high (RPE)	N	Home Based	<ul style="list-style-type: none"> • Shuttle walk test • Grip strength dynamometry • Sit to stand test • EORTC QLQ-C30
Machado et al., 2023 (b)	Concurrent	Y (BCTs - Risk/benefit education)	3.6 weeks	5	30-40 Aerobic NS Resistance	Moderate to high (RPE)	N	Home Based	<ul style="list-style-type: none"> • Shuttle walk test • Sit to stand test • Grip strength dynamometry • EORTC QLQ-C30 • Length of hospital stay
Mayo et al., 2011	Concurrent	Y (BCTs-Social support)	4 weeks	7 Aerobic 3 Resistance	1) 20-30 Cycling 10-15 Resistance 2) >30 Walking 5-10 Breathing	Light to moderate (HR)	Y	Home	<ul style="list-style-type: none"> • 6MWT • Incremental cardiopulmonary fitness test • SF-36 • HADS • EQ-5D-5L
Minnella et al., 2020 (a)	Concurrent	Y (Nutritional counselling & anxiety relief)	4 weeks	3	1) 40 MICT 2) 30 HIIT	Moderate to high (RPE and workload)	Y	Centre	<ul style="list-style-type: none"> • 6MWT • CPET
Minnella et al., 2021 (b)	Concurrent	Y (Nutritional counselling & anxiety relief)	4 weeks	3	25 Aerobic 25 Resistance	Moderate (RPE)	Y	Centre	<ul style="list-style-type: none"> • 6MWT • SF-36 • CHAMPS
Ngo-Huang et al., 2019	Concurrent	Y (Nutritional counselling & BCT-social support)	2-6 months	2	N.S	Moderate	N	Home	<ul style="list-style-type: none"> • 6MWT • 3MWT • Sit to stand test • Grip strength • Frailty (Fried's frailty criteria) • Sarcopenia incidence rates - computed tomography of abdomen and pelvis • Center for Epidemiologic Studies Depression Scale

									<ul style="list-style-type: none"> Physical Function 12a Short Form International Physical Activity Questionnaire (IPAQ)
SantaMina et al., 2018	Concurrent	Y (BCTs -Social support)	4-8 weeks	3-4	60	Moderate	N	Home	<ul style="list-style-type: none"> 6MWT Waist Circumference BMI Body Fat Percentage HADS International Prostate Symptom Score (IPSS) Patient-Oriented Prostate Utility Scale (PORPUS) FACT CHAMPS Daily activities pain interference - Pain Disability Index Treatment complication rates Length of hospital stay
Singh et al., 2017 (a)	Concurrent	N	16 weeks	2	60	Moderate to high (HR)	Y	Centre	<ul style="list-style-type: none"> 1RM 6MWT 6MWT backwards Stair Climb Test 400m walking test DEXA derived body composition BMI EORTC QLQ-C30 SF-36 Multidimensional Fatigue Symptom Inventory (MFSI-SF) Godin Leisure-Time Physical Activity Questionnaire Length of hospital stay Length of time in intensive care
Singh et al., 2023 (b)	Concurrent	N	6 weeks	3	90 Resistance 20-30 Aerobic	Moderate to high (HR)	Y	Centre	<ul style="list-style-type: none"> 1RM 6MWT backwards 6MWT 400 metre walk test

Wood et al., 2016	Aerobic	Y (BCTs-Social support)	6 weeks	3	30	High (HR)	Y	Home	<ul style="list-style-type: none"> • Chair rise test • Body composition • EORTC QLQ-C30 • Godin Leisure-Time Physical Activity Questionnaire • Incidence of incontinence • CPET • Heart rate • 6MWT
-------------------	---------	-------------------------	---------	---	----	-----------	---	------	---

*(*N.S* =*Not specified*)

** Y = yes, N = no