

PREHABILITATION

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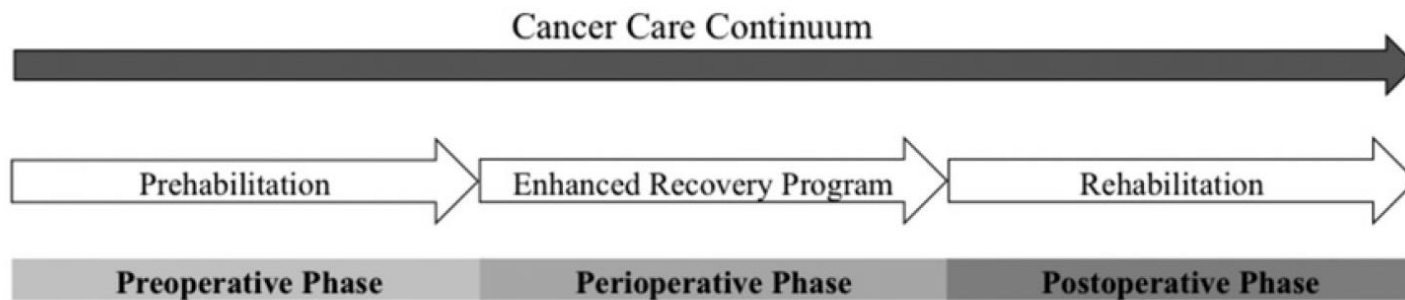
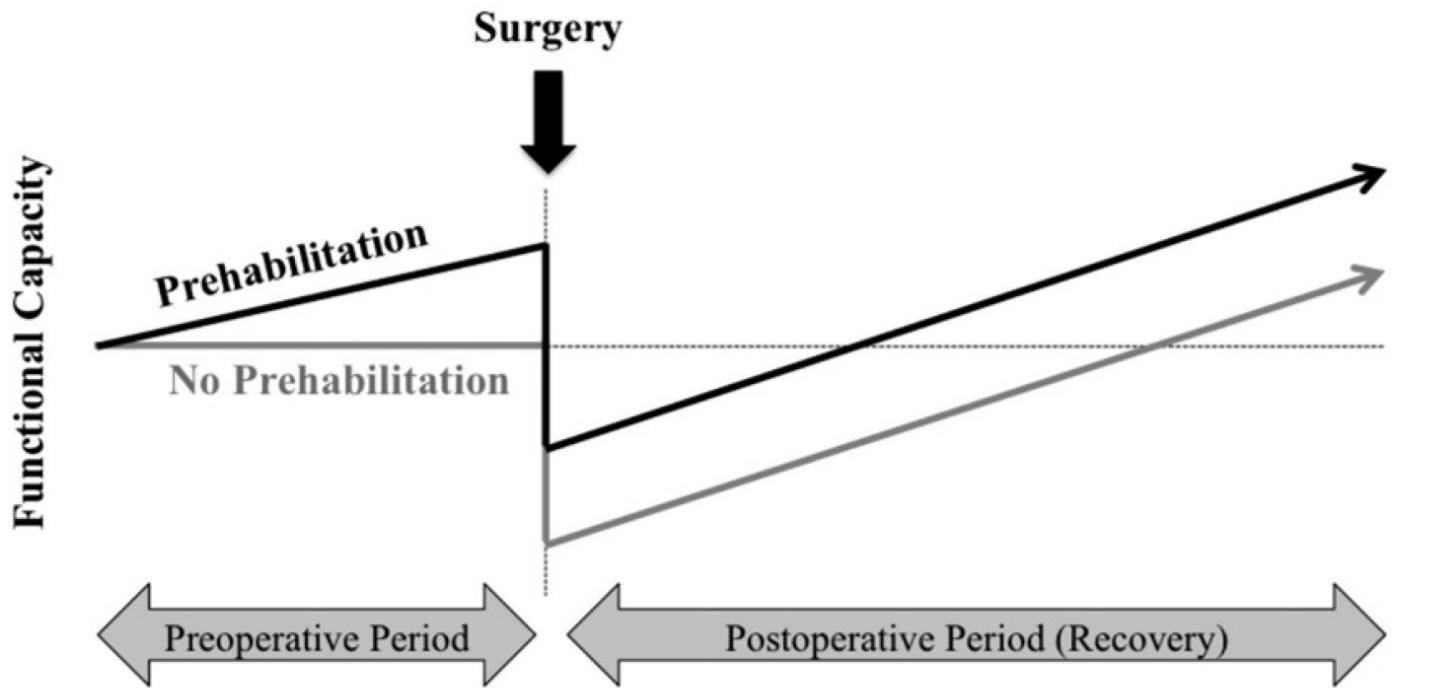
Prehabilitation - multimodal

The process of enhancing the functional capacity of the individual to enable him or her to withstand a stressful event

Denny ZH, et al. Cardiopulmonary exercise testing, prehabilitation, and Enhanced Recovery After Surgery (ERAS). *Can J Anesth.* 2015; 62: 131-14

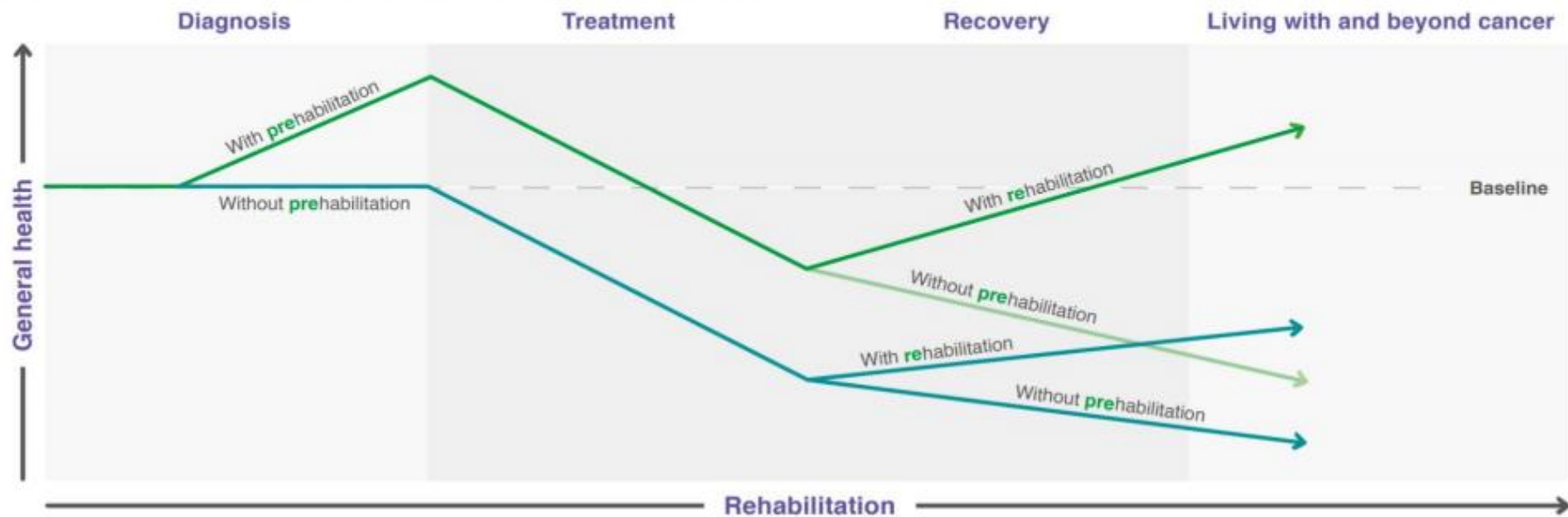
A process on the cancer continuum of care that occurs between the time of cancer diagnosis and the beginning of acute treatment and includes physical and psychological assessments that establish a baseline functional level, identify impairments, and provide interventions that promote physical and psychological health to reduce the incidence and/or severity of future impairments

Silver JK, et al. Cancer Prehabilitation. An Opportunity to Decrease Treatment-Related Morbidity, Increase Cancer Treatment Options, and Improve Physical and Psychological Health. *Phys Med Rehabil.* 2013; 92(8): 715-727



↑
Need for Surgery
Identified

IMPROVING CANCER CARE BEFORE TREATMENT EVEN STARTS



Frailty and Multimorbidity

Lancet 2012; 380: 37–43

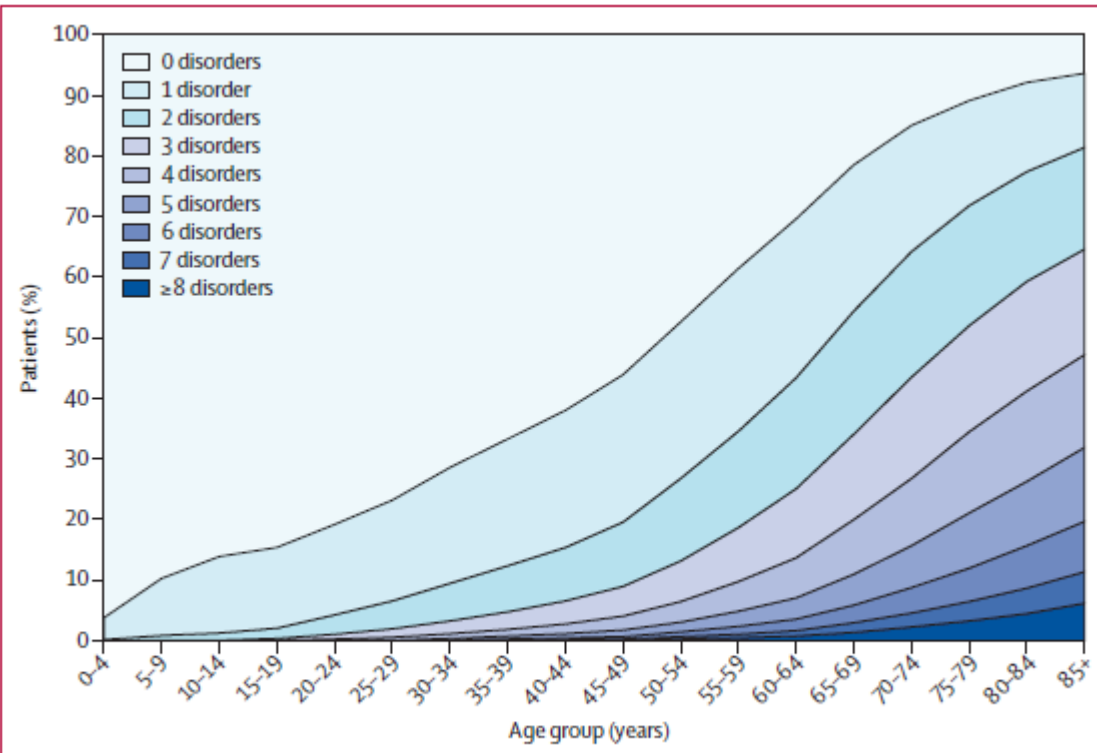


Figure 1: Number of chronic disorders by age-group

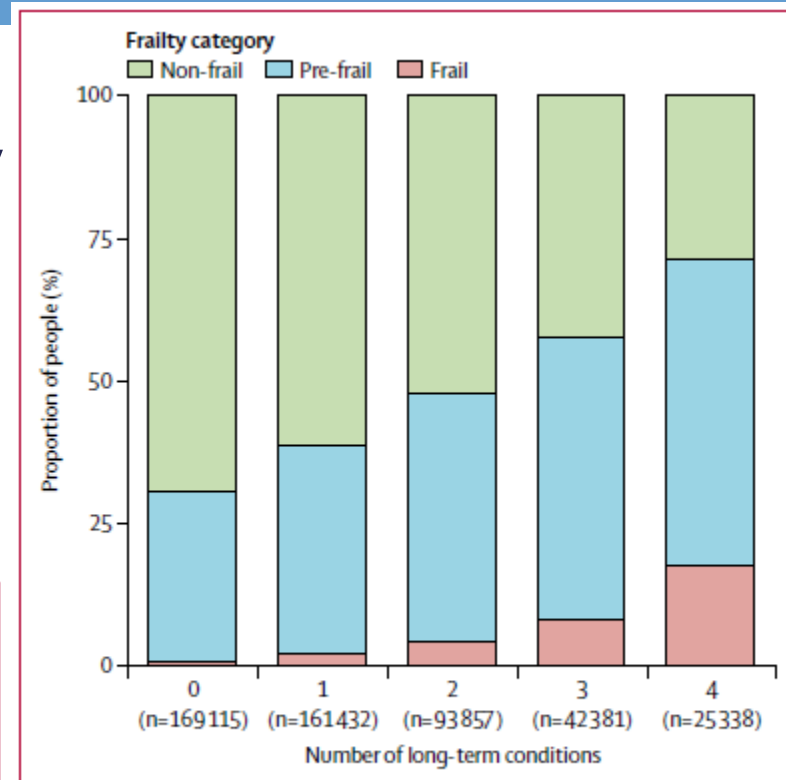
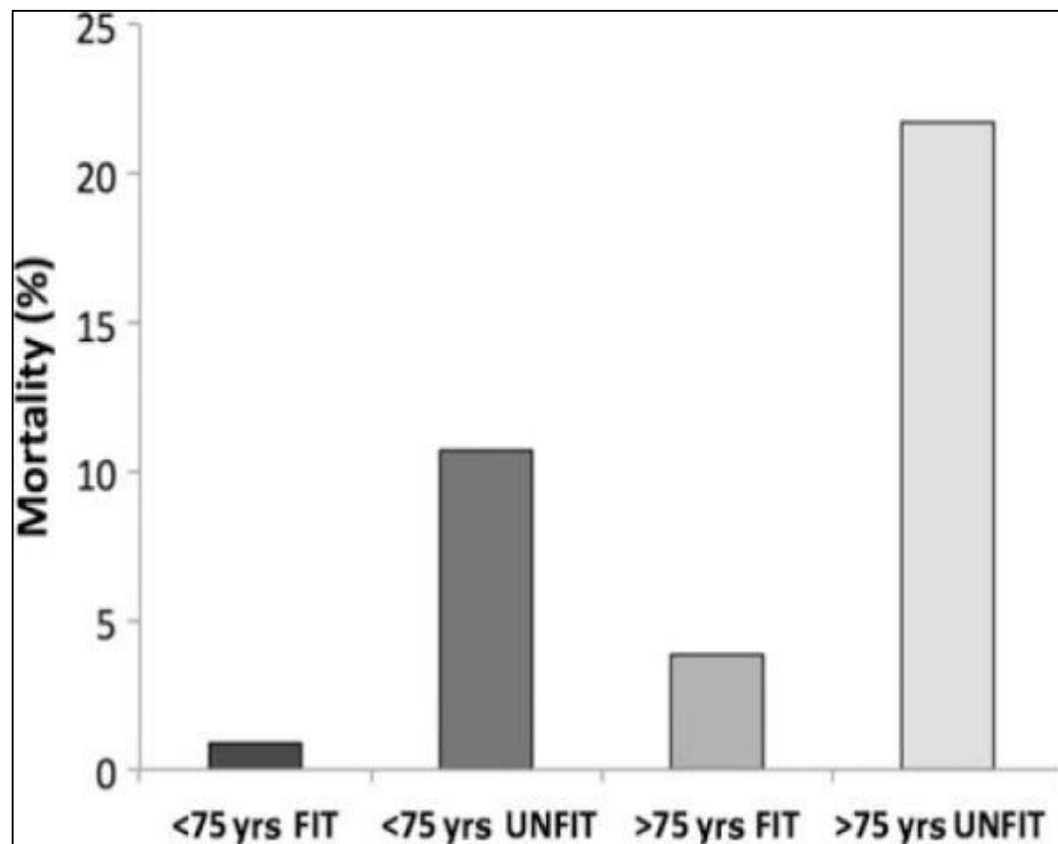


Figure 1: Prevalence of frailty and pre-frailty categorised by number of long-term conditions

Fitness and Surgery



Cardiorespiratory Fitness Predicts Mortality and Hospital Length of Stay After Major Elective Surgery in Older People.

Snowden, Chris; Prentis, James; Jacques, Byron; Anderson, Helen; Manas, Derek; Jones, Dave; Trenell, Michael

Annals of Surgery. 257(6):999-1004, June 2013.

DOI: 10.1097/SLA.0b013e31828dbac2

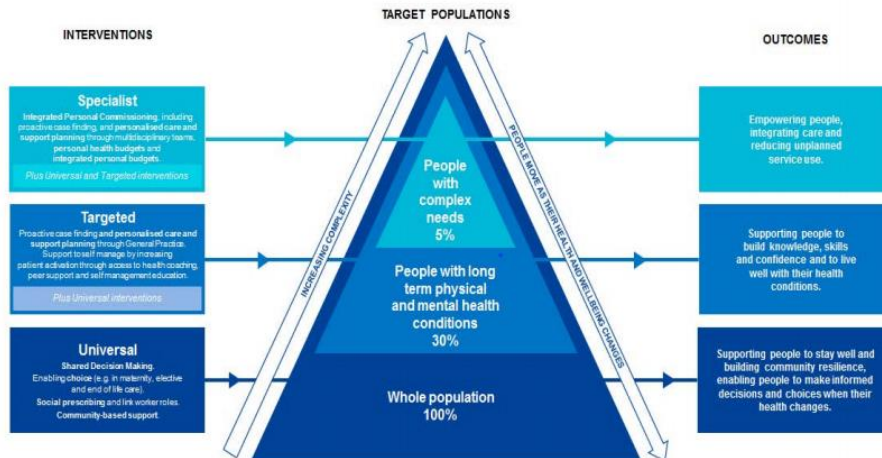
FIGURE 2 . Age, fitness, and mortality rates from hepatobiliary surgery in 389 patients (Fit = Anaerobic Threshold >10 mL/kg/min, Unfit = Anaerobic Threshold <10 mL/kg/min).

National



Comprehensive Model for Personalised Care

All age, whole population approach to Personalised Care



Preoperative Assessment and Optimisation for Adult Surgery including consideration of COVID-19 and its implications

June 2021



www.longtermplan.nhs.uk

www.england.nhs.uk/cancer/strategy

Multimodal Prehabilitation and Personalised care

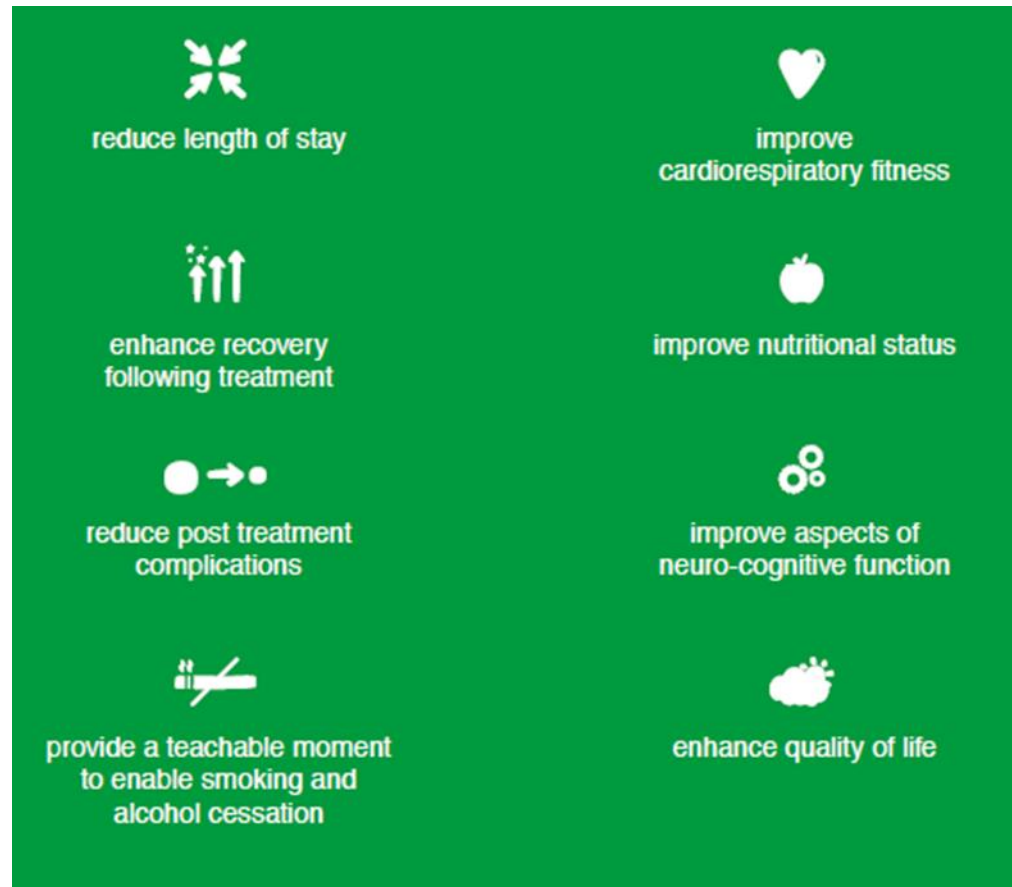


Principles and guidance for prehabilitation within the management and support of people with cancer

In partnership with
NIHR | Cancer and Nutrition
Collaboration

RCOA
Royal College of Oncologists

MACMILLAN
CANCER SUPPORT
RIGHT THERE WITH YOU



Integrating prehabilitation into cancer pathways

Diagnosis

- Prehabilitation begins at any point from diagnosis (and in some cases before a confirmed diagnosis), aiming to optimise a patient's health.

Pre-treatment assessment

- Screening for prehabilitation, assessment, care plan including a personalised prehabilitation care plan (PPCP)
- Where a patient's needs are identified above a prehabilitation programme would be prescribed.

Surgery

Recovery then follow up

- Prescribed prehabilitation then rehabilitation programme.

Preceded or followed by....

Systemic anti cancer therapy

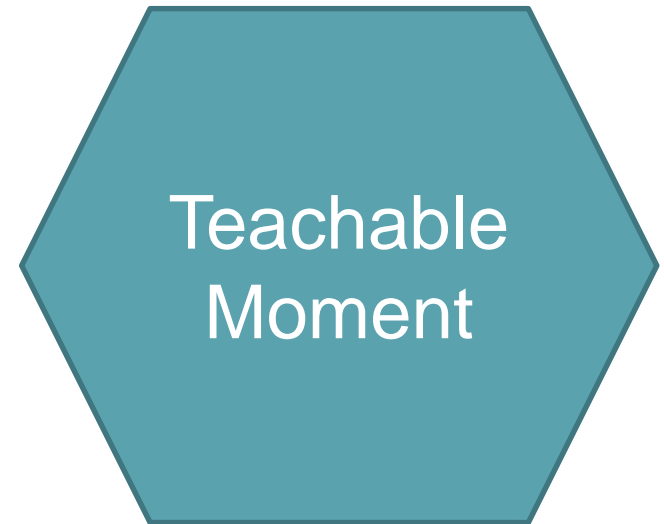
- Screening, assessment, care plan including a personalised prehabilitation care plan (PPCP)

Treatment preparation

- Where need identified above prescribed prehabilitation programme

Prehabilitation - Improving Outcomes

- Identification of the high risk patients
 - Surgery Type
 - Comorbidities
 - Functional capacity
 - Sarcopenia
 - Frailty
- Optimisation
 - Anaemia
 - Chronic disease
 - Diabetic control
 - Exercise
 - Lifestyle factor modification
 - Nutritional status
 - Psychological support

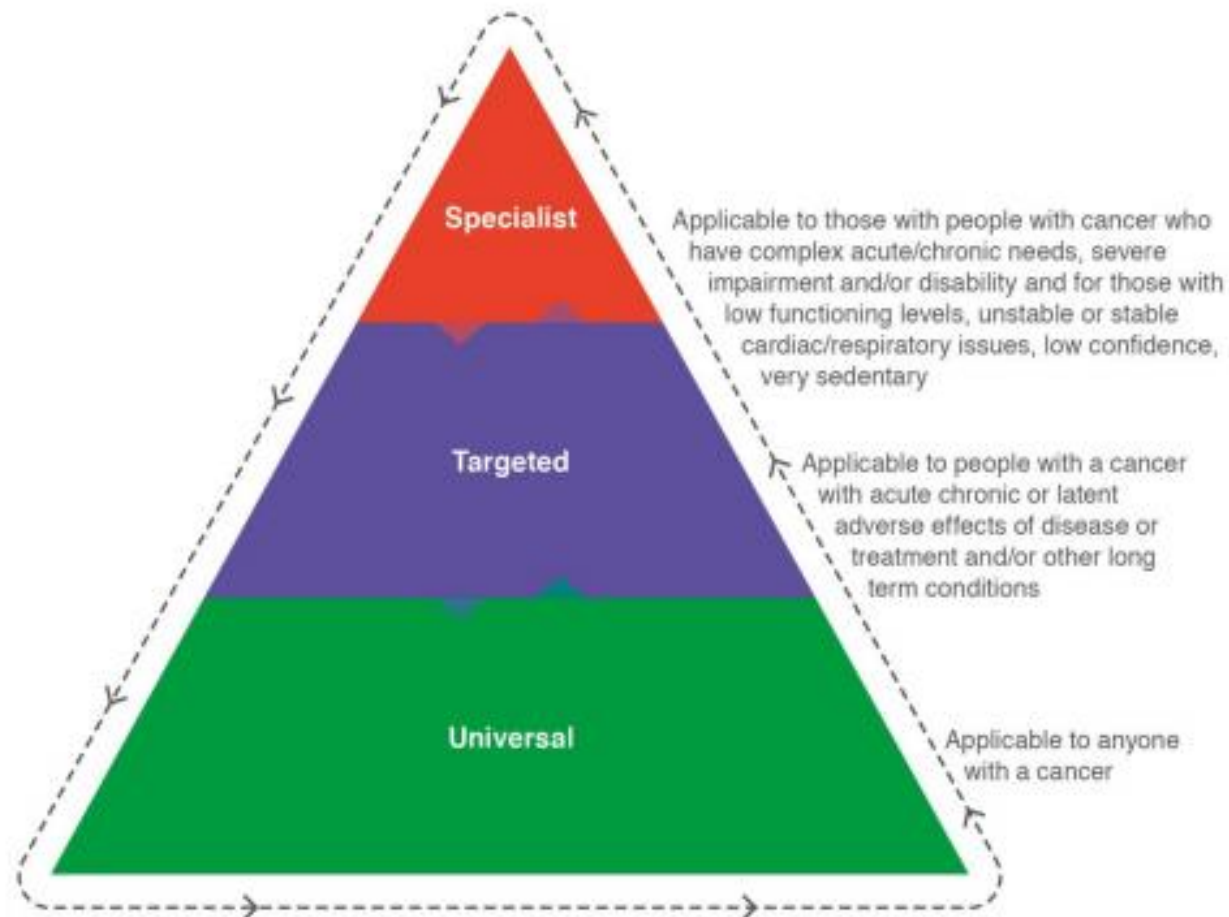


Exercise

Universal – WHO recommendations 150 minutes moderate intensity exercise. Signposting to local services.

Targeted - Referral/support for appropriate reconditioning and/or prehabilitation exercise programmes

Specialist – HIIT program based on CPET variables.



Prehabilitation – Exercise interventions

British Journal of Anaesthesia 114 (2): 244–51 (2015)
Advance Access publication 1 October 2014 · doi:10.1093/bja/aeu318

BJA

CLINICAL PRACTICE

40 patients

Effect of prehabilitation on objectively measured physical fitness after neoadjuvant treatment in preoperative rectal cancer patients: a blinded interventional pilot study†

M. A. West^{1,2*}, L. Loughney^{1,3}, D. Lythgoe⁴, C. P. Barben¹, R. Sripadam⁵, G. J. Kemp², M. P. W. Grocott^{1,2,3,6,7} and S. Jack^{1,2,3,6,7}

BJS

Randomized clinical trial

Randomized clinical trial of prehabilitation before planned liver resection

D. F. J. Dunne✉, S. Jack, R. P. Jones, L. Jones, D. T. Lythgoe, H. Z. Malik, G. J. Poston, D. H. Palmer, S. W. Fenwick

First published: 11 February 2016 | <https://doi.org/10.1002/bjs.10096> | Cited by: 17

38 patients, increased AT

1.5ml/kg/min

Peak VO₂ 2ml/kg/min, improved

QoL score and mental health score

Personalised Prehabilitation in High-risk Patients Undergoing Elective Major Abdominal Surgery: A Randomized Blinded Controlled Trial

125 patients

Barberan-Garcia, Anael, MSc^{*}; Ubré, Marta, MD[†]; Roca, Josep, Prof. PhD^{*}; Lacy, Antonio, M., Prof. PhD[‡]; Burgos, Felip, PhD^{*}; Risco, Raquel, MD[†]; Momblán, Dulce, PhD[§]; Balust, Jaume, MD[†]; Blanco, Isabel, PhD^{*}; Martínez-Pallí, Graciela, PhD[¶]

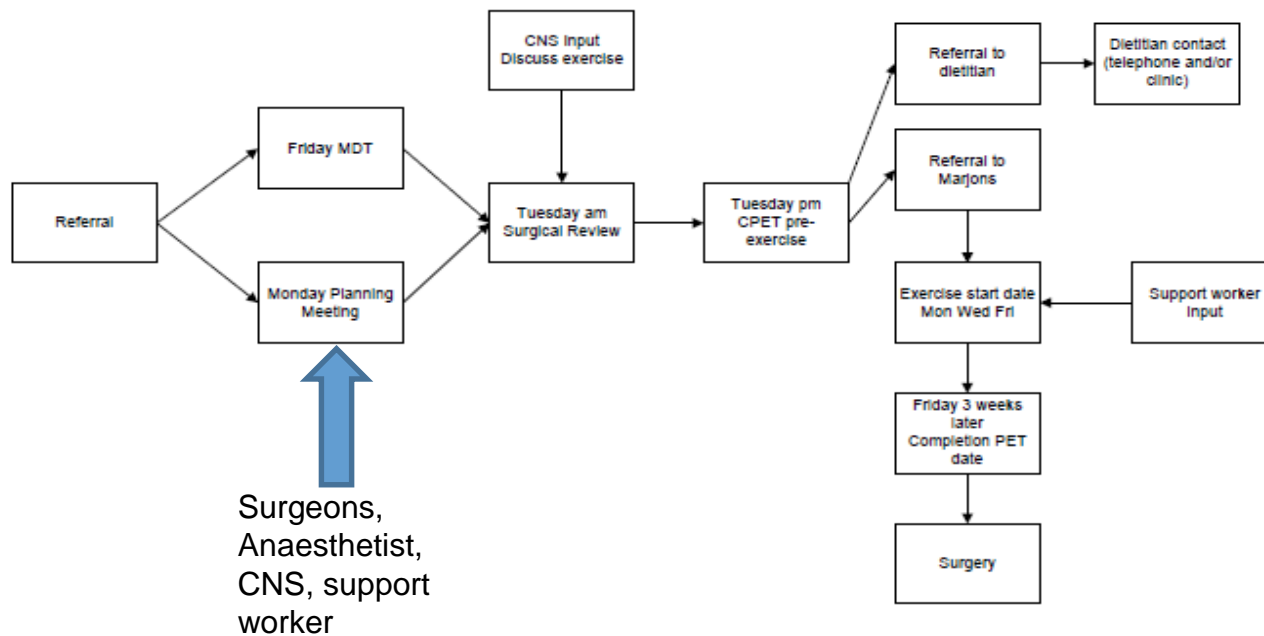
Multimodal Prehabilitation @ UHP

- Multidisciplinary team
 - Anaesthetists, Cancer services, including clinical nurse specialists, Dietician services, Oncologists, Peri-operative physicians/pre-op team, Prehab/rehab team, Surgeons
- Building new partnerships and collaborations
 - Macmillan – Living with and Beyond Cancer team
 - Working with Marjon to deliver a community based exercise intervention
 - WesFit, SafeFit, PreopFit
- Mapping cancer pathways
 - How can we make this work within the 62 day pathway in Plymouth
- Feasibility pilot
 - 13 patients



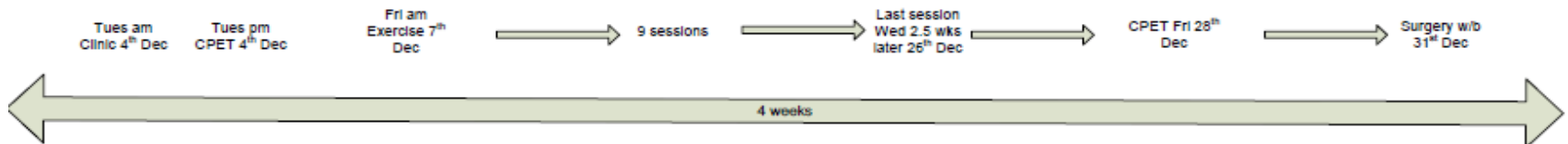
Cancer pathway

HPB Pathway for Pre-habilitation and Preoptimisation



COVID changes

- 1) Telephone surgical OP followed by F2F Pre-op and surgical OP same day
- 2) Virtual exercise intervention from Marjons – telephone assessment and support
- 3) Signposting at Pre-op clinic to self help websites



WesFit, SafeFit, PreopFit

- Prehabilitation programme in patients undergoing intra- cavity elective major cancer surgery in Wessex and Plymouth
- High Intensity Interval Training – individualised to patients CPET results
- Psychological support
- Nutritional assessment and dietetic input

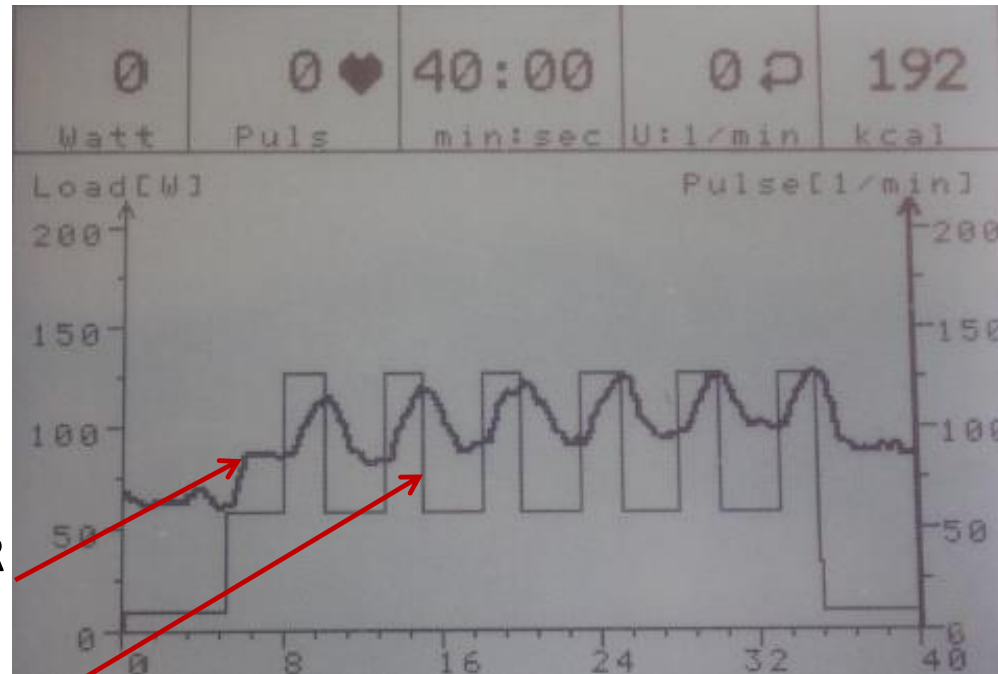
Interval Training Programme

Warm up	30 Minutes of Exercise										Cool down
5 mins 0 W	3 mins 80%LT	2 mins 50%Δ	3 mins 80%LT	2 mins 50%Δ	3 mins 80%LT	2 mins 50%Δ	3 mins 80%LT	2 mins 50%Δ	3 mins 80%LT	2 mins 50%Δ	5mins 0 W



80% AT - 80% of the anaerobic threshold

50%Δ - 50% of the difference between anaerobic threshold and VO_{2peak}



HR

Workload

Benefits of Pre-habilitation

Personal empowerment:

Fostering a sense of control and purpose in people, facilitating preparation for treatment and improving quality of life.

Physical and psychological resilience:

An opportunity to improve physiological function and psychological wellbeing, thereby improving resilience to the effects of cancer treatments, enhancing the quality of recovery and enabling the living of life as fully as possible before, during and after treatment.

Long-term health:

An opportunity to reflect on the role of healthy lifestyle practices following a cancer diagnosis, promote positive health behaviour change and thereby impact long-term health.

Personal empowerment

These conversations were enormously helpful to me at a time of high anxiety. They were not medical in content but tuned in to my need for mental equilibrium and focus on my wellbeing in the lead up to the operation.

The other major gains were a feeling of achievement and confidence that I was prepared physically, mentally and also emotionally for surgery and recovery afterwards.

People had the chance to make friends with others who had the same experiences, helping to reduce feelings of isolation some people experience and the realisation of shared knowledge.

The guidance I needed was always available and the encouragement I received was confidence building and aimed directly at me as an individual.

I feel I can face the upcoming surgery with much more confidence as a fitter, slimmer and more optimistic individual!

Positiveness, meaning that "yes I can do it!" and before I came I thought "I shall never manage to do that." Now, when I've got up in the morning I've said to myself "Okay! I'm doing it! Let's get on with it and do it"

Physical and psychological resilience

I highly recommend prehab as a way of preparing physically and mentally for surgery, and optimising outcomes.

I was very aware that my ability to move around the bed and pull myself into a sitting position without assistance and without risking the extensive suturing of the operation scar was due to my improved upper body/arm and leg strength thanks to the exercise programme. Similarly, the breathing exercises that were part of my preparation enabled me to clear my lungs and breathe deeply.

Over a space of about a month my fitness level had increased by 50% that meant I was fit enough for surgery and survival chances had increased proportionately.

It was good for me, it was good for my soul, my spirit, it was good for everything. The least of all my health.

Long-term health

I am currently taking part in an exercise programme similar to the “prehab” programme and including my own walking programme. Its certainly not easy but I know my level of fitness is increasing as my times are decreasing and targets I set are increasing. I am becoming more active at home and around the house as well.

An education programme at the same time raised awareness of sensible eating patterns for weight management, breathing exercises and other things that are important to health and well being.

I am 75 years of age so have had plenty of time past to nurture some poor lifestyle habits but the positive support I have received under this short program has allowed me to lose 4kgs, reduce my blood pressure, improve my breathing but, most especially, review my attitude to change within myself.

I have been bowled over by the encouragement I have received from your staff and by the level of support for exercise, information about the effect it is having on my physiology and recommendations for lifestyle and diet.



To Conclude

- Patient feedback has been very positive.
- Telephone support alone can make a huge improvement.
- Huge thank you to the team at Marjon University.

I am a great supporter of this initiative and greatly wish to add my featherweight in the hope that your efforts to promote this seat of excellence in healthcare are properly acknowledged

I think a post-op programme would be beneficial to people as it would build on the gains made prior to surgery and help patients' to recover faster, be more confident in their recovery, and instil a realisation of achievement and well-being. **In short, it's a part of a whole process which means treating the whole person not just a physical symptom**

Cancer Care Continuum

Need for
treatment
identified

Pre-op
phase

- Multimodal Prehabilitation

Peri-op phase

- Enhanced Recovery Program

Post-op
phase

- Rehabilitation

Improved surgical and patient reported outcomes,
prevention and life style modification

Living
With
And
Beyond
Cancer