



University
of Glasgow



Prehabilitation

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Overview

- Is the current cancer treatment pathway good enough?
- Prehabilitation
- Over to the experts



Overview

- Is the current cancer treatment pathway good enough?

Old Surgical Pathway

- **Previously.....**

- Admitted day/s before surgery
- Full bowel prep
- Fasted completely from midnight
- No re-introduction of diet until flatus
- Home once bowels moved
- Length of stay 10-14 days
- Fairly miserable for the patient



- Take things easy at home
- Seen in OPC and the usual weight gain taken as a ‘good sign’

New Surgical Pathway

- **But then... ERAS (Enhanced Recovery after Surgery)**



- Introduced as a case series by Henrik Kehlet from Denmark (1999)
- Pre-operative counseling about pathway
- No bowel prep
- Pre-op drinks high in CHO and shorter fasting times
- Fluids and diet when patient requests (e.g. night of surgery)
- **Up to sit night of surgery**
- **Laps around walking track until time of discharge**
- Discharge usually when flatus passed, NOT bowel motion
- Telephone call follow-up

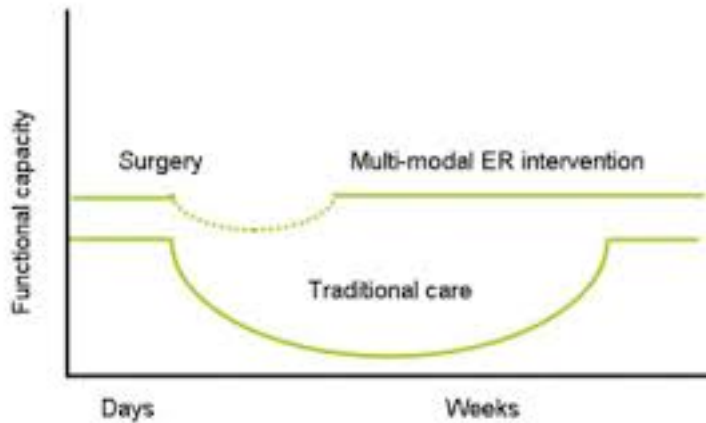
- Shorter length of stays 2-7 days
- Less complications, re-admissions
- Happier patients (mostly)



Perioperative pathway

- ERAS is just everywhere....

Enhanced recovery after surgery



ERAS[®]Society

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ERAS SOCIETY GUIDELINES

ERAS WORLD CONGRESS, LIVERPOOL, UK, 1-3 MAY 2019



Tweets by @ErasSociety



enhanced recovery after surgery

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Enhanced recovery - NHS

<https://www.nhs.uk/conditions/enhanced-recovery/>

Enhanced recovery is a modern evidence-based approach that helps people to recover more quickly after having major surgery.



- **But is this good enough?**

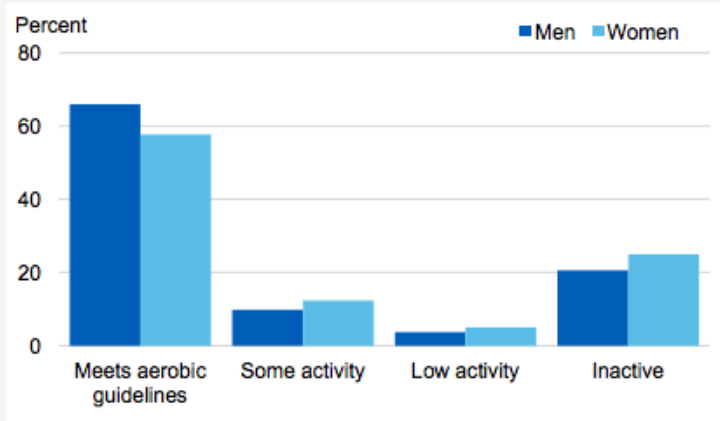
- **Several issues remain**
 - **high % of patients have poor lifestyle choices = worse post-op outcomes**
 - **poor lifestyle choices means less likely to manage ERAS**
 - **ERAS is only for surgery – what about side-effects of chemo/ radio?**

- high % of patients have poor lifestyle choices = worse post-op outcomes

Adult physical activity levels

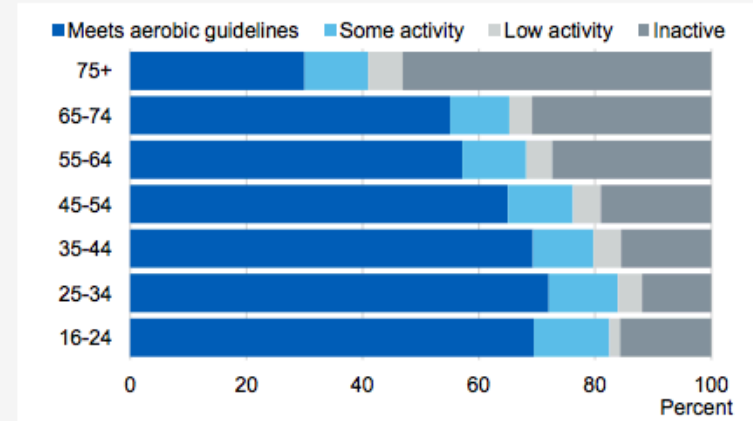
Activity by gender¹

66% of men and 58% of women aged 19 and over met the recommended aerobic guidelines².
21% of men, and 25% of women were classified as inactive.



Activity by age group

Activity levels decrease in higher age groups.
69% of 16-24 year olds and 72% of 25-34 year olds met the aerobic guidelines, but falling below 60% for ages 55 and over.



1) HSE generally covers adults aged 16+, but data here is shown for ages 19+ to reflect the government guidelines for adult physical activity. 2) At least 150 minutes of moderate activity or 75 minutes of vigorous activity per week or an equivalent combination of both, in bouts of 10 minutes or more.

For more information: Table 1, [Adult Physical Activity, Health Survey for England 2016](#)

- high % of patients have poor lifestyle choices = worse post-op outcomes



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OUTCOMES

Ann R Coll Surg Engl 2018; **00**: 1–8
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Limited preoperative physical capacity continues to be associated with poor postoperative outcomes within a colorectal ERAS programme

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- x4 greater risk of complications

- Prehabilitation

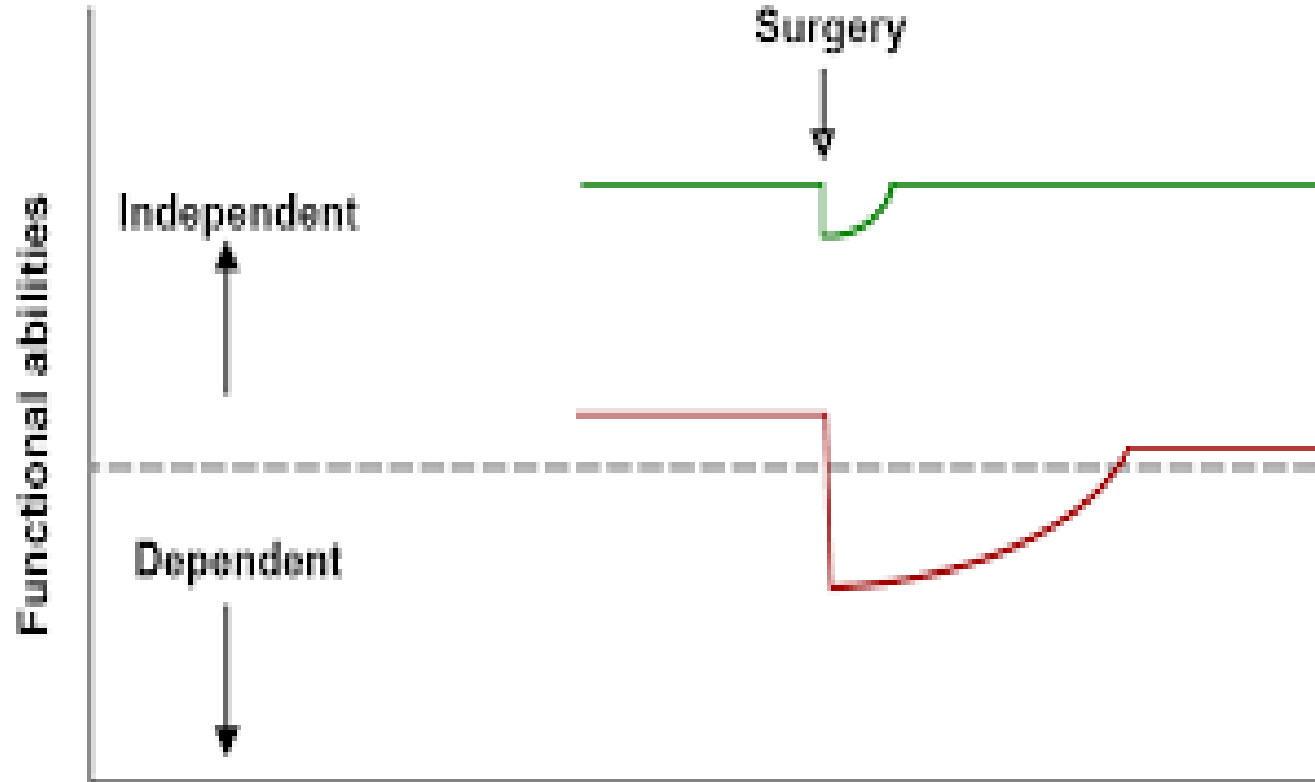


What is Prehab?

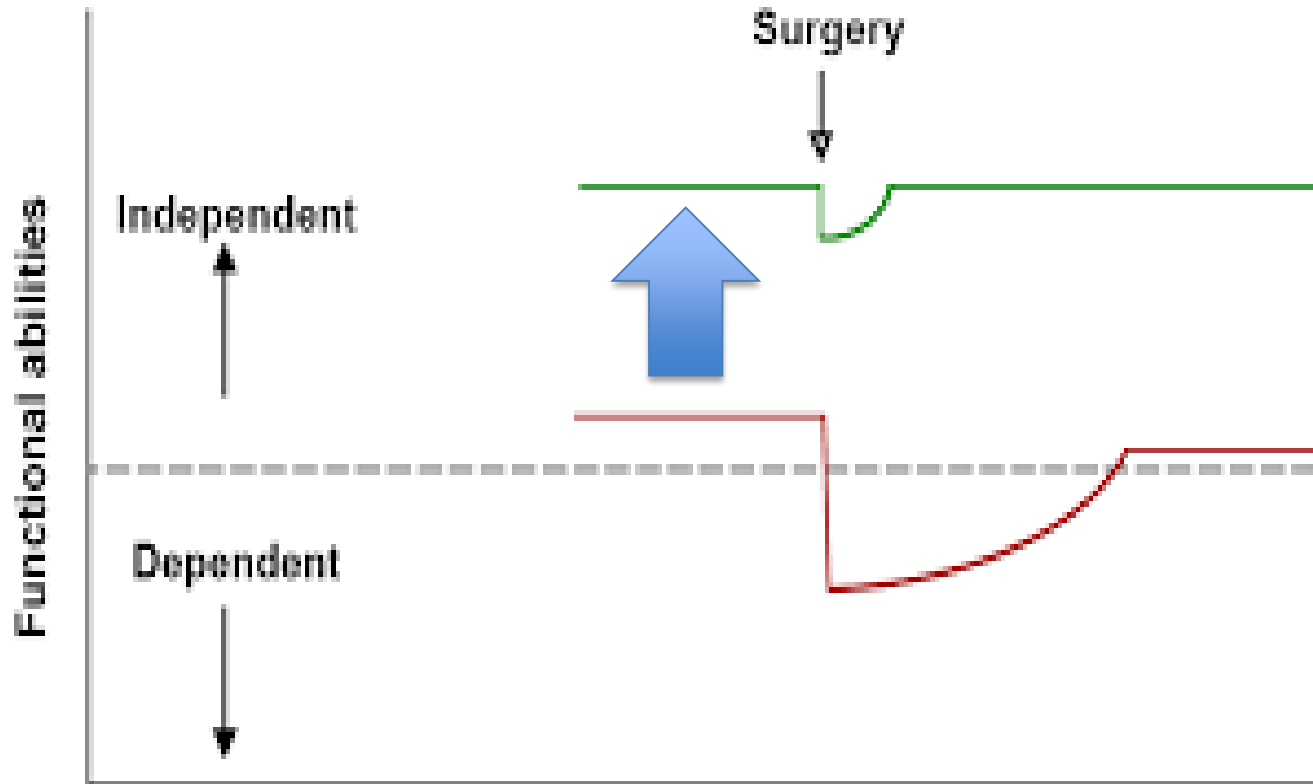


- **‘the bit before ERAS’**
- **Variable components**
 - Multi-modal
 - (weight, diet, PA, smoking, alcohol, psychological, pharmacological, nutrition)
 - Colorectal, gastro-oesophageal, ortho populations
 - Benign and/ or malignant pathology
 - Prior to surgery or starting their CRT
- **Physical activity leading prehab**
 - PA Interventions include:
 - Outpatient/ community based exercise programmes
 - Gym based
 - Supervised vs telephone guided
 - Aerobic/ resistance/ respiratory
 - Duration and intensity

That is a very big word



Thank goodness for the blue arrow



Evidence for prehab

- It is a new-ish concept that is evolving
 - Effective for patients going straight to surgery

Carli F et al (BJS 2010)

- First RCT with 112 patients going straight to surgery
- Mean age 60 years
- Mean prehab time 52 days
- walking/ breathing group increased walking capacity
 - (47% vs 22%, $p=0.051$)

Evidence for prehab

- **Feasible for patients having neo-adjuvant CRT**

Moug SJ et al Colorectal Disease 2019

- Multi-centre RCT in WoS (n=48)
- Telephone guided walking programme during NACRT
- Feasibility primary aim
 - Recruitment 62%
 - Retention rate 83%
 - Mean age 65 years (33-82)
 - Mean duration of walking intervention 14.2 weeks
 - Step count reduction less in intervention group, sarcopenia offset too

Evidence for prehab

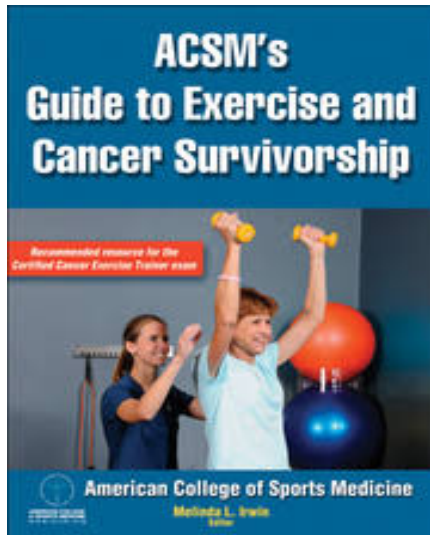
- **Prehab may have potential to reduce post-op complications**
 - *Barberan-Garcia et al (Annals of Surgery 2017)*
 - Age >70 years and/or ASA III or IV
 - 71 controls versus 73 intervention RCT
 - Major abdominal surgery (CR, GO, Hepatic, pancreas)
 - Motivational interviewing/ High intensity endurance training
 - Walking programme guided by step counts
 - Cycle ergometer 1-3 sessions/ week with endurance and HIIT
 - 51% reduction in patients with postop complications
 - 31% versus 62% (intervention vs controls)

Evidence for prehab

- **Prehab may be better than rehab**
 - *Minnella EM et al (Acta Oncologica 2017)*
 - Carli group combining all previous patients (n=185)
 - Multi-modal (exercise, nutrition, psychological)
 - Straight to colorectal surgery
 - Prehab group increased pre-op 6MWD
 - Prehab greater improvement in 6MWD throughout the peri-op period (up to 8 weeks)

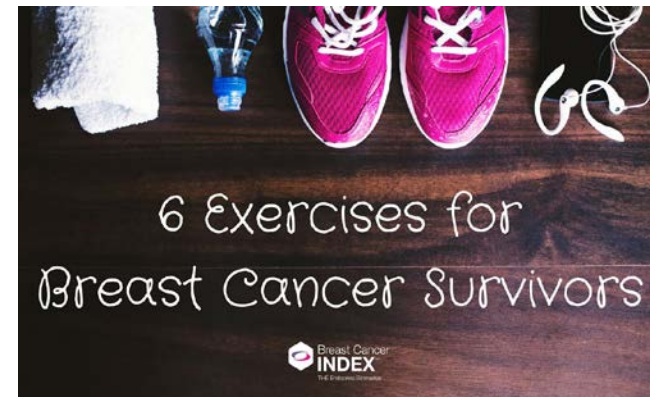
Evidence for rehab

- Needs to be 'prescribed' for individual needs
- More evidence required
- Guidance readily available



YOUR 6-WEEK RACE FOR LIFE 10K INTERMEDIATE TRAINING PLAN
Training plan created by **runningwithus**

	MON	TUE	WED	THUR	FRI	SAT	SUN
WEEK 1 This plan is meant to get you back into a regular running routine. Stay focused on training time in your diary and think about when the best time to go for a run is.	Rest	Easy run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat twice	Easy run 20 minutes	Easy run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat twice	Rest	Cross training 20-30 minutes doing any exercise apart from running that keeps your heart rate up	Long run 20-30 minutes easy run with a short walk with each 10-15 minutes if needed
WEEK 2 This week you gradually build the volume of your long runs, progression of running and build strength.	Rest	Easy run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat twice	Easy run 20 minutes	Easy run • 20-minute easy run • 10 minutes steady state • 10 minutes easy run	Rest	Cross training 20-30 minutes easy effort	Long run 20-30 minutes easy, consistent run with a short walk with each 10-15 minutes if needed
WEEK 3 This week you gradually build the volume of your long runs, progression of running and build strength.	Easy workout or Pilates class	Comfortably hard run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat 3 times	Easy run 20 minutes	Easy run • 20-minute easy run • 10 minutes steady state • 10 minutes easy run	Rest	Cross training 20-30 minutes easy effort	Long run 20-30 minutes easy run
WEEK 4 This week you gradually build the volume of your long runs, progression of running and build strength.	Rest	Comfortably hard run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat 3 times	Easy run 20 minutes	Progression run • 20-minute easy run • 10 minutes steady state • 10 minutes hard run	Rest	Cross training 20-30 minutes easy effort	Long run 20-30 minutes with the last 10-15 minutes at the pace you want to achieve on race day
WEEK 5 This week you gradually build the volume of your long runs, progression of running and build strength.	Rest	Special Run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat 3 times	Easy run 20 minutes	Progression run • 20-minute easy run • 10 minutes steady state • 10 minutes hard run	Rest	Cross training 20-30 minutes easy effort	Long run 20-30 minutes with the last 10-15 minutes at the pace you want to achieve on race day
WEEK 6 This week you gradually build the volume of your long runs, progression of running and build strength.	Rest	Comfortably hard run • 20-minute easy run • 2 minutes walk with recovery if needed Repeat 3 times	Easy run 20 minutes	Easy run • 20-minute easy run • 10 minutes steady state • 10 minutes hard run	Rest	Cross training 20-30 minutes easy effort	Long run 20-30 minutes with the last 10-15 minutes at the pace you want to achieve on race day



- Over to the experts





Prehab

