

Getting Fit for Treatment

.....And the things you want to be able to do

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Overview

- Why does physiotherapy, dietetics and emotional and psychological care have a role for people treated for thoracic cancers?
- Ideas and places to start
- Take home messages
- Specific Q&As



Impacts of advanced thoracic cancers

- Symptom clusters (breathlessness, fatigue, cough, pain, and insomnia) result in high patient/ carer distress and interference with daily activities

(Cheville et al 2011)

- **Avoidance** of symptom triggers (physical activity, this) promotes a **vicious cycle** of inactivity and functional decline

(Granger et al 2016)



Patients' main concerns (n=660)

- Fear of losing independence
- Being a burden on their caregivers
- Not being able to perform daily activities
- Fear of loosing function

(Gralla et al 2014)



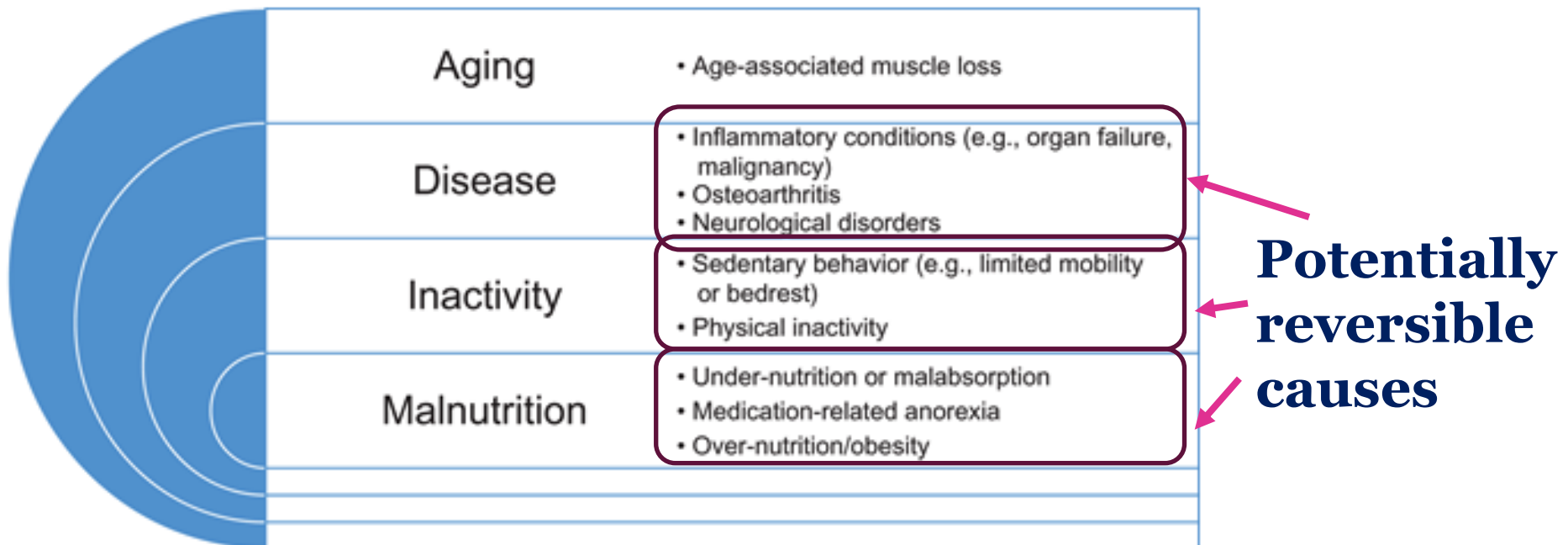
Impact of decline in functional capacity (fitness)

- Functional capacity is an independent predictor of longevity ($p = 0.003$) in people with advanced stage lung cancer ($n=118$)
- Each 50m improvement in 6-Minute Walk Distance was important in predicting longevity

(Jones et al 2012)



Sarcopenia (muscle wasting)



Sarcopenia: revised European consensus on definition and diagnosis Cruz Jentoft et al. (2018)

The effects of inactivity

Prolonged sitting time has negative cardiovascular and metabolic effects

Because of loss of muscle (**sarcopenia**) means

- ↓ muscle fibre numbers
- ↓ in size - atrophy
- ↓ potential for oxygen metabolism

Also leading to:

- ↓ bone density
- ↑ inflammation
- ↑ blood glucose concentrations (blood sugar levels)
- ↑ in the size of adipose (fat or energy storage) cells

(Vander, 2005; Thomas, 2006)

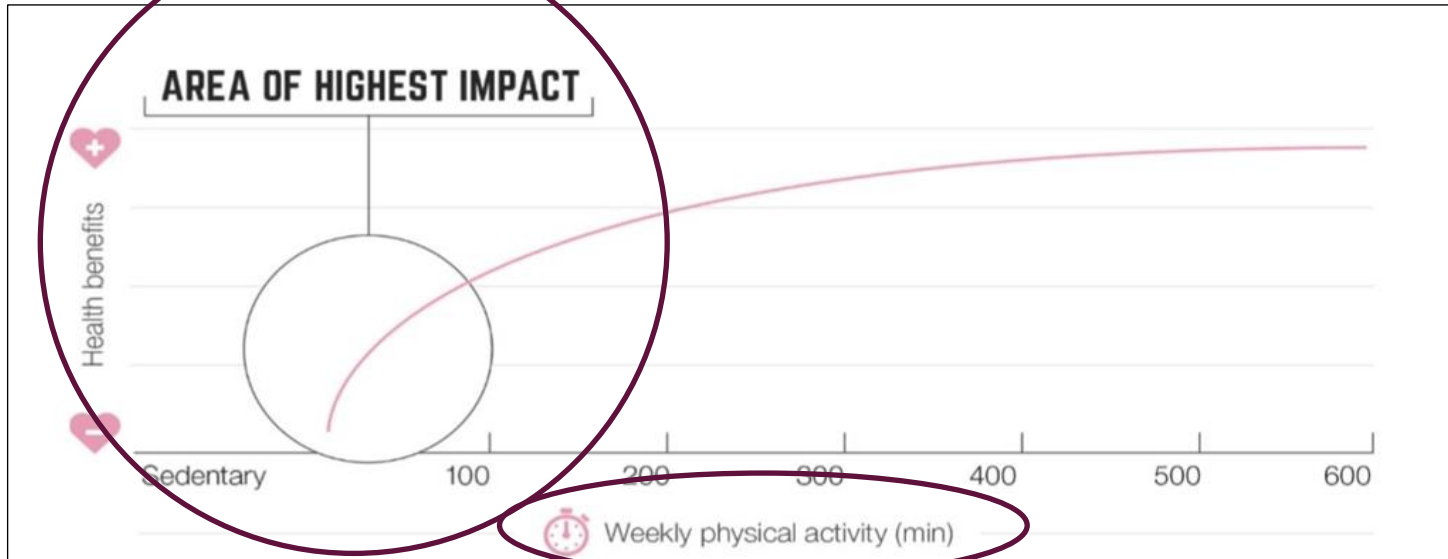
This leads to a loss of fitness (functional capacity) for daily activity – including exercise)

(Hamilton, 2008)



The greatest benefits of movement for your health come from starting moving

Who gains the most?



Dose-response curve of physical activity and health benefits

Greatest gains are in those who go from doing nothing to doing something.

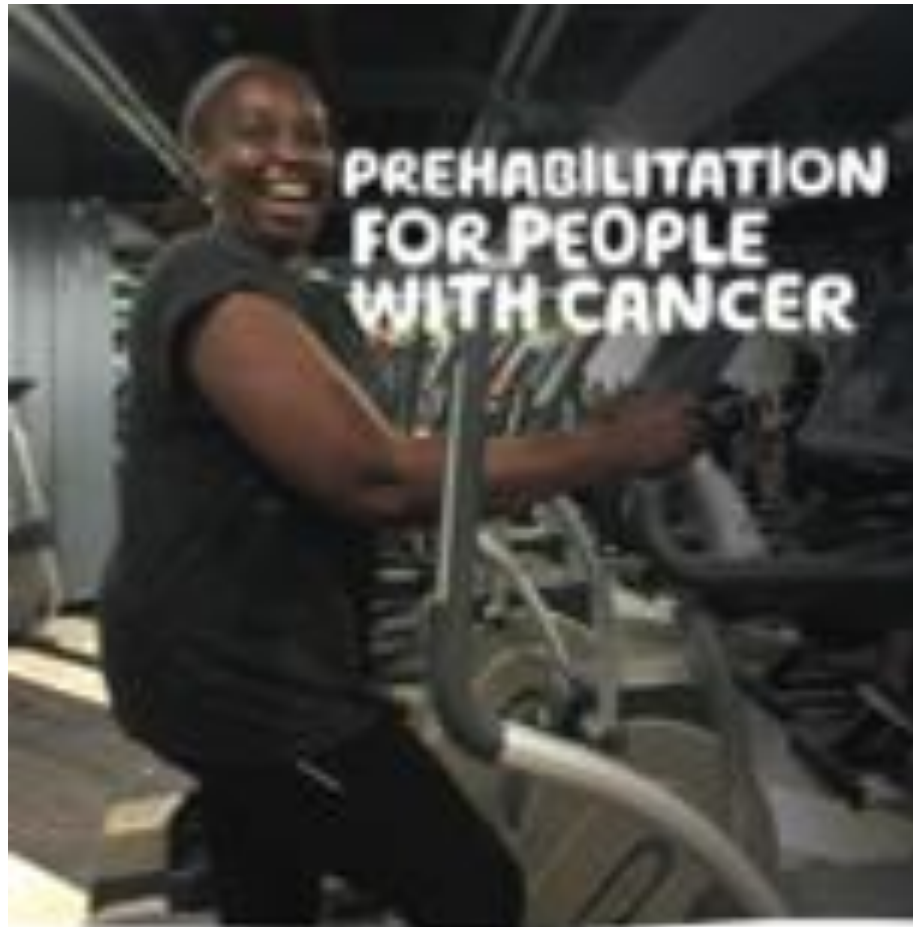
UK CMOs' Physical Activity Guidelines (2019)



Evidence for exercise-based and nutrition interventions

- Increasing numbers of high quality studies (Randomised Controlled Trials) supporting exercise in people with advanced thoracic cancers
- But implementation is unproven because it's awkward
 - Approach (hesitancy from HCPs/ timing)
 - Burden (readiness for the message/ ability to act)
 - Resource (space/ time/ skill)





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



in partnership with



Activity - make your own plan

To keep yourself well for treatment make a plan for how you can support yourself to be resilient:

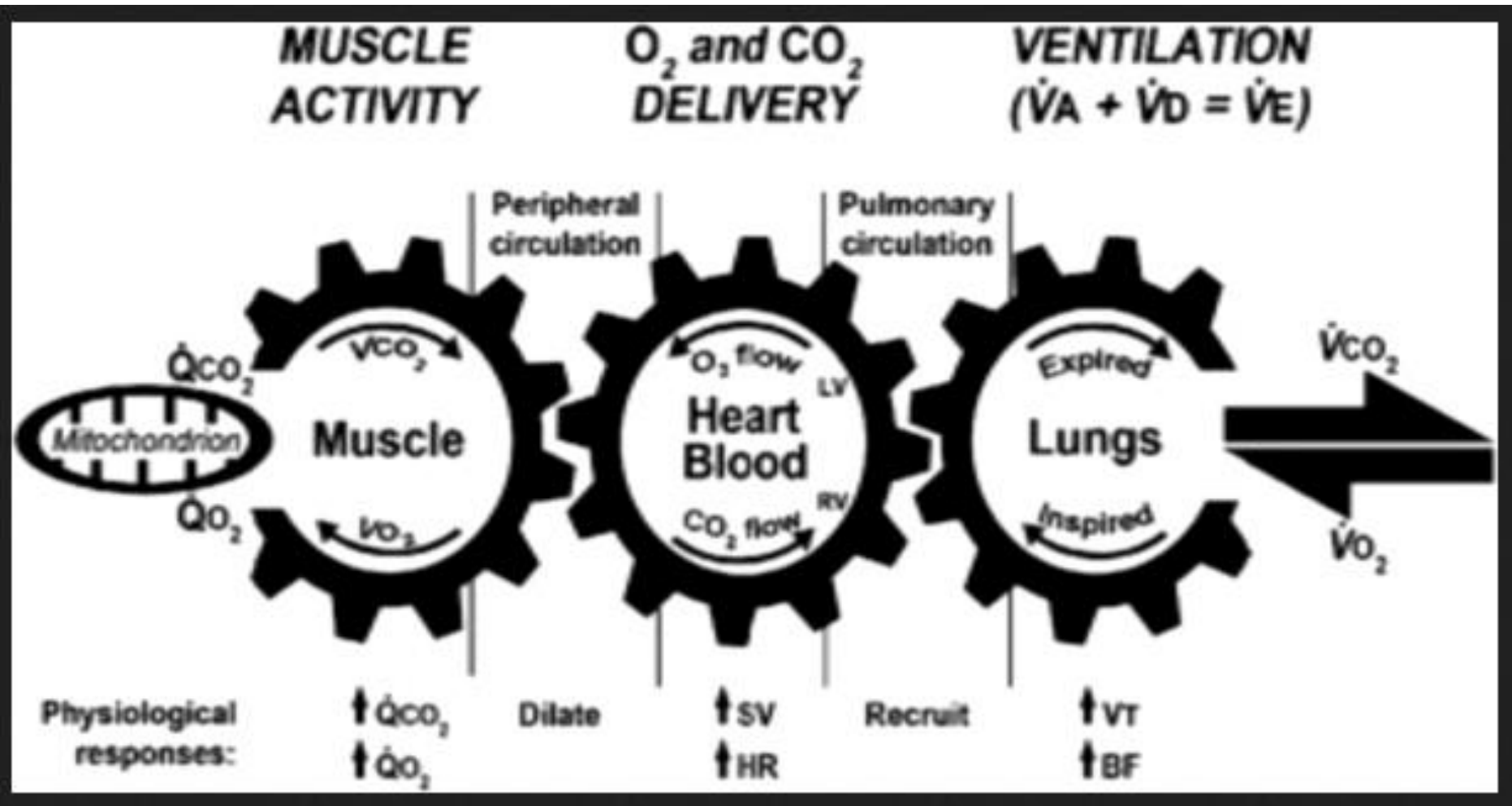
eating
moving and
thinking well



Don't wait to get support if new symptoms are hindering you from eating well or being active - Pharmacists, podiatrists, nurses and AHPs have many ways to try to reduce symptoms

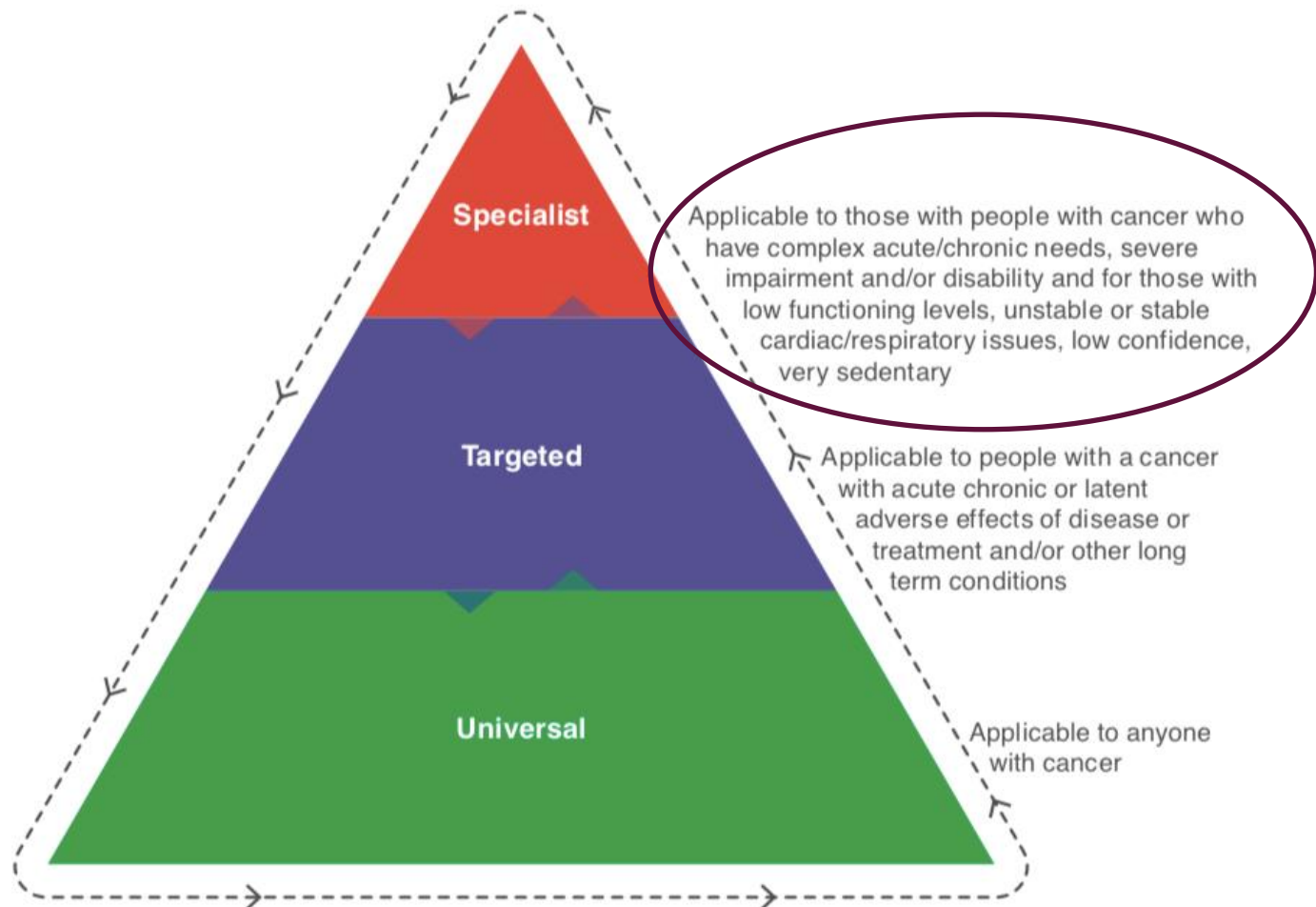


We can use the body's natural ability to adapt by making other parts of the system more efficient



Risk stratification - it doesn't always need to be with an exercise specialist before you get started

Figure 3: Prehabilitation interventions



Being active – what are the benefits for people with cancer, what does the evidence say?

Is it safe?

Specific considerations for bone mets, brain metastases and fatigue



RPE Scale (Rate of Perceived Exertion)

1	Very light activity It doesn't even feel like you're exercising.
2-3	Light activity You could keep going for hours! It's easy to breathe and have a conversation.
4-6	Moderate activity You're breathing heavily, but you can have a conversation.
7-8	Somewhat difficult activity You're short of breath. You can speak, but only about one sentence at a time.
9	Very difficult activity You can barely breathe, and can only say a few words at a time.
10	Maximum effort activity You're completely out of breath, and can't talk.



Effects of Exercise on Health-Related Outcomes in Those with Cancer

What can exercise do?

- **Prevention of 7 common cancers***

Dose: 2018 Physical Activity Guidelines for Americans: 150-300 min/week moderate or 75-150 min/week vigorous aerobic exercise









- **Survival of 3 common cancers****

Dose: Exact dose of physical activity needed to reduce cancer-specific or all-cause mortality is not yet known; Overall more activity appears to lead to better risk reduction

*bladder, breast, colon, endometrial, esophageal, kidney and stomach cancers

**breast, colon and prostate cancers

Overall, avoid inactivity, and to improve general health, aim to achieve the current physical activity guidelines for health (150 min/week aerobic exercise and 2x/week strength training).

Outcome	Aerobic Only	Resistance Only	Combination (Aerobic + Resistance)
Strong Evidence	Dose	Dose	Dose
 Cancer-related fatigue	3x/week for 30 min per session of moderate intensity	2x/week of 2 sets of 12-15 reps for major muscle groups at moderate intensity	3x/week for 30 min per session of moderate aerobic exercise, plus 2x/week of resistance training 2 sets of 12-15 reps for major muscle groups at moderate intensity
 Health-related quality of life	2-3x/week for 30-60 min per session of moderate to vigorous	2x/week of 2 sets of 8-15 reps for major muscle groups at a moderate to vigorous intensity	2-3x/week for 20-30 min per session of moderate aerobic exercise plus 2x/week of resistance training 2 sets of 8-15 reps for major muscle groups at moderate to vigorous intensity
 Physical Function	3x/week for 30-60 min per session of moderate to vigorous	2-3x/week of 2 sets of 8-12 reps for major muscle groups at moderate to vigorous intensity	3x/week for 20-40 min per session of moderate to vigorous aerobic exercise, plus 2-3x/week of resistance training 2 sets of 8-12 reps for major muscle group at moderate to vigorous intensity
 Anxiety	3x/week for 30-60 min per session of moderate to vigorous	Insufficient evidence	2-3x/week for 20-40 min of moderate to vigorous aerobic exercise plus 2x/week of resistance training of 2 sets, 8-12 reps for major muscle groups at moderate to vigorous intensity
 Depression	3x/week for 30-60 min per session of moderate to vigorous	Insufficient evidence	2-3x/week for 20-40 min of moderate to vigorous aerobic exercise plus 2x/week of resistance training of 2 sets, 8-12 reps for major muscle groups at moderate to vigorous intensity
 Lymphedema	Insufficient evidence	2-3x/week of progressive, supervised program for major muscle groups does not exacerbate lymphedema	Insufficient evidence
Moderate Evidence			
 Bone health	Insufficient evidence	2-3x/week of moderate to vigorous resistance training plus high impact training (sufficient to generate ground reaction force of 3-4 time body weight) for at least 12 months	Insufficient evidence
 Sleep	3-4x/week for 30-40 min per session of moderate intensity	Insufficient evidence	Insufficient evidence

Citation: bit.ly/cancer_exercise_guidelines

Moderate intensity (40%-59% heart rate reserve or VO₂R) to vigorous intensity (60%-89% heart rate reserve or VO₂R) is recommended

**MOVING
THROUGH
CANCER**

Exercise
is Medicine

AMERICAN COLLEGE
of SPORTS MEDICINE

Department of Health Activity Guidelines

Physical activity for adults and older adults

Benefits health	Reduces your chance of	Type II Diabetes	-40%
Improves sleep		Cardiovascular disease	-35%
Maintains healthy weight		Falls, depression etc.	-30%
Manages stress		Joint and back pain	-25%
Improves quality of life		Cancers (colon and breast)	-20%

Some is good, more is better

Make a start today: it's never too late

Every minute counts

Be active

at least **150** minutes moderate intensity per week
Increased breathing, able to talk

OR

at least **75** minutes vigorous intensity per week
breathing fast, difficulty talking

or a combination of both

Build strength
to keep muscles, bones and joints strong

on at least **2** days a week

Swim, Brisk walk, Cycle, Gym, Carry heavy bags, Stairs, Sport, Yoga, Bowls, Tai Chi

Minimise sedentary time
Break up periods of inactivity



For older adults, to reduce the chance of frailty and falls

Improve balance
2 days a week

Dance



<https://www.csp.org.uk/campaigns-influencing/campaigns/stronger-my-way>



I help people feel stronger >



I want to feel stronger >

Stronger My Way

Being stronger lets you do more, feel better and stay active. This is why so many people living with a health condition are finding it makes a real difference to their quality of life.



**STRONGER
MY WAY**

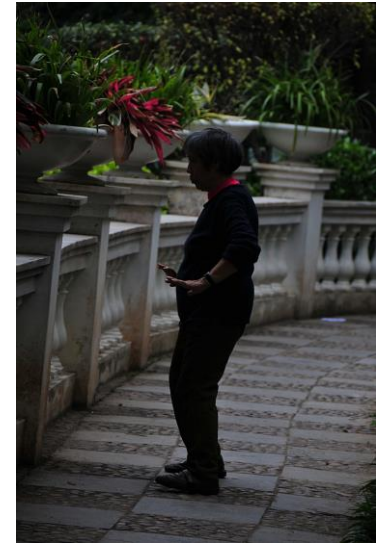


Healthy Bones

To maintain strong bones incorporating weight bearing and balance exercise is very important

This can often be achieved at the same time as cardiovascular and strengthening exercise eg brisk walking, press ups but bear it in mind if someone's preferred form of exercise is swimming or cycling

Yoga, Tai Chi and Pilates are all excellent ways of incorporating strength, balance and flexibility into an exercise programme



The importance of a good warm-up and cool down

Without a good warm-up and cool-down phase in a programme with strengthening or cardiovascular work, we risk over exertion injuries to the musculoskeletal system and the heart.

It is good to be reminded about the importance of a warm up which might be the same exercise but at a lower intensity, or without resistance, as this will help prepare the body for greater exertion

But in particular, you should not suddenly stop exercising. You should gradually allow a longer cool down period to allow a slow return to resting heart rate and blood pressure



Cancer related fatigue is the most common side effect caused by the cancer itself, or the side effects of treatments

As many as 9 out of 10 people with cancer (90%) get cancer-related fatigue (CRF)

Cancer-related fatigue usually gets better after treatment finishes. But it may continue for months or even years

Everyone is different and there is no way to know how long fatigue may last for each person

Building up activity levels gradually is one of the most evidence-based interventions to manage cancer related fatigue



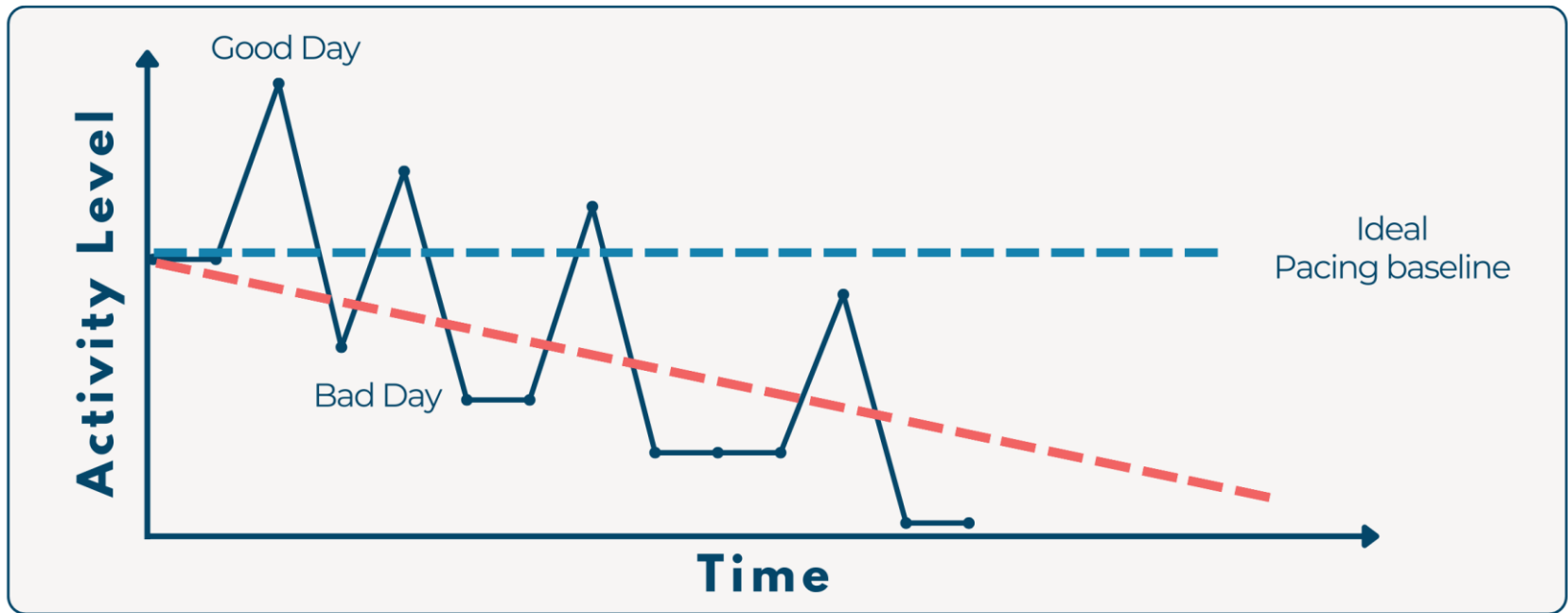
Tips on exercise and fatigue

People typically have good days and bad days, or even varying energy levels throughout the day

Keeping an activity diary for a week to monitor fatigue levels can be helpful to identify when someone might have sufficient energy for being active

To avoid a boom or bust cycle, it is important that people plan their activity sessions, bearing in mind what other activities they have to fit within their day – you want to avoid completely running down the battery





Questions & Answers



Question 3

I would like some advice on moderate - vigorous exercise (swimming, cycling, fast walking) and resting breathing exercises please

(Answer 40 mins into the presentation)



Question 2

I play the oboe but haven't played since my diagnosis. Is it safe to play?

(Answer 49 mins into the presentation)



Question 1

I am interested to know about playing the saxophone. I started learning after a right upper lobectomy last June. I managed a 14 mile walk in September and then had a left lower lobectomy. I have played sax since first op but not since second. Is there any problem with playing this kind of instrument now in terms of breathing effort needed?
(Answer from 49 & 53 mins into the presentation)



Physical performance can be influenced with on-the-day nutrition

Think like an athlete:

- Have a carbohydrate-rich snack before
- Abd a protein-rich snack afterwards
- Make sure you are well hydrated and drink fluids



Common sense advice from a vocal rehabilitation perspective: Dr Jenevora Williams

Singing teacher and Voice Rehabilitation

www.jenevorawilliams.com

Training Courses and Mentoring for Voice Teachers

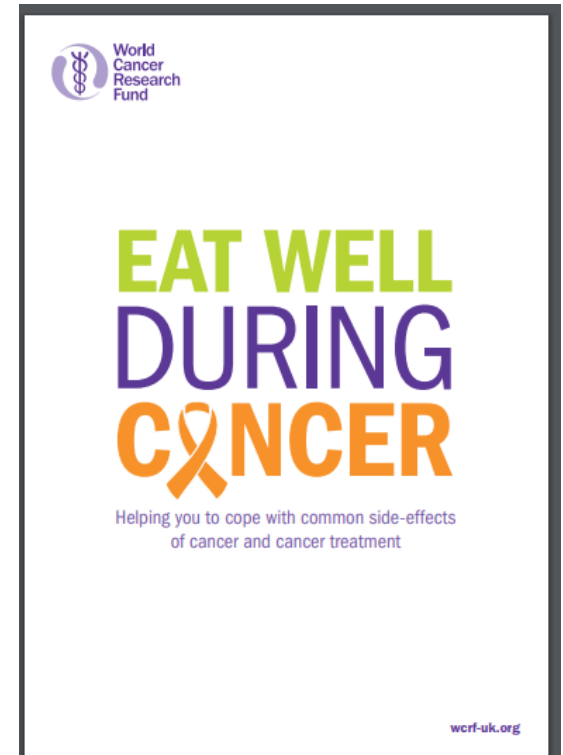
www.EvolvingVoice.co.uk

Vocal Health First Aid and Rehabilitation Training

www.vocalhealth.co.uk



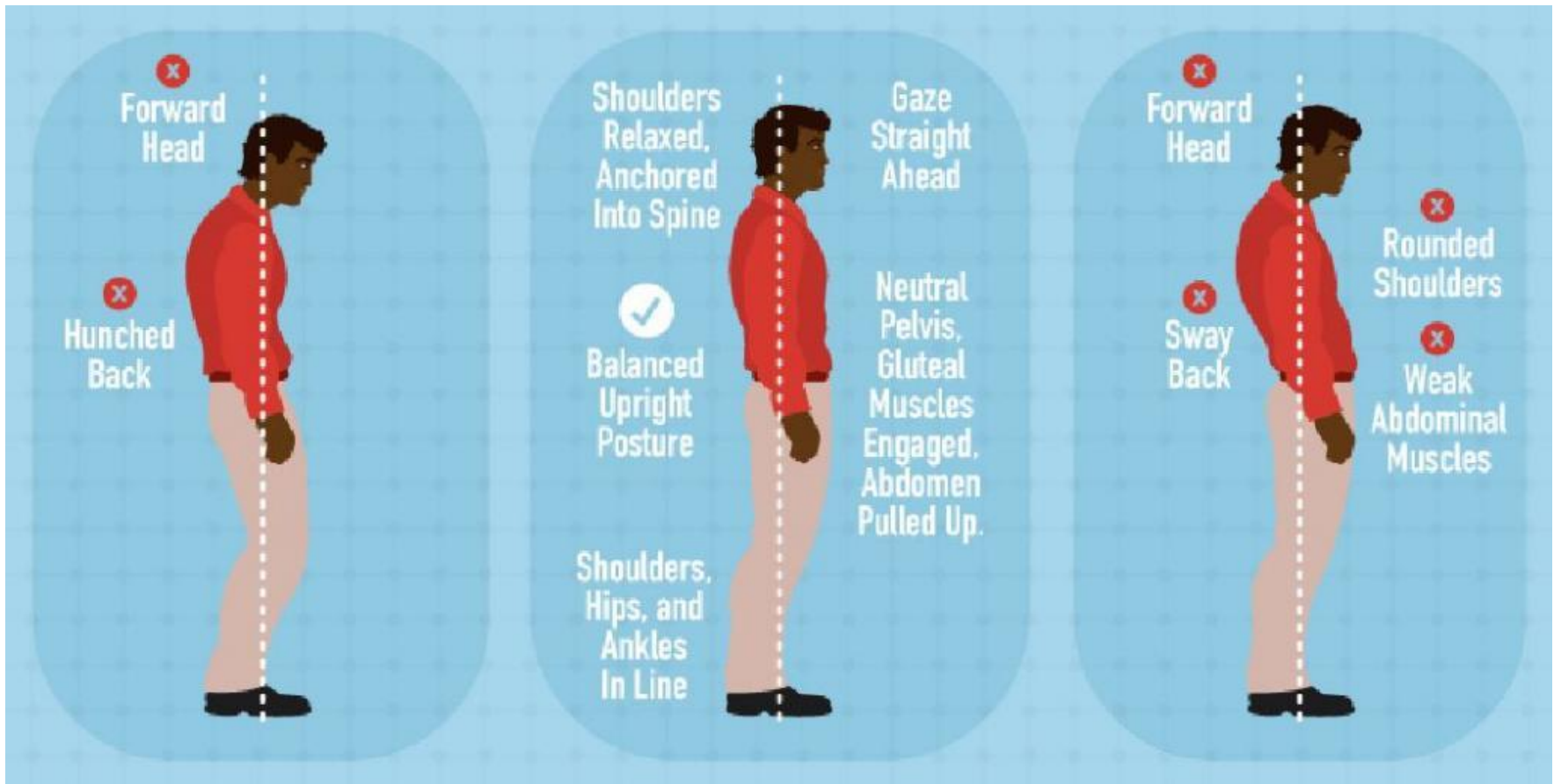
Good overall nutrition is key



There are many resources available – it is important to read reputable resources.

Many charities will have tumour-specific nutritional guides written by both patients & dietitians.

Improving the efficiency of the skeletal system with better posture and regular stretches



Improving the efficiency of the skeletal system with better posture and regular stretches

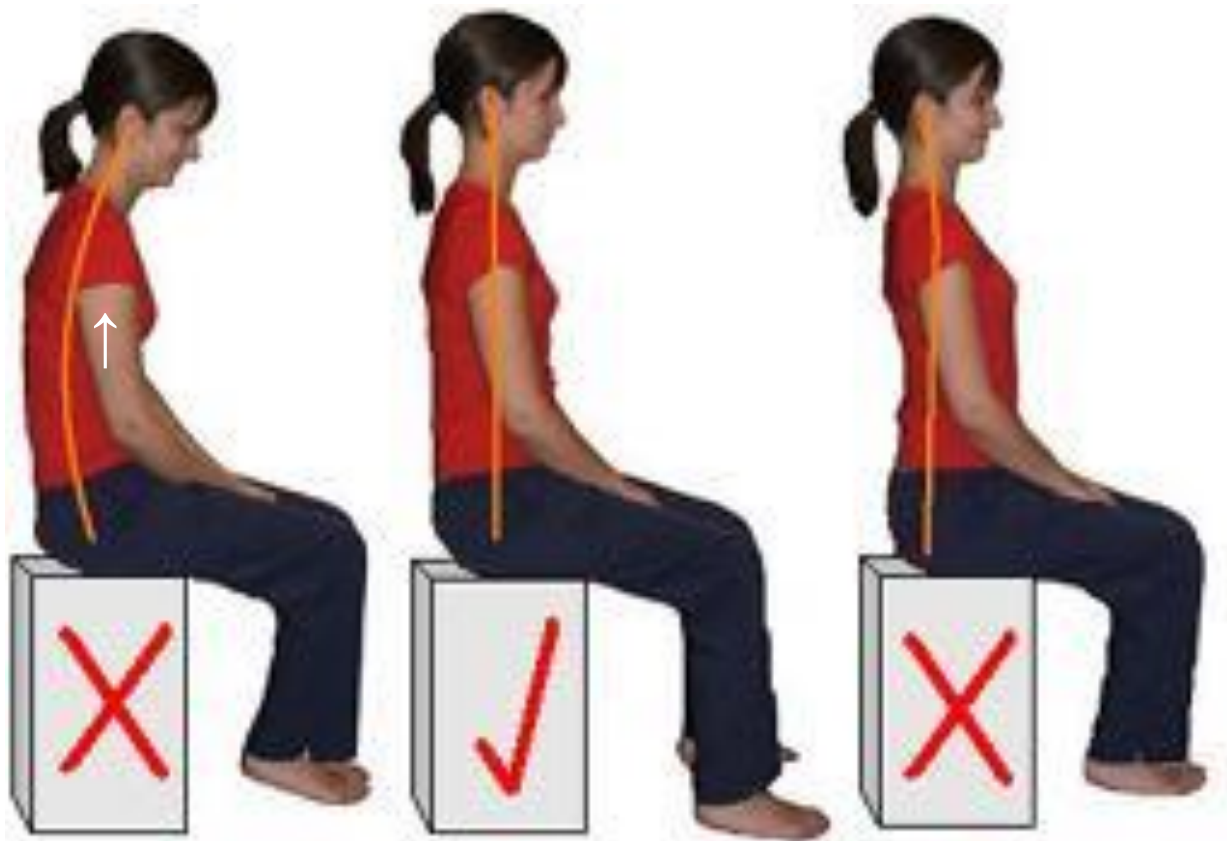


Find a good routine for your activity

People with bony disease or other discomfort/limitations (such as low platelet counts, and breathlessness) should talk to a qualified exercise specialist



Improving the efficiency of the skeletal system with better posture and regular stretches



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