

PURE  
Training and Development

Cancer & Exercise



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1


Important Note

- Designed to help health & fitness professionals understand or refresh what people may have been through so you can offer more inclusive exercise
- It is NOT a qualification or form of training that allows you to work directly with those living with or affected by cancer
- If you wish to work with this condition then you must ensure you complete the full qualifications
- Remember to work within your qualification and insurance boundaries

2

Session Objectives

- Overview the common types of cancer
- Explore the different types of cancer treatments and how they affect the body
- Identify the benefits of physical activity and exercise during and post treatment
- Highlight the key considerations that must be taken when exercising with this client group
- Recognise and apply health and safety considerations



3



Introduction to Cancer

4

## Introduction

- Cancer is caused by cells becoming abnormal
- There are over 200 types of cancer
- 1 in 2 people will get cancer in their lifetime
- Cancer develops in the form of tumours both solid and within the blood
  - Benign tumours (not cancerous)
  - Malignant tumours (cancerous)

5

## Statistics

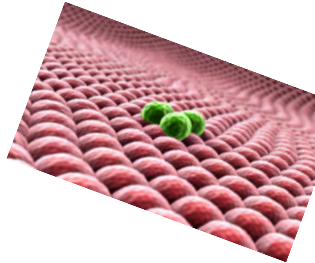
- Estimated 3 million people living with cancer in the UK
- Estimated to rise to 4 million by 2030
- 367,000 new cancer cases in the UK every year, that's around 1,000 everyday (2015-2017)
- Every two minutes someone in the UK is diagnosed with cancer
- 38% of cancer cases are preventable
- Peak rate of cancer cases are in the 85-89 year age bracket (2015-2017)

Cancer Research UK, <https://www.cancerresearchuk.org/health-professional/data-and-statistics>, accessed June, 2021. (Sourced: Macmillan.org.uk)

6

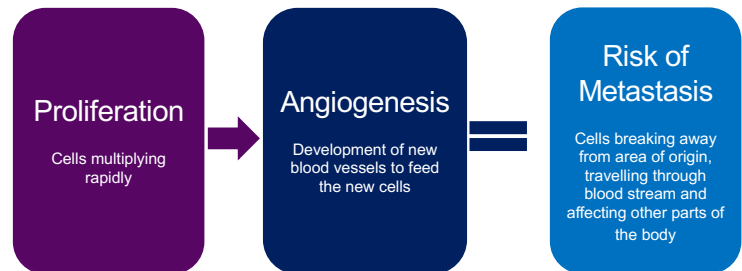
## Pathophysiology

- Cells split into 2 and replace defective cells or ones that die
- The cells nucleus is responsible for this process
- Sometimes the genes within the nucleus mutate and cause the nucleus to send out wrong messages
- The cells then multiply rapidly which gets out of control (proliferation)
- Forming a tumour



7

## Pathophysiology



```

    graph LR
      A[Proliferation  
Cells multiplying rapidly] --> B[Angiogenesis  
Development of new blood vessels to feed the new cells]
      B == C[Risk of Metastasis  
Cells breaking away from area of origin, travelling through blood stream and affecting other parts of the body]
    
```

8

Healthy diets and lifestyle can help prevent this process

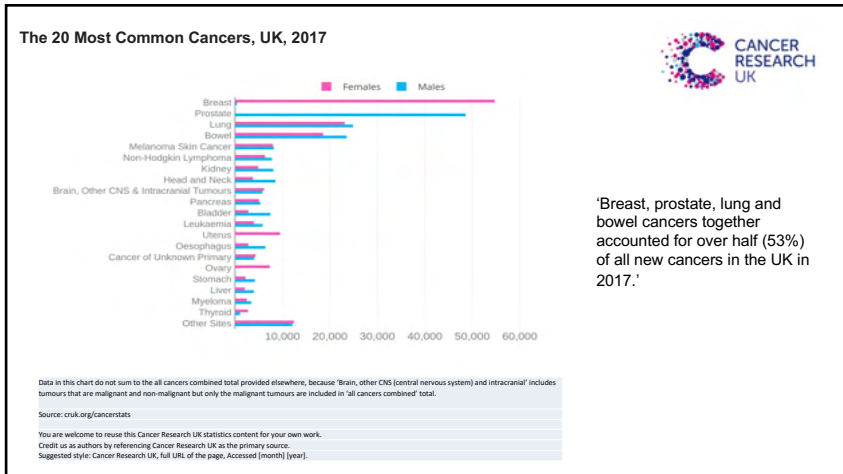
Genetics and other uncontrollable factors influence the development of this condition

9

### Groups of Cancer

- Carcinomas**  
e.g. lung, bowel, stomach or skin
- Melanomas**  
i.e. cells that make skin colour
- Blood cancers**  
Lymphomas  
Leukaemia  
Myelomas
- Sarcomas**  
i.e. bone, fat, muscles, tendons or cartilage
- Brain and spinal cord cancers**  
i.e. tumours in skull or spinal column

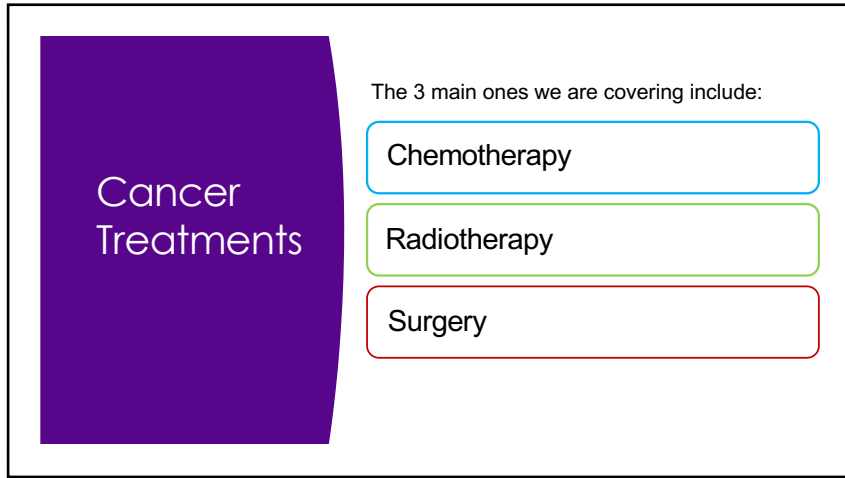
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11

### Common Treatments

12



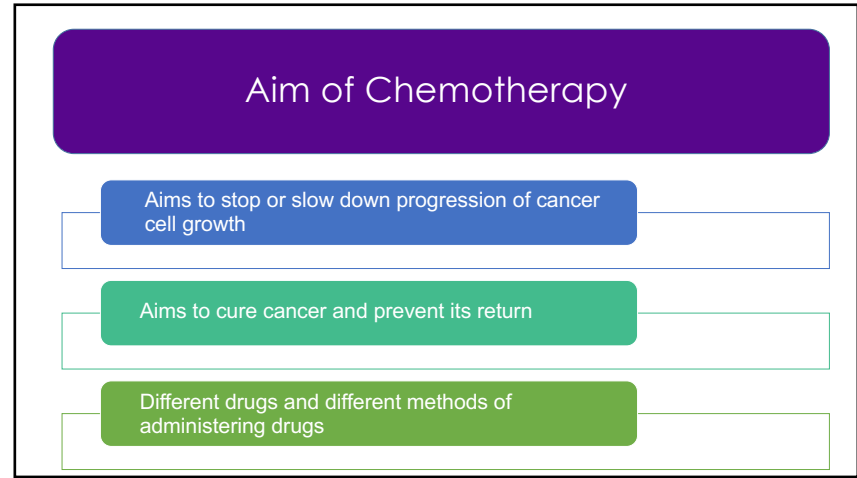
Cancer Treatments

The 3 main ones we are covering include:

- Chemotherapy
- Radiotherapy
- Surgery

This slide features a large purple shape on the left containing the text 'Cancer Treatments'. To its right, the text 'The 3 main ones we are covering include:' is followed by three colored boxes: a blue box for 'Chemotherapy', a green box for 'Radiotherapy', and a red box for 'Surgery'.

13

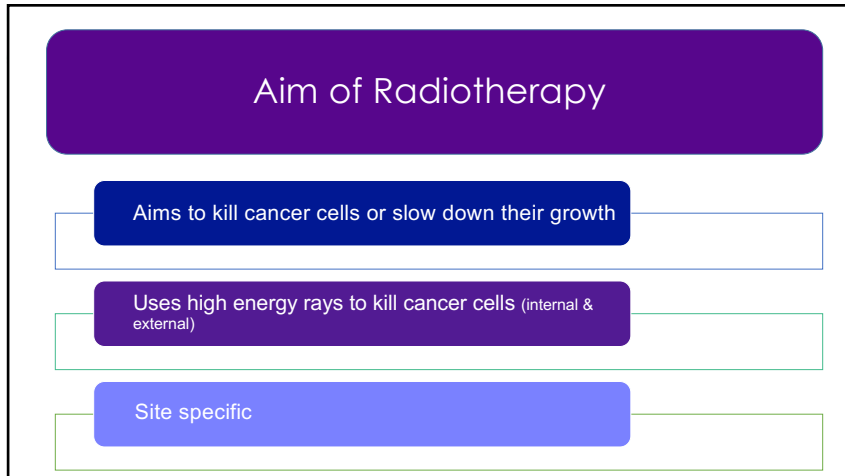


Aim of Chemotherapy

- Aims to stop or slow down progression of cancer cell growth
- Aims to cure cancer and prevent its return
- Different drugs and different methods of administering drugs

The slide has a purple header 'Aim of Chemotherapy'. Below it are three colored boxes: a blue box 'Aims to stop or slow down progression of cancer cell growth', a green box 'Aims to cure cancer and prevent its return', and a light green box 'Different drugs and different methods of administering drugs'.

14

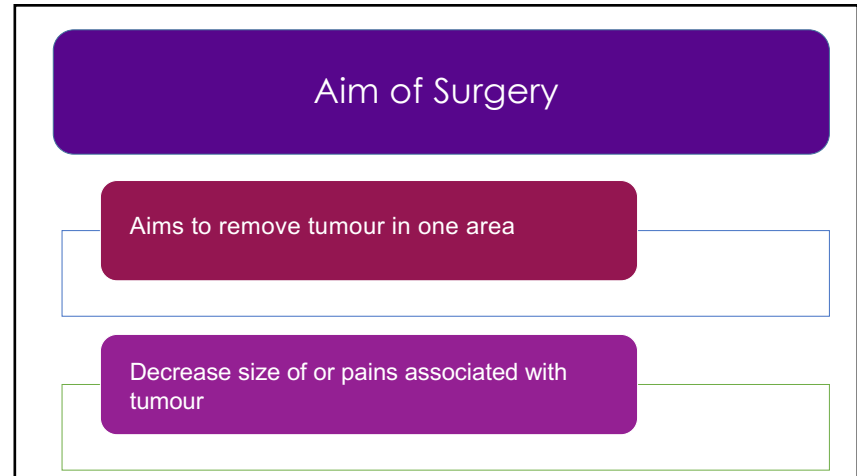


Aim of Radiotherapy

- Aims to kill cancer cells or slow down their growth
- Uses high energy rays to kill cancer cells (internal & external)
- Site specific

The slide has a purple header 'Aim of Radiotherapy'. Below it are three colored boxes: a dark blue box 'Aims to kill cancer cells or slow down their growth', a purple box 'Uses high energy rays to kill cancer cells (internal & external)', and a light blue box 'Site specific'.

15



Aim of Surgery

- Aims to remove tumour in one area
- Decrease size of or pains associated with tumour

The slide has a purple header 'Aim of Surgery'. Below it are two colored boxes: a maroon box 'Aims to remove tumour in one area' and a purple box 'Decrease size of or pains associated with tumour'.

16

### Living with Effects of Cancer Treatment

- Can you list one side effect for the following treatments?
- Chemotherapy
- Radiotherapy
- Surgery

- Can you identify one adaptation/consideration relating to the side effects?

17

### Living with Effects of Chemotherapy Treatment

- Fatigue
- Issues with blood count (WBC, Hb and platelets)
- Weight gain
- Digestive issues i.e. vomiting, diarrhoea
- Peripheral neuropathy
- Sleep problems
- Mental health conditions
- May be fitted with a central line

18


### Living with Effects of Radiotherapy

- Tiredness and weakness
- Sore skin
- Stiff muscles
- Digestive and bladder problems (depending on area of radiotherapy)
- Lymphoedema

19

### Living with Effects of Surgery

- Pain
- Fatigue
- Bruising
- Numbness
- Swelling
- Appetite loss



20

## Additionally

Generally, most forms of treatment have the potential to impact our health-related components of fitness such as cardio-respiratory function, muscular strength and endurance, body composition, flexibility and neuromotor function.

ACSM, 2018

21

## Living with Effects of Cancer Treatment

- Not an exhaustive list
- Some symptoms can affect people during the treatment whilst others can last for months or years afterwards
- Make sure everything is individualised for your clients

22




23



24

### Physiological Benefits of Physical Activity



- Reduce blood pressure
- Decrease CVD risk
- Boosts immune system
- Improve metabolism
- Reduce inflammatory responses
- Manage weight
- Increase BMD
- Maintain or improve muscle mass
- Improve core and pelvic floor
- Decrease mental health conditions
- Improve circulation

25

### Client Orientated Benefits of Physical Activity



- Decrease risk of reoccurrence
- Improve sleep
- Improve energy/reduce fatigue
- Improve cognition
- Improve flexibility
- Improve confidence
- Reduce depression and anxiety
- Reduce incontinence
- Improve QOL
- Manage or lose weight
- Social and enjoyable

26

### Summary Points from Research


Overall there is a significant amount of research to support physical activity and exercise for both prevention and management of cancer; particularly for colon and breast cancer.

It is important to explain that exercise and activity is safe for clients with cancer and those recovering from it as long as they listen to their own bodies.

27

### Why?

- Physical activity can lower oestrogen levels as well as insulin which is potentially associated with signalling for cells to multiple.
- Boosts the immune system making it more efficient.
- Physical activity can speed up the removal of harmful chemicals through the bowel.
- Physical activity is proposed to combat the inflammatory effects of oncological treatments and to prevent the development of comorbidities (Leite et al, 2020) Inflammation can causes cells to multiply so controlling inflammation can help to prevent the disease



World Cancer Research Fund AI for CR (2018).

28



29

### Introduction

People living with cancer and cancer survivors should avoid physical inactivity during and after treatment.

The Physical Activity Guidelines Advisory Committee suggests that all individuals should be encouraged to engage in recommended levels of physical activity to reduce risk for developing cancer and for improving cancer prognosis

30

### Key Exercise Objectives

- ✓ Improve quality of life
- ✓ Reduce fatigue
- ✓ Improve energy
- ✓ Reduce stress
- ✓ Maintain functional fitness
- ✓ Enhance social interaction
- ✓ Improve body image
- ✓ Weight and body fat management

31

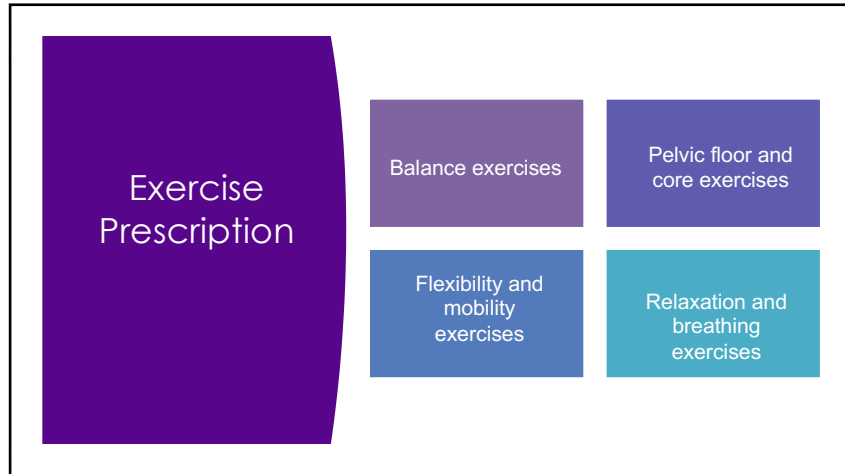
### Exercise Prescription

- Follow the healthy population guidelines but individualise for every person
- Adults should aim to be active daily.
  - Any activity is better than none, and more is better still.
- At least 150 minutes (2.5 hours) of moderate intensity a week
- Alternatively, 75 minutes of vigorous intensity activity spread across the week or combinations of moderate and vigorous intensity activity.
  - The higher the more effective according to research but it must be safe
- Improve muscle strength on at least two days a week.
- All adults should minimise the amount of time spent being sedentary (sitting) for extended periods.

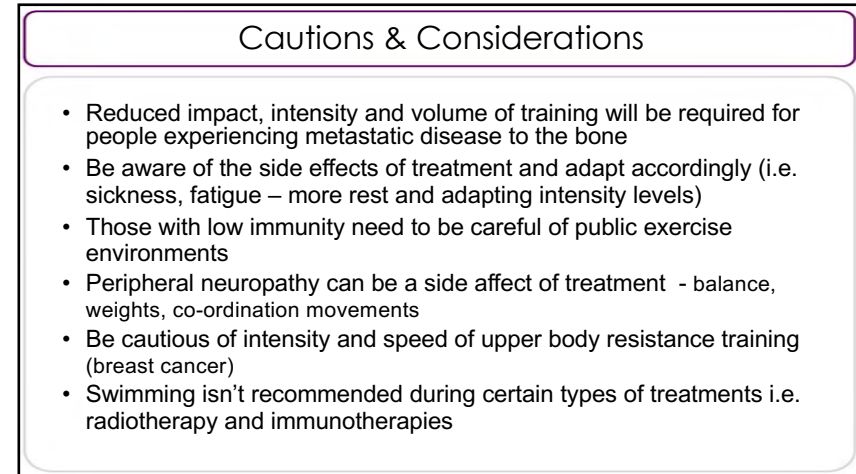
CMO, 2019

32

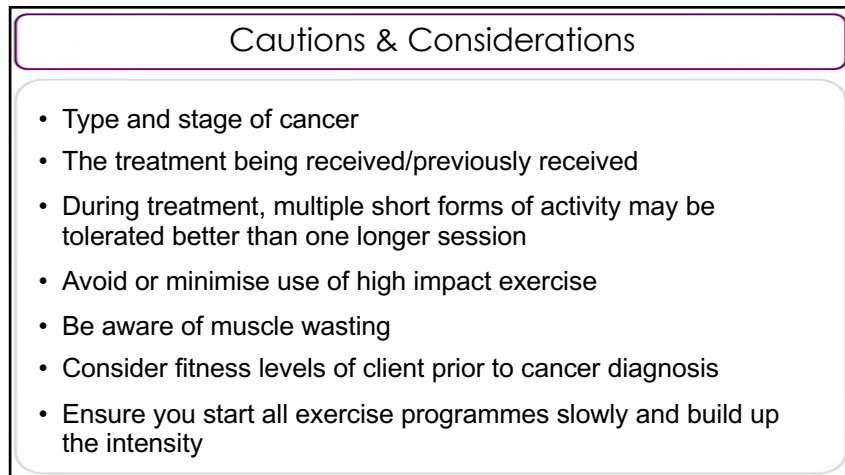




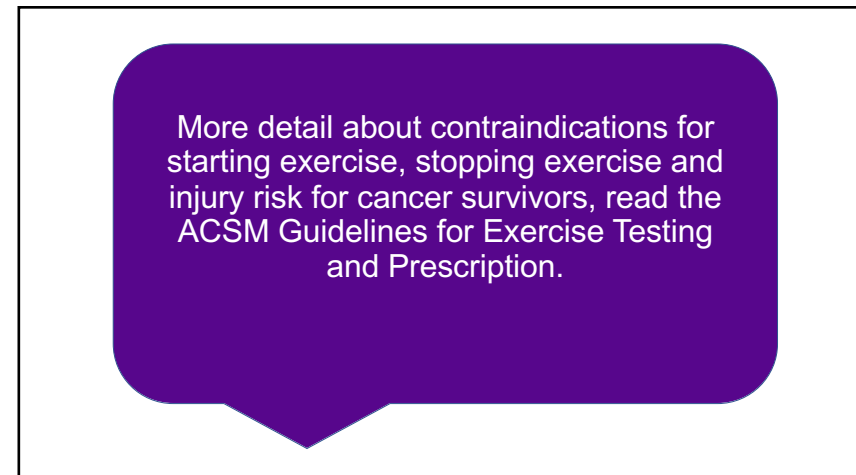
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34



35



36

### Individual Motivations


- What do you think could be the motivation for clients?
  - Consider benefits of physical activity
  - Consider side effects of treatment
  - Consider physical activity/exercise prior to cancer
  - Consider hobbies or leisure activities that they enjoyed

Finding this information out comes down to effective communication...

37

### Effective Communication

- Building relationships and rapport is fundamental
  - Develop trust
  - Demonstrate empathy
  - Be genuine and compassionate
  - Active listening



38

Communicate the importance of the exercise routine in a way that will resonate with them

39

### Summary

- There are over 200 types of cancer; lung, breast, prostate and bowel are amongst the most prevalent
- 1 in 2 people will get cancer in their lifetime
- Surgery, chemotherapy and radiotherapy are 3 key treatments for cancer
- The side effects of treatment range depending on the type of treatment, type of cancer and individual
- There are many benefits of PA and exercise for both those with cancer and those recovering from it

40

## Summary

Research is still very focused on how activity can prevent and manage cancer with the majority of evidence around colon and breast cancer

It is safe to participate in activity throughout the journey but it is essential to adapt according to clients symptoms and to encourage them to listen to their body

Make sure you thoroughly screen the clients and ensure they have medical clearance to participate in activity

Effective communication and empathy is essential

41

## Helpful Websites & Resources

National Cancer Institute  
 Cancer Research UK  
 Macmillan  
 Move More Resources

42

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43

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44

Thank you  
for participating in today's training

Any Questions?

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