

Improving Long Term Health with Exercise

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September 21, 2019



Objectives

- Effects of Cancer Treatment on the Body
- Components of Physical Fitness
- Developing Exercise Goals
- Implementing Exercise Goals
- Benefits of Exercise
- Modifications to Exercise

Cancer Survivorship



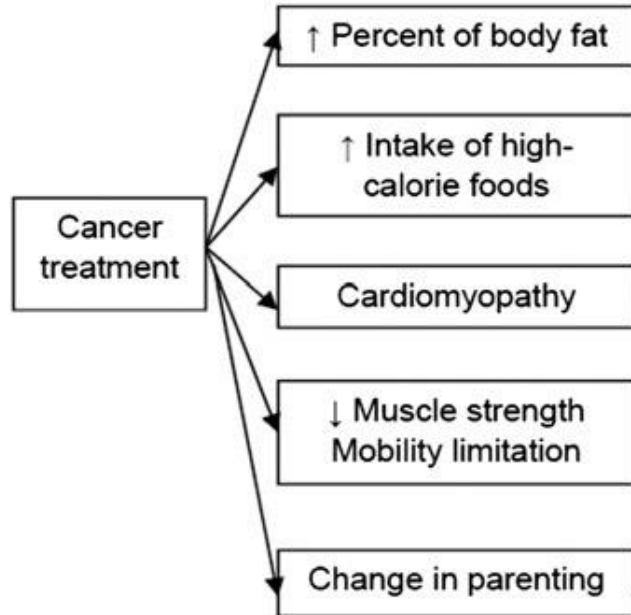
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EXERCISE

Effects of Cancer Treatment

Acute Responses *during* Treatment



Sarcopenic Obesity

Adipokines, Inflammation, and Adiposity in Hematopoietic Cell Transplantation Survivors



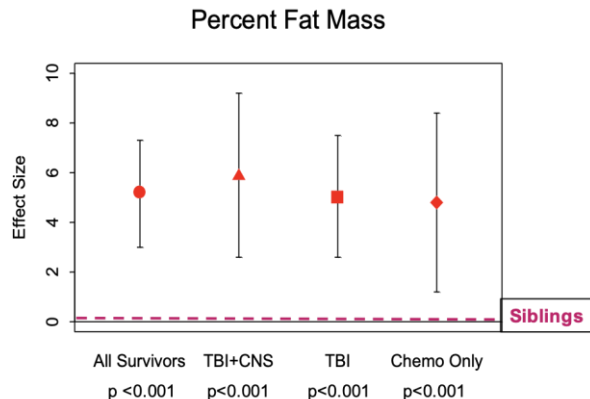
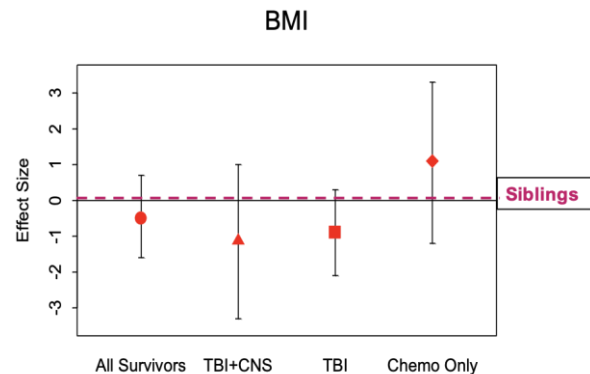
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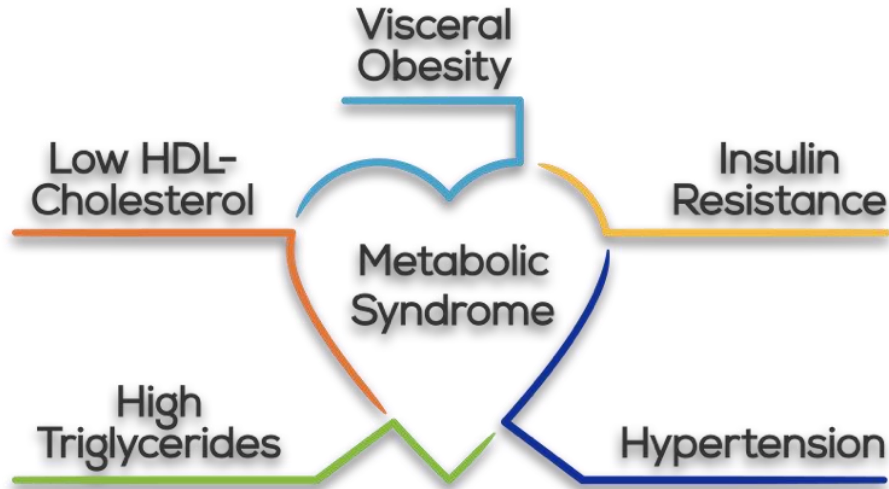
² Seattle Children's Hospital, Seattle, Washington

³ University of Minnesota Medical Center, Minneapolis, Minnesota

The higher percent fat mass observed supports previous studies that HCT survivors have a lean mass deficit and increased fat mass (sarcopenic obesity) associated with abnormalities in adipokine levels.



Metabolic Syndrome



- Increased rates of obesity in childhood cancer survivors.
- Increased risk of Metabolic Syndrome in childhood transplant survivors.
- Early complications from cardiovascular disease.

Body Composition



WATER



MUSCLE

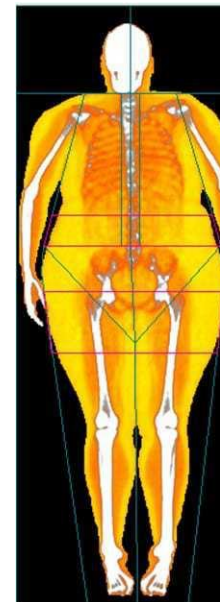
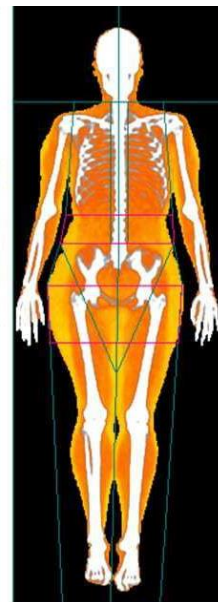


BONE



FAT

Cancer Therapy



Sickness/Wellness/Fitness



WORKOUT

WELLNESS TRANSFORMATION NUTRITION ENERGY

WALK PLANNING REGENERATION LIFESTYLE ENERGY MOTIVATION WEIGHT LOSS

EAT EXERCISE VITAMIN ASSESSMENT NATURAL BEAUTY WELLNESS

ORGANIC BALANCE CALORIES FRUIT NUTRITION ENERGY GOALS CARDIO RUN

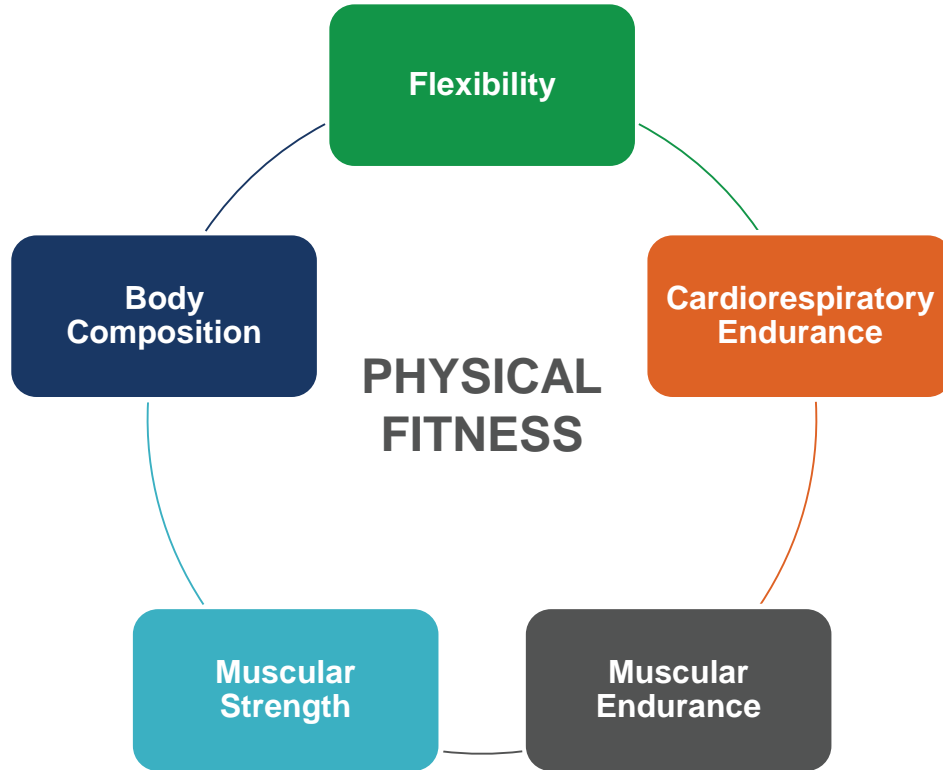
ACTIVE TRAINING IMPORTANT ENDURANCE MOVE HEALTHY RESOLUTION SUCCESS FITNESS BODY PERFORMANCE POWER MARATHON FOOD ACHIEVE

FOCUS RESOLUTION SPORT

Impact of Childhood Cancer on Nutrition & Physical Activity

- Physical activity is an important factor in maintaining a **healthy body weight**.
- There are many factors that can influence a pediatric cancer survivor's ability to be physically active; however, childhood cancer and its treatment **should not** be used as an **excuse** for not eating a **healthy diet** or staying **physically active**.
- Many survivors, just like many people who have never experienced cancer, have poor health habits.
- Now is a good time to begin **making healthy choices** about diet and exercise.
- These choices can have a **positive effect** on your health for many **years to come**.

5 Components of Physical Fitness





Developing a Healthy Exercise Plan

When choosing an exercise plan, ask yourself these questions:

- Do you have **reasonable goals** based on your present strength and endurance?
- Is the activity **safe** for you to perform?
- Does the plan fit into your **lifestyle** and **schedule**?
- Does the activity require **special equipment** or protective gear and will your budget **cover the expense**?
- Do you need to make changes in the sport or activity based on a **special need**?
- Do you enjoy doing the **sport** or **activity**?

How to Pick an Exercise Goal

- What can my body do?
- What is an activity or goal I want to achieve?
- I want to be able to do...

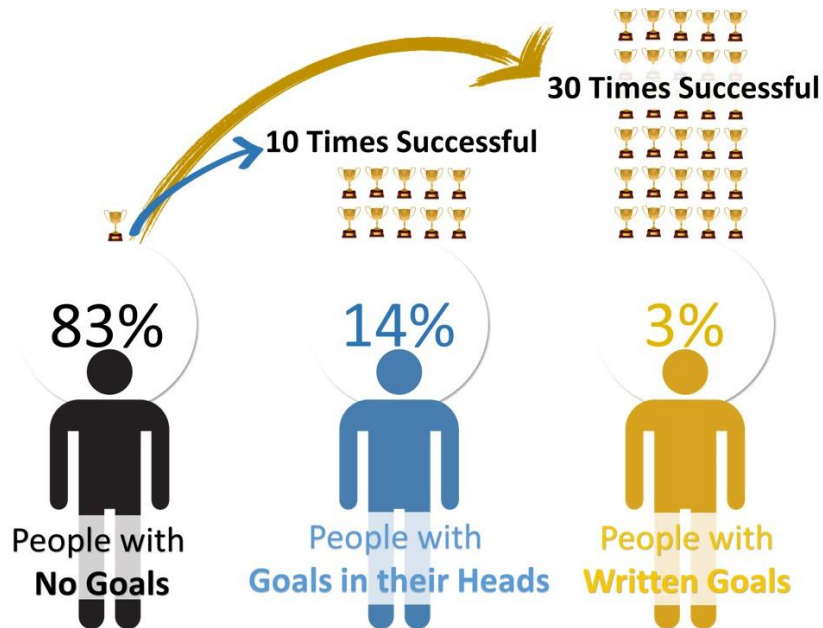
- Avoid appearance goals
- Avoid weight goals



Goal Setting



Write Down Goals





EXERCISE

Some motivation required.

Implementing An Exercise Plan

- Start out slow. Don't try activities that are too strenuous or put you at risk for muscle strain.
- Begin your exercise plan with a warm-up program and end with a cool-down activity, such as stretching and slow easy movements.
- Use correct posture when exercising.
- Exercise until you are tired, but not in pain.
- Identify the muscles you want to strengthen and choose exercises that work on those muscles.
- Alternate exercises to work different muscles and different parts of your body.
- To avoid injury, use the right equipment and shoes.
- Increase your workout by no more than 10 percent per week.

Target Heart Rate

Maximum Heart Rate (MHR)

$$220 - \text{AGE} = \text{MHR}$$

Target Heart Rate

MHR X .60 = Minimum Heart Rate

MHR X .80 = Maximum Heart Rate



Example 16 Year Old

$$220 - 16 = 204 \text{ (MHR)}$$

$$204 \times .60 = \mathbf{122} \text{ (low)}$$

$$204 \times .80 = \mathbf{163} \text{ (high)}$$

Goal range is 122 – 163 (60-80%)

Training Zones:

Warm-up Zone: 50-60%

Fat Burning Zone: 60-70%

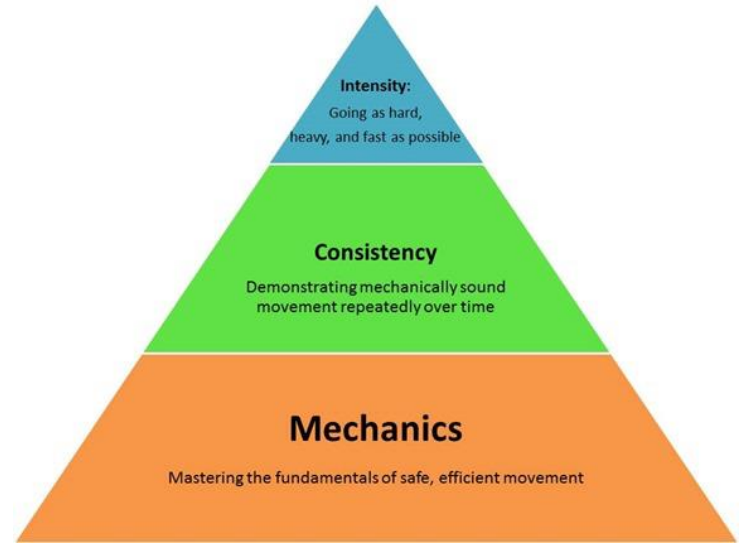
Aerobic Zone: 70-80%

Anaerobic Zone: 80-90%

Red Line Zone: 90-100%

Progression of Exercise

- Mechanics
 - How to do a movement or exercise
- Consistency
 - Do it correctly every time
- Intensity
 - Increase speed, weight and effort



Exercise Tips

- Park at the back of the parking lot to get a brisk walk in throughout the day.
- Set aside 30 minutes a day to take a brisk walk.
- Take the stairs instead of the elevator.
- Stretch your muscles every hour and take a walk during your lunch or break.
- Ride a bike to work or for running errands.
- If you have a dog, take him/her on a brisk walk every day.
- Watch TV or read a book while on a stationary bike or treadmill.
- Plan active family outings, instead of attending a movie.
- Exercise with a friend/family member you enjoy spending time with.
- Join a sports team.
- Set limits on screen time.

Benefits of Exercise



Raised heart rate to 170 bpm
40-60 mins, 3-4x per week =
5-10% improvement in
aerobic fitness in 8-12 weeks.



Resistance training
2 or 3x per week
improves **muscle strength**
and endurance.



Every 15 mins of exercise
improves **academic performance**
by an average of about a
quarter of a grade.



30 minutes of **cardio** exercise
per day boosts **confidence**,
reduces **stress** and **anxiety**.



Exercise between the ages of **11-18**
increases **bone density**, particularly
in the spine and hip.



30 minutes on the treadmill
boosts **problem solving**
by up to 10%

Benefits of Regular Exercise



Helps build and maintain healthy bones, muscles and joints



Helps reduce the risk of developing obesity and chronic diseases



Helps to achieve and maintain a healthy body weight



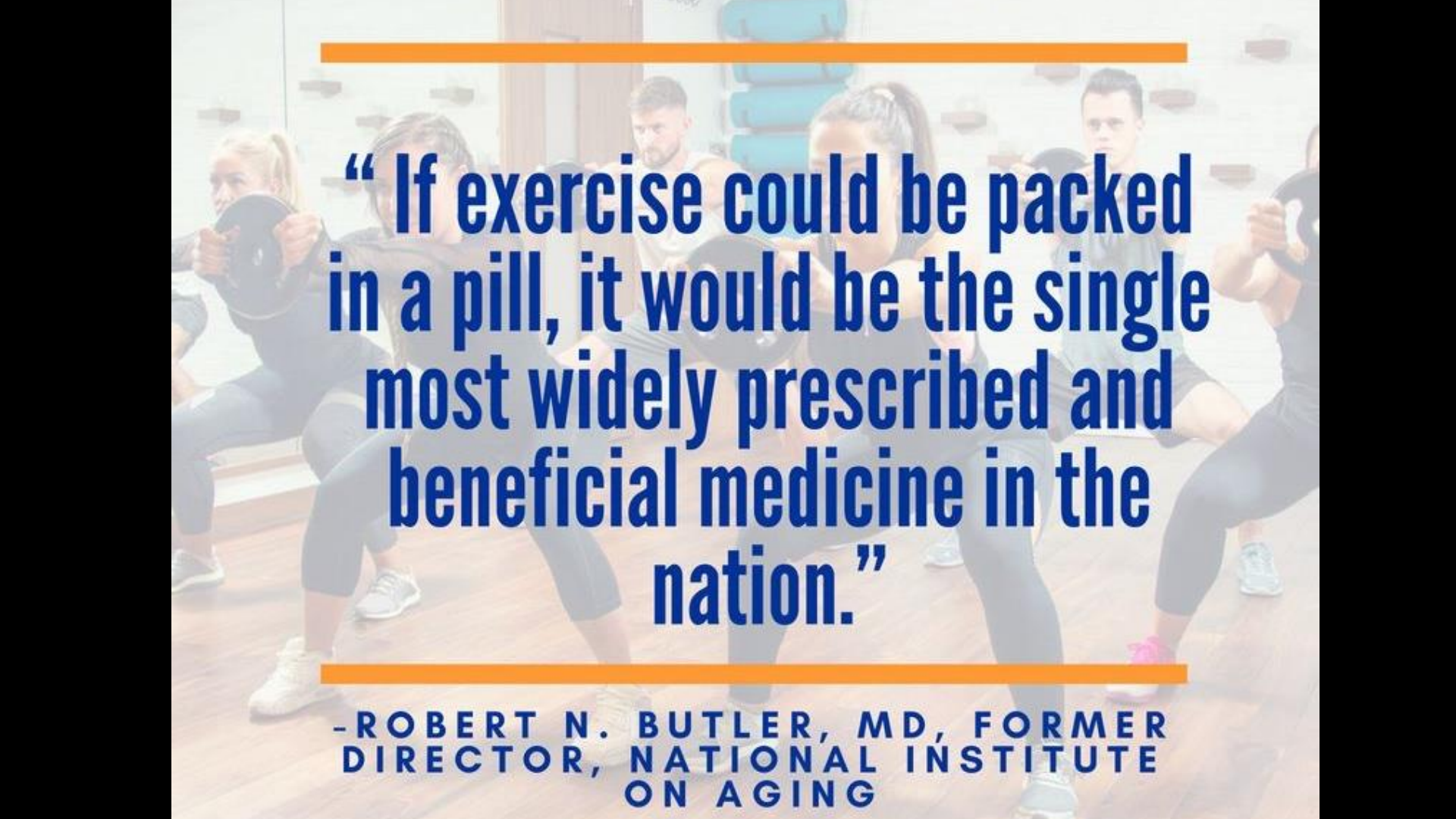
Improves the quantity and quality of sleep



Greater self-esteem and better self image



Improves coordination and motor skills

A group of people in a gym performing a squat exercise with dumbbells. The image is semi-transparent, serving as a background for the text.

**“ If exercise could be packed
in a pill, it would be the single
most widely prescribed and
beneficial medicine in the
nation.”**

**-ROBERT N. BUTLER, MD, FORMER
DIRECTOR, NATIONAL INSTITUTE
ON AGING**



Questions?

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