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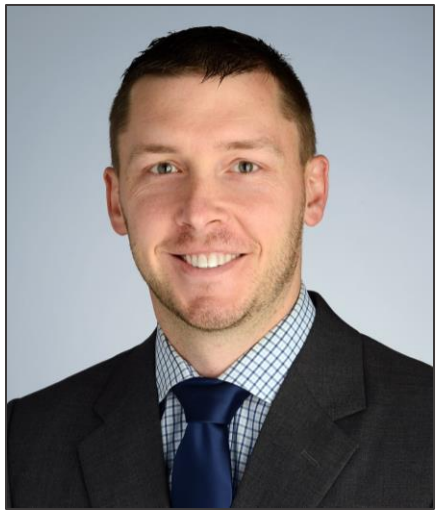
How Exercise Can Improve Fatigue, Stamina and Strength

Celebrating a Second Chance at Life Survivorship Symposium

July 11-17, 2020

Scott Capozza PT, MSPT

Yale Cancer Center

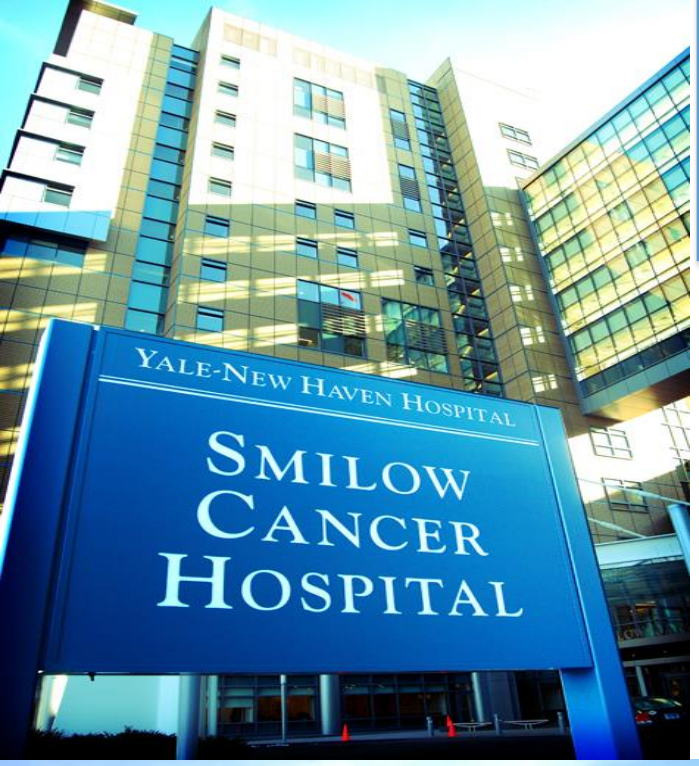


Scott Kramer PT, DPT

University of Kansas Health System

Mari Taylor PT, DPT, CLT

Brigham and Women's Hospital



Manage Fatigue, Improve Your Stamina and Strength

Scott J. Capozza, PT, MSPT, Board Certified Specialist in Oncologic Physical Therapy, Smilow Cancer Hospital, CT

Scott Kramer, PT, DPT, Board Certified Specialist in Oncologic Physical Therapy, The University of Kansas Hospital, KS

Mari Taylor, PT, DPT, CLT, Board Certified Specialist in Oncologic Physical Therapy, Brigham and Women's Hospital, MA

Introduction

- Discuss fatigue
- What helps fatigue
- Activity and limitations from bone marrow/stem cell transplant
- Fatigue and exercise
- Fatigue and diet
- Function and Graft-versus-Host Disease
- Exercise: Lets move!!
- GVHD Exercise


Bone Marrow
Transplant

Fatigue:

What is it?

&

What helps?

Cancer Related Fatigue: American Cancer Society

- “Cancer-related fatigue is worse than everyday fatigue. It lasts longer and sleep doesn’t make it better: It’s unpredictable. People describe it as overwhelming, affecting every part of their lives”
- “Fatigue is the most common side effect of cancer treatment, and it often hits without warning. Everyday activities – talking on the phone, shopping for groceries, even lifting a fork to eat – can be overwhelming tasks.”

Cancer Related Fatigue:
National Comprehensive Cancer Network

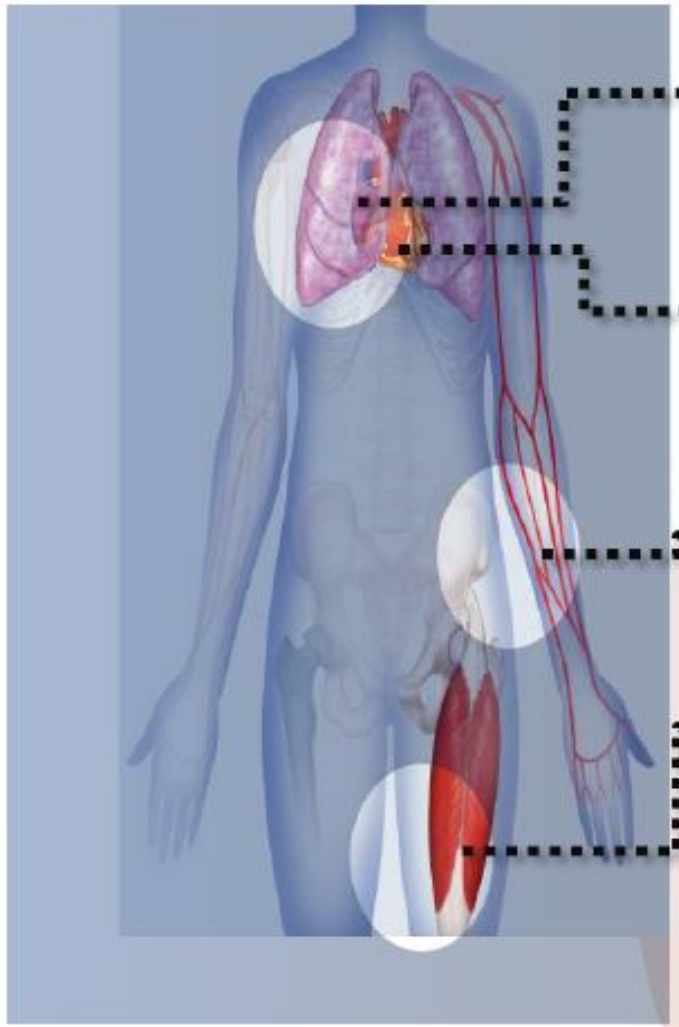
- “distressing, persistent, subjective sense of physical, emotional and/or cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning.”
- is reported more frequently than any other physical symptom of cancer and cancer treatments
- affects 70-80% of cancer survivors at all stages of disease and recovery
- compared to fatigue experienced by healthy individuals, is more severe, more distressing, and less likely to be relieved by rest.

What Causes Cancer Related Fatigue?

Can be a side effect of many common cancer treatments such as:

- Chemotherapy
- Radiation
- Surgery
- Stem Cell Transplants
- Cancer Process Itself
- Other pre-existing health conditions

Effects on the Body



Pulmonary function
(systemic therapy, radiation)

+

Cardiac function
(DOX, Herceptin, radiation, SMIs)

+

Vascular compliance (DOX, radiation, SMIs)

+

Skeletal muscle function
(decadron, hormone therapy, chemotherapy?, SMIs?)

=

↓↓↓ CV reserve

Jones et al. *J Am Coll Cardiol*, 2007
Jones et al. *Lancet Oncol*, 2009

Things That Improve Fatigue

- Diet
- Exercise
- Everyday activities
- Balance rest and activity
  - Work
  - Play
  - Exercise
- Mindfulness activities
  - Meditation
  - Prayer
  - Music
  - Etc.

Fatigue and Diet

- Choose foods that have good source of calories, protein, and fiber
- Eat Small, frequent meals and snacks
- ↑ Fiber ≥ 30 grams/day
- ↓ added sugars ≤ 30 grams/day, especially in liquids
- Stock home with easy to prepare meals
- Drink at least 8 cups of fluid per day
- For further dietary needs, speak with your local Dietitian for individual food planning and nutritional support.

Activity

- Everyday activities are often difficult when going through bone marrow transplant and recovery.
  - Standing up from chair
  - Walking in a grocery store
  - Climbing stairs
  - etc.
  - What other Limitations have you noticed?

GVHD and How it Affects Function

- Acute GVHD
  - Increased intake of steroids to treat GVHD can result in muscle weakness
  - Fluid retention
  - Skin/GI issues
- Chronic GVHD
  - Skin tightness
  - Extreme Fatigue/Weakness
  - Vision Changes

Exercise

Fatigue and Exercise

- A 2018 review of nearly 170 research articles found that exercise helps to reduce fatigue after bone marrow transplant.

	Aerobic	**Resistance**	**Flexibility**
US Physical Activity Guidelines for Americans[6] (PAGA)	150 min/week of moderate-intensity or 75 min/week of vigorous-intensity activity, or an equivalent combination.	Muscle-strengthening activities of at least moderate intensity at least 2 days/week for each major muscle group.	Stretch major muscle groups and tendons on days other activities are performed.

Evidence of Exercise Benefits Post-Transplant

- Decreases fatigue
- Improves heart function
- Builds muscle mass
- Improves breathing efficiency
- Improves quality of life
- Reduces length of stay in the hospital setting

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

- Exercise has been shown to aide in prevention of 7 common cancers
  - Bladder, breast, colon, endometrial, esophageal, kidney and stomach

- Physical activity guidelines recommend 150min/week aerobic exercise and 2x/week strength training

Strong Evidence	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

Citation: bit.ly/cancer_exercise_guidelines

Moderate intensity (40%-59% heart rate reserve or VO_2R) to vigorous intensity (60%-89% heart rate reserve or VO_2R) is recommended.

ExeRcise is Medicine | AMERICAN COLLEGE of SPORTS MEDICINE

Types of Exercise and How They Help

Exercise	Exercise Type	How does this help?
Walking/Jogging	Aerobic	- Improves heart and lung endurance - Decreases fatigue with consistent routine
Weight Lifting/Strength Training	Resistance/Strengthening	- Builds muscle mass - Improves muscle strength
Yoga	Stretch/Strength	- Improve flexibility - Improve general strength
Swimming	Aerobic	- Improves endurance - Easier on your joints
Cycling/Recumbent Bike	Aerobic	- Improves heart and lung endurance - Decreases fatigue with consistent routine

Common Reasons Patients Do Not Exercise

- Misunderstanding
  - Didn’t know they could
  - Too many exercises prescribed
  - Cannot remember proper technique of the exercise or what position to be in
- Fatigue/Pain
  - Exercise just makes me more tired
  - My muscles hurt the next day

Exercise and Chronic Skin GVHD

- Daily stretching
  - Yoga
  - Focus on area of problem
    - Wrist/hand
    - Ankles
    - Other
- Strengthening
- Aerobic
- Sometimes splinting or specialized hand therapy is needed

See Exercise Sheets

https://partners.medbridgego.com/access_token

Access Code: XA3FFPF8

Sit to Stand Exercise

- Research shows the average healthy adult goes from a sitting to a standing position 45 times per day.
- Try to increase the amount you stand up from a seated position
- Add intentional sit to stands to your daily routine by performing 5 sets of 5 each day.

Sit to Stand

- You can use your hands to push from the chair or arm rests if needed
- Stand up tall before slowly returning to a seated position
- Remember to make sure your seat is secure and will not move out from under you

March in Place

- Begin by standing tall next to a counter or table
- Slowly lift one knee up to waist height, maintaining a tall posture, then slowly lower
- Alternate legs, 10 times on each side

Step Up

- This exercise can be performed by using the bottom step of your staircase (if you have stairs in your home)
- Use the railing if needed for safety
- Step up onto the step platform with your strongest leg first, driving upwards so that your opposite foot can raise up to the step.
- Slowly lower back down and repeat on the opposite leg.
- Work up to 10 repetitions on each leg

Starting a Walking Routine

- Try to choose a route that is indoors or is close to home, relatively flat, and has plenty of benches or places to rest along the way.
- For safety, have someone with you when you are walking.
- Breathe easily while exercising and do not hold your breath. You should be able to comfortably hold a conversation while exercising.
- Wear proper shoes and loose fitting clothing.

STOP Activity and Sit
If You Have These Symptoms

- Shortness of breath
- Muscle cramps
- Chest pain or angina
- Nausea
- Faintness or lightheadedness
- Cold sweat
- Palpitations
- Excessive fatigue

Walking Program: Pace Yourself

Walk at a comfortable pace, taking rest breaks if needed. It is recommended to reach 4-6 out of 10 on the Borg scale:

BORG Rate of Perceived Exertion (RPE) Scale

0	Nothing at all
0.5	Very, very weak
1	Very weak
2	Weak
3	Moderate
4	Somewhat Strong
5	Strong
6	
7	Very strong
8	
9	
10	Very, very strong, maximal

Walking Program: Pace Yourself

- If you are beginning a walking program at home, remember to gradually begin a program.
- You may increase the amount of time you walk or your speed if you are feeling well, as long as your exertion is at a 4-6 level on the Borg Scale.
- If you are unable to increase your distance or speed due to fatigue or increased difficulty, it is fine to remain at that level until you are able to progress.

Example of How to Pace Yourself

If you are able to walk 10-15 minutes currently:

- Warm up by performing 1-2 minutes of seated exercises or leisurely walking
  - Week 1: Walk for 10-15 minutes, 2-3 times/ day
  - Week 2: Walk for 15-20 minutes, 2-3 times/ day
  - Week 3: Walk for 20-25 minutes, 2-3 times/ day
  - Week 4: Walk for 25-30 minutes, 2-3 times/ day
- Cool down by performing 1-2 minutes of seated exercises or leisurely walking.

The end goal is to walk for 30 to 45 minutes, 5 to 7 days per week.

Strategies to Keep Moving

- Write it down and track it
  - FitBit, walking apps, pencil & paper
- Exercise with a friend/co-worker/neighbor
  - They will hold you accountable
- Set specific goals
  - Most 5K runs have a walk associated with them
  - 'Active Vacation'
- Plan ahead
  - Bring work-out clothes with you; change at work; look at weekly schedule to see 'exercise opportunities'

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Questions?

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