

BUILDING AND RESTORING PHYSICAL WELLNESS AFTER BREAST CANCER

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BUILDING AND RESTORING PHYSICAL WELLNESS AFTER BREAST CANCER

- The benefits of physical therapy before and after breast cancer surgery, radiation or chemotherapy
- How to find safe, appropriate cardiovascular exercises for your phase of healing
- Safe exercises to help you maintain strength and flexibility
- The impact that exercises such as yoga can have on healing, stamina and range of motion



Breathing Exercise



PHYSICAL WELLNESS

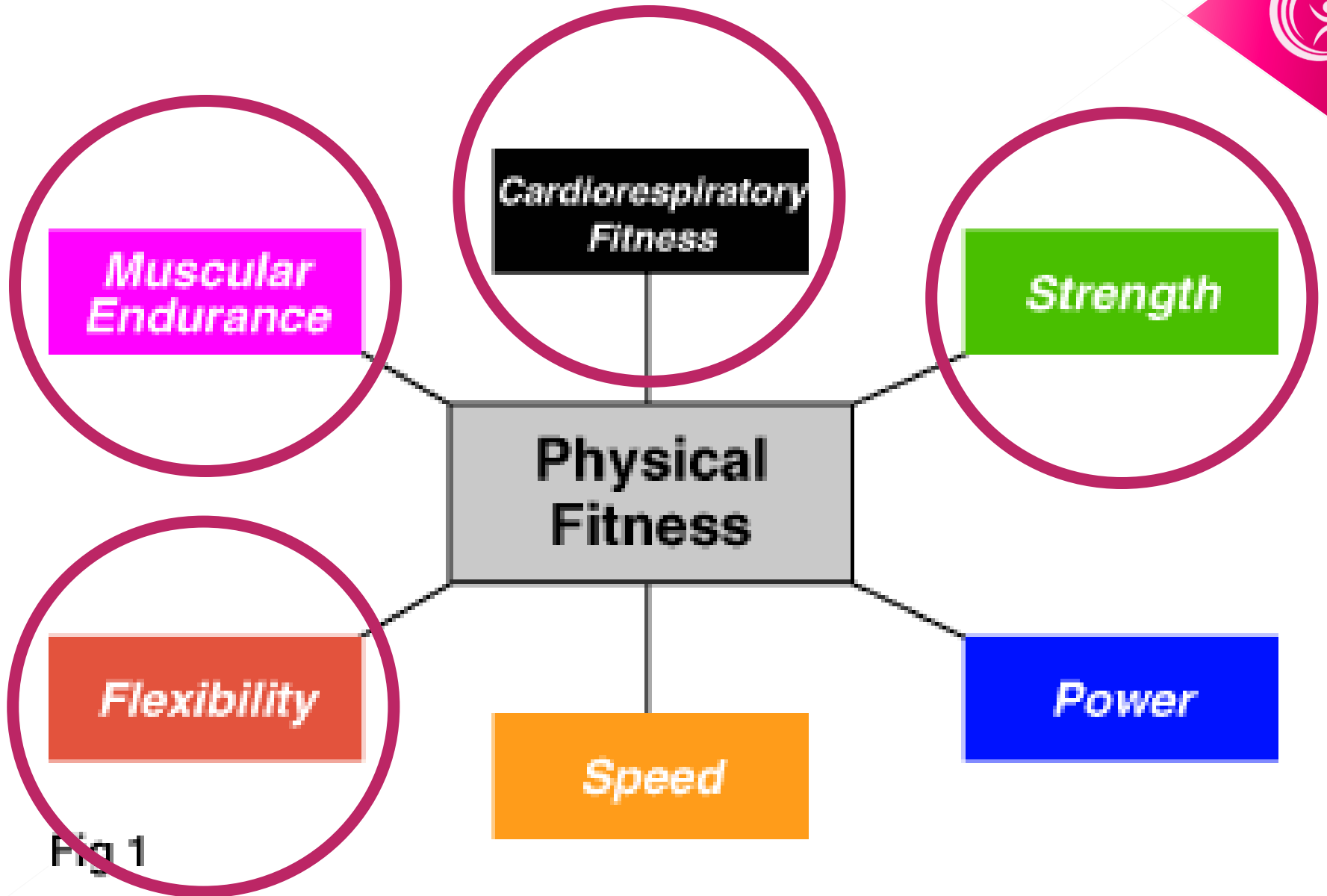


Fig 1

WHY IS EXERCISE SO GOOD?



- Lower your cancer risk
- Fewer and less severe side effects from treatment
 - More energy
 - Better mobility
- More muscle and to feel stronger
 - Maintain a healthy weight
 - Keep your bones healthy
- Feel more confident and in control
 - Sleep better
 - Less stress

What is Cancer Treatment?



- Surgery
 - Lumpectomy
 - Mastectomy
 - Reconstruction
- Chemotherapy
 - Intravenous treatment
 - Hormone blocking treatment
- Radiation
 - Full
 - Partial
 - IORT

Physiological Responses of Exercise During Cancer Treatment

HEART

SIDE EFFECT

- ⦿ ↑ Resting heart rate
- ⦿ Abnormal left ventricle contractility
- ⦿ ↓ Cardiac output and stroke volume

ADAPTATION TO EXERCISE

- ⦿ ↓ Resting heart rate
- ⦿ Strengthens myocardium
- ⦿ ↑ Cardiac output and stroke volume

♥ CARDIAC OUTPUT ♥



$$\text{CO} = \text{HR} \times \text{Stroke Volume}$$

Cardiac Output Heart Rate Stroke Volume

Physiological Responses of Exercise During Cancer Treatment

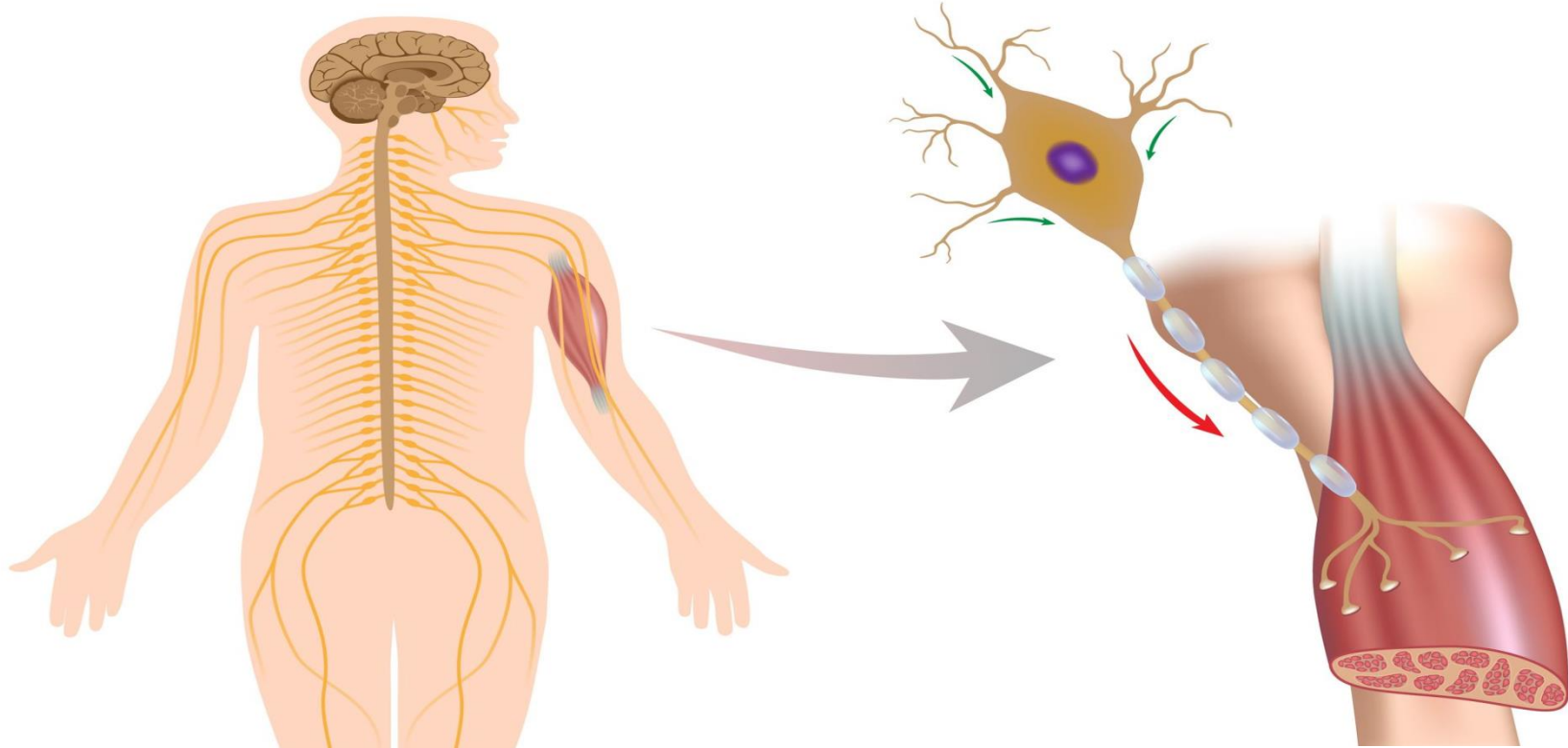
MUSCLE

SIDE EFFECT

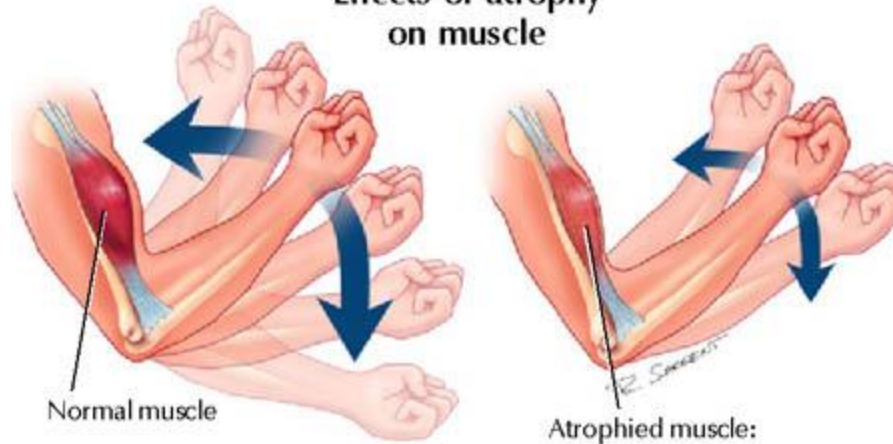
- Destruction of skeletal muscle
- Atrophy/muscle weakness

ADAPTATION TO EXERCISE

- Increases protein synthesis
- Stimulates the release of hormones that increase growth and development/increases strength



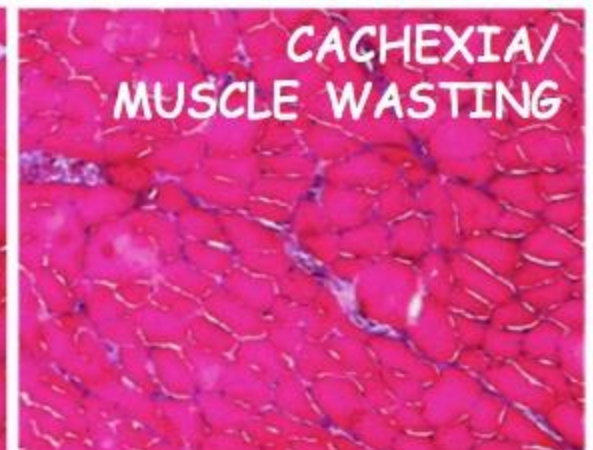
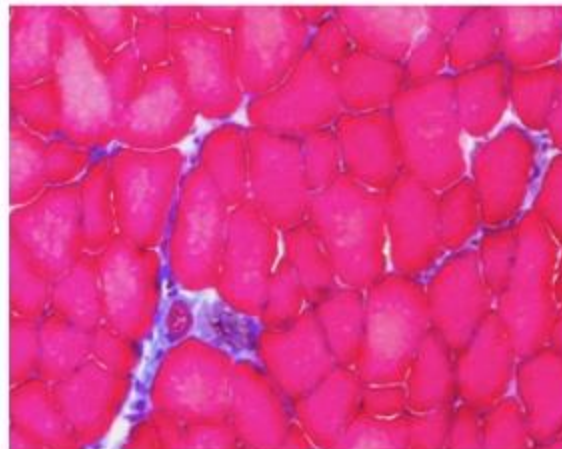
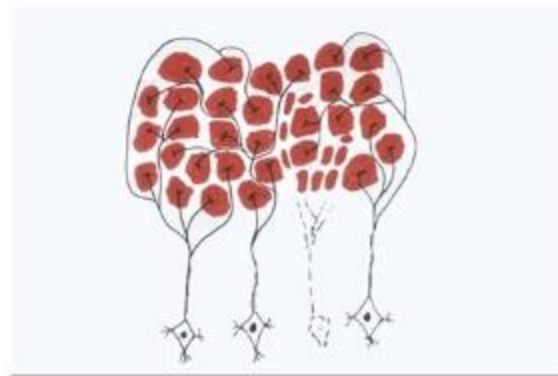
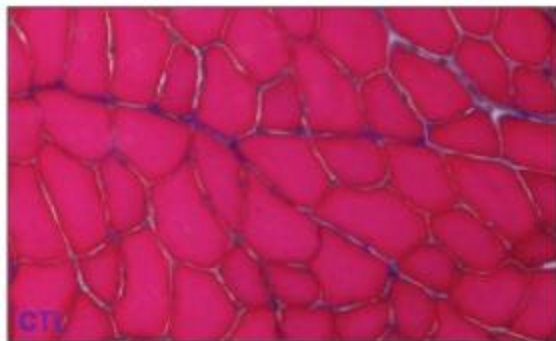
Effects of atrophy on muscle



- Atrophied muscle:
- decreased size
 - decreased strength
 - decreased mobility

Fig. 1

DIFFERENT FORMS OF MUSCLE ATROPHY



! Seven-day immobilization induces muscle atrophy.

Fig. 1 Masson trichrome staining of cross-sectional cryosections of the Tibialis anterior muscle from control (left panel) and C26 tumor-bearing (right panel) mice. The tumor load induces severe muscle fiber atrophy.

Physiological Responses of Exercise During Cancer Treatment

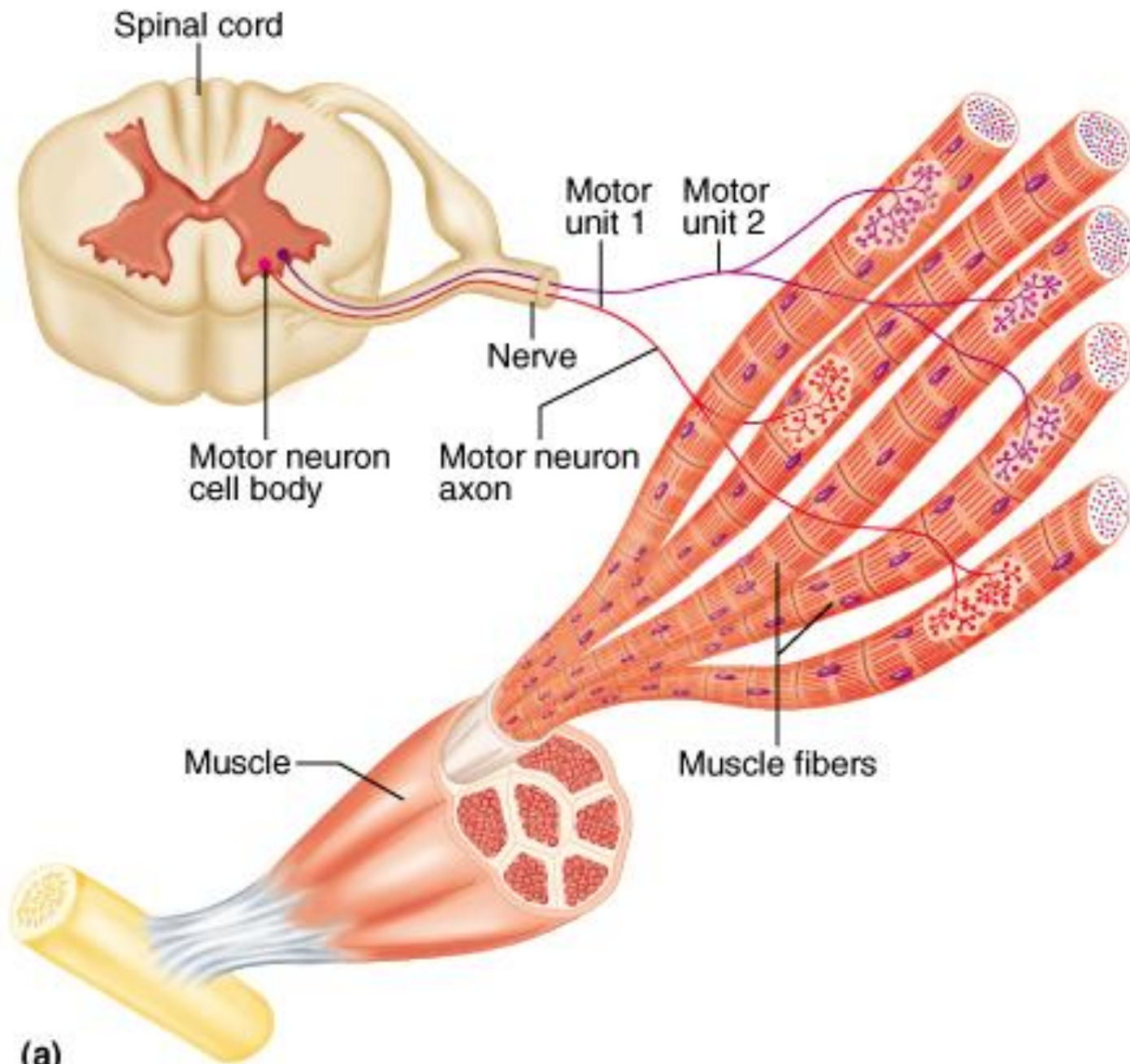
NERVOUS SYSTEM

SIDE EFFECT

- ⦿ ↓ Motor function
- ⦿ ↓ Coordination
- ⦿ Neuropathy

ADAPTATION TO EXERCISE

- ⦿ ↑ neurochemical availability at the cellular and tissue level and increases motor unit recruitment
- ⦿ ↑ coordination



(a)

Physiological Responses of Exercise During Cancer Treatment

LUNGS

SIDE EFFECT

- ↓ Total lung capacity
- ↓ intake of oxygen ↓ removal of carbon dioxide

ADAPTATION TO EXERCISE

- ↑ intercostal muscle strength optimizing lung capacity
- ↑ ventilation and transport of air from the environment to cellular level

Physiological Responses of Exercise During Cancer Treatment

GASTRONINTESTINAL

SIDE EFFECT

- ◉ Loss of body fluids and electrolytes from diarrhea and vomiting
- ◉ Loss of appetite

ADAPTATION TO EXERCISE

- ◉ ↑ uptake of nutrients
- ◉ ↑ appetite

Physiological Responses of Exercise During Cancer Treatment

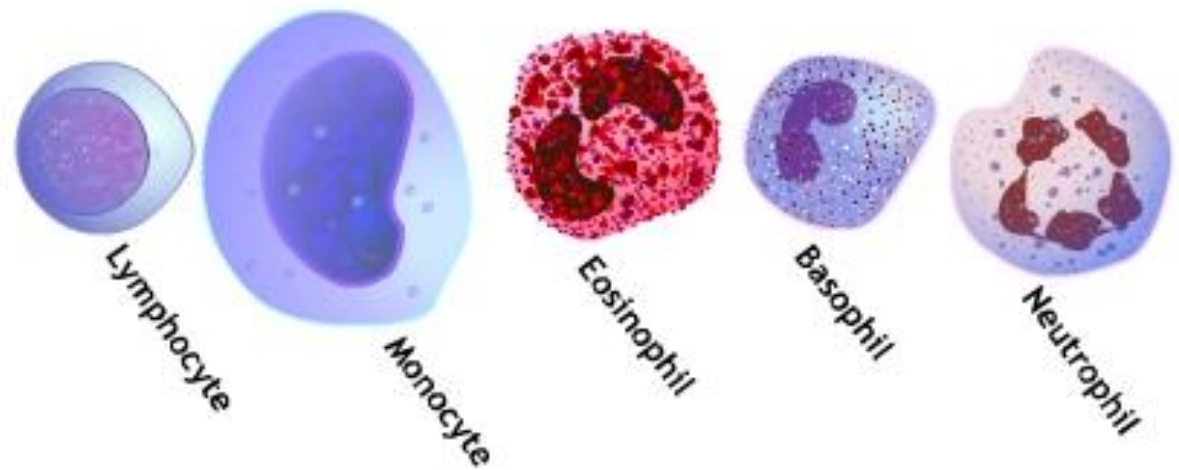
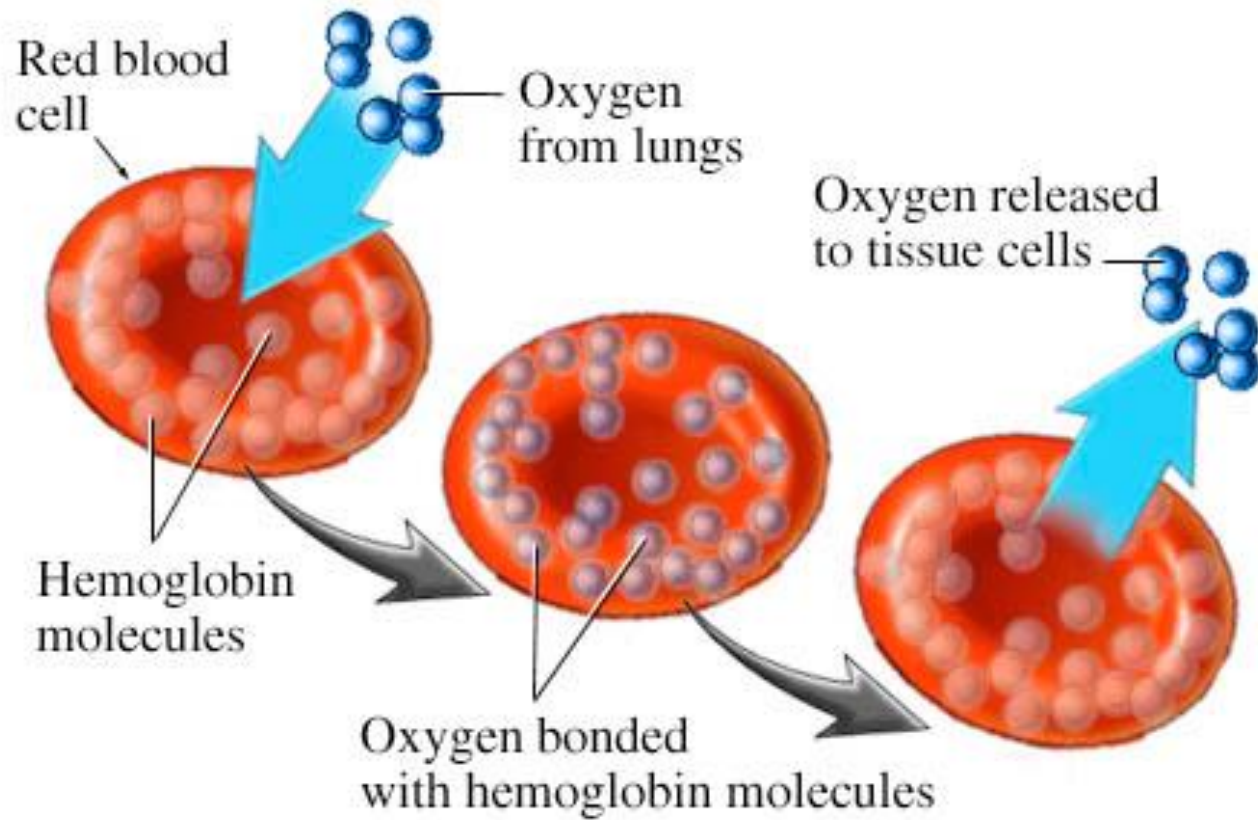
MYELOSUPPRESSION

SIDE EFFECT

- ↓ bone marrow function lowering red, white blood cells , and platelets
- ↓ hemoglobin
- ↓ blood volume

ADAPTATION TO EXERCISE

- ↑ red blood cell production
- ↑ hemoglobin concentration
- ↑ blood volume



Blood Values Appropriate for Exercise

Parameter	Value	Comments
Hemoglobin	> 10 g/dl	Higher at altitude
Platelet	>50x10 ⁹ /L (150,000mm ³)	Prevent hemorrhage
White Blood Cells	>3x10 ⁹ /L (3,000mm ³)	Avoid infection
Red Blood Cells	3.5 x 10 ⁶ /mm ³	Women
	4.3 x 10 ⁶ /mm ³	Men

FATIGUE



- If Cancer Related Fatigue is defined as the **combination of all physiological toxicities affecting the body and brain**, then we know exercise is the treatment for this debilitating condition.

PHYSICAL WELLNESS



PHYSICAL WELLNESS: RECOVERY/PHYSICAL THERAPY

- ◉ Cardiovascular endurance
- ◉ Strength training
- ◉ Manual treatment
- ◉ Range of motion
- ◉ Postural retraining
- ◉ Core strength & stability (Pilates / Yoga)
- ◉ Lymphedema management
- ◉ Pain management

Cardiovascular Endurance



- Exercise intensity can be measured two ways:
 - RPE
 - Heart Rate
 - Max heart rate
 - Heart rate reserve
- Mode of exercise can vary
 - Walking/running
 - Biking
 - Elliptical
 - Zumba
 - Swimming
- Aerobic Testing
 - Treadmill
 - Bike

AskTheTrainer.com

RPE Chart

Rate of Perceived Exertion

10	Max Effort Activity Feels almost impossible to keep going Completely out of breathe, unable to talk
9	Very Hard Activity Very difficult to maintain exercise intensity Can barely breath & speak a single word
7-8	Vigorous Activity On the verge of becoming uncomfortable Short of breath, can speak a sentence
4-6	Moderate Activity Feels like you can exercise for hours Breathing heavily, can hold short conversation
2-3	Light Activity Feels like you can maintain for hours Easy to breathe & carry a conversation
1	Very Light Activity Anything other than sleeping Watching TV, riding in a car, etc.

Phases of Cancer Rehabilitation: Cardiovascular

- ◎ **Phase I:** 1-3 RPE. During treatment (chemo and/or RAD). 2-3 sessions/week. 20-30 minutes. 3 months
- ◎ **Phase II:** 3-6 RPE. Following surgical/hormonal treatment or completion of phase I. 3 sessions/week. 3 months
- ◎ **Phase III:** 4-8 RPE. Following completion of phase II. 3-4 sessions/week. 3 months
- ◎ **Phase IV:** 6-10 RPE. Following completion of phase II. 3-4 sessions/week. 3 months

Strength



Improves functional independence
and improves bone density

- Weight
- Reps
- Sets

**ONLY CHANGE ONE VARRIABLE AT A
TIME!**

Phases of Cancer Rehabilitation: Strength

- ◉ Working a % of you 1 Rep Max (1RM)
- ◉ **Phase I:** 30-45% of 1 RM. During treatment (chemo and/or RAD). 2-3sessions/week. 3months
- ◉ **Phase II:** 40-60% of 1 RM. Following surgical/hormonal treatment or completion of phase I. 3 sessions/week. 3months
- ◉ **Phase III:** 60-85% of 1 RM. 3 sessions/week. 3months
- ◉ **Phase IV:** 65-95% of 1 RM. Following completion of phase II. 3-4 sessions/week. 3months

Estrogen in Relation to Exercise

- ◉ Some **targeted therapies** will seek out the Estrogen in your body to prevent its ability to “feed” your tumor
- ◉ Although this will greatly **reduce reoccurrence**, it can have some unfortunate side effects because it will also block the hormone’s use and production in other parts of your body
- ◉ Estrogen helps to improve our **muscle tone and elasticity** and without it...
 - > Decreased strength
 - > Less muscle to assist in burning calories
 - > Increased stiffness

Manual Treatment

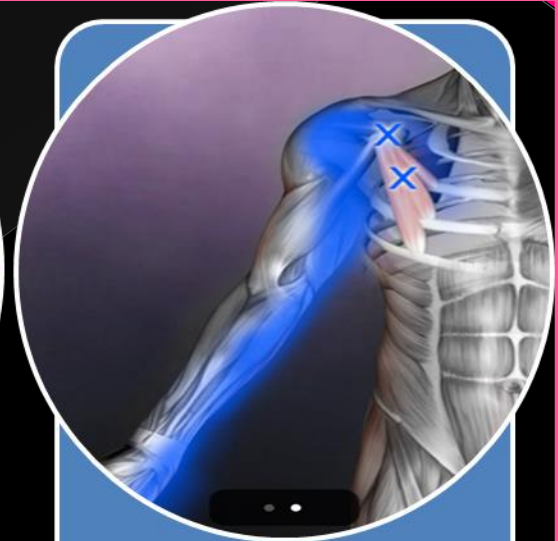


Muscle tension
release

Increased
relaxation



Edema and
lymphedema
management
Improved ROM



Improved
healing
Increased chest
mobility



Flexibility



- ROM
 - Simple **post-surgical** exercises
 - Gravity assisted followed by gravity resisted
- Stretching
 - Specific muscle isolation with prolonged hold
- Yoga
 - Brings **prolonged muscle hold** followed by stretch
 - More effective method of **lengthening muscles** over time than stretching alone

Muscular Endurance



Posture Exercises

- Scapular squeezes
- Progressive Resistive Exercises (PREs)

Balance and Core Strengthening

- Neuropathy treatment
 - Single leg stance
 - Proprioceptive exercises
- Pilates

Yoga

- Uses body weight for resistance– easier on joints
- Encourages postural awareness in poses
- Strong focus on balance

Yoga Precautions

- ◎ You can try anything! Just be smart and listen to your body.
- ◎ Be cautious with poses that have high demand on your chest muscles such as:
 - > Plank
 - > Downward dog
 - > Wheel
- ◎ With Chaturanga Dandasana
 - > Modify: use plank, avoid upward dog
 - > Avoid many repetitions
- ◎ Be aware that heated yoga may be more demanding on your lymphatic system

Exercise and Lymphedema



First things first...

Exercise is good for your lymphatic system, both for prevention and if you have lymphedema!!!



Exercise and Lymphedema

You can live with a lowered capacity of the lymphatic system your whole life and never get lymphedema

However it is **important for you to be proactive** for the rest of your life in the prevention of lymphedema

If you experience any of these symptoms while performing an activity, then **STOP** and **REST!!**

- Generalized **Achiness** of the Arm
- Generalized **Fatigue** of the Arm
- Generalized **Heaviness** of the Arm
- Generalized **Tingling** of the Arm

Exercise and Lymphedema



- Whether it is the removal of 1, 2, or 20 nodes it is still **very difficult to predict** a predisposition to lymphedema development
- Any trauma to the lymph system can affect the **capacity** of the system to meet the demands placed upon it
- There are other precipitating factors:
 - **OVER STRESSING** your lymph system during periods of activity
 - Health Related Issues
 - **Genetic** Predisposition

Exercise and Lymphedema



- Lymphedema: protein-rich accumulation of fluid
 - The capacity of the lymph system is changed as a result of a structural compromise e.g. surgery or radiation therapy
- The **capacity** of your system to cope with the increased demand on the lymph system could be **reduced** or **SLOWED**

Exercise and Lymphedema



- If you've had lymph nodes removed and are fearful of lymphedema and/or have experienced consistent symptoms, **schedule an appointment** with a specialist to help to assess your risk in accordance with your symptoms

Exercise and Lymphedema



- If you have lymphedema symptoms, you will likely need to wear a **compression garment** and take other precautions when you exercise.

Exercise and Lymphedema

Strenuous Activity for long periods of time

- moving house, redoing areas in house
- house cleaning, yard work, sport/hobbies

Repetitious Activity for long periods

Typing, Painting, Pulling Weeds, Sweeping, Raking

Change in Pressure for long periods of time

Airplane flights > 2 hours - suggest wearing compression garment 20-30mmHg The garment is an **ASSISTIVE DEVICE** and helps MOVE Lymph Fluid

Injury - cut, scratch, puncture wound - clean and protect wound. If slow to heal, or infected may need ANTIBIOTICS

How to stick with an exercise program

- ⦿ Be accountable to your physical therapist.
- ⦿ Make it fun.
- ⦿ Switch up what you do so you don't get bored.
- ⦿ Make exercise social.
- ⦿ Make exercise a priority.
- ⦿ Exercise first thing in the morning.
- ⦿ Exercise on your way home from work.
- ⦿ Exercise even when you think you're too tired.
- ⦿ Keep an exercise journal.
- ⦿ Reward yourself.
- ⦿ Be flexible.

TAKE HOME MESSAGE:



INDIVIDUALIZED PLAN
START SLOWLY
PROGRESS SLOWLY

Opportunity to CREATE a new physical wellness that you didn't have prior to your cancer diagnosis.

Insurance Coverage

- Physical Therapy is usually **well-covered** for all breast cancer patients
 - > Physical Therapy to treat diagnosis codes such as **lymphedema, shoulder stiffness/pain, difficulty walking, and abnormal posture** are considered “**medically necessary**” by insurance
- Oncology Rehab accepts most major insurance carriers including **Medicare**
- One on one **Yoga** sessions and group **classes**
- **Exercise Assessment** and Prescription

QUESTIONS?

THANK YOU!

