Stronger Muscles, Stronger Heart: Fitness for Active Aging

Part One

Palm Beach Center for Health and Longevity

PBCLongevity.com

CoachCurtis@PBCLongevity.com

Your Health Coach and Today's Presenter:
Curtis Arnold

Seeking longevity?

Exercise is EVEN MORE IMPORTANT than your diet!

What Do We Know About Aging?

- Aging begins to accelerate in adulthood, with significant changes appearing around the age of 34.

Biological aging is not linear - it occurs in bursts.

Notable acceleration spikes first at 34,

then at 60, and again at age 78.

What Causes Aging?

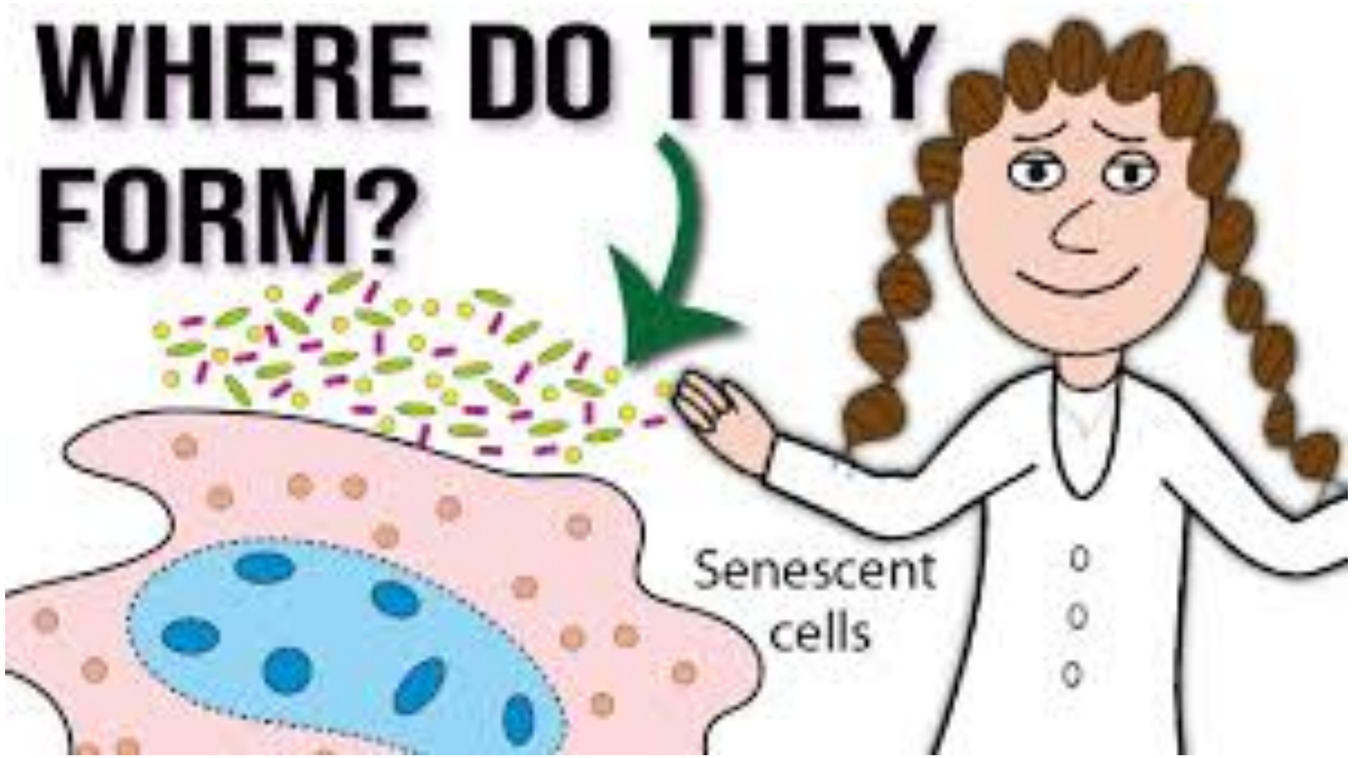
Telomeres Shortening

Every time a cell divides, its telomeres get a little shorter.

When they get too short, the cell can no longer divide and becomes SENESCENT (Stops dividing)

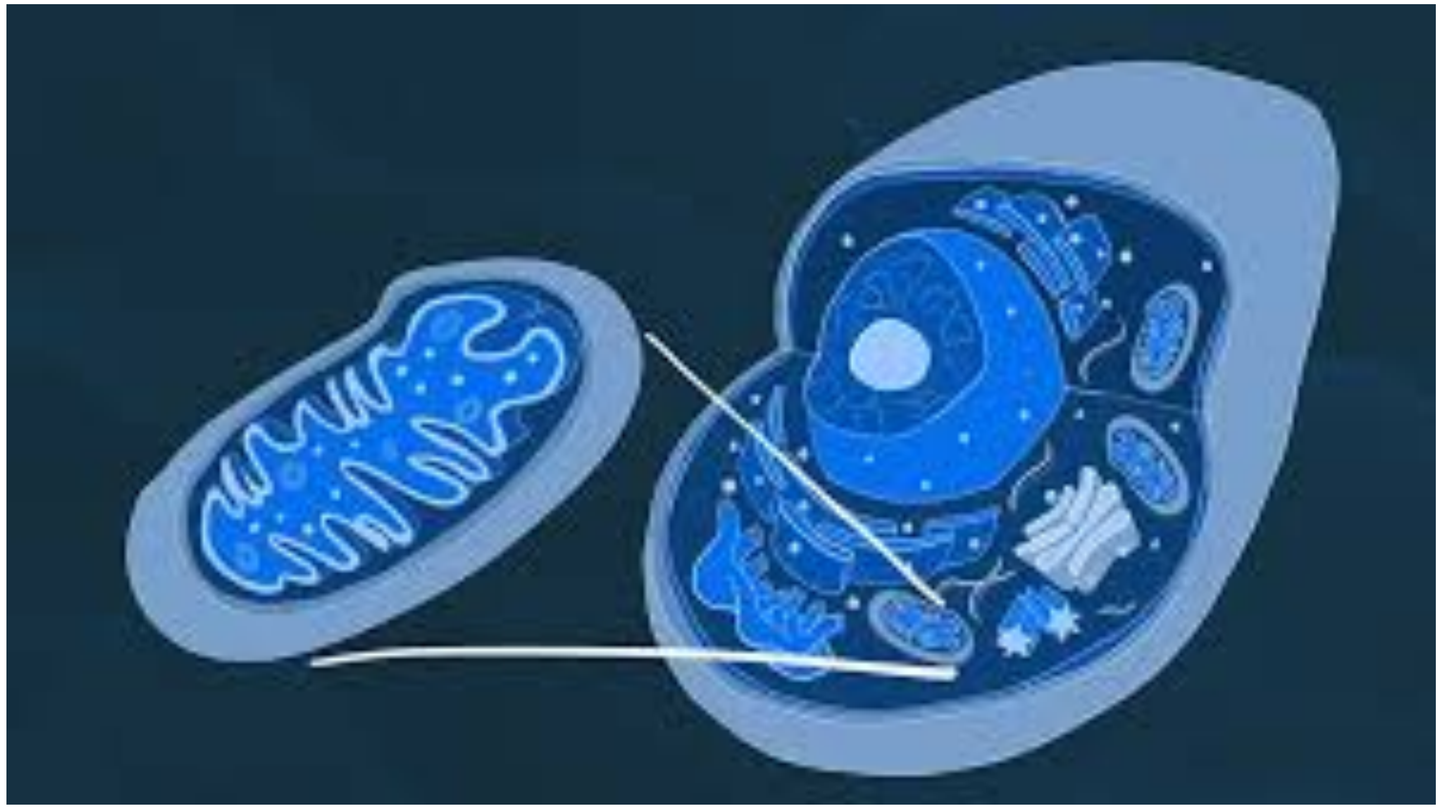
The Problem with Senescent Cells

- They accumulate in the tissues.
- Then they start to secrete inflammatory molecules.
- These molecules (inflammation) damage neighboring healthy cells leading to age related decline.



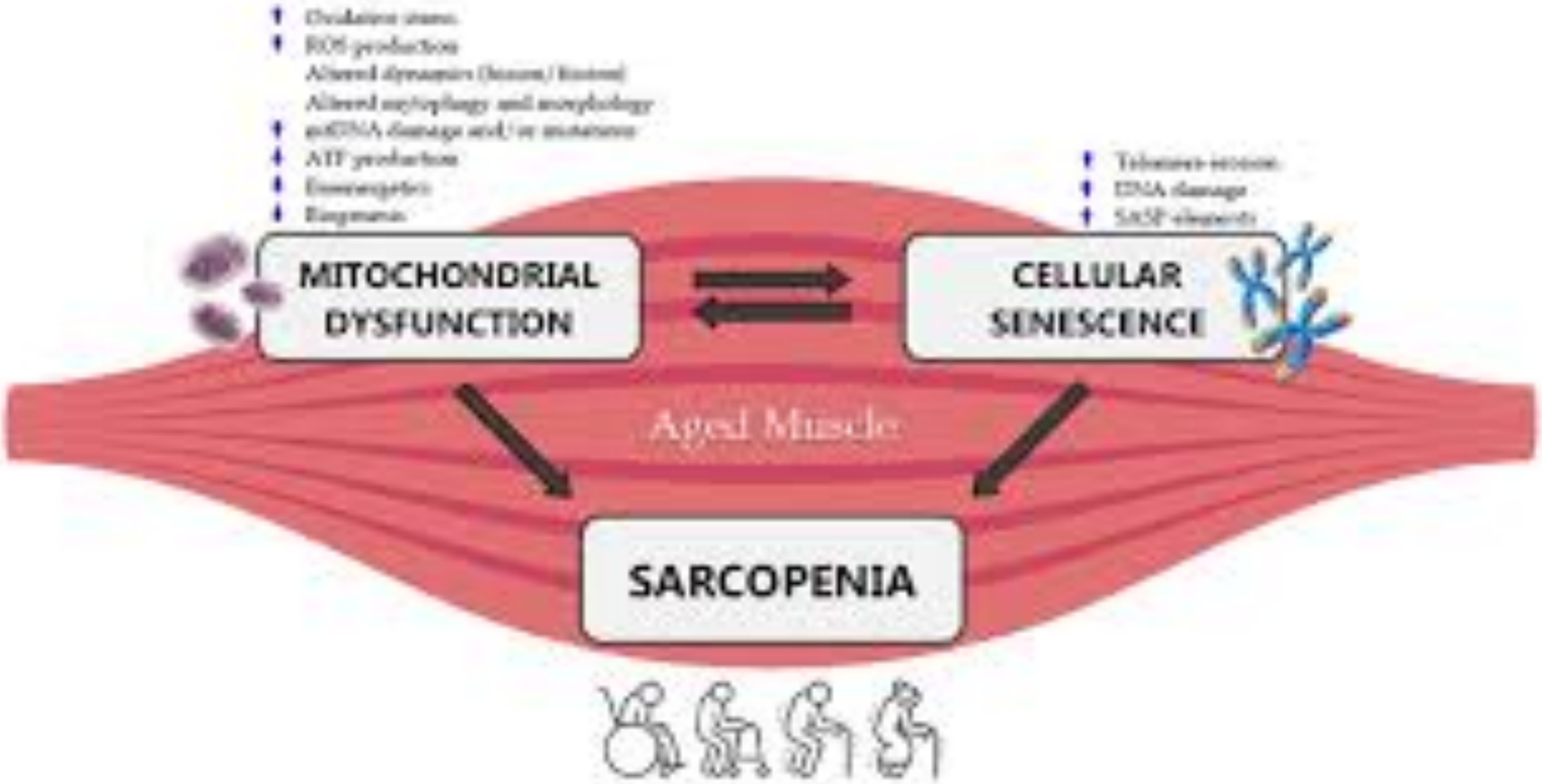
Mitochondria

What are mitochondria?



They are the “engines” in every cell that produce the energy (ATP) needed for all cellular processes.

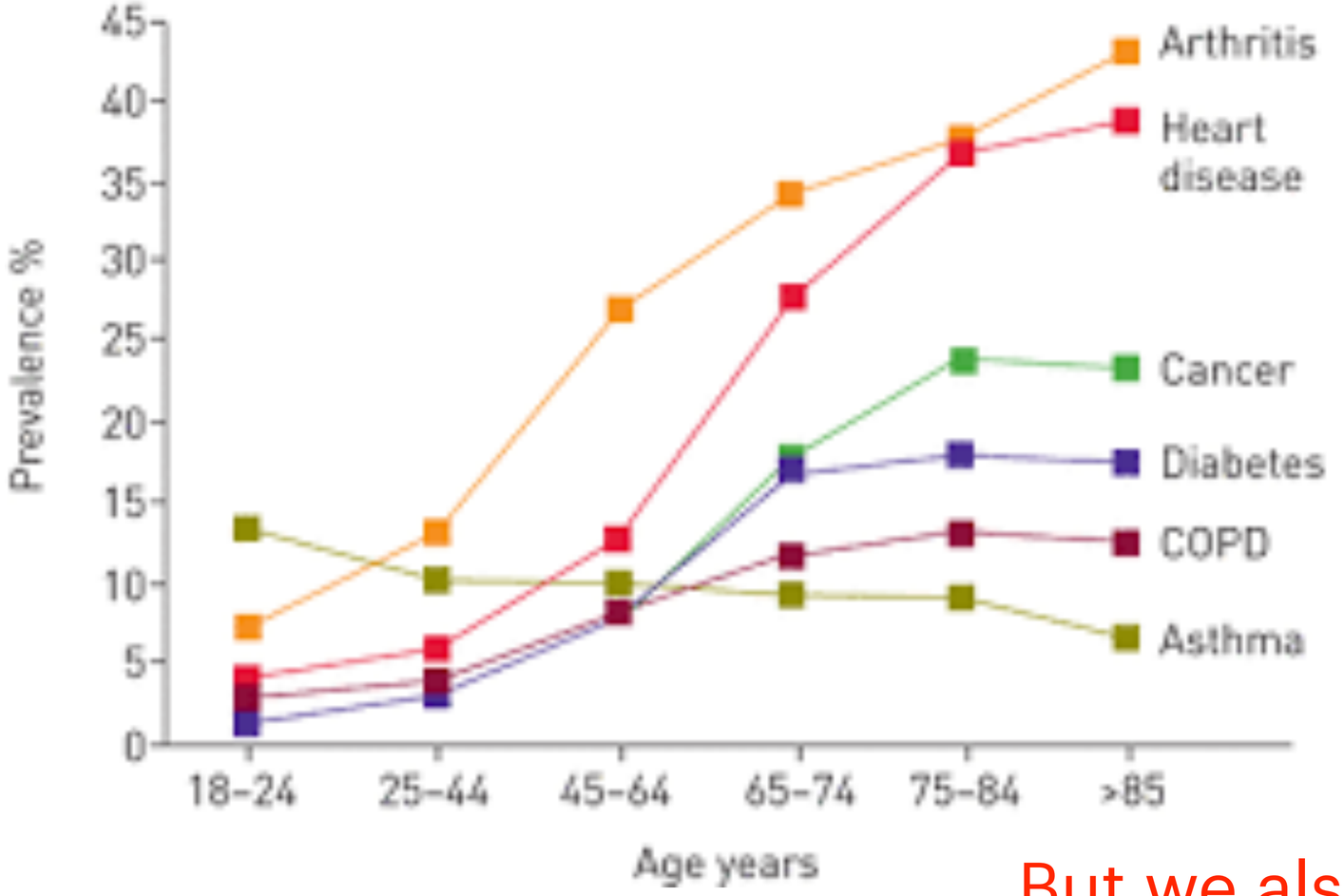
Mitochondrial Dysfunction



Mitochondrial dysfunction combined with cellular senescence contributes to the decline of tissues and muscles (sarcopenia).

Aging Causes an Increase in Metabolic Diseases

Both senescent cells and dysfunctional mitochondria contribute to aging and age related diseases.



But we also have a solution!

The Solution: EXERCISE

Nothing surpasses regular exercise for the promotion of healthy living.

Exercise can be viewed as the single most effective medical intervention that we know.

Here's What's Getting Better with Exercise

- Cardiovascular system
- Skeletal muscle
- Brain
- Peripheral blood vessels
- Immune system
- Mitochondrial function

I'm Too Busy!

- One minute of high intensity exercise gives you 8 minutes of extra life.

- 450 minutes a week of brisk walking gives you 4.5 years of extra life. (650,000 people in this study)

Meta-analysis of 196 Studies on the Benefits of Exercise

- 30 million participants.
- 31% reduction of all-cause mortality.
- More activity = more benefits.

Exercise Guidelines - Types of Exercise

Moderate

- Walking
- Bicycling
- Dancing

- Gardening

Vigorous

- Jogging
- Swimming
- Aerobics

- Elliptical

Meeting the Guidelines

Moderate - 150 minutes/week.

Vigorous - 75 minutes/week.

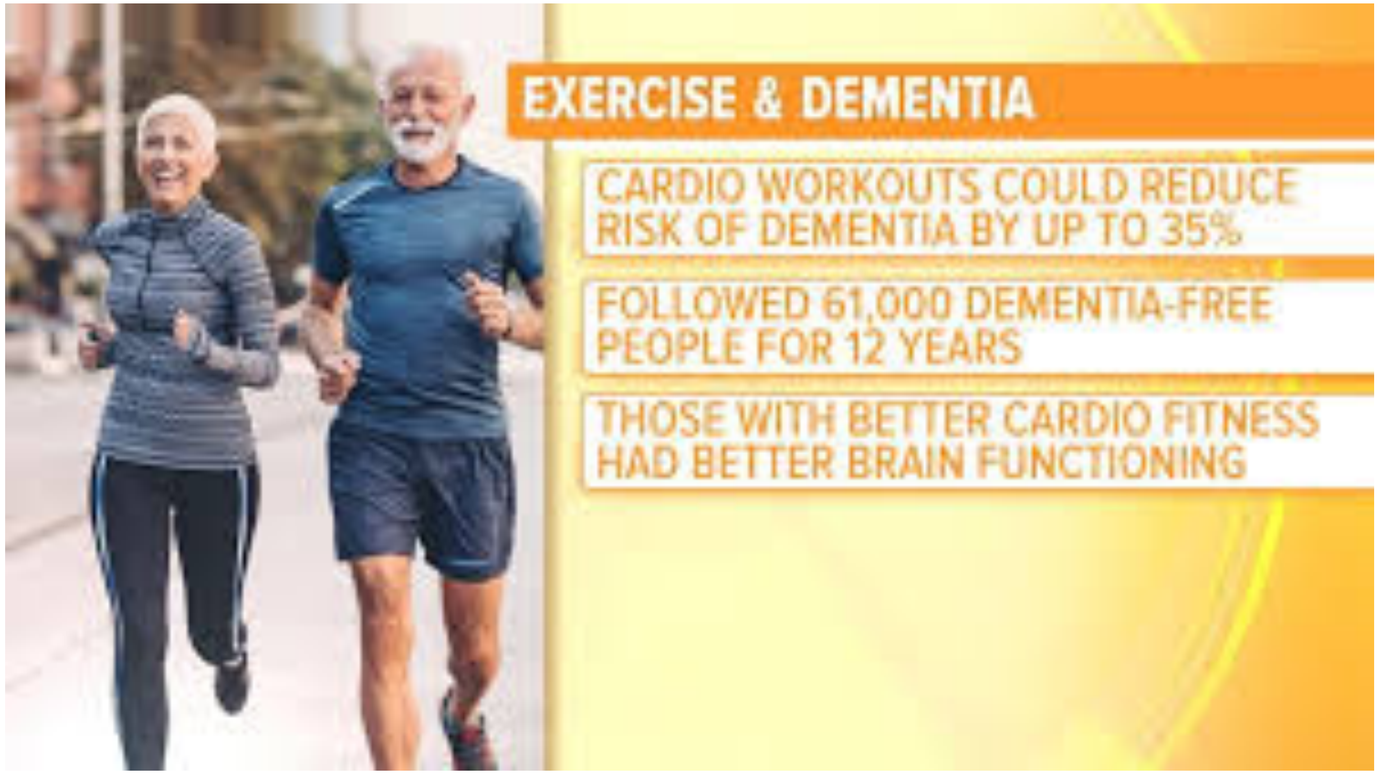
One in four Americans meet the guidelines

Exercise and Cancer

The study: 75,000 participants followed for 10 years.

The result: More exercise, less cancer.

Exercise and Dementia



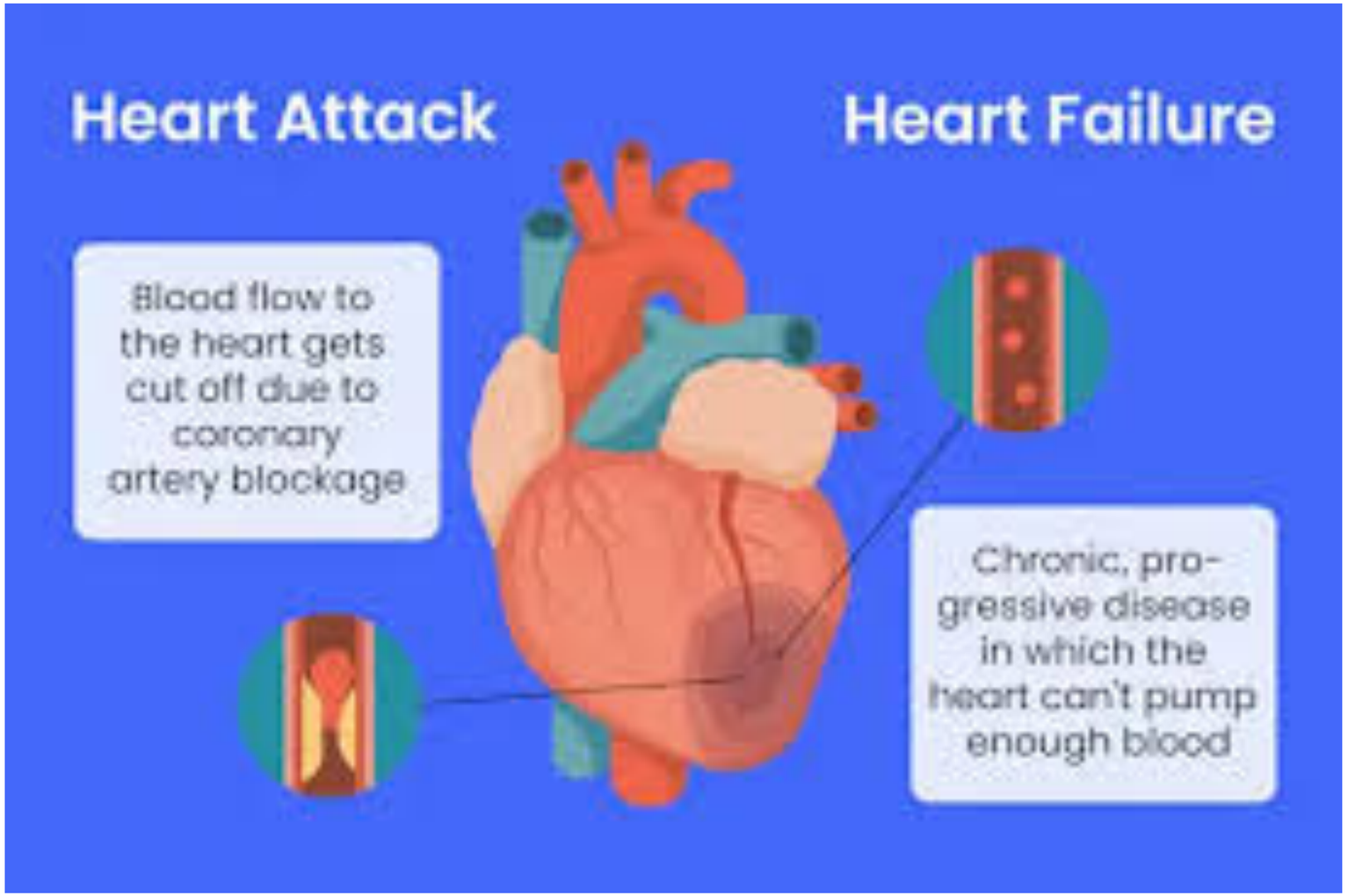
Study: 78,000 participants followed for 7 years.

Result: Lower rates of dementia due to increased brain neurogenesis.

Cardiovascular Health

Cardiovascular Disease

Cardiovascular Disease - Two Types

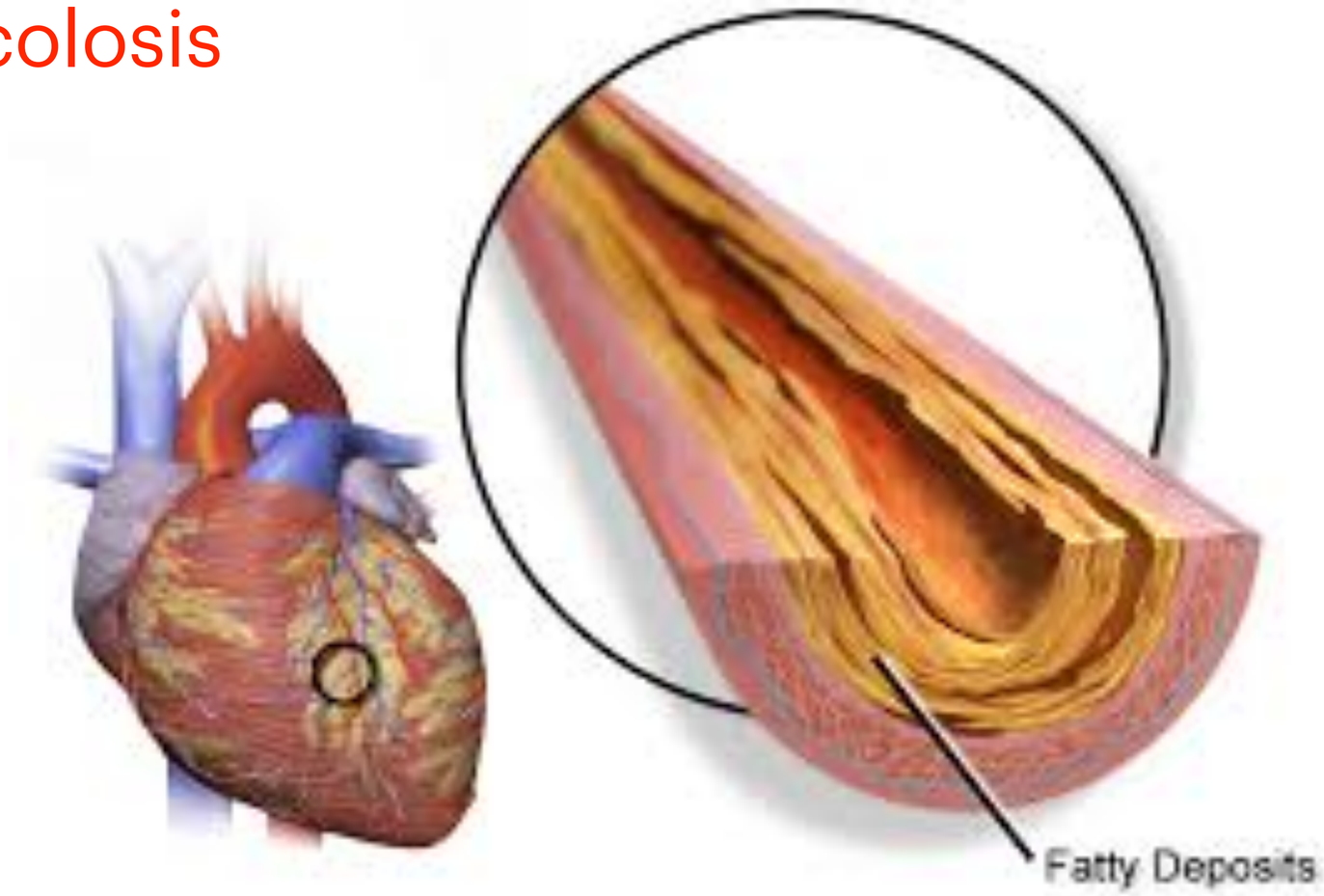


6.2 million adults in the U.S have heart failure.

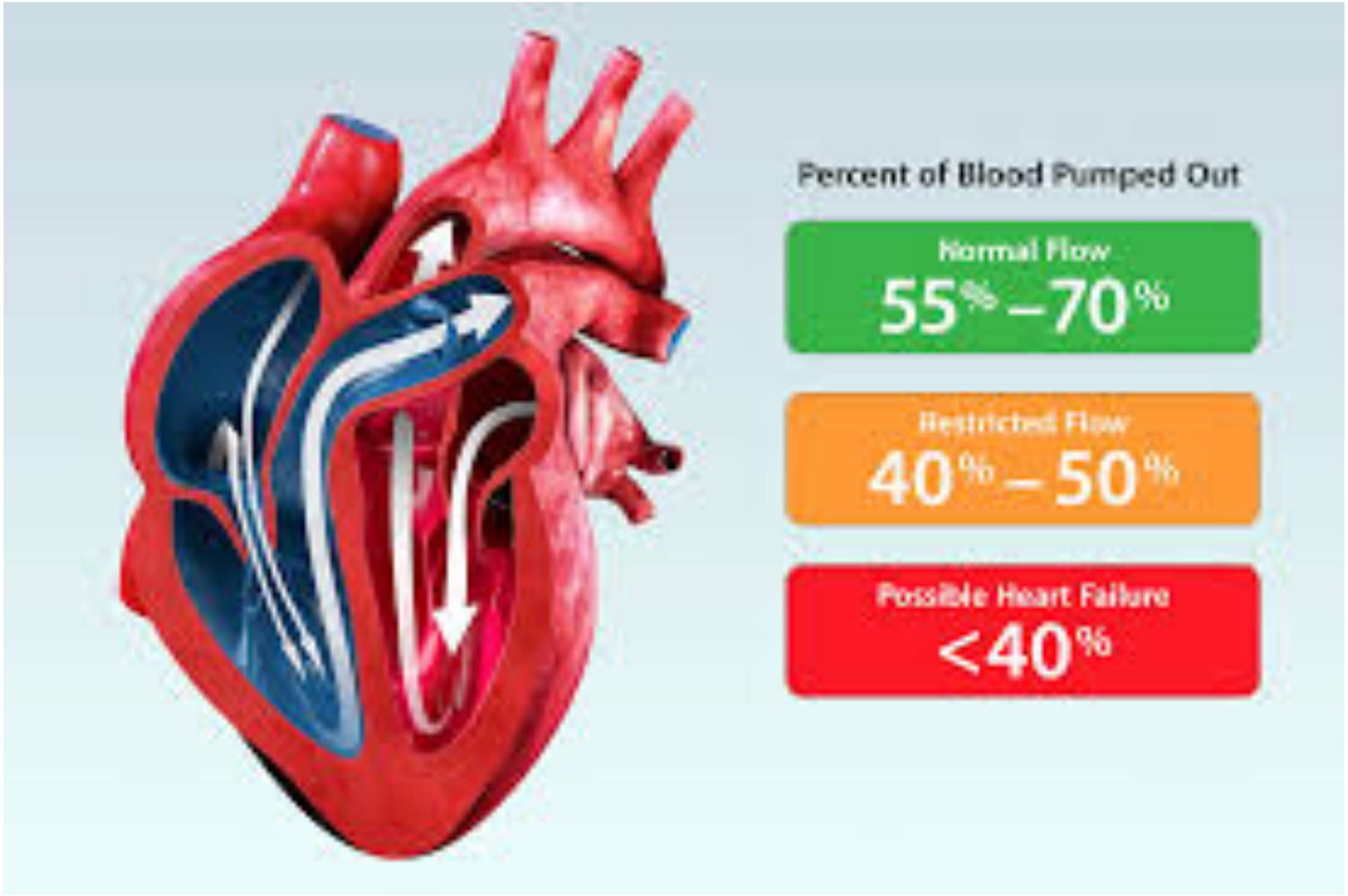
A progressive disease - the heart can't pump enough blood.

Cause of Heart Attacks

Atheroscolosis

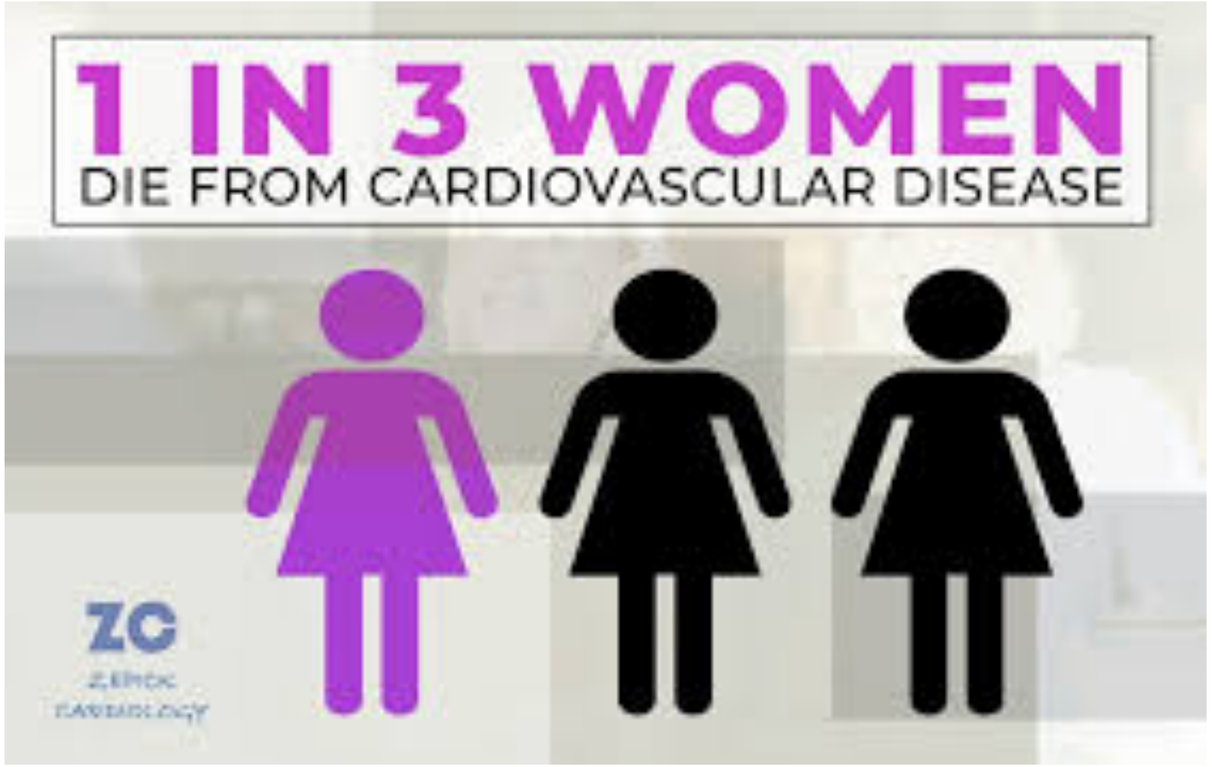


Heart Failure



The heart can’t pump enough blood - ejection fraction.

A Sad Fact



The statistics are nearly equal for men.

Review

- Aging spikes at age 34, 60, and 78.

- Aging is a function of cells not performing their jobs as they once did.

- Mitochondria are the “engines” in every cell that produce the energy needed for all cellular processes.

Review

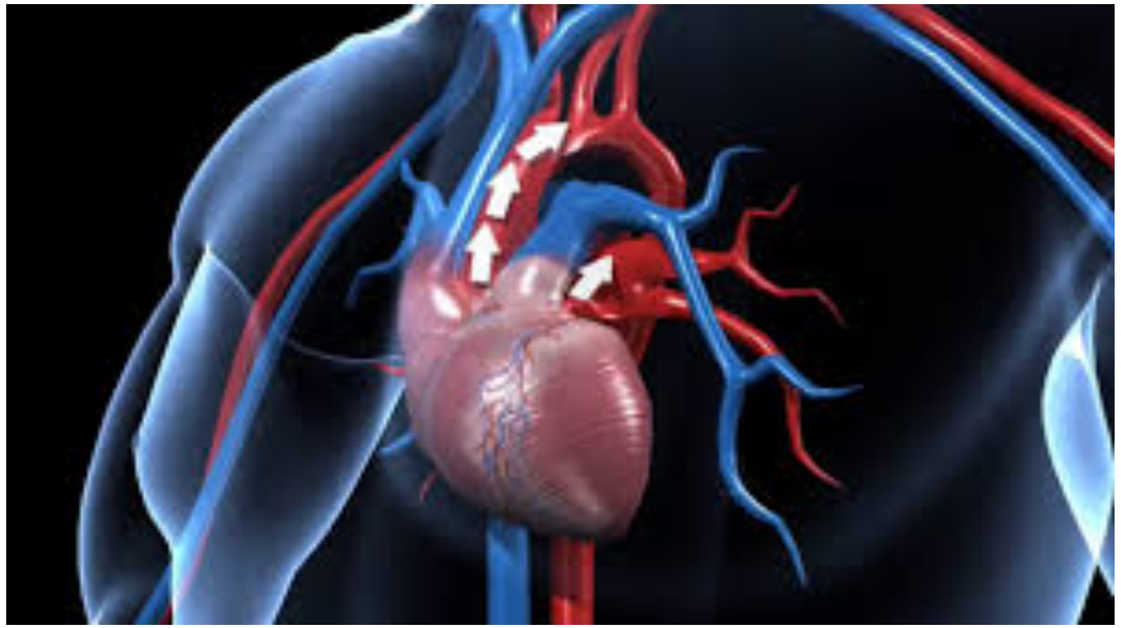
- Exercise can be viewed as the single most effective medical intervention that we know.

- A one hour walk each day can add 4 1/2 years to your life.

- Exercise can reduce your risk of getting cancer.

Cardiovascular Health

Enhancing Heart Health Through Cardio



- Helps the heart pump more efficiently.
- Decreases the risk of heart attacks and strokes.
- Increases the efficiency of oxygen delivery through the body.

Enhancing Metabolic Health Through Cardio

- Creates a caloric deficit.
- Increases the rate your body burns calories.
- Reduces risk of diabetes.

Enhancing Mental Health Through Cardio

- Increases release of endorphins, lifting mood.
- Improves memory by increasing blood flow to the brain.
- Improves sleep.

Enhancing Longevity Through Cardio

- Has been linked to longer lifespan.
- Lowers the likelihood of developing a chronic disease.
- Improves overall physical function and independence in daily activities.

Understanding Exercise Intensity Zones

Intensity Zones refers to the level of effort in a physical activity.

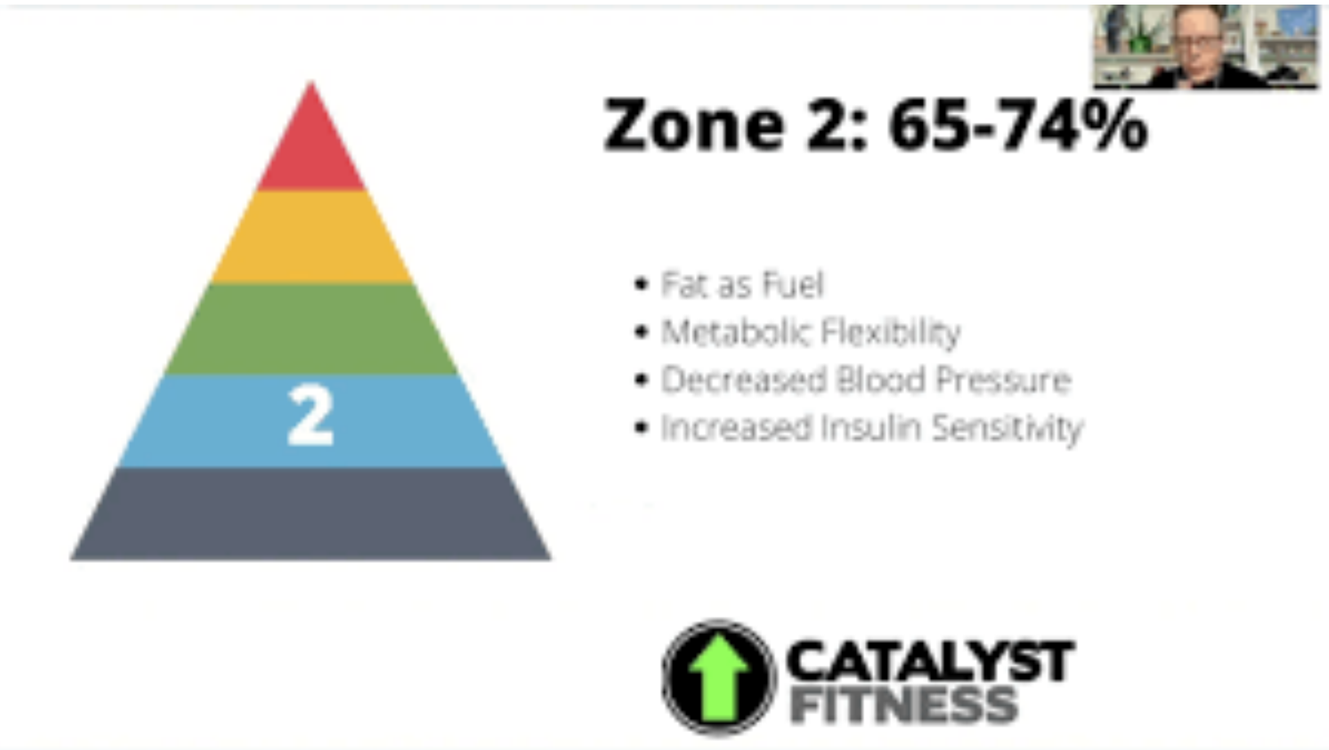
Zone 2 is moderate - the aerobic zone.

Zone 5 is high intensity - the anaerobic zone.

Both zones offer unique benefits and are essential for a well-rounded fitness routine.

Zone 2 - the Aerobic Zone

Definition: Moderate intensity. You can hold a conversation but feel slightly out of breath.



Heart rate: 65 - 74% of maximum.

Zone 2 Examples

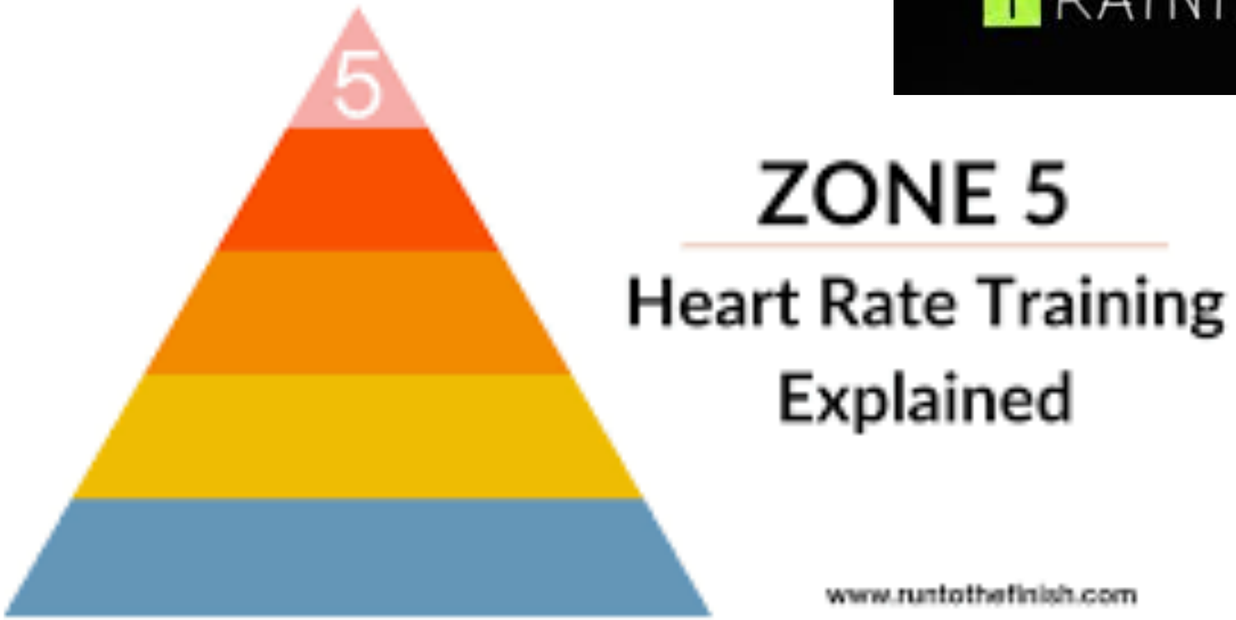
Brisk walking.

Easy jogging.

Cycling at a steady pace.

Zone 5 - the Anaerobic Zone

Definition: High intensity. Talking is difficult and effort is near maximum.



Heart rate: 90 - 100% of maximum.

Zone 5 Examples

Any type of exercise - running, cycling, treadmill, elliptical, etc. can be used to perform HIGH INTENSITY INTERVAL TRAINING.

There are several popular types, each involving differences in the times between intensity and rest.

Zone 5 - REHIT Training (Reduced Exertion High Intensity Interval Training)

Designed to be as short as possible while still triggering a powerful physiological result.

- Warm-up - 2 minutes.
- Sprint - 20 seconds.
- Recovery - 3 minutes.
- Sprint - 20 seconds.
- Cool down - 3 minutes.

REHIT Sprint

You must sprint like you are running from a tiger

for 20 seconds. Rest three minutes, then do it again.

REHIT Benefits

- Your body undergoes adaptations at a cellular level, increasing the efficiency of mitochondria.
- Improves insulin sensitivity.
- Improves fat burning.

Improves your VO2 max (measures cardiovascular fitness).

REHIT Advantage

- Very similar benefits to other Zone 5 training methods with far less time commitment.

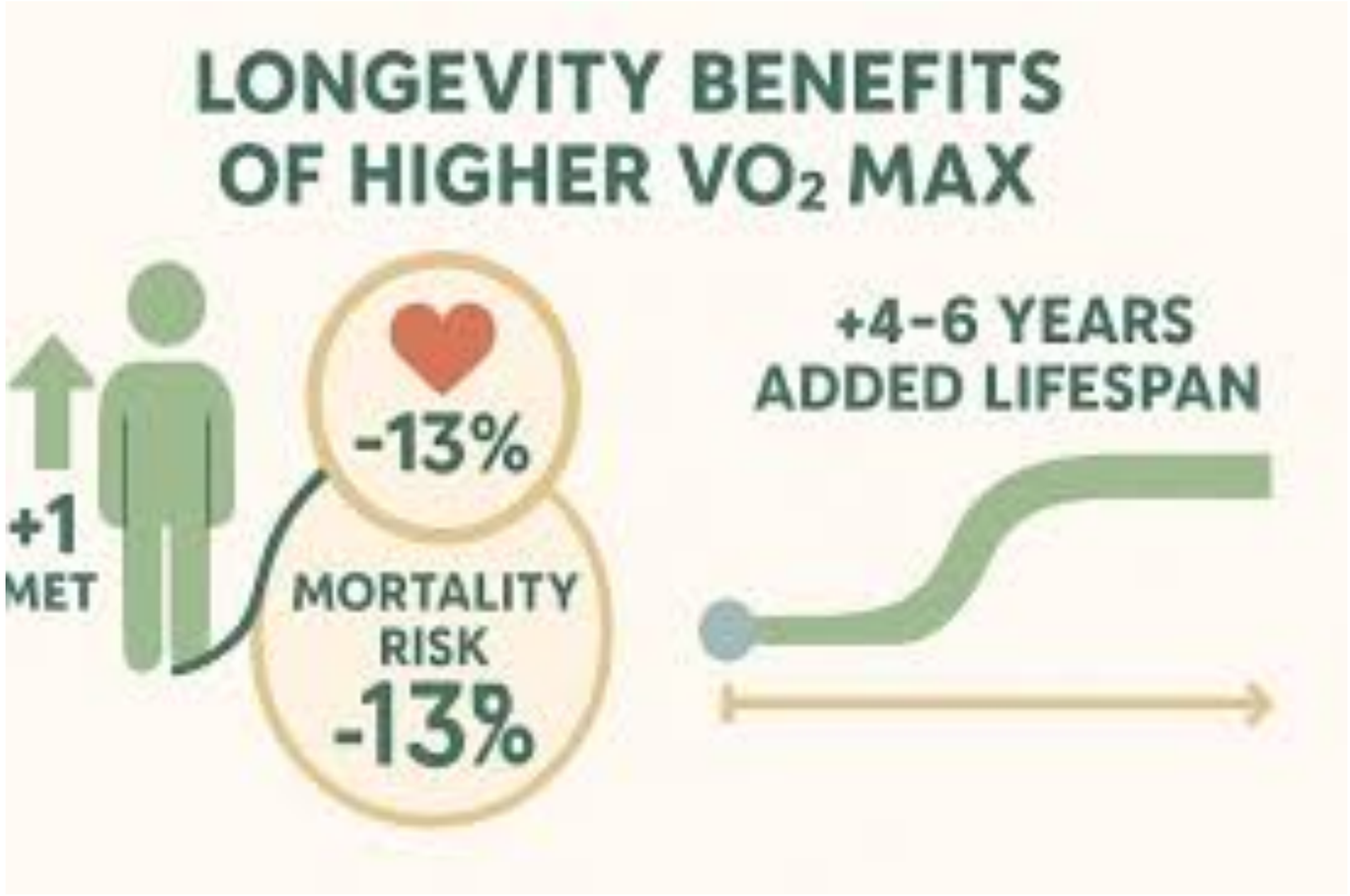
- Should only be done twice a week.

VO2 Max

The maximum oxygen used during exercise.

Best indicator of both aerobic and cardiovascular fitness.

Improving VO2 Max



Both HIIT and LSD (long slow distance training) can have a positive affect on VO2 max.

A Training Program Combining Zone 2 and Zone 5

Monday: Zone 2 (45 - 60 minutes).

Tuesday: REHIT (10 minutes).

Wednesday: REST DAY.

Thursday: Zone 2 (45 - 60 minutes).

Friday: REHIT (10 minutes).

Saturday: Zone 2 (45 - 60 minutes).

Sunday: REST DAY.

Review

- Cardio can reduce the risk of heart attacks and strokes.
- Cardio reduces the risk of diabetes.
- Cardio can improve mood, memory and sleep.
- Cardio lowers the likelihood of developing a chronic disease.

Review

- You must incorporate both Zone 2 and Zone 5 training into your fitness routine.

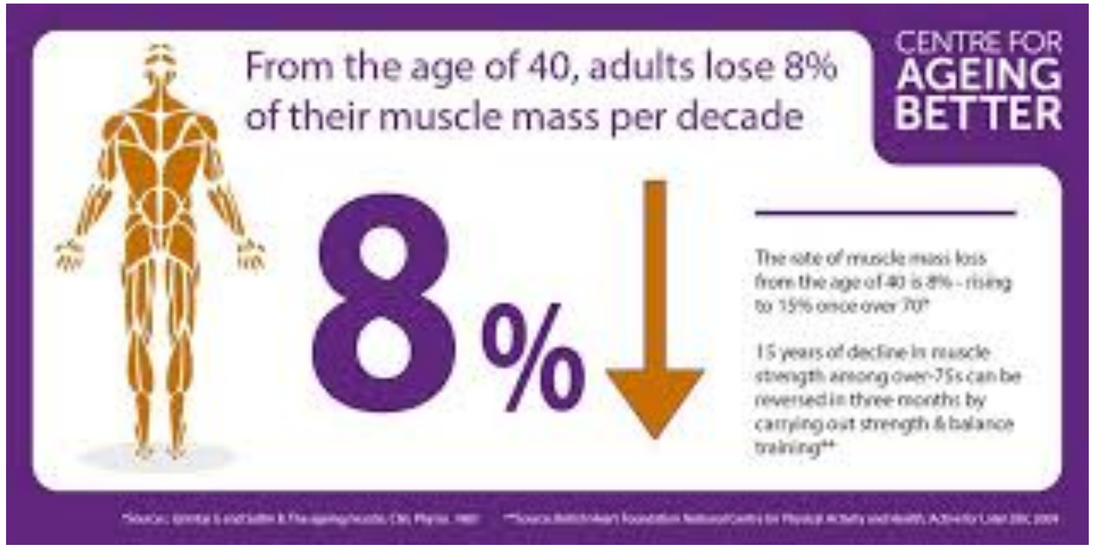
- REHIT Training can significantly reduce the time you spend doing cardio exercise.

- VO2 Max is the strongest predictor of life expectancy.

Strength Training

Strength Training

You age in this order:



- First you lose power.
- Next you lose strength.
- Then you lose muscle mass.

Strength Training

Resistance Training involves using weights, bands, or body weight to build muscle strength and endurance.

Why Seniors Need Resistance Training

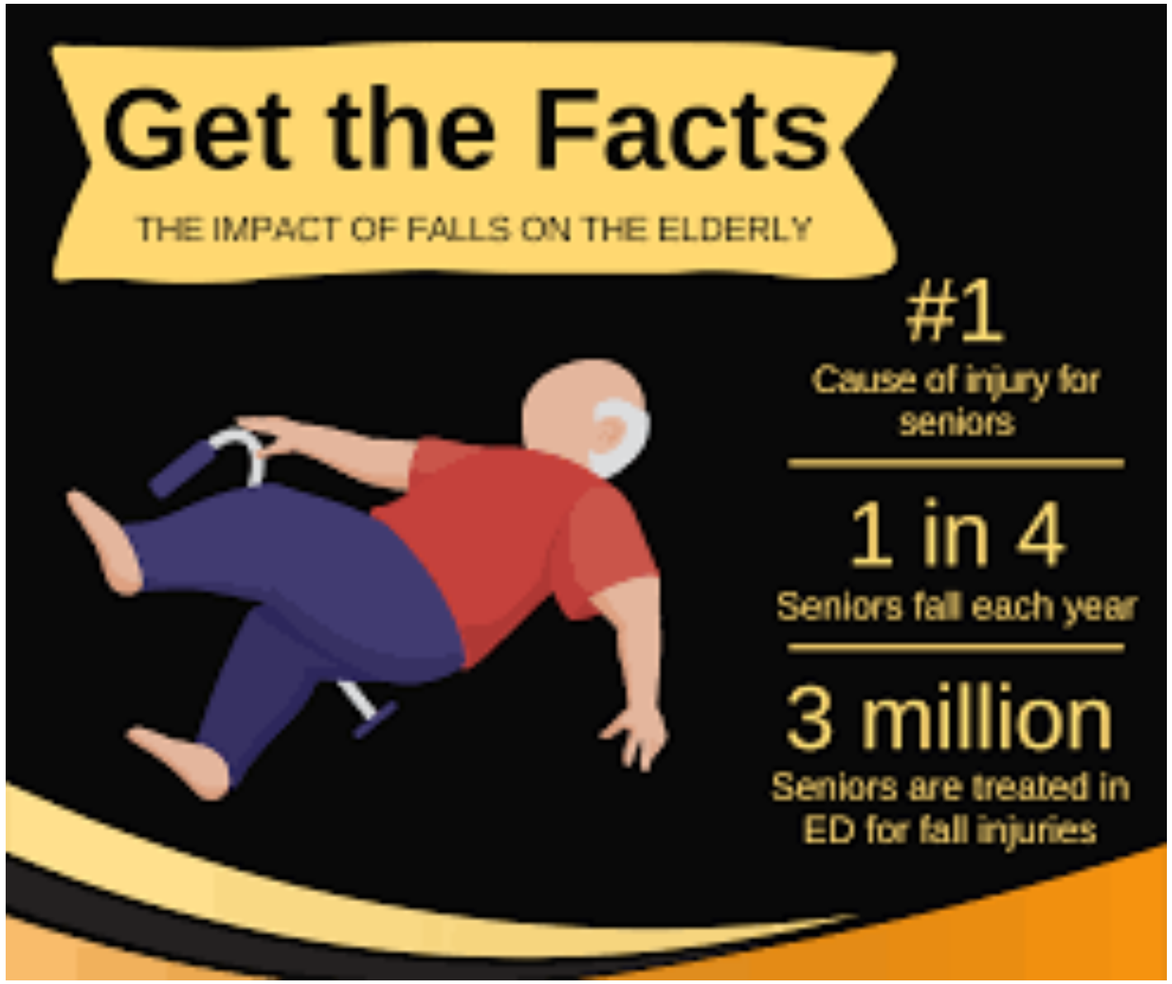
As we age, muscle

mass and strength

gradually decline.

That is called
SARCOPENIA.

Benefit #1 - Improved Muscle Strength and Function



Resistance training increases muscle strength, making daily activities easier and reducing the risk of falls.

Benefit #2 - Increased Bone Density

Weight bearing exercises stimulate bone growth, helping to prevent osteoporosis.

Stronger bones reduce the risk of fractures and improve overall skeletal health.

Benefit #3 - Increased Metabolic Health

- Increased muscle mass causes more calories to be burned at rest.
- Muscle mass also increases insulin sensitivity, reducing the risk of Type 2 Diabetes.

Benefit #4 - Better Mental Health and Cognitive Function

Reduces symptoms of depression and anxiety in older adults.

May slow down age related mental decline.

Let’s Excercise!

Quadriceps

Sit to Stand

Hip Flexibility

Hip Circles

Hip Flexibility

Single Leg Circle

Lower Back

The Hinge

Hamstrings

Touch Toes

Quadriceps and Knees

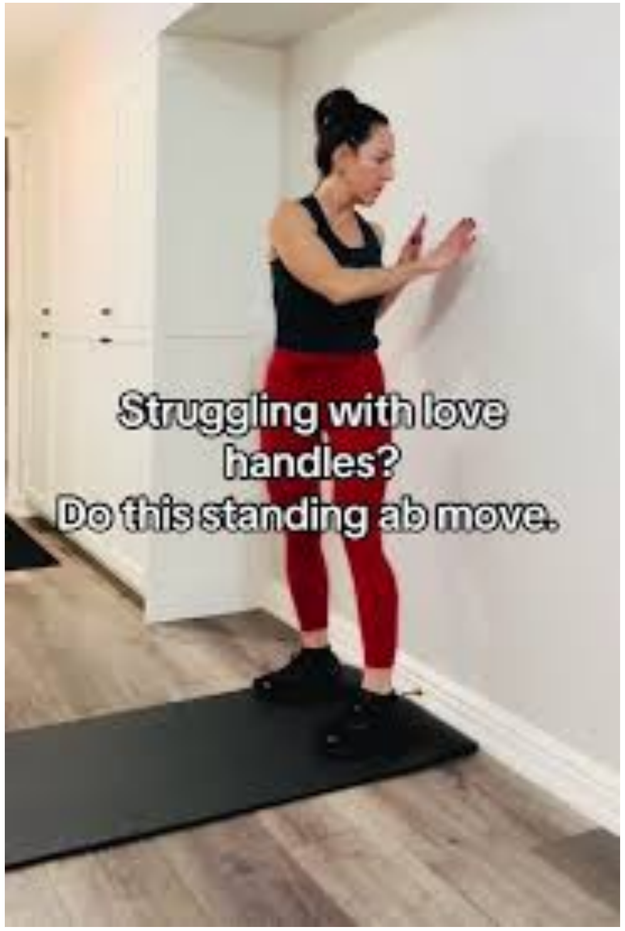
Wall Sit

Posture

Standing Wall Extension

Torso Mobility

Standing Wall Twist



Balance

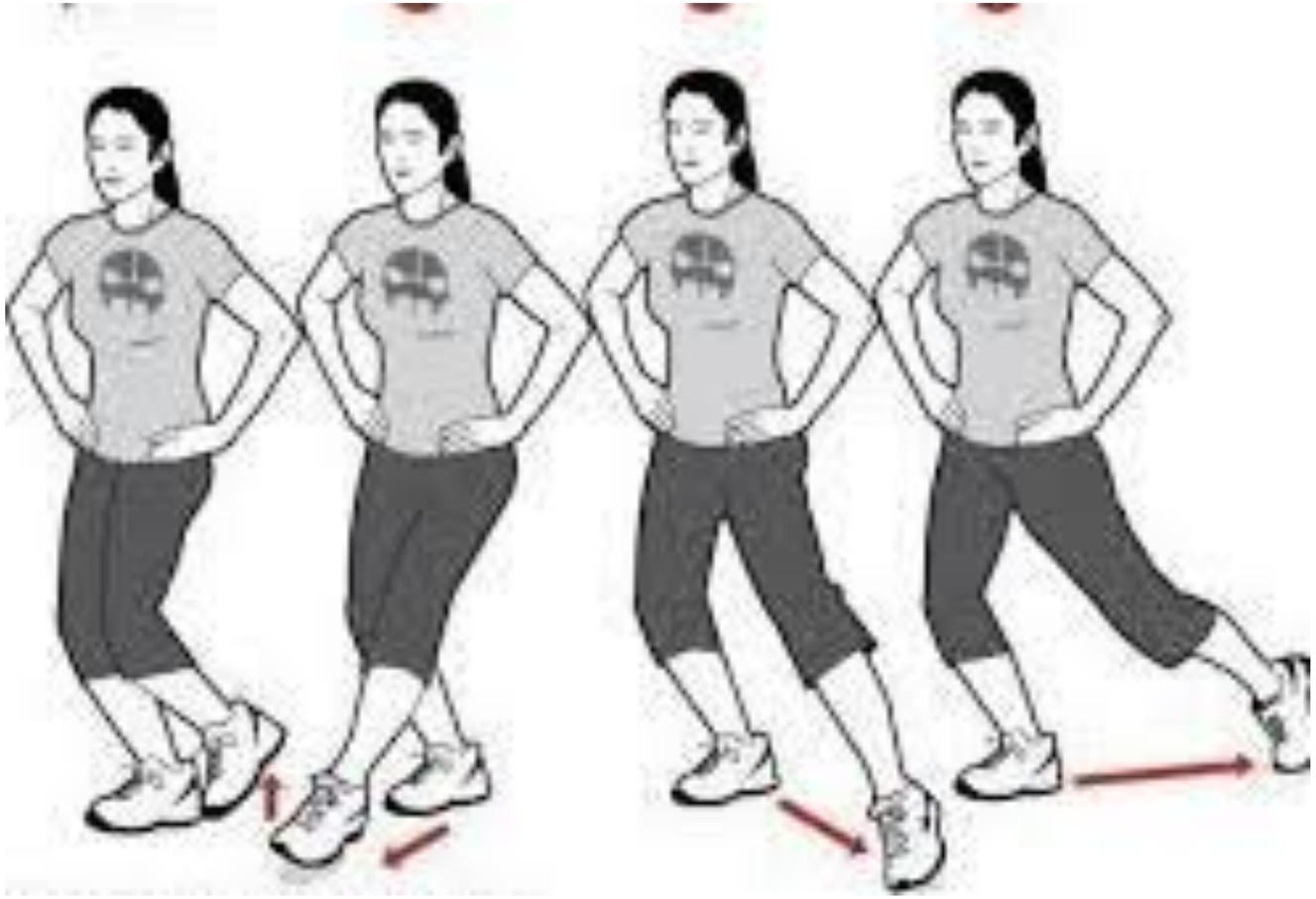
Single Leg Stand

Balance

Proprioception Exercise
Tight Rope

Balance

Proprioception Exercise
Toe Tap



Review
What You learned Today

- Aging is caused by senescent cells and mitochondrial dysfunction.
- Exercise is the single most effective intervention to prevent aging.
- A brisk walk every day can add 4.5 years to your life.
- Exercise can decrease your risk for Cancer, Dementia, and Cardiovascular Disease.

Review
What You learned Today

- Cardio Training increases your VO2 Max, the number one predictor of longevity.

- You must combine both Zone 2 and Zone 5 Training for optimal benefits.

- 3 million seniors are hospitalized each year due to falls.

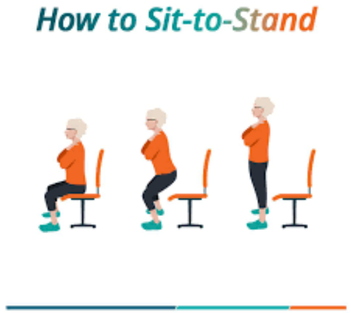
Review
What You learned Today

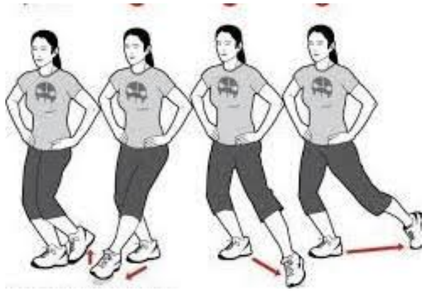
- Resistance training improves muscle strength, increases bone density, increases metabolic health, and improves cognitive function.

- 3 million seniors are hospitalized each year due to falls.

- Balance exercises can prevent you from being one of them.

10 Exercises to increase your LEG STRENGTH, HIP MOBILITY, POSTURE, and BALANCE






When the Student is Ready,
the Teacher Appears
TELETOS