From Gait to Great: Scientific Pearls to Optimize Body and Brain Across the Lifespan



12th Annual Positive Aging Conference

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What You Will Learn Today

- 1. Practical strategies to improve physical activity for optimal health.
- 2. How small, evidence-based lifestyle changes in **sleep and nutrition** can have a significant impact on body and brain health.
- 3. The science behind **gait speed/moving your body** and why it matters to longevity and healthy aging.

Raise your hand if I am not speaking loudly or slowly enough – I get excited!

Why Choose Good to Great?

Greatness is not a function of circumstance. Greatness, it turns out, is largely a matter of **conscious choice, and discipline**.

This adage applies to the health of our bodies and our brains!



Why Some Companies Make the Leap... and Others Don't

BUILT TO LAST

7 Lessons from Good to Great for Brain Health

Gait to Great Principles

- 1. Progress requires personal drive and self-compassion
- 2. Surround yourself with people who share your healthy aging drive
- 3. Base health decisions on research not advertising
- 4. Match healthy habits to your passions and daily tasks (examples: picking up cane, answering the door, changing the TV channel, feeding pets, reaching for dishes)

Good to Great Lessons for Brain Health

5. Make healthy habits consistent

6. Embrace technology to meet your body and brain health goals – what has worked for you?

7. Strive for gradual consistent momentum and be kind to yourself for progress – suggestions?



Sleep Matters



Over-the-Counter Sleep Medications



A BREAKDOWN OF THE CLEANUP



Special nervous system cells sweep in to scavenge additional waste.



Brain cells perform autophagy ("self eating"), mopping up diseased and damaged bits of protein and metabolic waste.



The glymphatic system flushes out dirty fluid and molecules from inside the brain tissue through a network of pathways. Clean cerebrospinal fluid replaces it.

Lymphatic vessels surrounding the brain deliver the waste to the lymphatic system, which rids the body of toxins, waste and other unwanted material.

Non-drug Approach, to help with sleep-related issues 222

Walk in

nature











Mindfulness Practice

Gardening

Before bedtime:

Turn down the lights

Avoid stimulating activities







 at Memory & Medications Webinar on 17 Nov 2022

Nutrition Matters



How Much Protein Each Day?



- Recommendation is 1 gram PROTEIN per kilogram of body weight
- A 150-pound person = 68 kilograms

Goal: 20-25 grams of protein each meal

PROTEIN CONTENT OF COMMON FOODS



(Estimated protein content & portion sizes of common foods)

www.ukfitnesspersonaltraining.com

Mental Fitness Habits

 Lifelong learning – what you're doing right now!

• Social interaction

• New or challenging hobbies



Movement as Medicine

Physical Activity: The Brain's Best Friend

- Promotes new brain connections
- Reduces inflammation
- Improves mood
- Helps maintain independence



What types of physical activity do older adults need to stay healthy?



YOUR WAY

Moderate-intensity aerobic activity

Anything that gets your heart beating faster counts.



Muscle-strengthening activity

Activities that make your muscles work harder than usual count.





Mix in activities to improve your balance!

Aim for a mix of aerobic, muscle-strengthening, and balance activities.



Try activities that count as more than 1 activity type, like dancing, sports, or tai chi.

If that's more than you can do right now, **start slow and do what you can** — even 5 minutes of physical activity has real health benefits.



Walk. Run. Dance. Play. What's your move?

Intensity of Common Activities







What works for you?



Why Gait to Great? The Science Behind Gait Speed

- A Vital Sign for Aging
- Correlates with longevity, frailty, risk of falls, and memory
- Reflects integration of brain, muscles, joints, posture



What about the weather?!

• Walking in shopping malls

• Walking pads

• Community Center

• Develop an indoor workout routine



Improve Balance, Coordination, and Strength

Tips:

- Heel-to-toe walk
- Chair rises
- Tai Chi, dance, yoga
- Weights lift overhead, stand with weights
- Practice daily: consistency > intensity



Other Considerations

- Move consistently
- Posture
- Hearing
- Glasses



- Wear supportive shoes
- Foot care
- Consider a walking aid (cane, walker, grocery cart)
- Count your steps

Wheelchair/Seated Exercises

Time to Move!



5 Great Exercises for Seniors in Wheelchairs



Arm Raises

For most people, being in a wheelchair requires constant use of arms, so it's imperative to put special focus on building strength this area of the body.

How to do it

- Tuck arms to the chest while holding a small weight or medicine ball.
- 2.) Extend arms over the head.
- 3.) Bend arms to bring them back to the original position.
- Complete 12 to 15 repetitions.



Aeroplane Arms

This exercise is most commonly used as a warm-up, but it's also very useful for building arm strength and endurance.

How to do it

- 1.) Sit in wheelchair with posture kept straight.
- 2.) Raise arms straight out to the sides.
- 3.) Start slow circular movements with arms. Begin with small motions and move on to larger circles as strength is built.

Aim for a minimum of 20 repetitions, starting clockwise and then switching to counterclockwise.



Side Twists

Side twists are a great exercise for people in wheelchairs because they strengthen the core. By working on core strength, strain on back muscles can decrease, which helps manage pain.

How to do it

- 1.) Sit up straight in wheelchair.
- 2.) Twist body to the left and hold the position for a few seconds.
- 3.) Return to original position, then twist to the right side.

Complete 12 to 15 repetitions.



Stretch Out

Stretching can improve mobility and flexibility, and helps with the muscle-building process. By stretching, built-up lactic acid in the body is released, which can aid in the prevention of soreness.

How to do it

- 1.) Raise arms over head as high as possible.
- 2.) Lean torso from left to right and back again.
- 3.) Lift legs up and down as capable.
- 4.) Slowly move neck around in a circular pattern.

Complete 5-7 repetitions.



Toe Tapping

Who says that exercise can't be fun? Toe Tapping is a great way to keep more flexible while singing to recorded music.

How to do it

- 1.) Sit upright in wheelchair.
- 2.) With feet flat on the ground, move toes up as high as possible and then down again, as you sing along to the music.
- 3.) This exercise can be done with both feet or one at a time.

Repeat the process 10-15 times.

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Good to Great Lessons for Brain Health

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Discussion and Share

"What's one small change you could make this week?"

1. What can you do to think sharper?

2. What can you do to move more?



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Healthy aging isn't about perfection — it's about progression.



Questions

Additional Slides for Reference

What Can We Do About Brain Health Across the Lifespan?

 <u>2023 AAN platform:</u> Brain health is a continuous state of attaining and maintaining the optimal neurologic function that best supports one's physical, mental, and social well-being through every stage of life



• <u>2024 Lancet Commission:</u> Modifiable risk factors are actionable conditions that impact brain health



Livingston. Lancet. 2024;404:572. Rost. Neurology. 2023;101:570.

Slide credit: clinicaleducationalliance.com:



Even Modest Increases in Activity Increase Life Expectancy



This bar graph displays the years of life gained when participants met various percentages of HHS guidelines for physical activity. 50% = 1.8 years. 100% = 3.4 years. 200% = 4.2 years. 300% = 4.5 years.

Article Source: Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis Moore SC, et al. (2012) Leisure Time Physical Activity of Moderate to Vigorous Intensity and Mortality: A Large Pooled Cohort Analysis. PLOS Medicine 9(11): e1001335. <u>https://doi.org/10.1371/journal.pmed.1001335</u>

"How Fast Do You Walk?"

"If you were crossing a street with a countdown timer, would you make it across in time?"

How far would you walk in a 30-minute stroll?

The Importance of Gait (Walking) Speed

• Individual Health Status

• Sensory Perception

• Muscle Strength

• Endurance

• Brain Health

• Mental Health



Gait Speed and Longevity





Try It Out – Measure Your Gait Speed!

- Walk 4 meters (13 feet) at your usual pace
- Time it and calculate your gait speed
- Demonstration
- 1 meter/second = 2.2 mph or 27 minutes to walk 1 mile

Measuring Gait Speed





This infographic summarizes the findings as reported in the manuscript published by Arem, et.al. JAMA Internal Medicine 2015

@NCIEpiTraining

Modifying Gait Speed



A gain of 0.1m/s predicts well-being





<1 m/s

A loss of 0.1m/s

Longer hospital stays Increased medical costs

More disability/poorer health status

Higher risk of falls

The Future?

