



UsAgainstAlzheimer's



Physical Activity
and Dementia



**BRAIN HEALTH
ACADEMY™**
UsAgainstAlzheimer's

Physical Activity and Dementia

October 10, 2024

Acknowledgements

This course is presented and developed in collaboration with the American College of Sports Medicine.



This course and continuing education credit is provided free of charge, with support from



Presenter



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Katrina L. Piercy is the Director of the Division of Prevention Science in the Office of Disease Prevention and Health Promotion (ODPHP) in the United States Department of Health and Human Services (HHS) and serves as a dietitian officer in the United States Public Health Service Commissioned Corps. As a Clinical Exercise Physiologist and Registered Dietitian, Dr. Piercy advises agency and departmental senior officials on current physical activity and nutrition science to inform policies and programs related to health promotion and disease prevention. Most recently, she led the development of the Physical Activity Guidelines for Americans Midcourse Report: Implementation Strategies for Older Adults, which provides guidance on how older adults can incorporate more physical activity into their lives.

Course Description

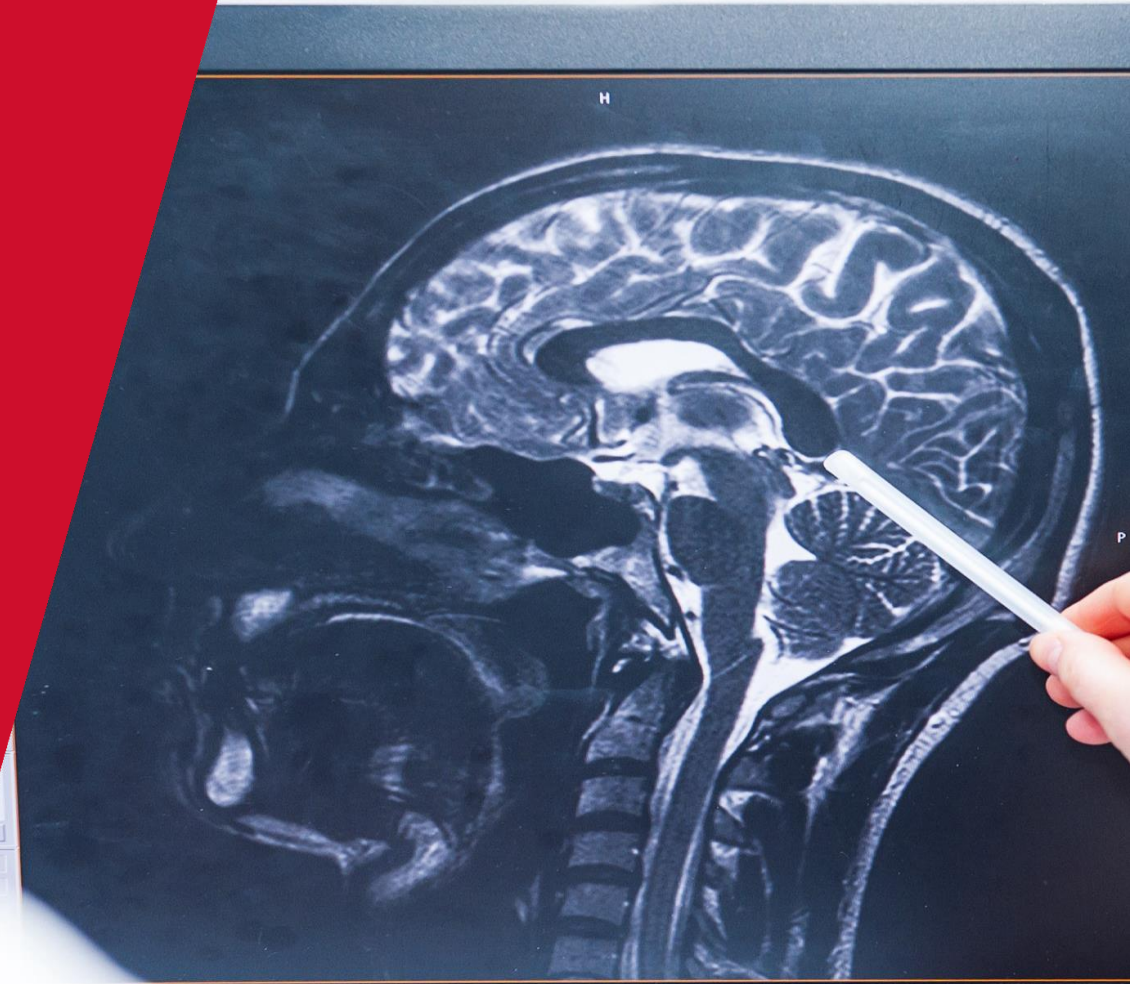
Physical inactivity is one of the known modifiable risk factors for dementia. Numerous studies have highlighted the positive impact of exercise on cognitive function and the risk of developing dementia. This course moves from knowledge to application by providing actionable guidance and tools to help providers effectively address this opportunity with patients and families.

Learning Objectives

- List 6 or more modifiable risk factors for dementia
- Summarize the link between physical activity and dementia
- Identify effective intervention and strategies to address physical activity with a special focus on adults 45+ years
- Identify special considerations for high-risk populations

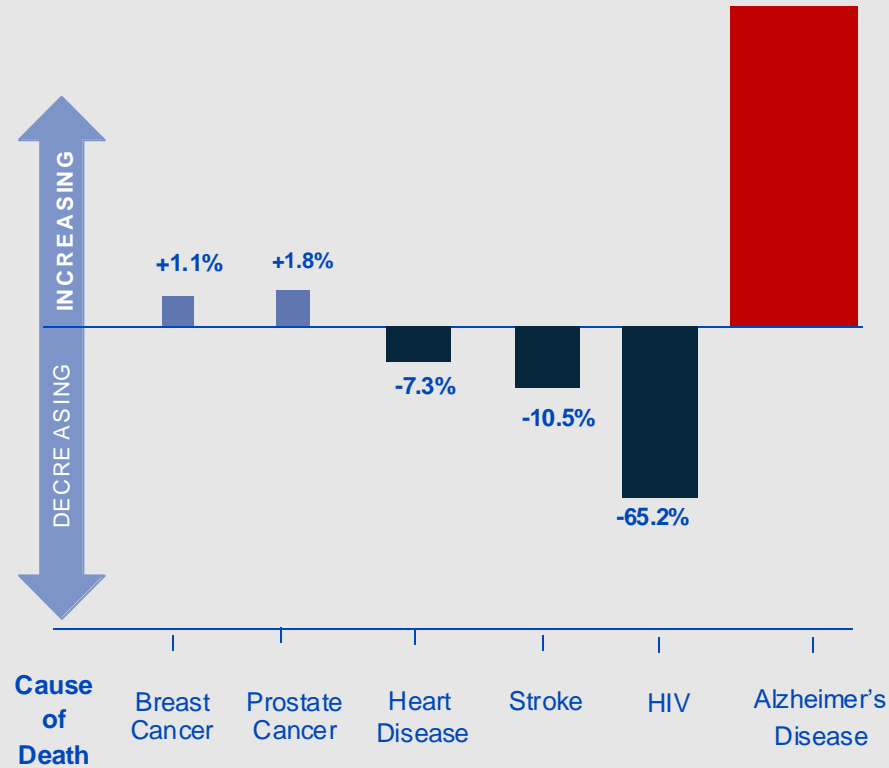
01

Facts: Alzheimer's and related dementias (ADRD)



Scope of the Epidemic (U.S.)

- 6.5 million adults
- 1 in 9 adults age ≥ 65
- 1 in 3 adults age ≥ 85
- 2/3 are women
- Alzheimer's deaths increased 145% from 2000-2019, while other top causes of death have declined



(BAR GRAPH NOT TO SCALE)

Inequities in Brain Health

African American people are
2X AS LIKELY
to have Alzheimer's

Latino people are
1.5X AS LIKELY
to have Alzheimer's



Less likely than White patients to receive a timely diagnosis;

In a recent study of Medicare beneficiaries, Black Americans (18.2%) and Latinos (15.8%) were less likely to receive a timely diagnosis when compared to Whites (23.3%).⁴



More likely to report experiencing racial discrimination along their patient and caregiver journeys;

Half of Black Americans (50%) and one in three Latino Americans (33%) report they have experienced healthcare discrimination.⁵



Less likely to be enrolled in cutting-edge Alzheimer's and brain health research.

Latino and Black Americans make up less than 10% of all clinical trial participants in active ADRD research.⁶

Health Disparities & Comorbidities for Alzheimer's in the African American Community

44% More Likely to have a stroke.

23% More Likely to live with obesity.

25% More Likely to die from heart disease.

72% More Likely to be diabetic.

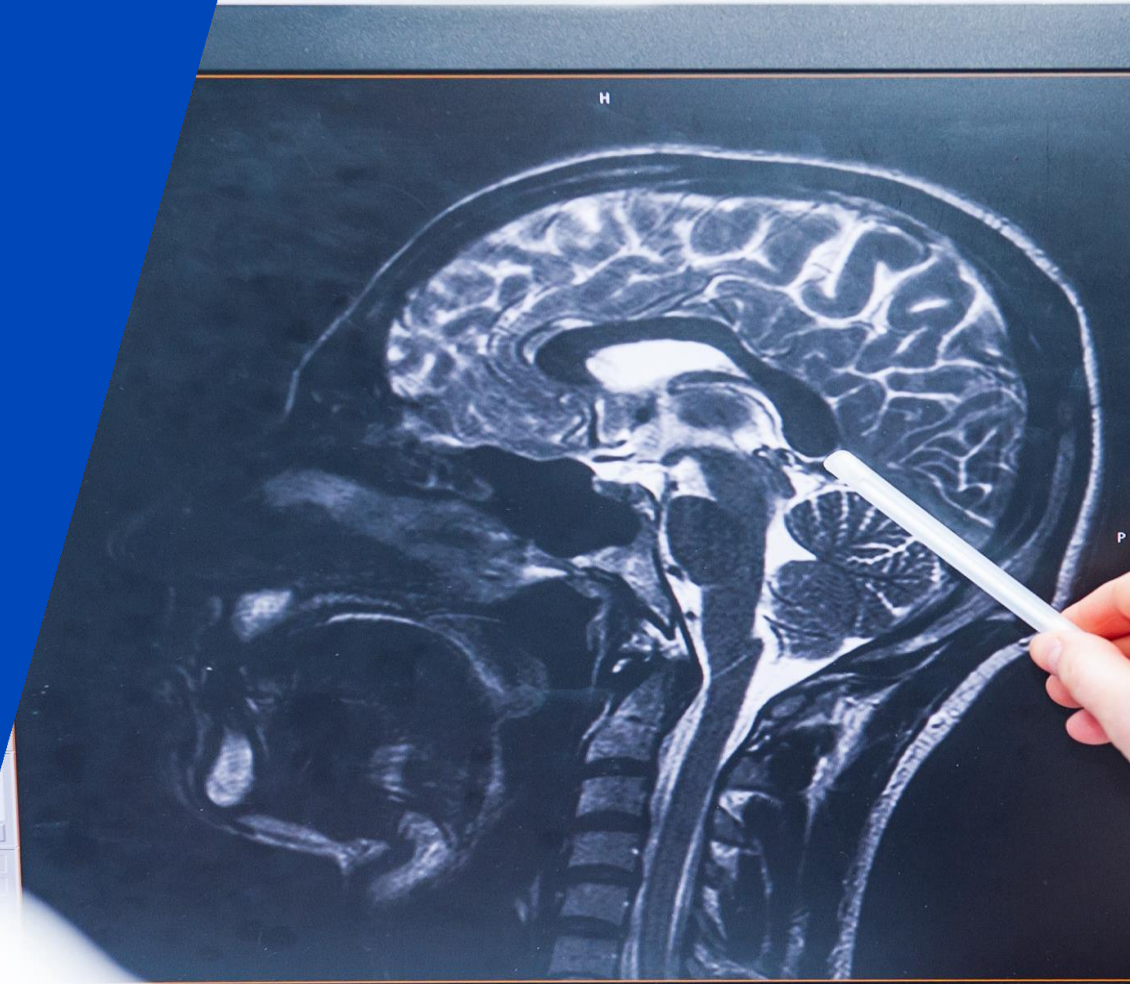
2X AS LIKELY
TO HAVE ALZHEIMER'S



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02

Modifiable Risk Factors for Dementia



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Alzheimer's: Non-Modifiable Risk Factors

Age

- Number one risk factor is advancing age.
- Risk doubles every 5 years after age 65.

Family History

- Genetics vs environmental factors.

Education

- Fewer years of formal education and lower levels of cognitive engagement may be risk factors.

Sex

- 2/3 of those with Alzheimer's are women.
- 16% of women age ≥ 71 (11% of men).
- After age 65, have more than 1 in 5 chance (1 in 11 for men).

Modifiable Risk Factors

{ 45% }
of dementia cases
could be prevented
by addressing
lifestyle factors

INCREASE

- Healthy Diet
- Physical Activity
- Mental Activity
- Cognitive and social activity

DECREASE

- Hypertension
- High cholesterol
- Uncontrolled diabetes
- Obesity
- Smoking
- Depression
- Excessive Alcohol Intake
- Head Injury
- Air Pollution
- Hearing Loss
- Vision Loss

03

The link between Physical Activity to Alzheimer's and related dementias (ADRD)

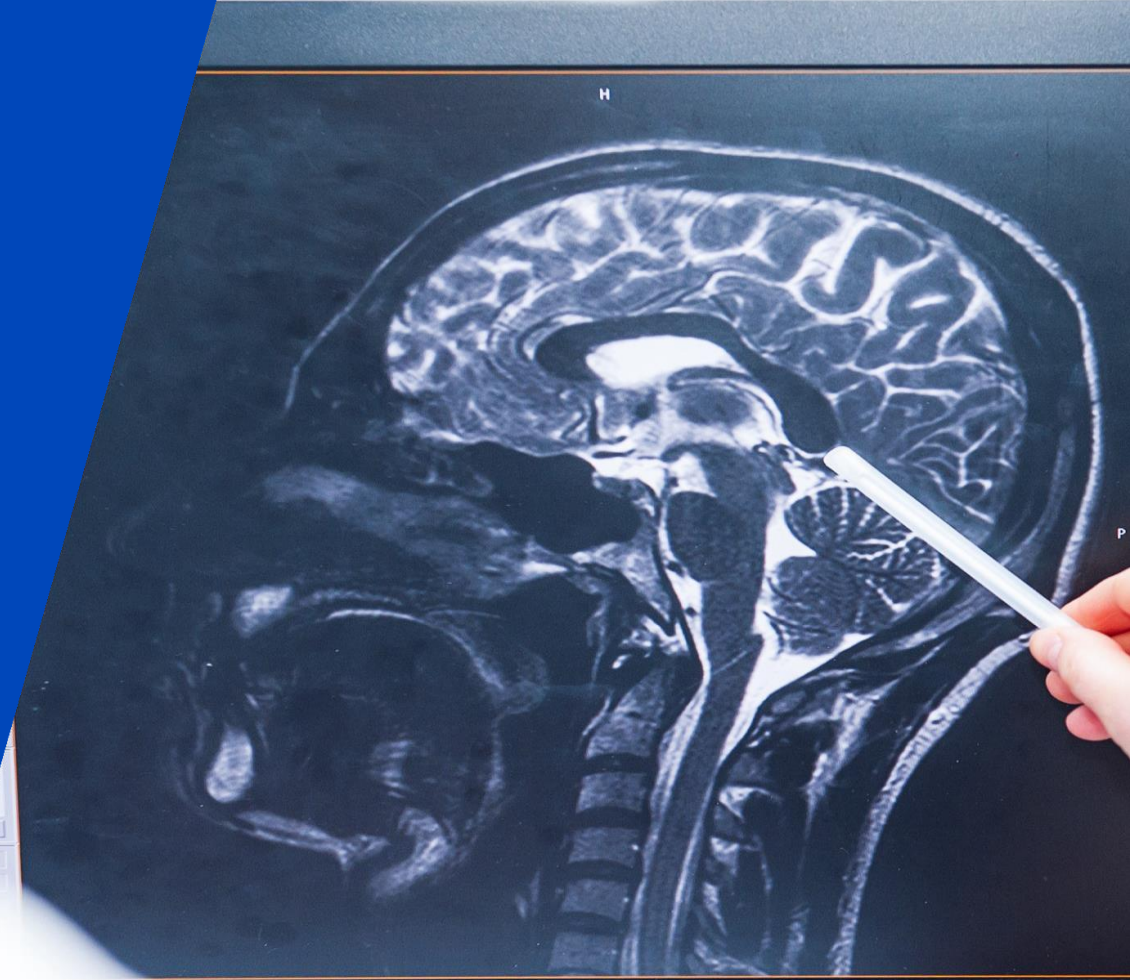


Link Between Physical Activity and Cognitive Impairment

| Population or Measure | Outcome | Grade |
|---|---|----------|
| Adults with Dementia | Evidence suggests that physical activity (PA) may improve cognitive function | Moderate |
| Risk of Dementia and Cognitive Impairment | Greater amounts of PA reduce the risk for cognitive impairment | Strong |
| Other Clinical Disorders (i.e., ADHD, schizophrenia, MS, Parkinson's, stroke) | Evidence that moderate-to-vigorous PA (MVPA) has beneficial effects on cognition in individuals with diseases or disorders that impair cognition | Moderate |
| Biomarkers of Brain Health | Moderate-to-vigorous PA positively influences biomarkers including MRI-based measures of function, brain volume, and white matter | Moderate |
| Acute Bouts | Short, acute bouts of moderate-to-vigorous PA transiently improves cognition during the post-recovery period | Strong |
| OVERALL | There is a consistent association between chronic MVPA and improved cognition including performance on academic achievement tests, neuropsychological tests, risk of dementia. Effects are demonstrated across a gradient of normal to impaired cognitive health status | Moderate |

04

Recommendations for Physical Activity



Recommendations for Physical Activity



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



Moderate-intensity aerobic activity

Anything that gets your heart beating faster counts.

at least
150
minutes
a week



Muscle-strengthening activity

Activities that make your muscles work harder than usual count.

at least
2
days
a week



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?**



Recommendations for Physical Activity



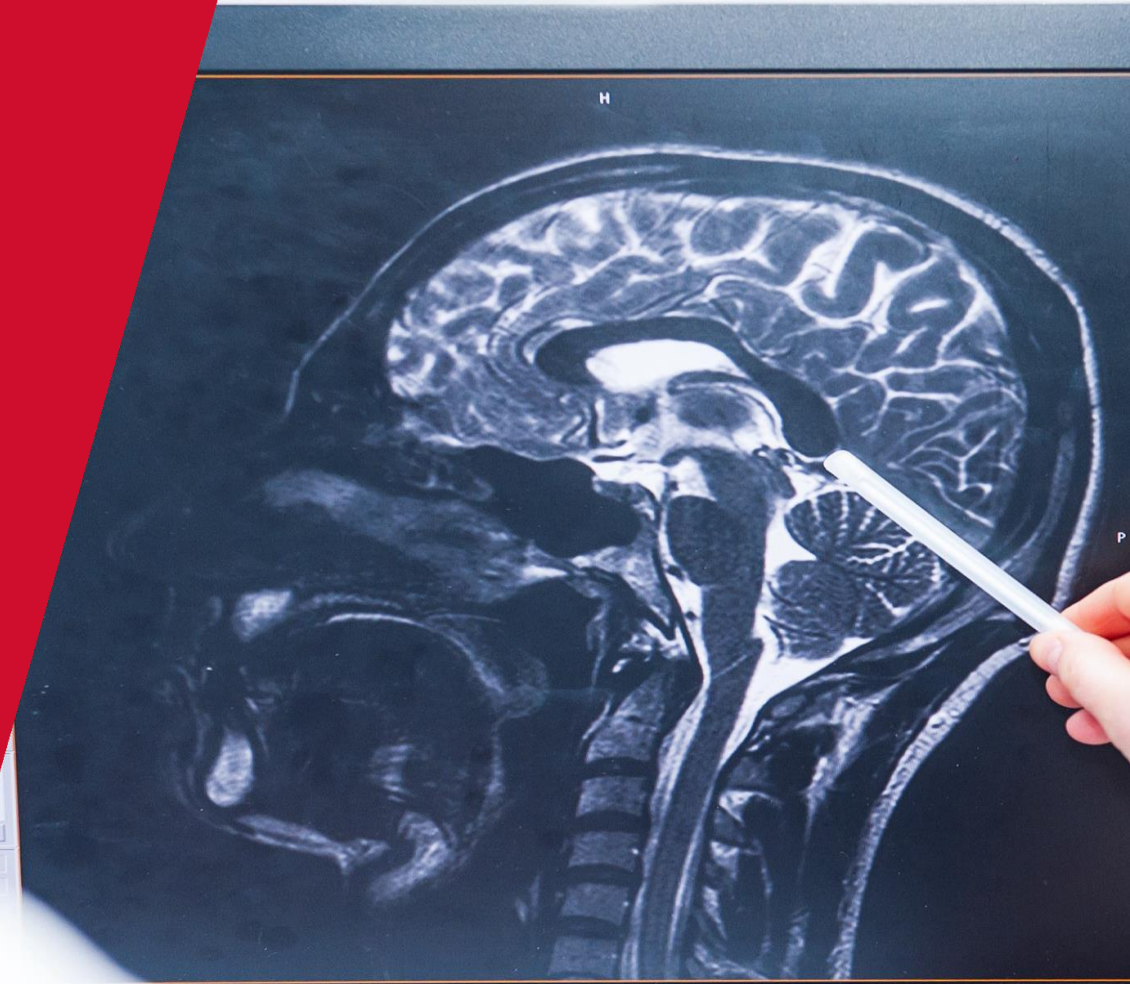
Key Guidelines for Older Adults

Guidelines just for older adults:

- ✓ As part of their weekly physical activity, older adults should do multicomponent physical activity that includes balance training as well as aerobic and muscle-strengthening activities.
- ✓ Older adults should determine their level of effort for physical activity relative to their level of fitness.
- ✓ Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.
- ✓ When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow.

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Benefits of Physical Activity



Benefits of Physical Activity for Older Adults



Immediate

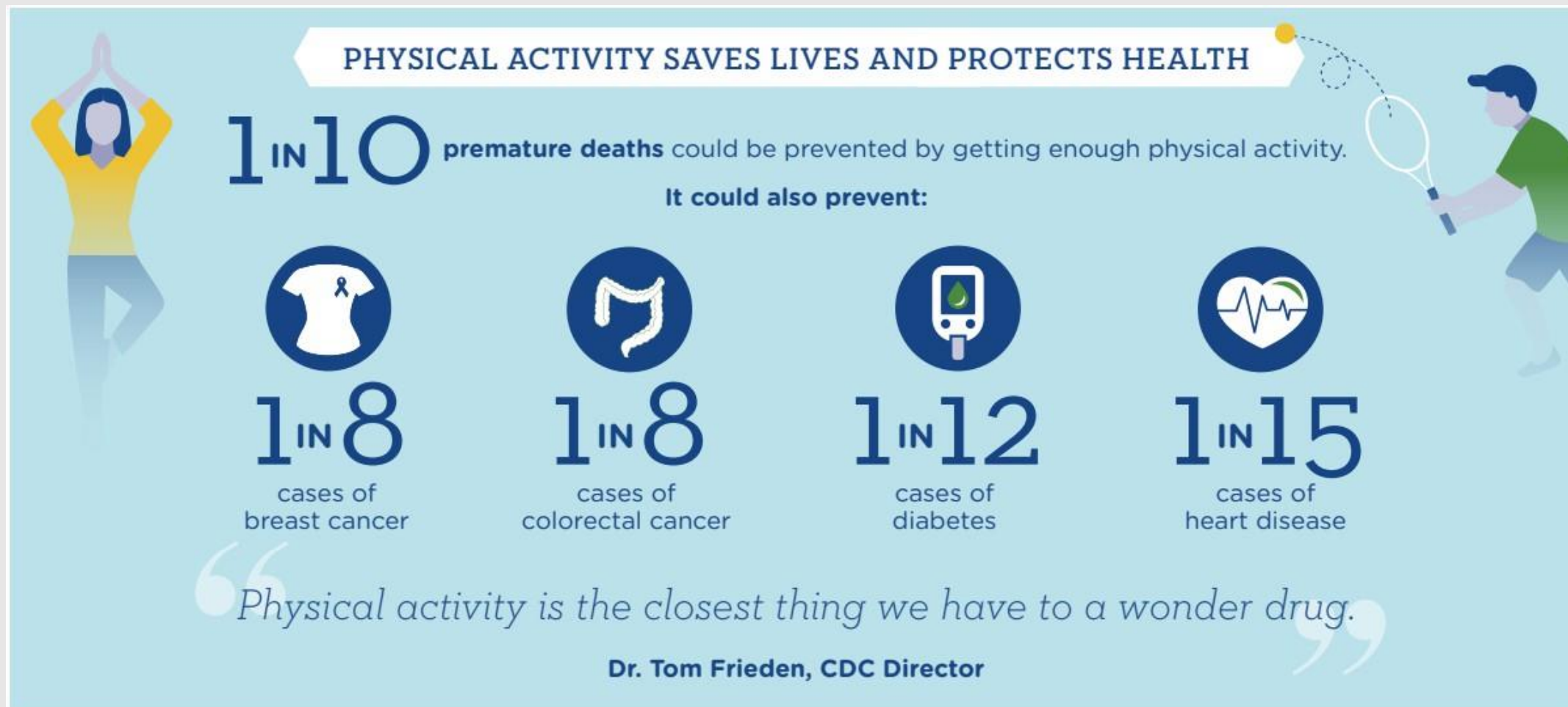
- Improved quality of sleep
- Reduced feelings of anxiety
- Reduced blood pressure



Long-term

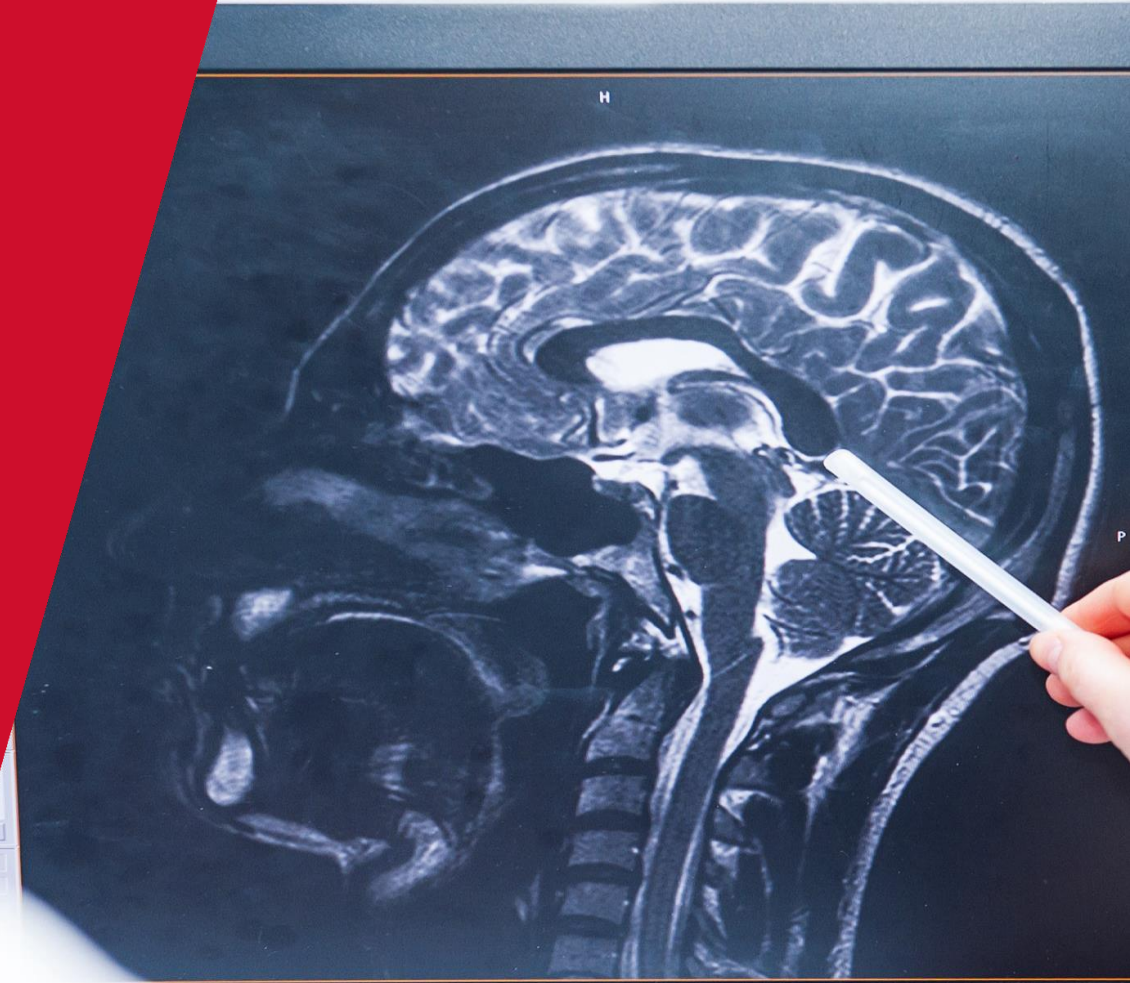
- Lowered risk of certain cancers
- Reduced risk of weight gain
- Helps people live independently longer
- Improved bone strength
- Reduced risks of falls
- **Reduced risk of developing dementia (including Alzheimer's disease)**
- Reduced risk of depression
- Lowered risk of heart disease, Type 2 diabetes, and stroke

Physical Activity and Chronic Diseases

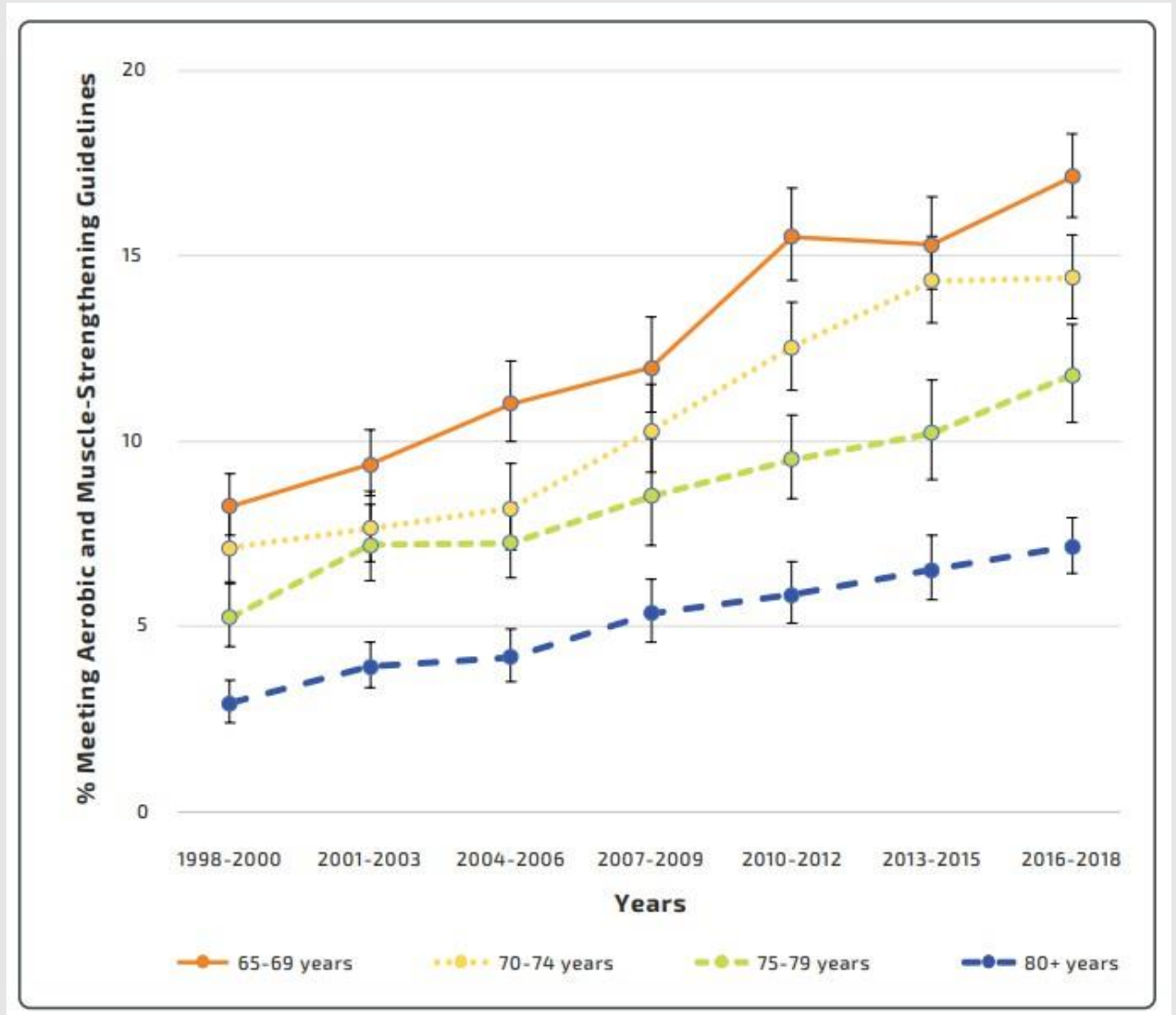


03

Physical Activity Disparities and the Impact of Social Determinants of Health

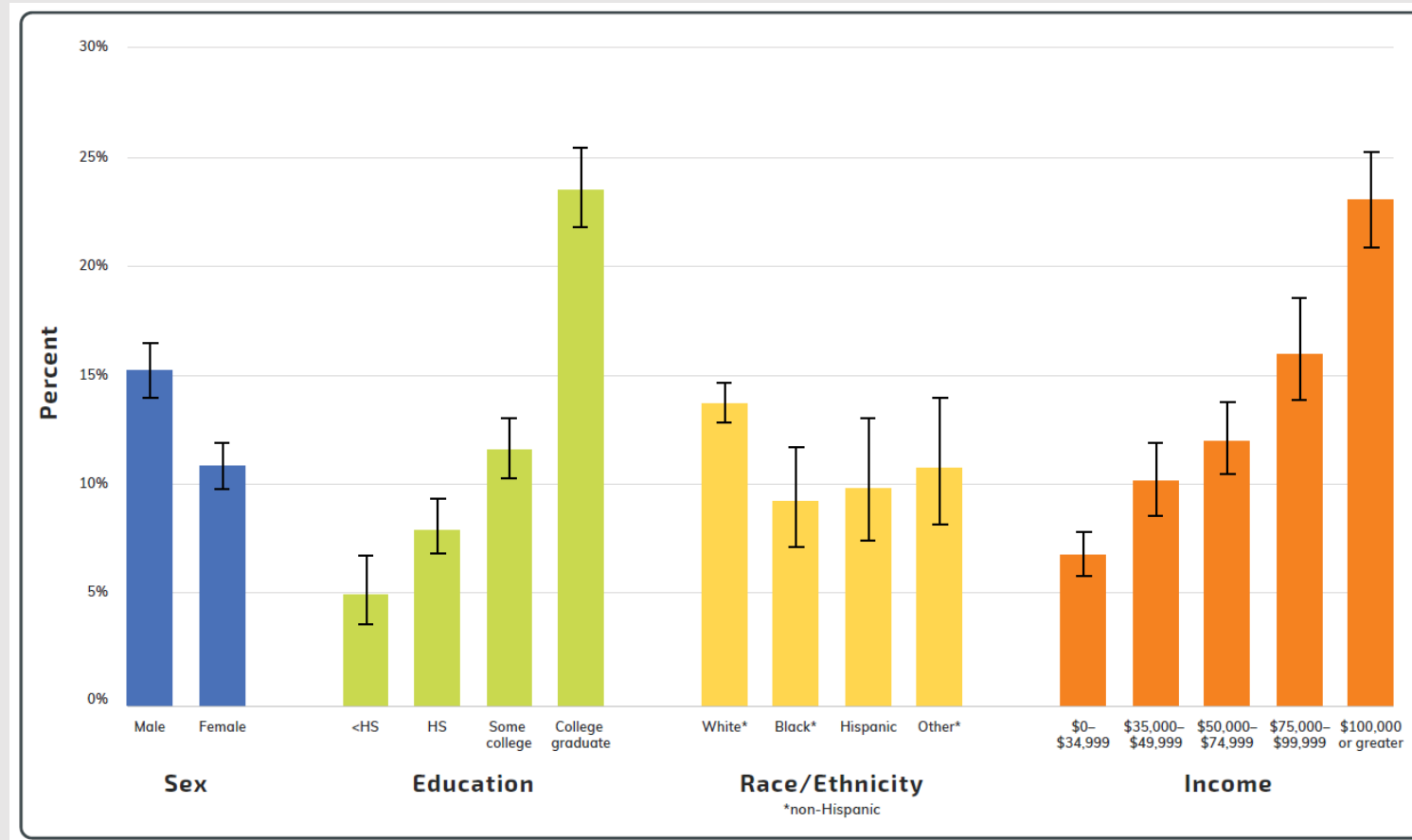


Prevalence of Meeting the Aerobic and Muscle-Strengthening Guidelines Among Older Adults by Age Group—National Health Interview Survey, 1998-2018



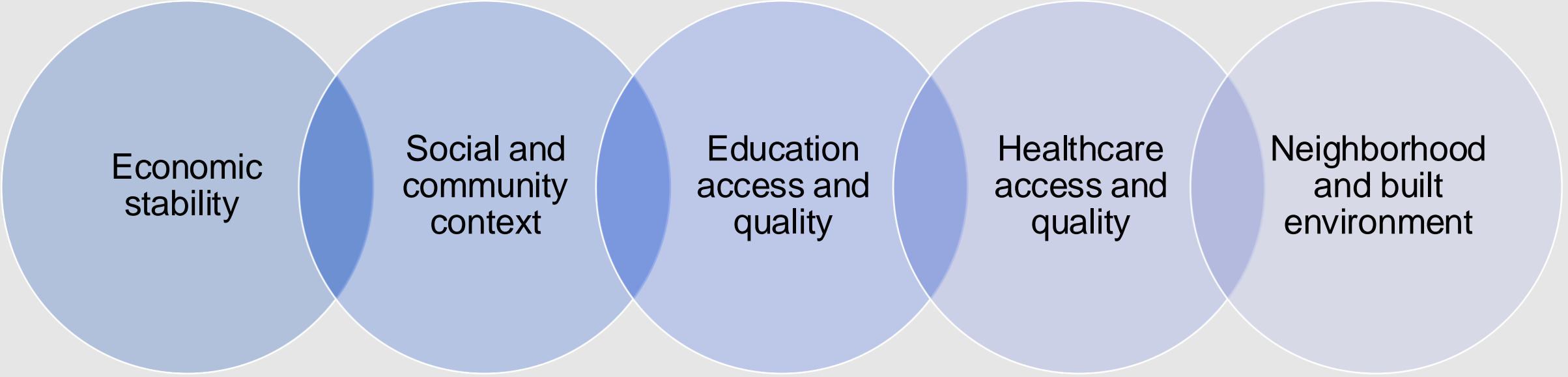
Source: Centers for Disease Control and Prevention. National Health Interview Survey—1998-2018. <https://www.cdc.gov/nchs/nhis/1997-2018.htm>.

Prevalence of Meeting the Aerobic and Muscle-Strengthening Guidelines Among Older Adults by Demographic Subgroup — National Health Interview Survey, 2020



Source: Centers for Disease Control and Prevention. National Health Interview Survey (NHIS), 2020.

Social Determinants of Health Which Impact Physical Activity



Source: Centers for Disease Control and Prevention. National Health Interview Survey (NHIS), 2020.

Barriers to Physical Activity



Capability-related barriers — individual attributes such as chronic health conditions, physical or cognitive limitations, and pain.



Opportunity-related barriers — external factors such as social isolation; inequitable access to spaces, equipment, or guidance; neighborhood environment characteristics; and environmental limitations.

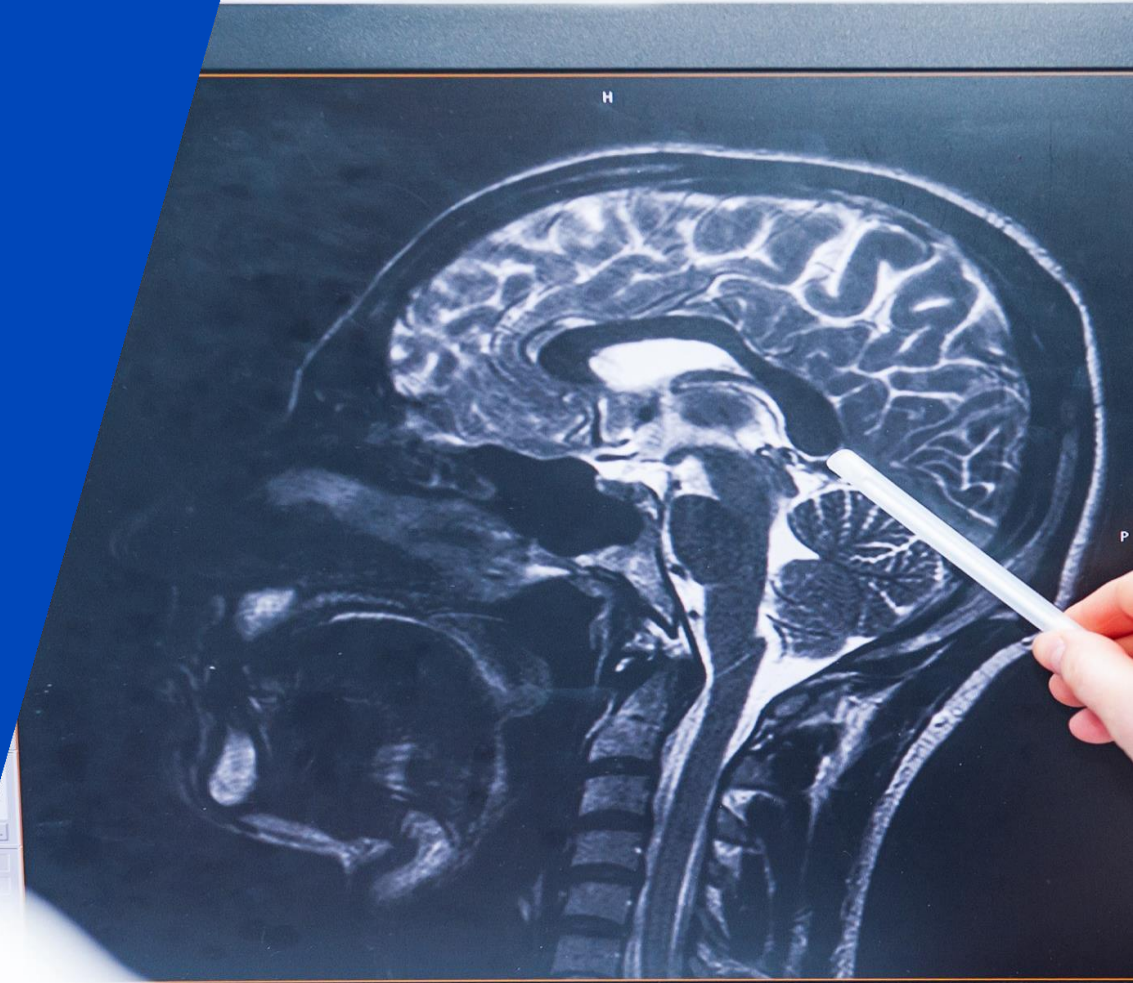


Motivation-related barriers — personal attitudes and beliefs; fear of falling, pain, or injury; low self-efficacy, knowledge, and awareness; or lack of enjoyment.

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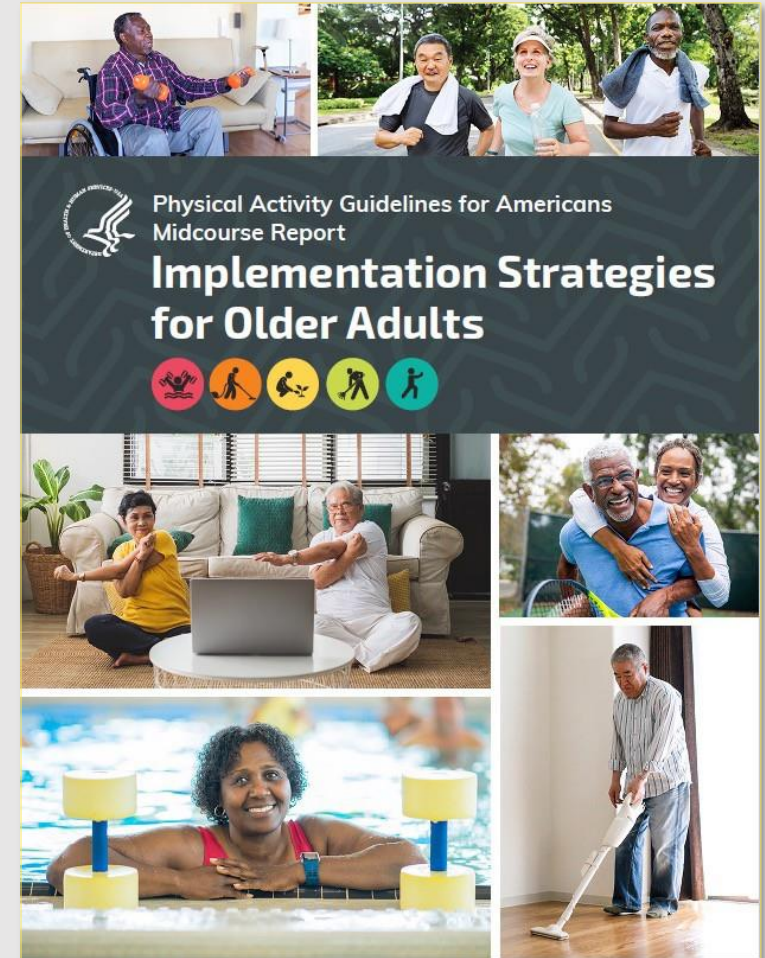
06

Considerations for Implementation



Key Findings

- **Key Settings**
 - Community
 - Health care
 - Home
- **Key Strategies**
 - Policy, Systems, and Environmental Approaches
 - Behavior Change
 - Physical Activity Programs



Key Findings



Community locations — like schools, gyms, senior centers, or outdoor parks or trails



Health care locations — like doctors' offices, rehabilitation/physical therapy centers, or nursing homes



At home — where older adults spend much of their time and may be most comfortable

Key Findings



Community locations — like schools, gyms, senior centers, or outdoor parks or trails



Health care locations — like doctors' offices, rehabilitation/physical therapy centers, or nursing homes



At home — where older adults spend much of their time and may be most comfortable

Health Care

- Opportunity for tailored care and physical activity guidance
- Often includes oversight from a clinician or health professional
- Includes settings such as clinics, hospitals, Tribal health facilities, and skilled nursing facilities



Key Strategies

- **Policy, Systems, and Environmental Approaches**
 - Community Design
- **Behavior Change**
 - Cognitive Behavioral Strategies
 - Physical Activity Counseling
- **Physical Activity Programs**
 - Exercise Programs
 - Lifestyle-Based Physical Activity Programs

Key Strategies

- **Policy, Systems, and Environmental Approaches**
 - Community Design
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 - Cognitive Behavioral Strategies
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- **Physical Activity Programs**
 - Exercise Programs
 - Lifestyle-Based Physical Activity Programs

Behavior Change

- Cognitive behavioral strategies
 - Physical activity knowledge and awareness
 - Goal setting
 - Self-monitoring
 - Barrier identification and problem-solving
 - Social support
- Physical activity counseling



Discuss Physical Activity with Dementia

Assess

Council

Prescribe

Refer

Assess

- Ask questions:
 1. On average, how many **days per week** do you engage in moderate-to-vigorous aerobic physical activity (like a brisk walk)?
 2. On average, how many **minutes** do you engage in physical activity at this level?
 3. On average, how many **days per week** do you engage in physical activities designed to **strengthen your muscles** such as lifting weights or doing body-weight exercises?

Council

- **Educate** on the benefits of physical activity and how much your patients need
- Address **safety** concerns
- Find **solutions** tailored to the barriers your patient is facing
- Set **goals** that are specific, measurable, achievable/attainable, realistic/relevant, and time-bound (SMART)
- **Monitor progress** to encourage increased physical activity over time

Prescribe

EXERCISE PRESCRIPTION & REFERRAL FORM



PATIENT'S NAME: _____ DOB: _____ DATE: _____
 HEALTH CARE PROVIDER'S NAME: _____ SIGNATURE: _____

PHYSICAL ACTIVITY RECOMMENDATIONS

| Type of physical activity: | Aerobic | Strength |
|----------------------------|---------|----------|
| Number of days per week: | | |
| Minutes per day: | | |
| Total minutes per week*: | | |

*PHYSICAL ACTIVITY GUIDELINES

Adults aged 18-64 with no chronic conditions: Minimum of 150 minutes of moderate physical activity a week (for example, 30 minutes per day, five days a week) **and** muscle-strengthening activities on two or more days a week ([2008 Physical Activity Guidelines for Americans](http://www.acsm.org/physicalactivity)).
 For more information, visit www.acsm.org/physicalactivity.

REFERRAL TO HEALTH & FITNESS PROFESSIONAL

Name: _____
 Phone: _____
 Address: _____

 Web Site: _____
 Follow-up Appointment Date: _____
 Notes: _____



Who: _____ Date: _____

Rx:

Sig:

Dispense:

Refills:

Signature: _____

Refer

- Help older adults identify physical activity opportunities in their community
- Find a program tailored to older adults
- Offer a referral to an additional provider or exercise professional (e.g., personal trainer, physical therapist, or occupational therapist)



Real World Examples

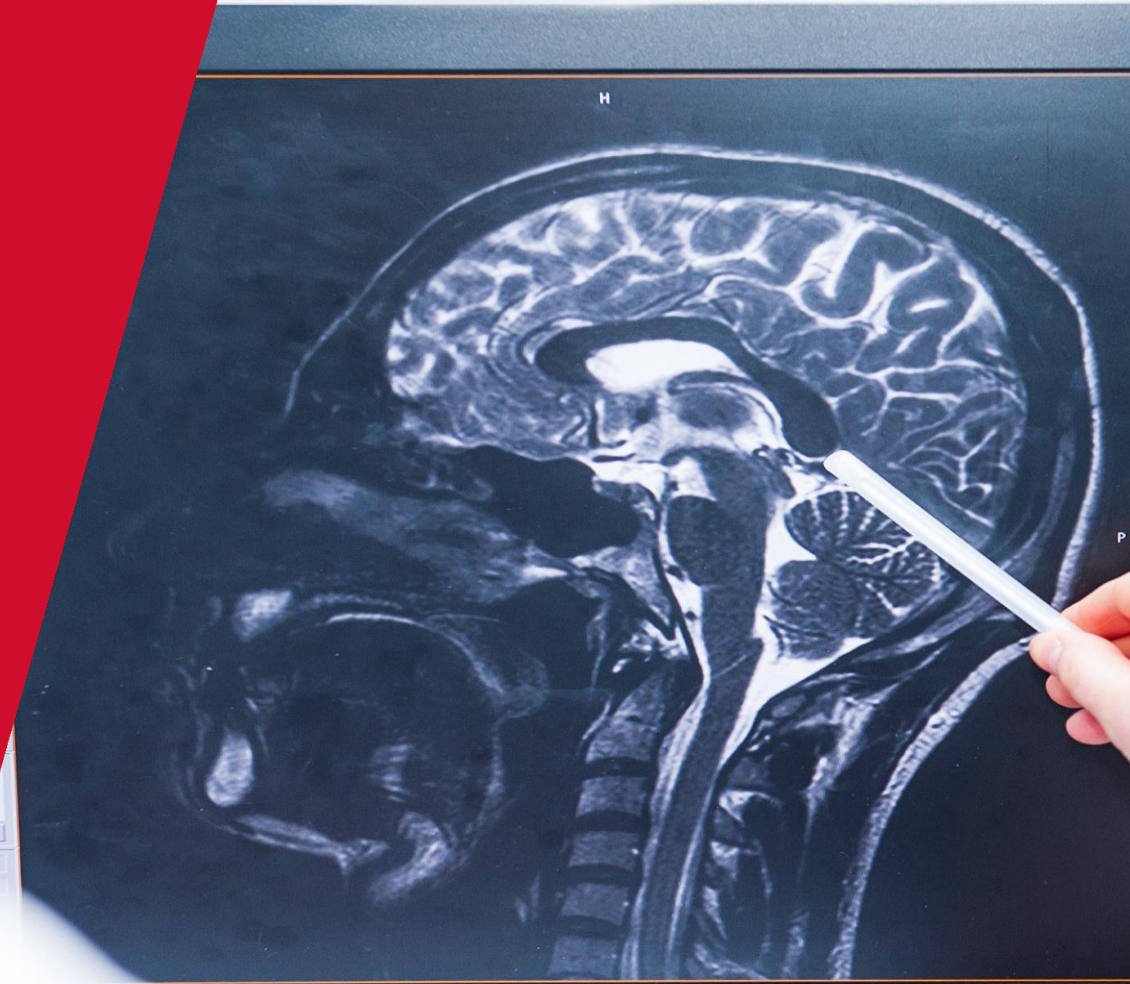
- **University of California San Francisco Cardiac Rehab** is a medically supervised program for people with heart disease that combines physical activity, health behavior counseling, and psychological support.
- **Walk with a Doc** is a doctor-led walking group that combines movement and conversation to help people of all ages take steps toward a healthier lifestyle.



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07

Tools and Resources for Health Professionals



Move Your Way® Campaign

- Translates the Physical Activity Guidelines into easy-to-understand information
- Materials are:
 - Ready-to-use
 - Tailored to different audiences
 - Based on people's needs



Scan the QR code
to learn more!



Move Your Way® Campaign Materials for Older Adults

MOVE YOUR WAY OLDER ADULTS
What's your move?

Physical activity can make daily life better.

When you're active and strong, you can:

- Do everyday tasks, like chores and shopping

And it has big health benefits:

- Less pain

How much activity?

Moderate-intensity aerobic
Anything that gets your heart beating faster.

at least **150 minutes a week**

Build your muscle strength.

Muscle-strengthening activity can make it easier to do things like get up from a chair or open a jar.

Try these muscle-strengthening activities:

- Do squats, lunges, or arm circles
- Carry groceries
- Lift weights — or fill a plastic bottle with water and lift that instead

Aim for at least **2 days a week** of muscle-strengthening activity.

Fact Sheets

MOVE YOUR WAY

"Bringing my blood pressure down — one step at a time."

Physical activity is just what the doctor ordered. Being active can help you manage conditions like:

- Diabetes
- Arthritis
- Heart disease

Adults need a mix of physical activity to stay healthy.

Moderate-intensity aerobic activity
Anything that gets your heart beating faster counts.

Muscle-strengthening activity
Do activities that make your muscles work harder than usual.

at least **150 minutes a week** AND at least **2 days a week**

Walk. Run. Dance. Play. What's your move?
health.gov/MoveYourWay

Posters

Tip 2.
Make Yardwork a Workout

You'll feel more motivated if you've made it public.

Videos

Move Your Way® Microsite (health.gov/MoveYourWay)

For older adults:
Get active to age well

MOVE YOUR WAY Activity Planner

I want to get active to:
Choose as many as you want.

- Be healthier
- Have fun
- Have more energy
- Ease pain
- Feel less stressed
- Be a role model for family
- Have better balance
- Sleep better
- Have a healthy pregnancy
- Age well
- Have better focus

Continue

Physical activity can help you **stay healthy and independent** can:

- Make it easier to do everyday tasks, like cleaning and
- Help ease pain and manage other health problems
- Lower your risk of falls — and your risk of an injury

John and Patty
Eating healthy and finding safe ways to get active

As you age, it's more important than ever to **eat healthy and be active**. Doing both can help you manage health problems and prevent new ones — so you can stay active and independent.

Learn how John and Patty are finding creative ways to stay active indoors — and how they eat healthy even when they don't have fresh fruits and vegetables.



My Activity Tracker




This week, I'm planning to do:




 **50 minutes**
of moderate-intensity aerobic activity

 **5 days**
of muscle-strengthening activity

Add up your minutes of aerobic activity and number of muscle-strengthening sessions, and include both totals in the bottom row of this tracker for each day.

Because I want to:

-  Age well
-  Have better balance
-  Ease pain

| | Sun | Mon | Tue | Wed | Thu | Fri |
|--|-----|-----|-----|-----|-----|-----|
|  Gardening and weeding 10 minutes, 1 day this week | | | | | | |
|  Resistance exercises with elastic bands or tubes 3 days this week | | | | | | |
|  Water aerobics 30 minutes, 1 day this week | | | | | | |

Resources for Health Care Providers

- The Fact Sheet for Health Care Providers Caring for Older Adults offers tips for talking to older adults about physical activity
 - Conversation starters
 - Information on recommending the correct dosage
 - Ideas for addressing common barriers



MOVE YOUR WAY.

Health Care Providers: Talk to Older Adults About Physical Activity

Getting physical activity is especially important for older adults. But it can be challenging to motivate patients in the short time you spend together.

The second edition of the Physical Activity Guidelines for Americans includes evidence-based physical activity guidance for everyone, including older adults. Share the recommendations from the Guidelines with your patients and inspire them to get more active.

Start the conversation.

Try these quick conversation starters to bring up physical activity with your patients.

How much physical activity do you get in an average week?
Meet your patients where they are. Once you have an idea of their current activity level, you can suggest small changes to help them get more active. **Remind them that lots of things count as physical activity** — like walking the dog, working in the garden, or vacuuming.



Do you have any concerns about being active?
Your patients may worry about falling or getting hurt during physical activity. Some may not currently be active at all and might not know how to get started. **Encourage them to start slow** — with activities they're confident they can do. And consider referring patients to a physical therapist or exercise professional who can assess their mobility and create an individualized activity plan.



Learn More About the Physical Activity Guidelines



Explore the Midcourse Report
and related resources!



Sign up for physical activity
email updates!

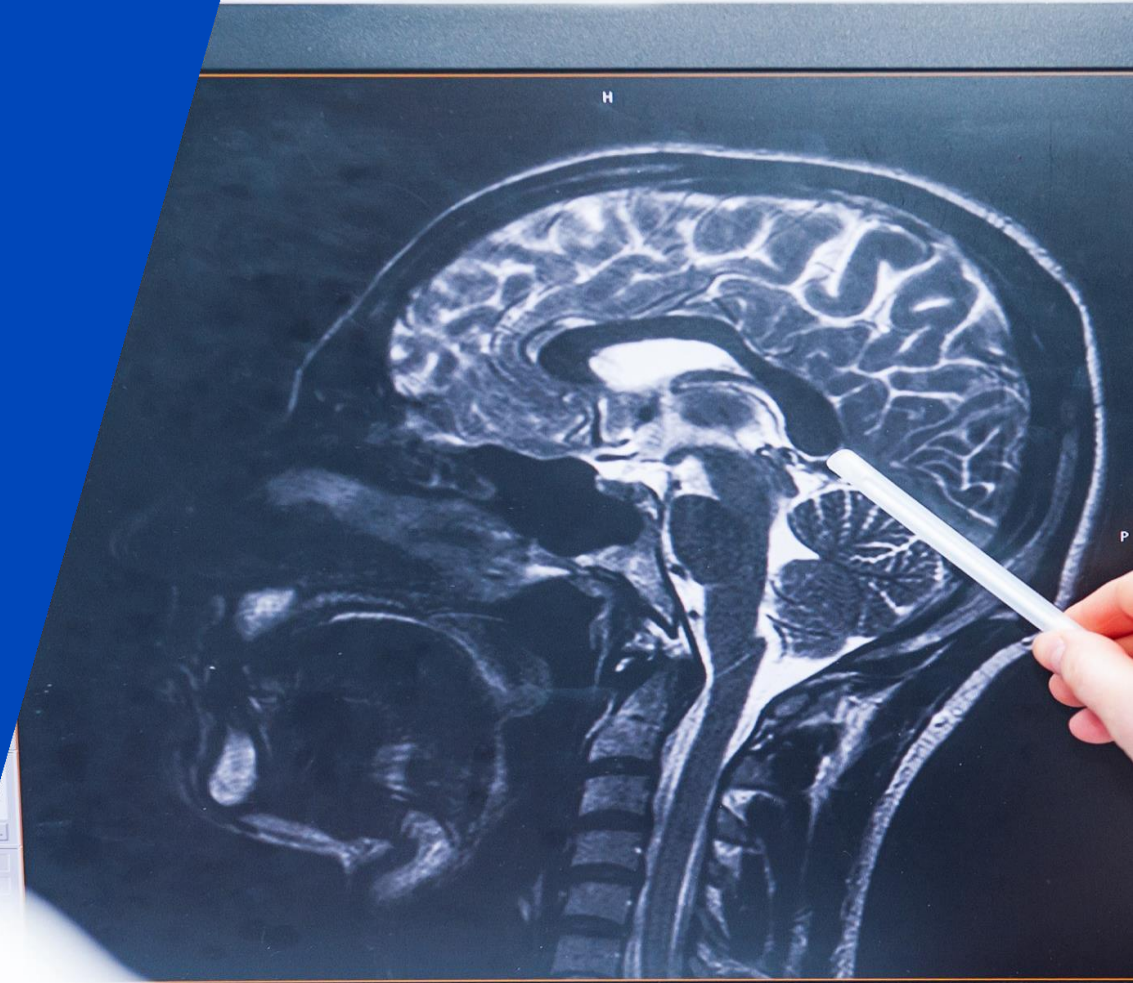
Additional Resources

- [Physical Activity Guidelines for Americans Midcourse Report: Implementation Strategies for Older Adults](#)
- [Benefits of Physical Activity and Tips](#)
- [Activity Planner for Adults](#)
- [Fact Sheet for Health Care Providers Caring for Older Adults](#)
- [Fact Sheets, Posters, and Other Resources](#)
- [Preventing Alzheimer's Disease: What Do We Know?](#)
- [Brain Health Equity Practical Guide](#)
- [BrainGuide™](#)
- [Provider Toolkit](#)
- [National Institute of Aging | Alzheimer's and Related Dementias Resources for Professionals](#)

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08

What patients think (A-List)



What Matters Most Insights Survey: Physical Activity and Dementia

- **97%** believe exercise or physical activity affects the brain and brain health (73% significantly).
 - **32%** report exercising every day on average.
 - **54%** have spoken with their healthcare provider about their physical activity.
 - **77%** rate their current physical activity as about the same (**62%**) or worse (**15%**) than 3 months ago, while **21%** rate their physical activity as better.
 - **Average Activity per Day:** >90 minutes (**8%**), 60-90 minutes (**23%**), 31-60 minutes (**38%**), 15-30 minutes (**20%**), <15 minutes (**11%**).
 - **Top Sources of Information on physical activity:** **44%** internet, **42%** news, **32%** fitness center, **29%** family or friends, **22%** social media, **20%** health care providers.
 - **Top Impacts on motivation to exercise:** **33%** better weather, **28%** enough self-motivation, **27%** change in personal life, **26%** someone to workout with, **24%** nothing (already have a routine or do enough physical activity), **23%** more time to exercise.
- **High Awareness, Low Impact on Motivation:** 97% believe physical activity impacts brain health, but only 32% report being physically active daily, and only 24% report having a routine or belief that they are doing enough physical activity.
 - **Low Interest in Digital Fitness:** Only 10% believe access to online fitness programs would motivate them to spend more time exercising each day and only 26% have participated in a digital workout program.

Respondents largely over age 65 (70%), Caucasian (94%),
Female (77%), College educated or greater (76%)

N=866 (ADRD/MCI diagnosis: 59; high risk for ADRD: 300; current
caregivers: 90; former caregivers: 223; general interest in brain health: 194)

References

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3. Livingston, G., Huntley, J., Liu, K. Y., Costafreda, S. G., Selbæk, G., Alladi, S., Ames, D., Banerjee, S., Burns, A., Brayne, C., Fox, N. C., Ferri, C. P., Gitlin, L. N., Howard, R., Kales, H. C., Kivimäki, M., Larson, E. B., Nakasujja, N., Rockwood, K., ... Mukadam, N. (2024a). Dementia prevention, intervention, and care: 2024 report of The Lancet Standing Commission. *The Lancet*, 404(10452), 572–628. [https://doi.org/10.1016/s0140-6736\(24\)01296-0](https://doi.org/10.1016/s0140-6736(24)01296-0)
4. Move Your Way Fact Sheet for Older Adults: https://health.gov/sites/default/files/2023-06/PAG_MYW_FactSheet_HCP-OlderAdults-508c.pdf
5. Piercy et al. Physical Activity in Older Adults: What Every Internist Needs to Know. *Am J Lifestyle Med*. 2024.
6. U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans, 2nd edition. Washington, DC: U.S. Department of Health and Human Services; 2018.
7. U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans Midcourse Report: Implementation Strategies for Older Adults. Washington, DC: U.S. Department of Health and Human Services; 2023.

Acknowledgments

Staff in the Division of Prevention Science, Office of
Disease Prevention and Health Promotion

2018 Physical Activity Guidelines Advisory Committee



Thank you!



This presentation and related resources are available at:
<https://www.usagainstalzheimer.org/physical-activity-and-dementia-2024>

Please register for additional courses at:
<https://www.usagainstalzheimer.org/brain-health-academy>

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