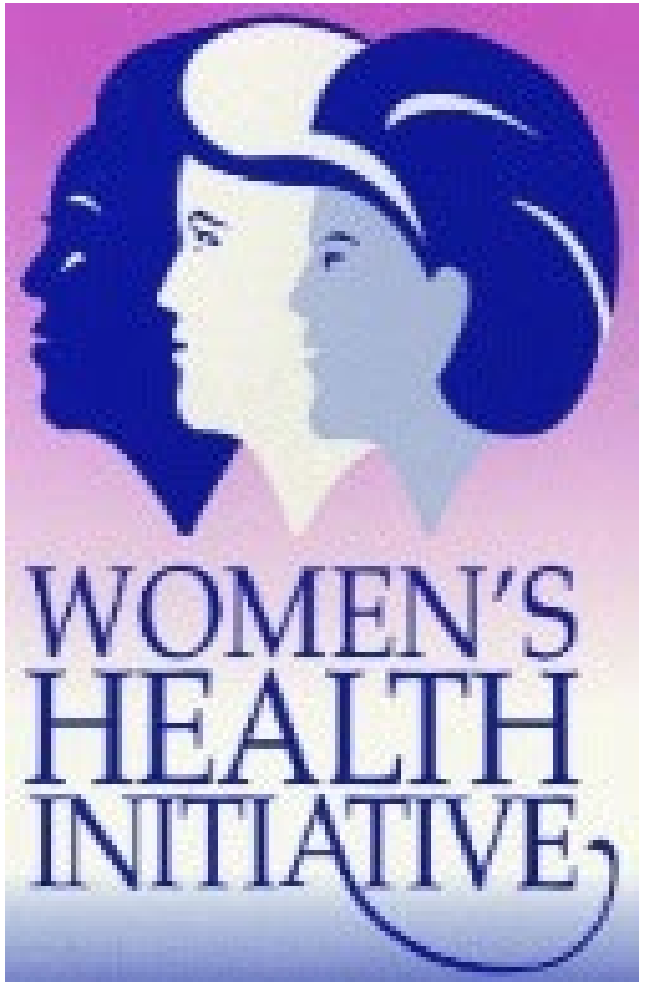
Physical functioning-- *the cornerstone of healthy aging.* Lessons learned from the WHI Participants

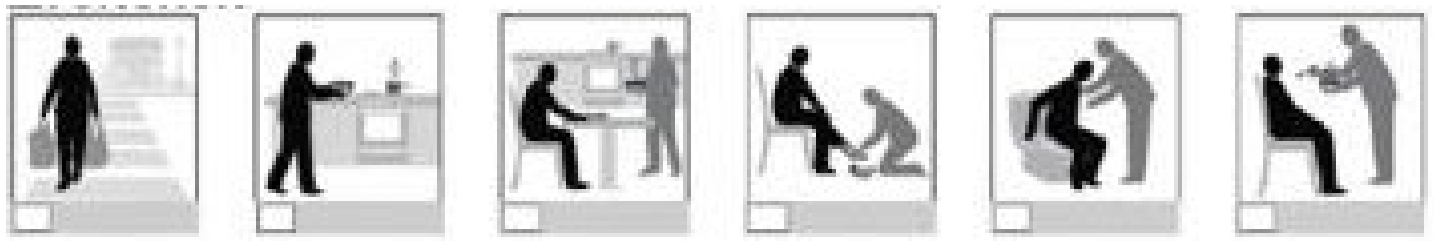


Deepika Laddu, PhD
Presentation for the WHI Participant Webinar
July 20, 2022

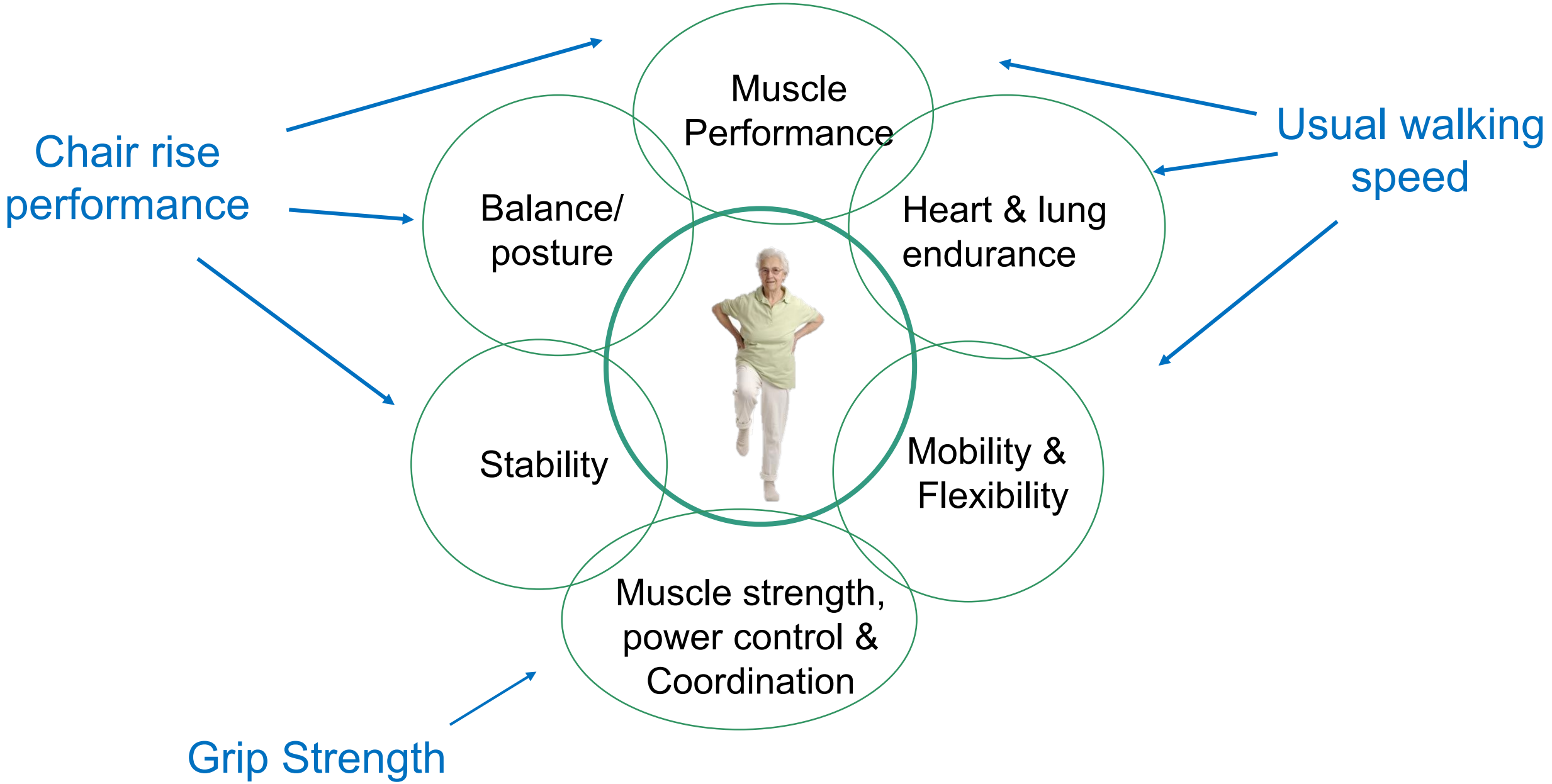
What is physical function?

What is physical functioning?

"the *ability* of a person to move around and to perform types of activities of daily living."



Physical functioning: ***more than a tally of tests…***

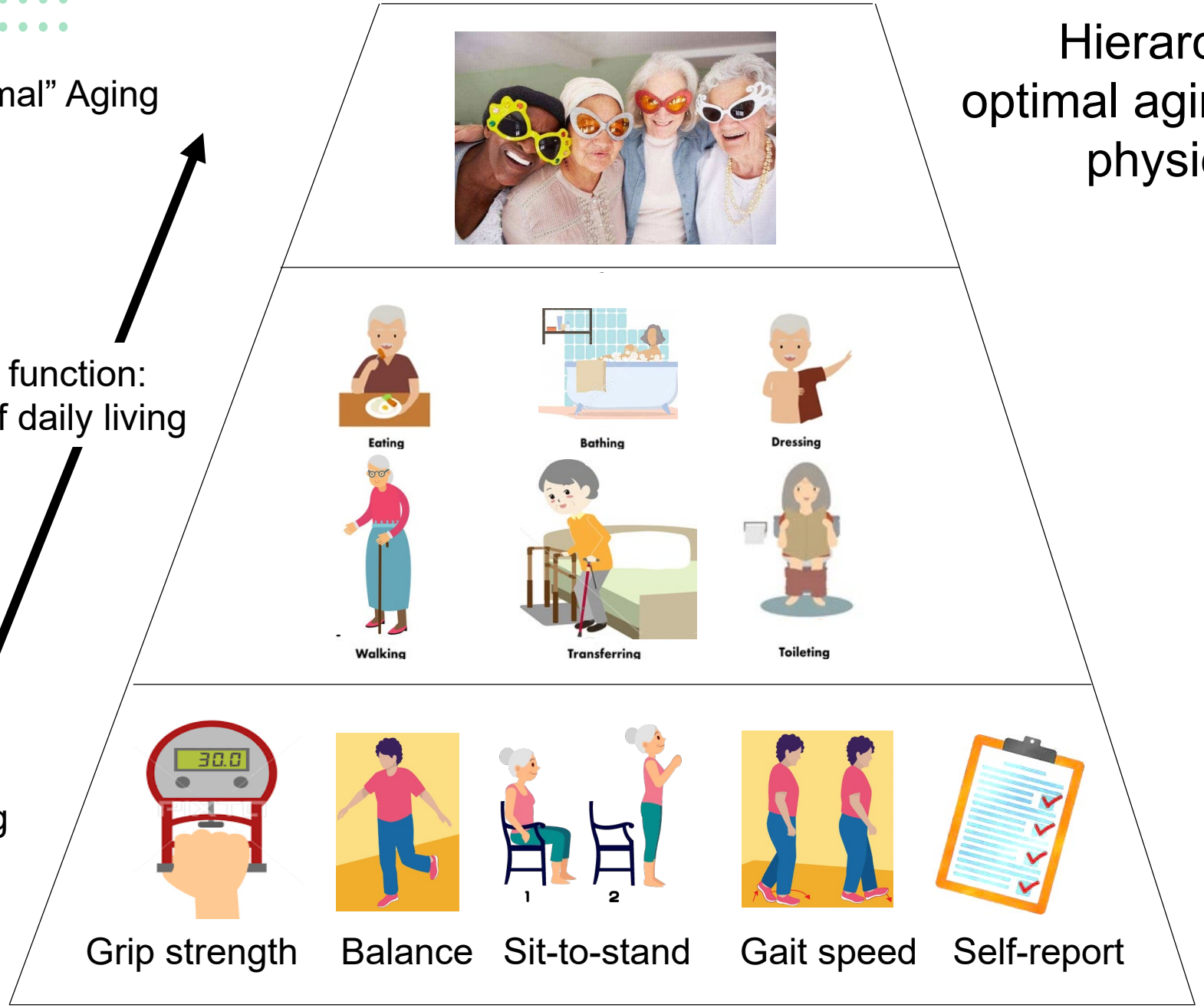


Hierarchal pyramid for optimal aging based on level of physical functioning

"Optimal" Aging

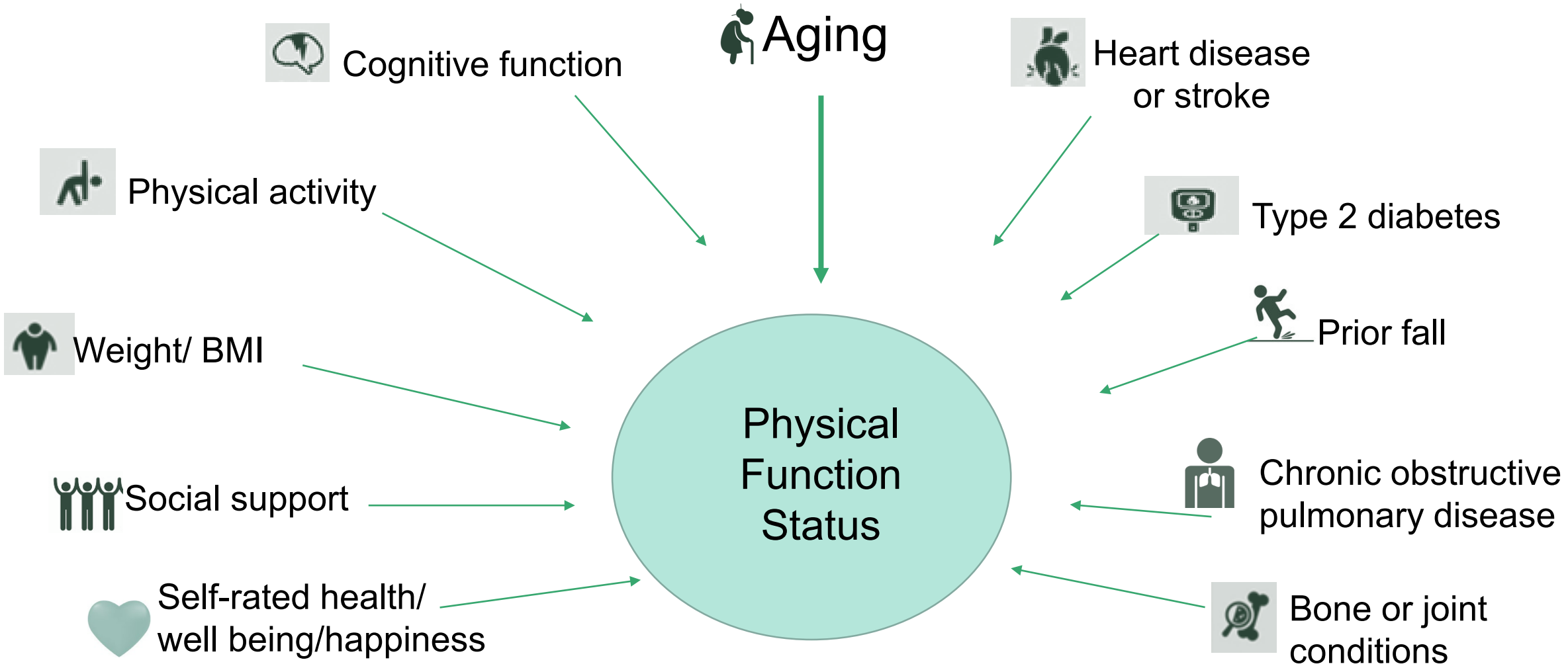
Physical function: Activities of daily living

Physical functioning

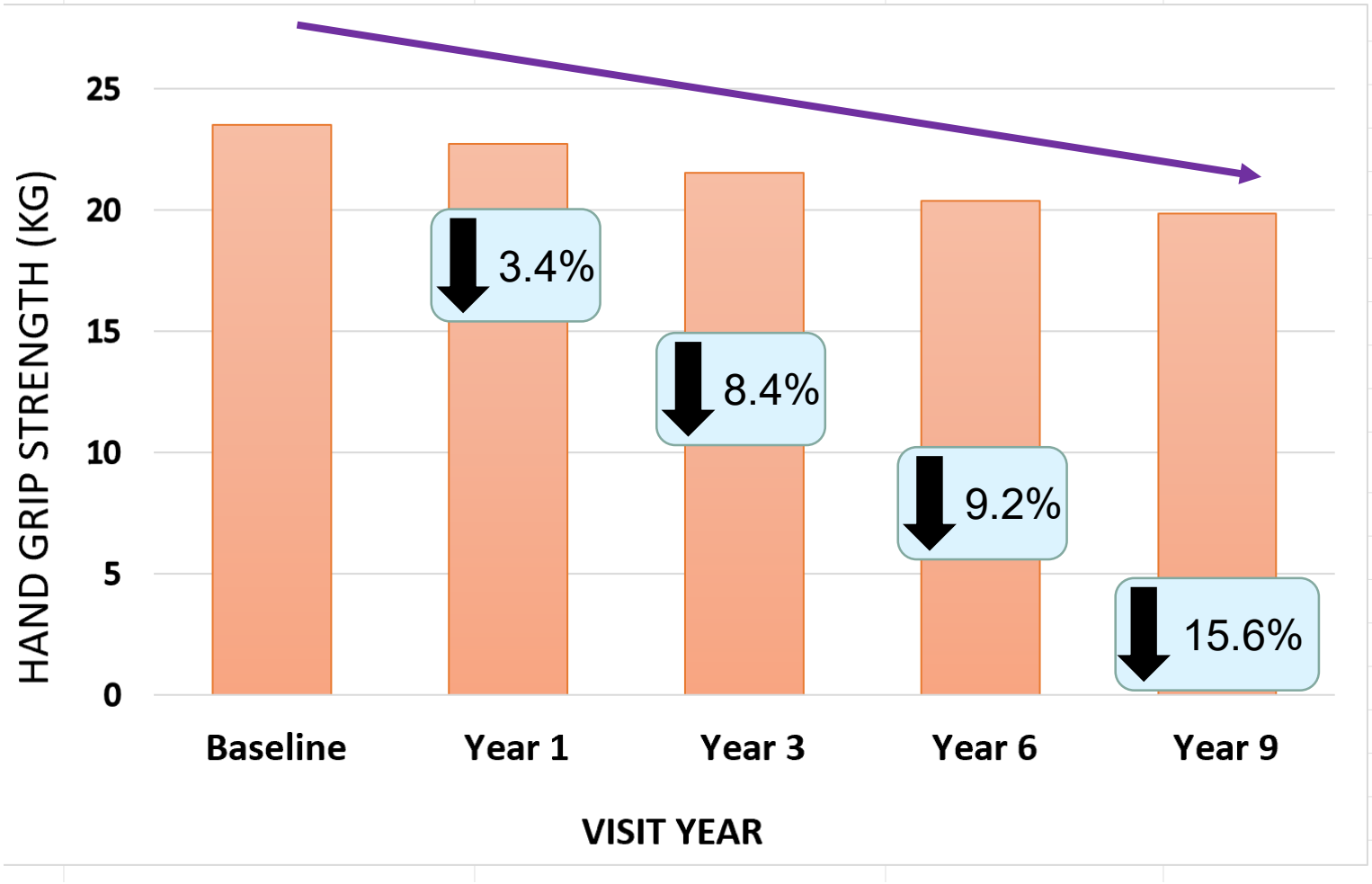


What factors affect my level of physical functioning?

We've learned from the WHI women that physical function is impacted by the following:



As we age, our muscles become weaker, suggesting that we are losing muscle strength over time.

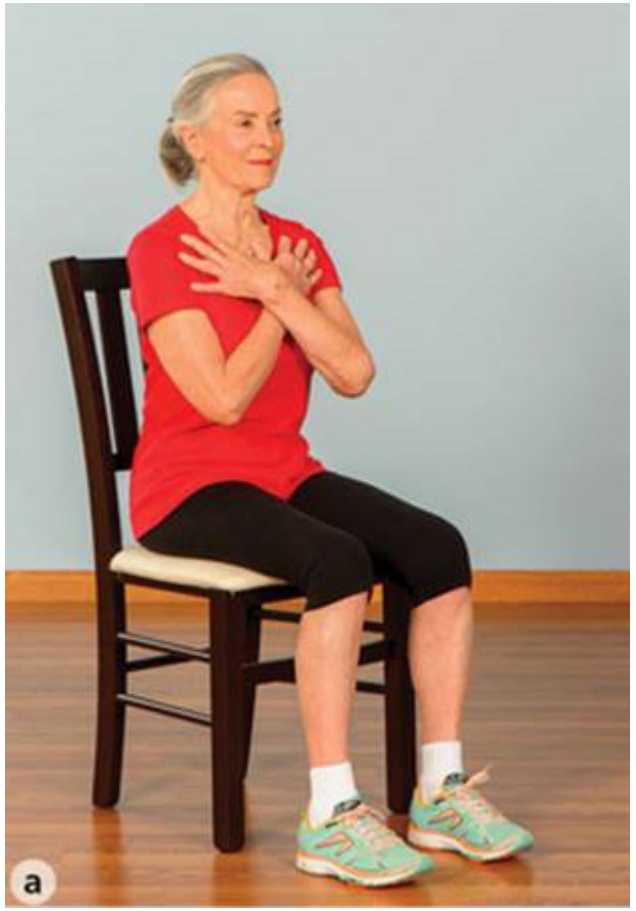


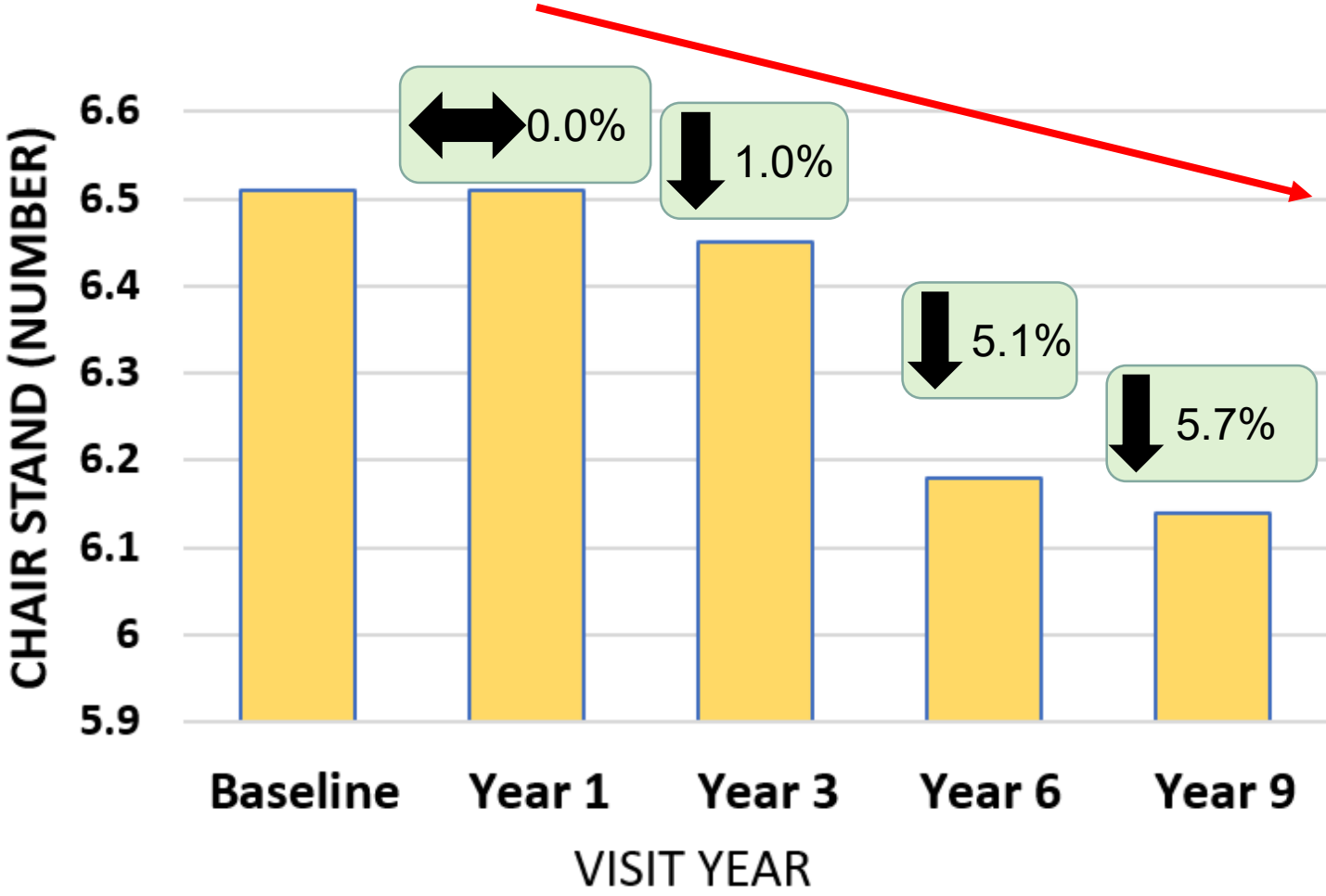
*__5,627 women__; aged ≥65 y at baseline

% change from first WHI measurement (Baseline)

Standing from a chair without using support becomes difficult

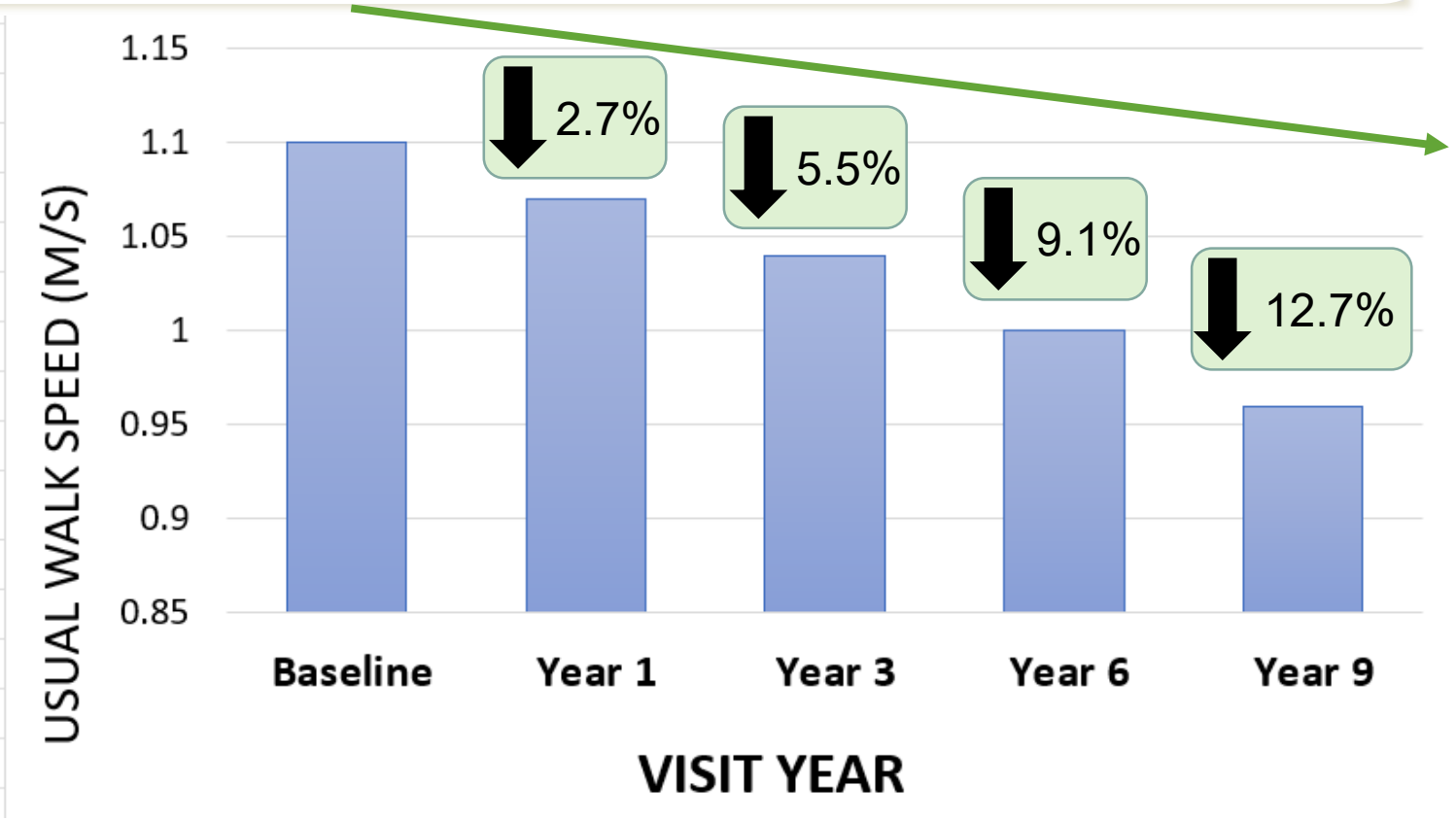
(number performed goes down over time)





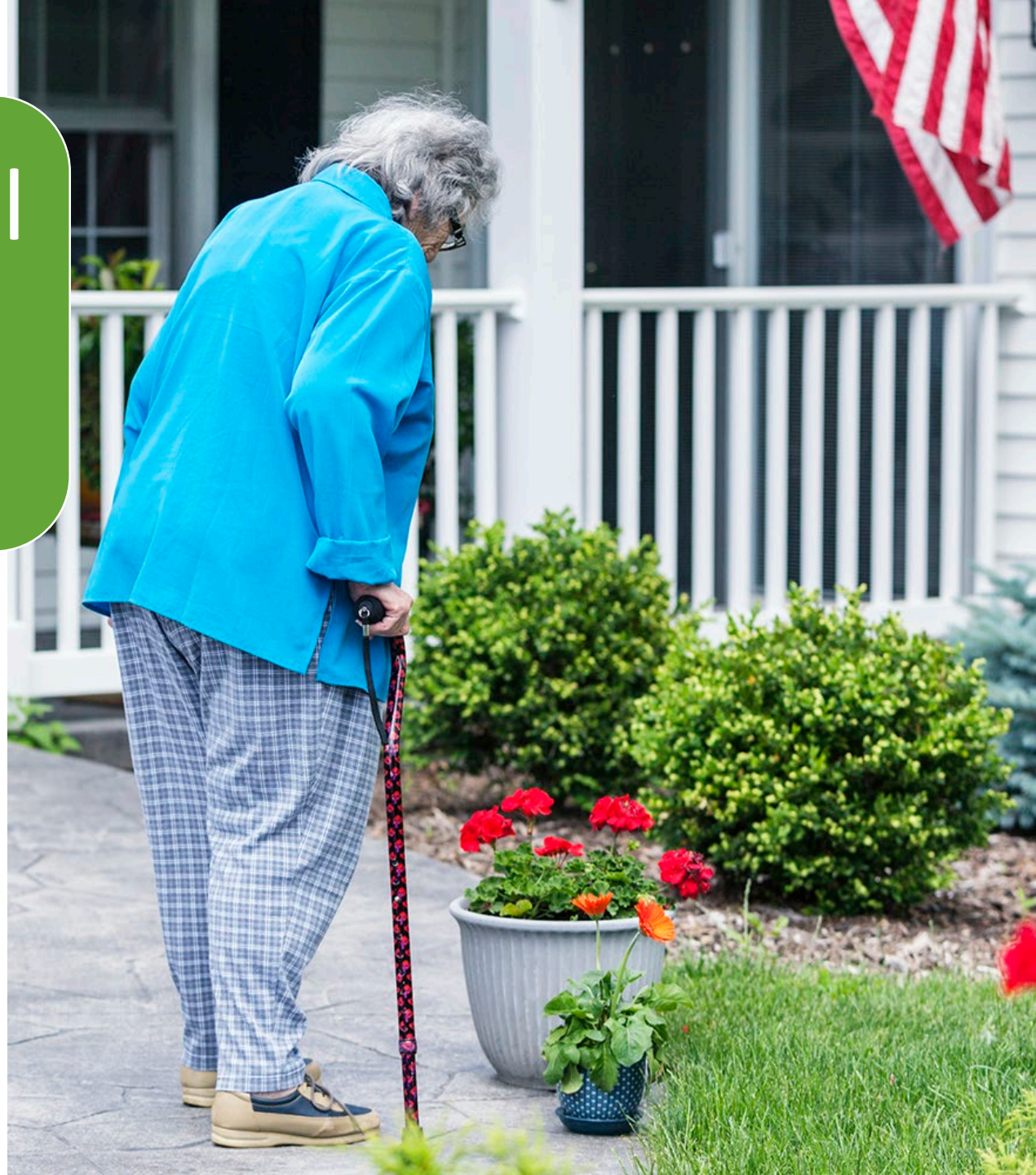
*__5,627 women__; aged ≥65 y at baseline

As we age, it takes us longer to cover a short distance (**walking speed**)

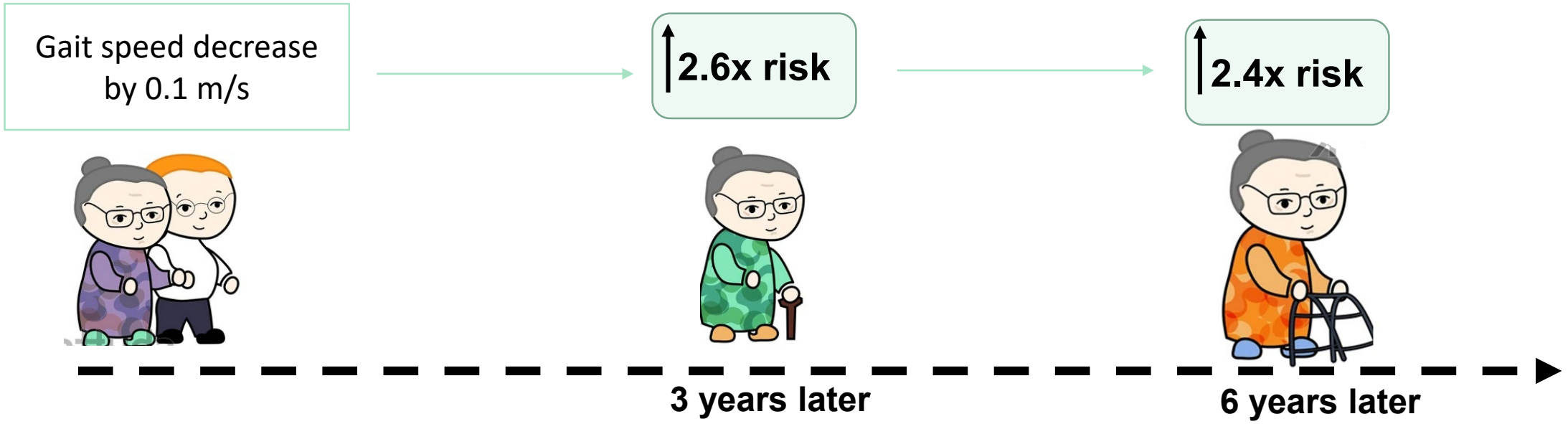


*__5,627 women__; aged ≥65 y at baseline

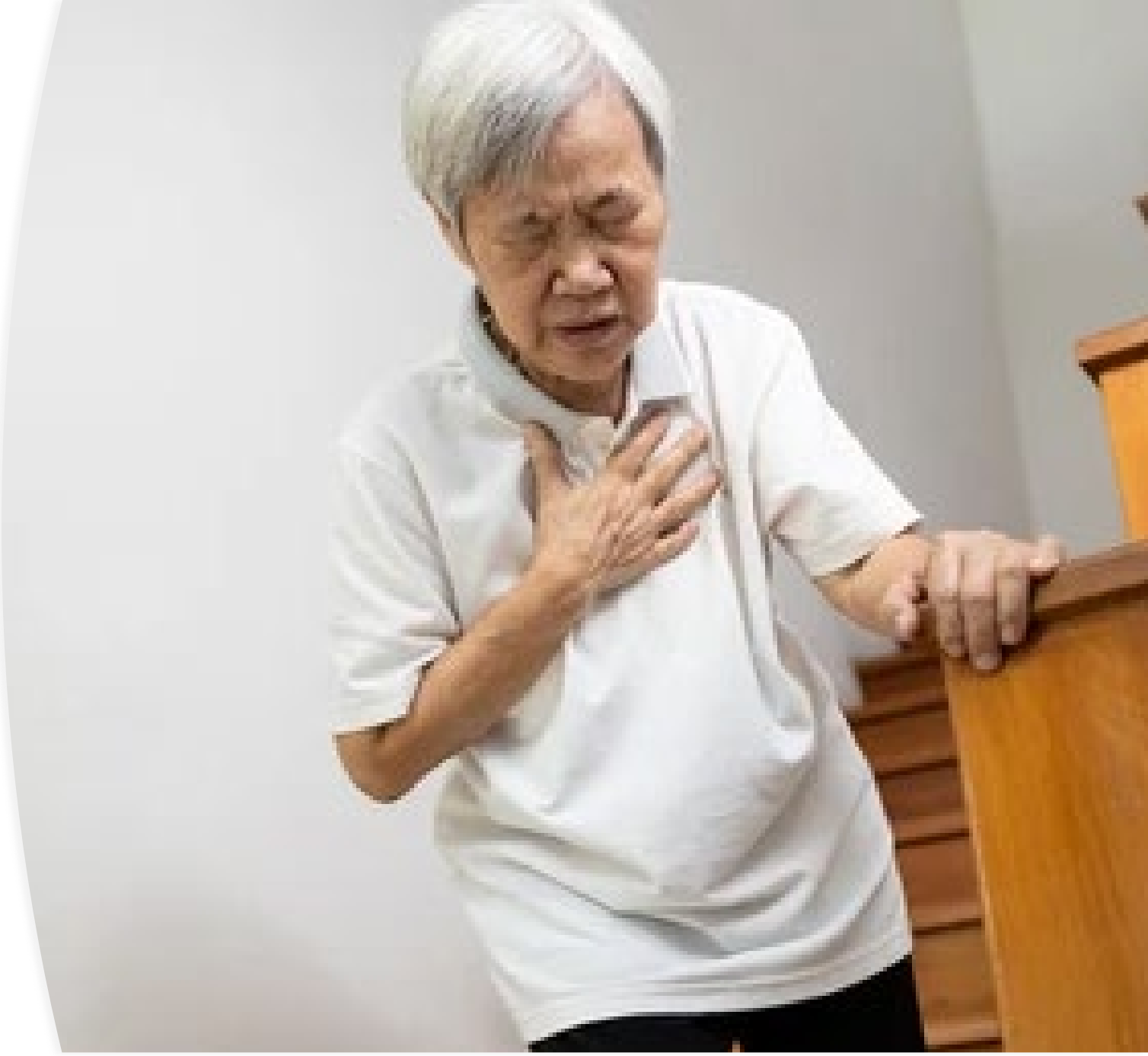
What does my physical function tell me about my mobility?



A small decrease in walking speed or RAND-36 questionnaire score within 1 year increases the risk experiencing mobility over 6 years among 3,587 women



How does physical function affect our **heart** health?



Getting a “grip” on heart health

- “The firmness of your hand grip is a better indicator of heart health than blood pressure when assessing muscle strength, ability to recover from hospital stays and quality of life”

Prognostic value of grip strength: findings from the Prospective Urban Rural Epidemiology (PURE) study

*Darryl P Leong, Koon K Teo, Sumathy Rangarajan, Patricio Lopez-Jaramillo, Alvaro Avezum Jr, Andres Orlandini, Pamela Seron, Suad H Ahmed, Annika Rosengren, Roya Kelishadi, Omar Rahman, Sumathi Swaminathan, Romaina Iqbal, Rajeev Gupta, Scott A Lear, Aytekin Oguz, Khalid Yusoff, Katarzyna Zatonska, Jephat Chifamba, Ehimario Igumbor, Viswanathan Mohan, Ranjit Mohan Anjana, Hongqiu Gu, Wei Li, Salim Yusuf, on behalf of the Prospective Urban Rural Epidemiology (PURE) Study investigators**

Lancet Volume 386, ISSUE 9990, P266-273, July 18, 2015

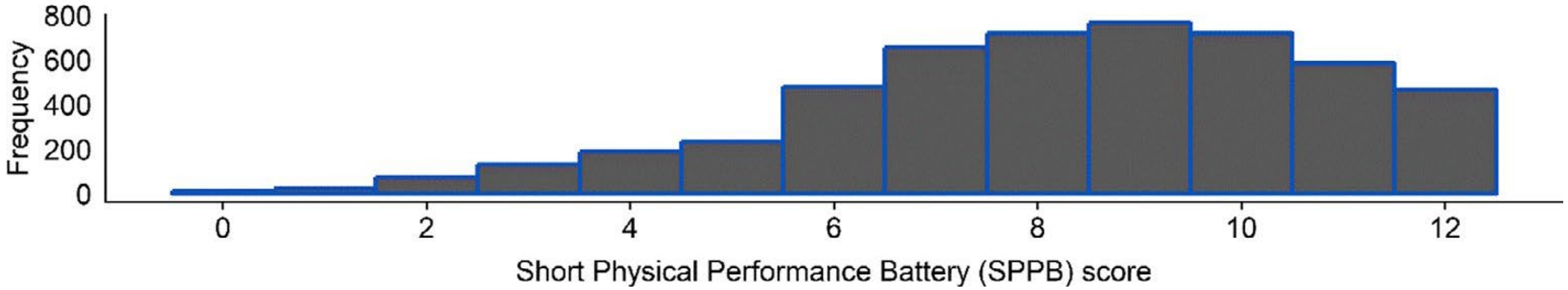
Here's what we learned in the WHI:

5,043 women who performed 3 clinic tests:

- standing balance, 5 chair stands, and walk speed —each scored on a 4 point scale
- Yielded an SPPB score from 0 (worst) to 12 (best).

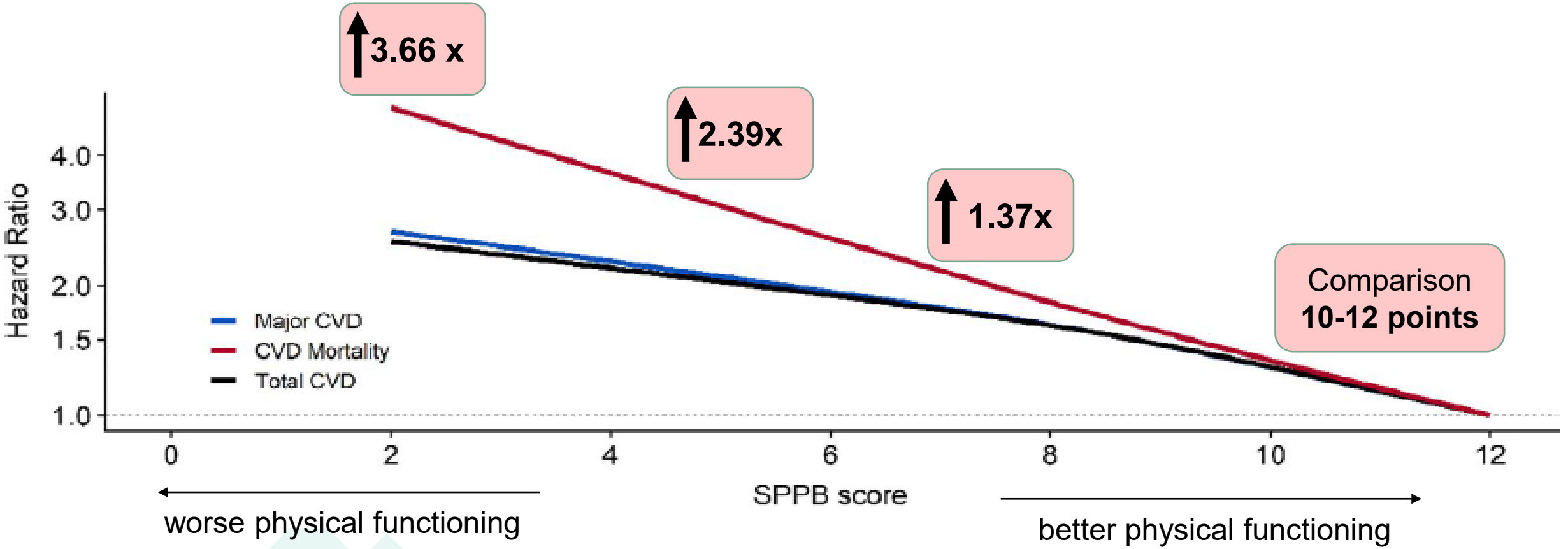
SPPB categories	Distribution of women
Very Low (SPPB: 0–3)	237
Low (SPPB: 4–6)	900
Moderate (SPPB: 7–9)	2139
High (SPPB: 10–12)	1767

***Average SPPB scores: 8.3 ± 2.5 (out of 12)**



Women with **lower** physical functioning scores have a higher risk of experiencing major cardiovascular disease (**blue** line), total CVD (**black** line), and CVD mortality (**red** line) up to 6 years later.

Women with higher physical functioning score at baseline have lower risks.



*adjusted for age, race/ethnicity, education, smoking status, alcohol use, diabetes mellitus, hypertension, chronic obstructive pulmonary disease, osteoarthritis, depression, and body mass index

What we know about physical function status and early death?

Lower risk of death due to all causes over nearly *12 years*, according to baseline physical function level:

Higher RAND-36 scores
10% lower risk of death

Faster walking speed OR higher number of chair stands performed:
9-11% lower risk of death

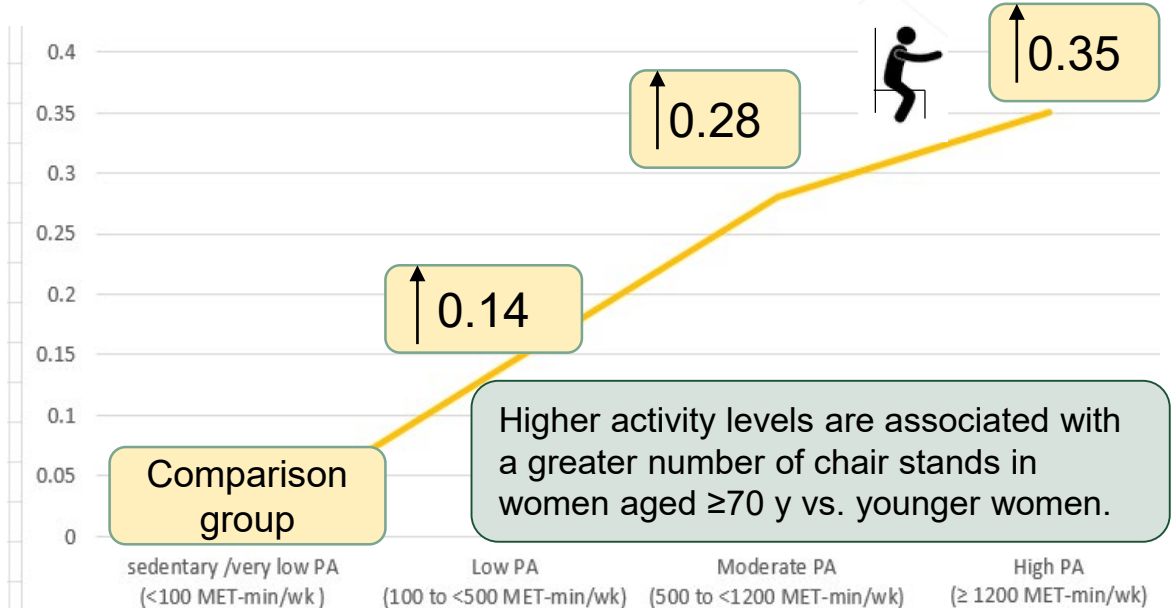
*adjusted for age, race/ethnicity, education, socio-economic status, living along, BMI, smoking status, alcohol intake, Self-rated Health, physical activity, major heart—metabolic —, bone/joint — related conditions, depression, and prior falls history.

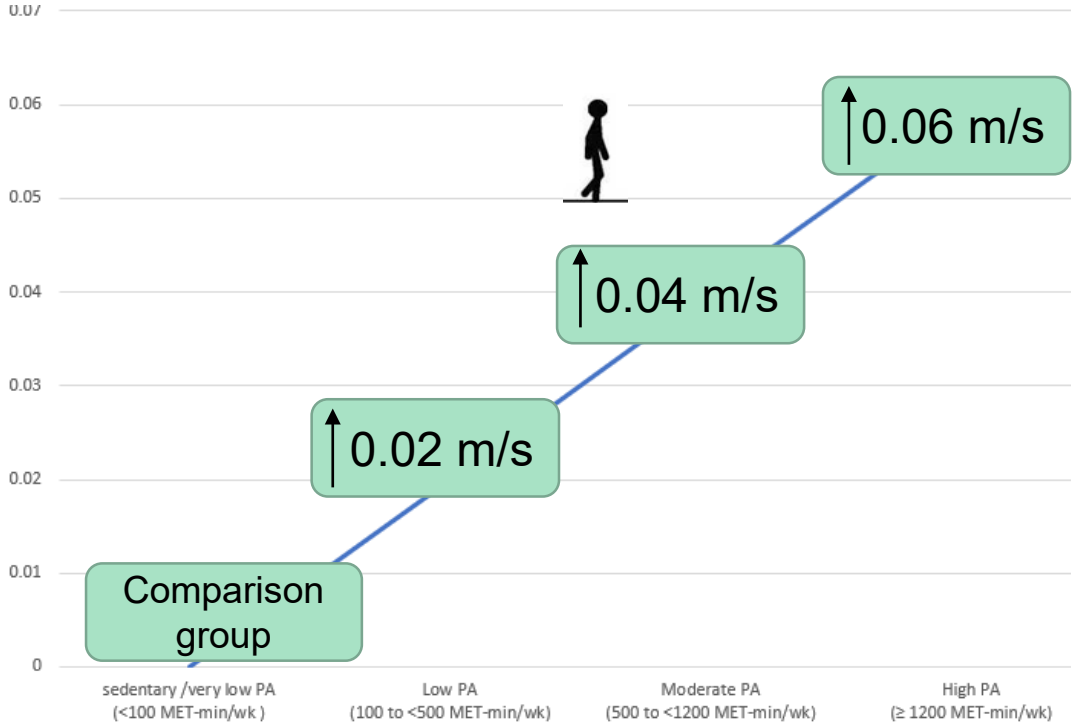
*based on 5,534 women

KEY MESSAGE!!!

Maintaining any level of physical activity or exercise helps preserve your physical function later in life

Increasing or maintaining activity levels improves your physical function in women ≥65 years .





Conclusions:

- Findings from the Women's Health Initiative show that physical function provides essential knowledge about our muscles, balance, mobility, and fitness.
- Physical function is a powerful indicator of **health** and **longevity**.

Thanks to all WHI Participants, Investigators, and Staff