

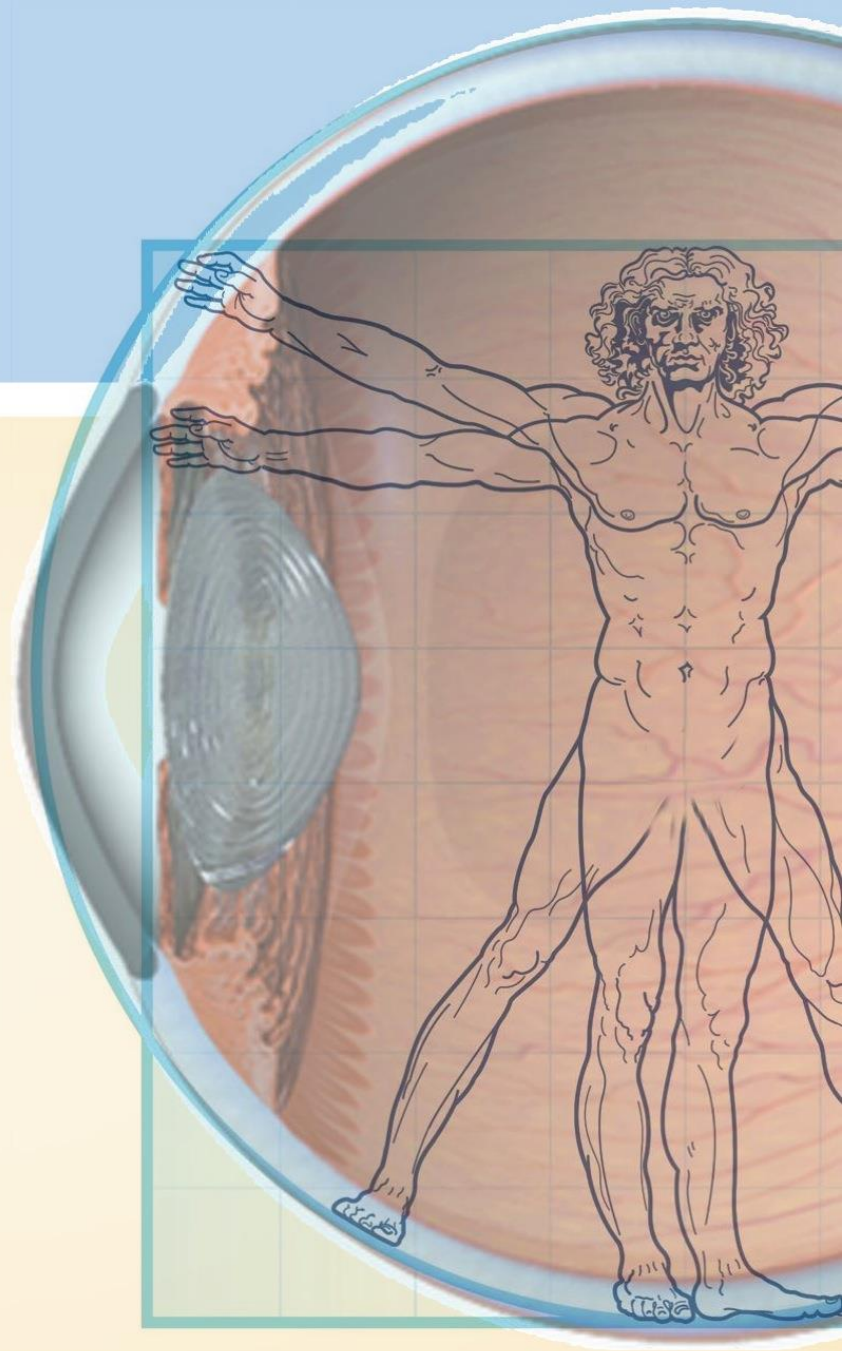


Our Vision Is Vision®

Third Annual
FOCUS ON EYE HEALTH
National Summit

Wednesday
June 18, 2014
National Press Club • Washington, DC

Bernard A. Steinman, PhD
Gerontology Institute
University of Massachusetts Boston



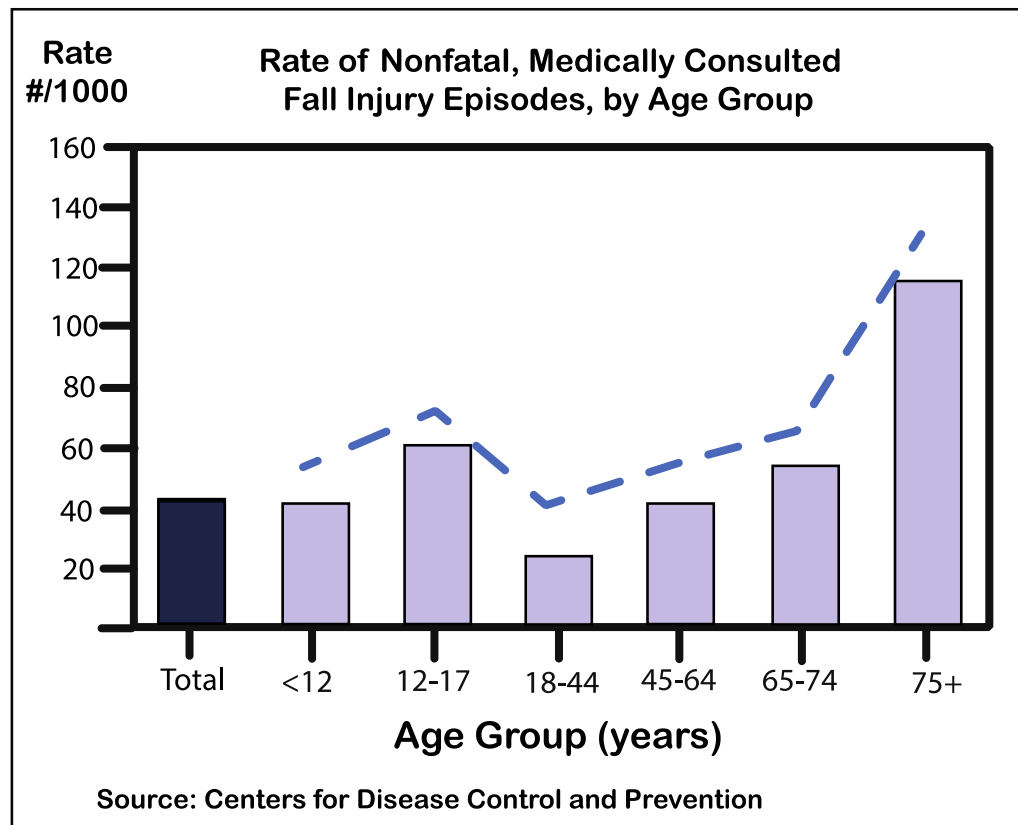


Vision and Falls

- Falls as a Public Health Problem
- Vision and Aging
- Falls Risk Factors
- Falls Prevention Interventions



Falls as a Public Health Problem

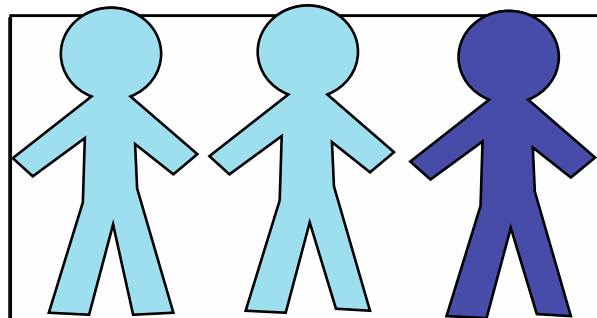




Falls as a Public Health Problem

Each year, thousands of older Americans fall in or around the home, resulting in lots of negative outcomes

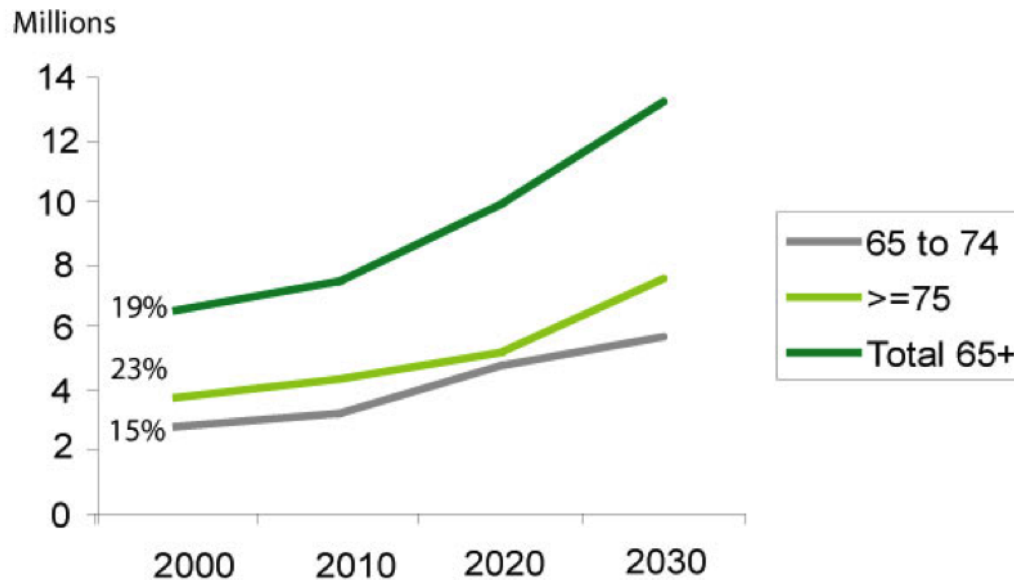
- About 1 out of 3 older adults fall annually
- Between 20-30% of falls lead to injury (2.4 million treated in ED in 2011)
- Leading cause of injury death (21,700 people over 65 died because of falls in 2010)
- Total direct medical costs: \$30B (2010)
- Individual costs (e.g., fear of falling)





Falls as a Public Health Problem

Projected Self-Reported Visual Impairment by Age

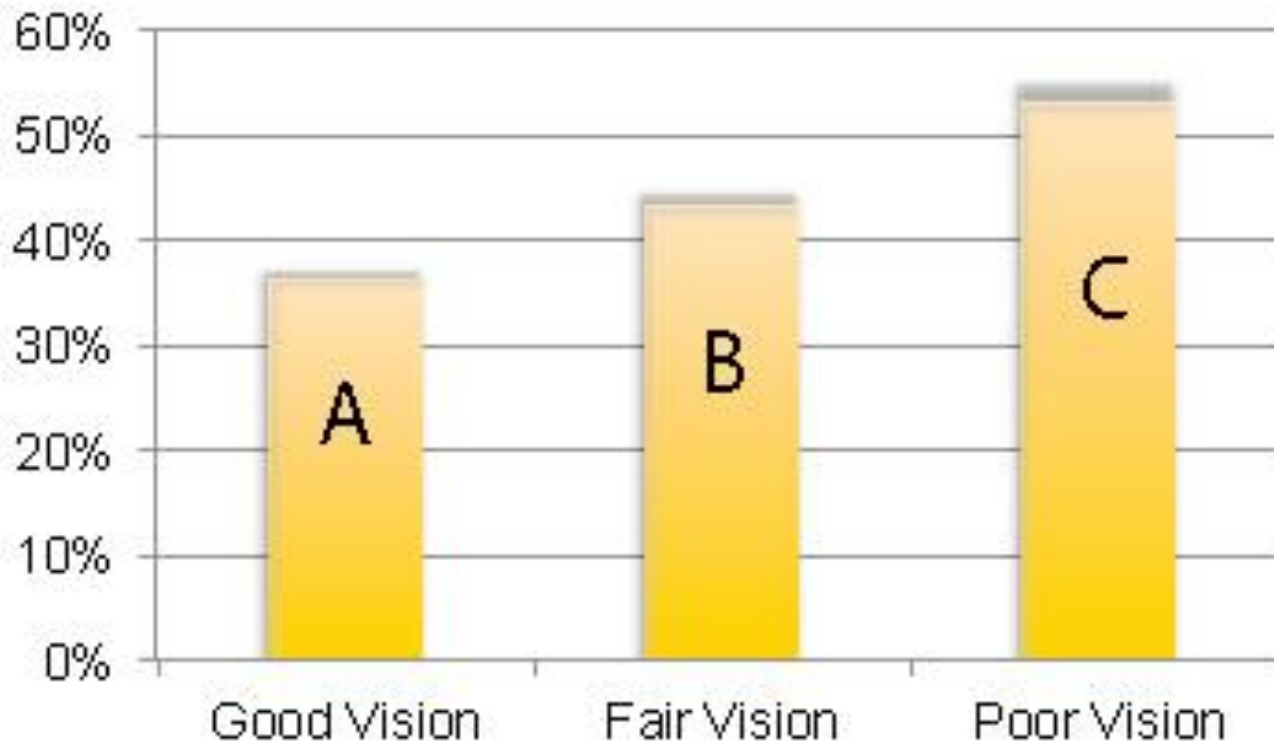


Source: U.S. Census

A disproportionate share of vision impairment is experienced by the oldest old; also the fastest growing segment of the older population, and the most likely to fall.



Falls by Self Reported Vision



Source: University of Michigan, Health and Retirement Study



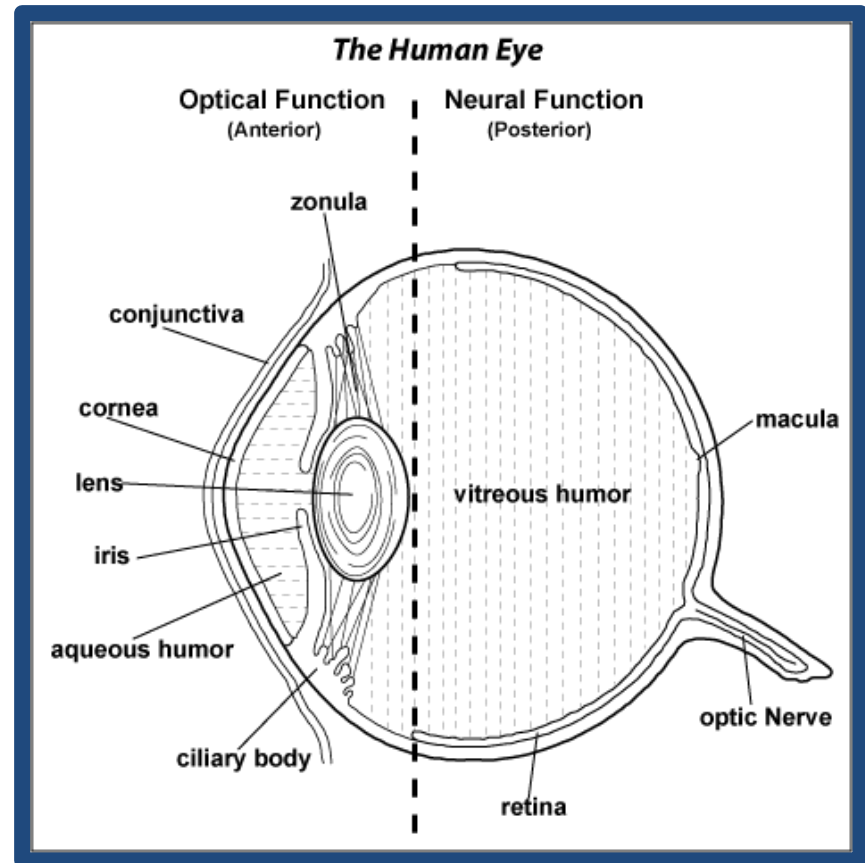
Age-Related Vision Changes and Fall Risk

Normal Changes

- Dry eyes/distortion
- Corneal changes
- Iris functioning
- Reduced accommodation
- Reduction in retinal cells

Pathological Changes

- Glaucoma
- AMD
- Diabetic Retinopathy
- Cataracts





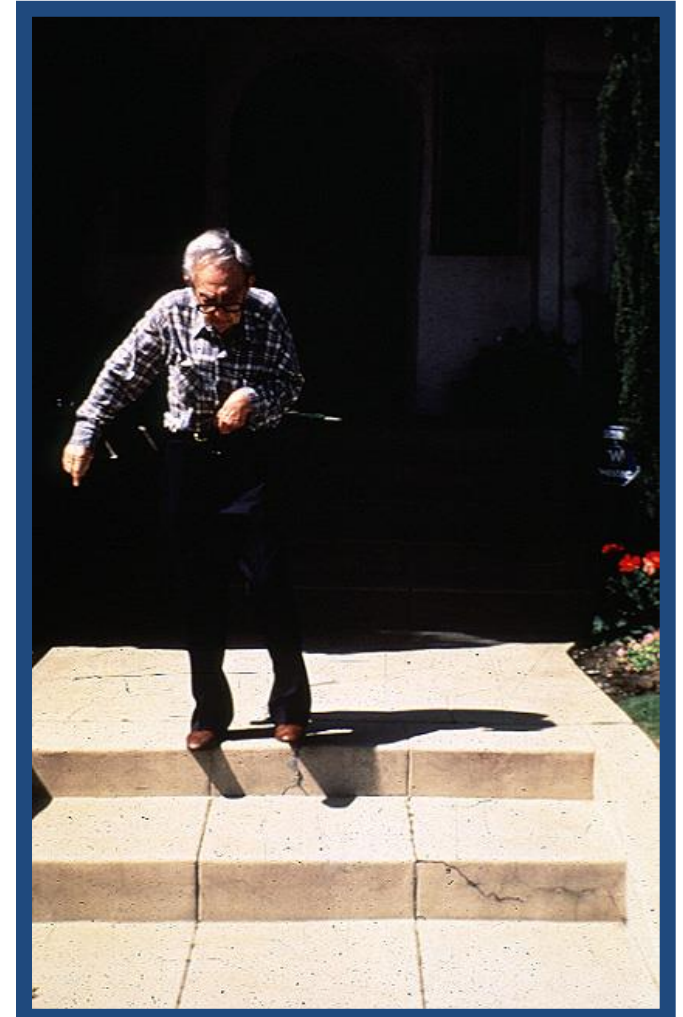
Changes in Vision

- Visual Acuity
- Contrast Sensitivity
- Depth Perception
- Loss in Visual Fields





Changes in Vision





Falls Risk Factors

- **Behavioral**
- Extrinsic
- Intrinsic



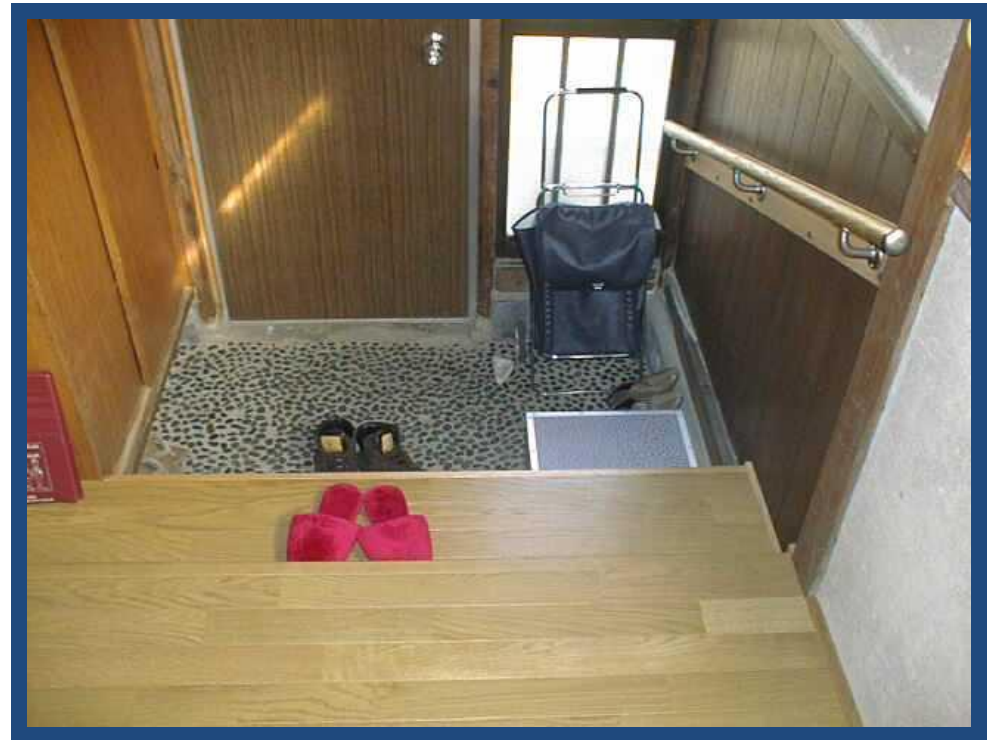


Falls Risk Factors

- Behavioral
- Extrinsic
- Intrinsic



Steps and Stairs





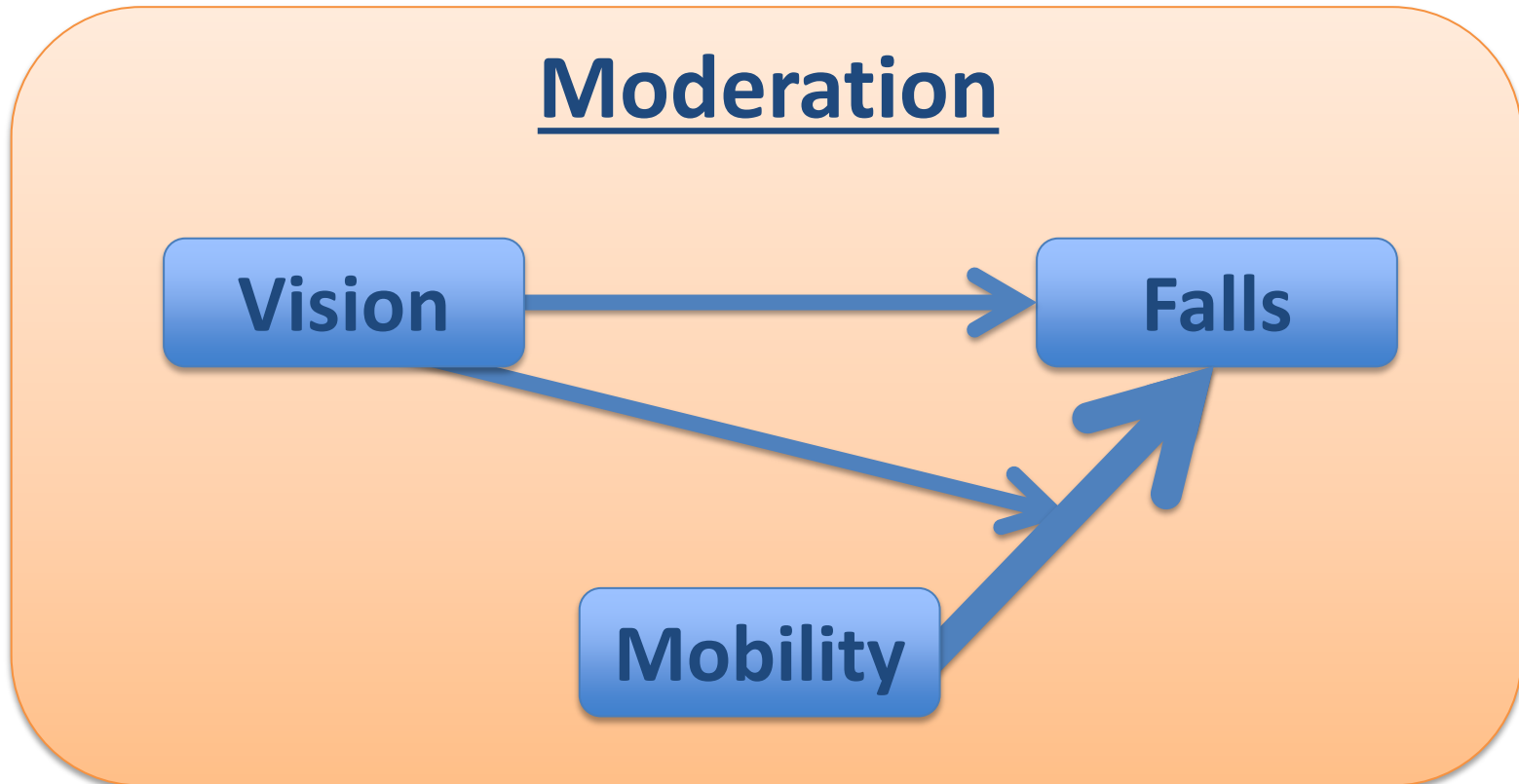
Falls Risk Factors

- Behavioral
- ~~Extrinsic~~
- Intrinsic





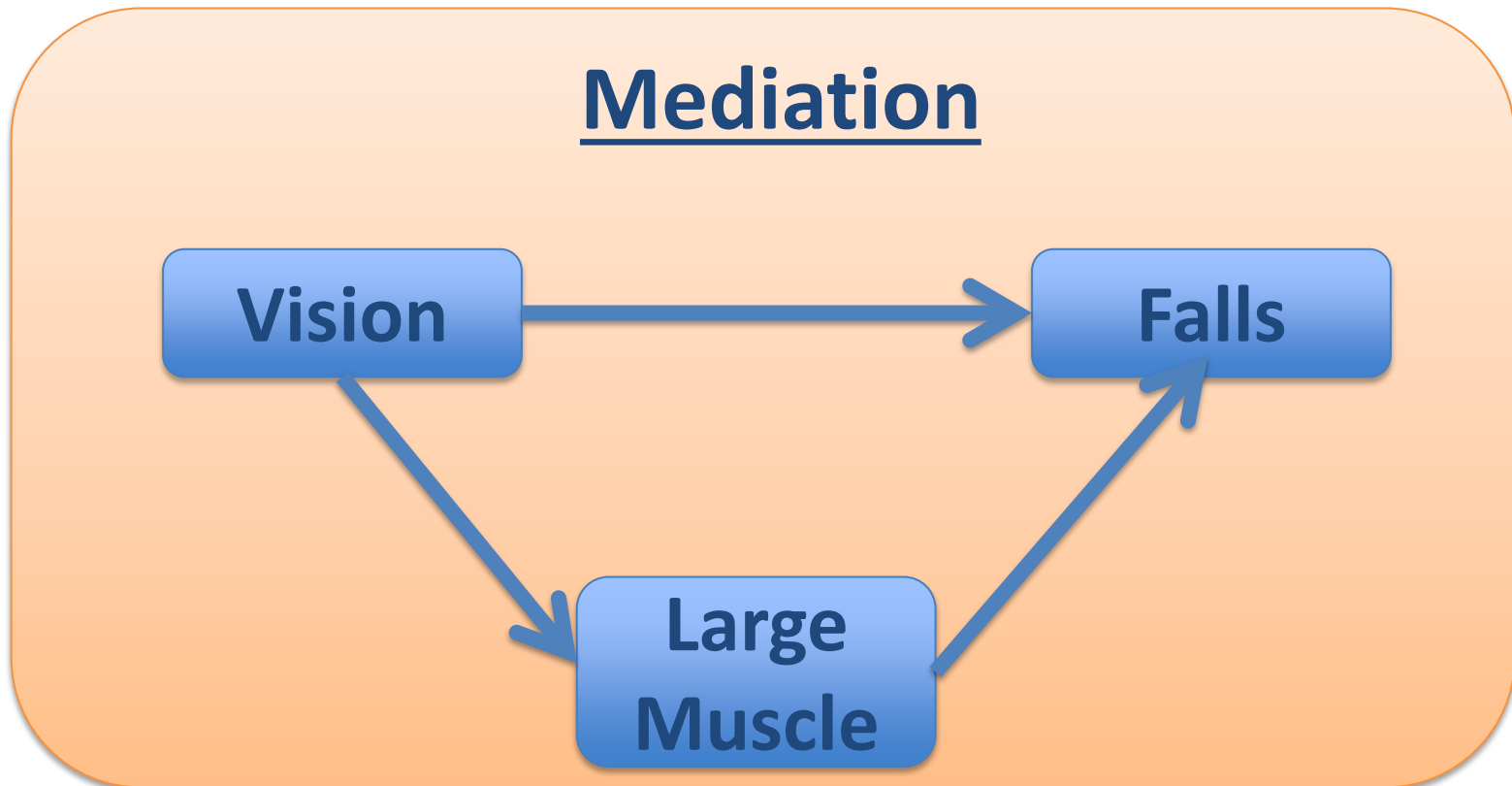
Integrated Falls Risk Factors



Steinman, B. A., Pynoos, J. & Nguyen, A. Q. D. (2009) Fall risk in older adults: Roles of self-rated vision, home modification, and limb function. *Journal of Aging and Health, 21*, 655 – 676.



Integrated Falls Risk Factors



Steinman, B. A., Allen, S. M., Chen, J., & Pynoos, J. (in press). Functional Limitations as Potential Mediators of the Effects of Self-Reported Vision Status on Fall Risk of Older Adults. *Journal of Aging and Health*.



Multifactorial Falls Risk Interventions

Education– Improving knowledge of older adults about falls and falls risk

- Vision Rehabilitation Services (VII-2 program)
- Non-profit organizations (e.g., FPCE www.stopfalls.org)
- Checklists (e.g., CDC; AFB)



Multifactorial Falls Risk Interventions

Medical Risk Assessment– Consultations with physicians to assess falls risk on the basis of medical examination

- Assessment of eyewear prescriptions
- Identifying integrated relationships
- Conducting detailed history of health including medical conditions and medications
- Post-fall medical assessments



Multifactorial Falls Risk Interventions

Exercise and Physical Activity– Exercise may serve to prevent, slow, or reverse progress of many negative health outcomes that lead to falls

- Exercise tailored to meet individual's functional limitations (e.g., opportunities for O&M)
- Motivational/participation difficulties
- Need for knowledgeable instructors
- Basic recommendations



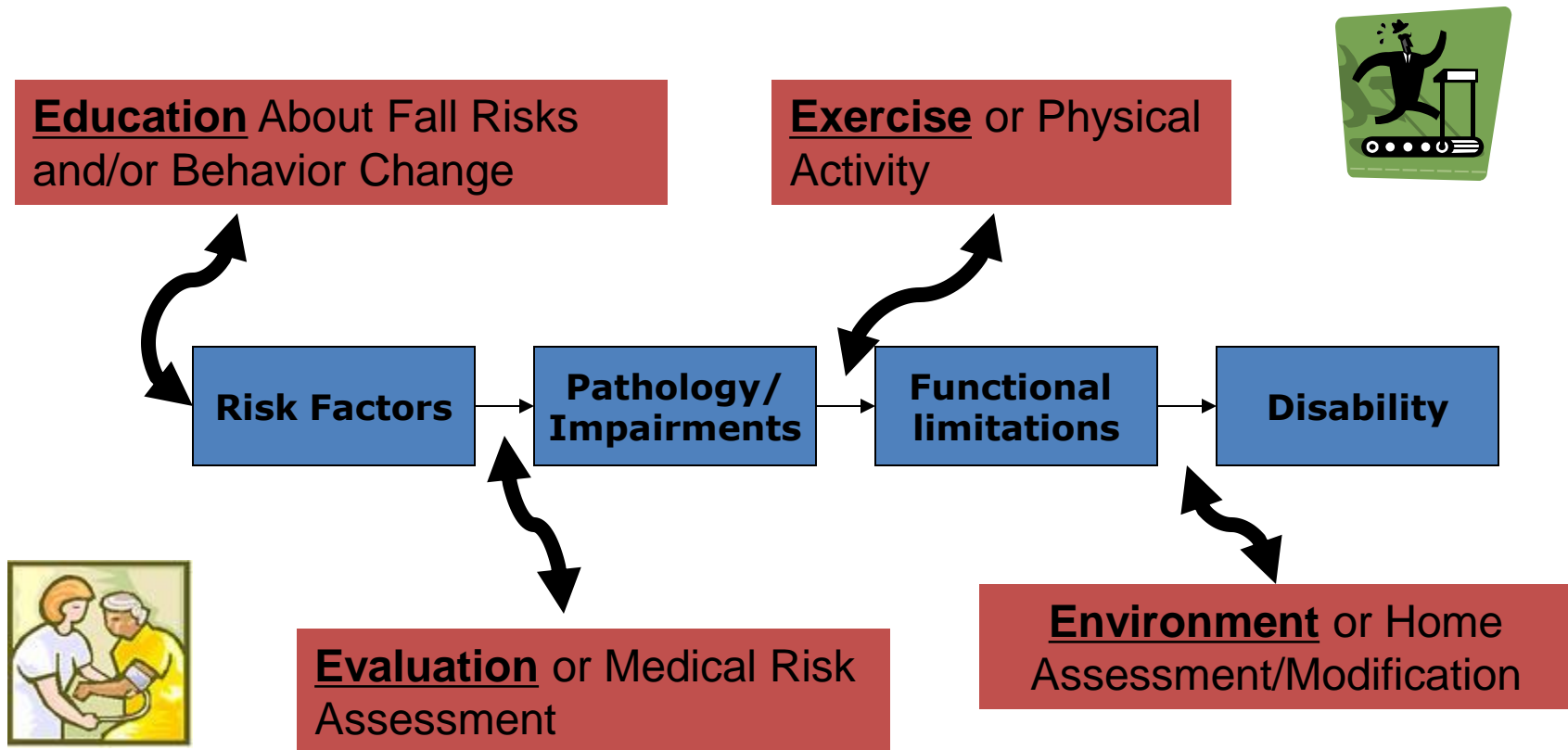
Multifactorial Falls Risk Interventions

Home Hazard Reduction– Striving for environmental press

- Universal Design
- Home modifications
- Home assessments w/OTs and COMs?



Multifactorial Falls Risk Interventions

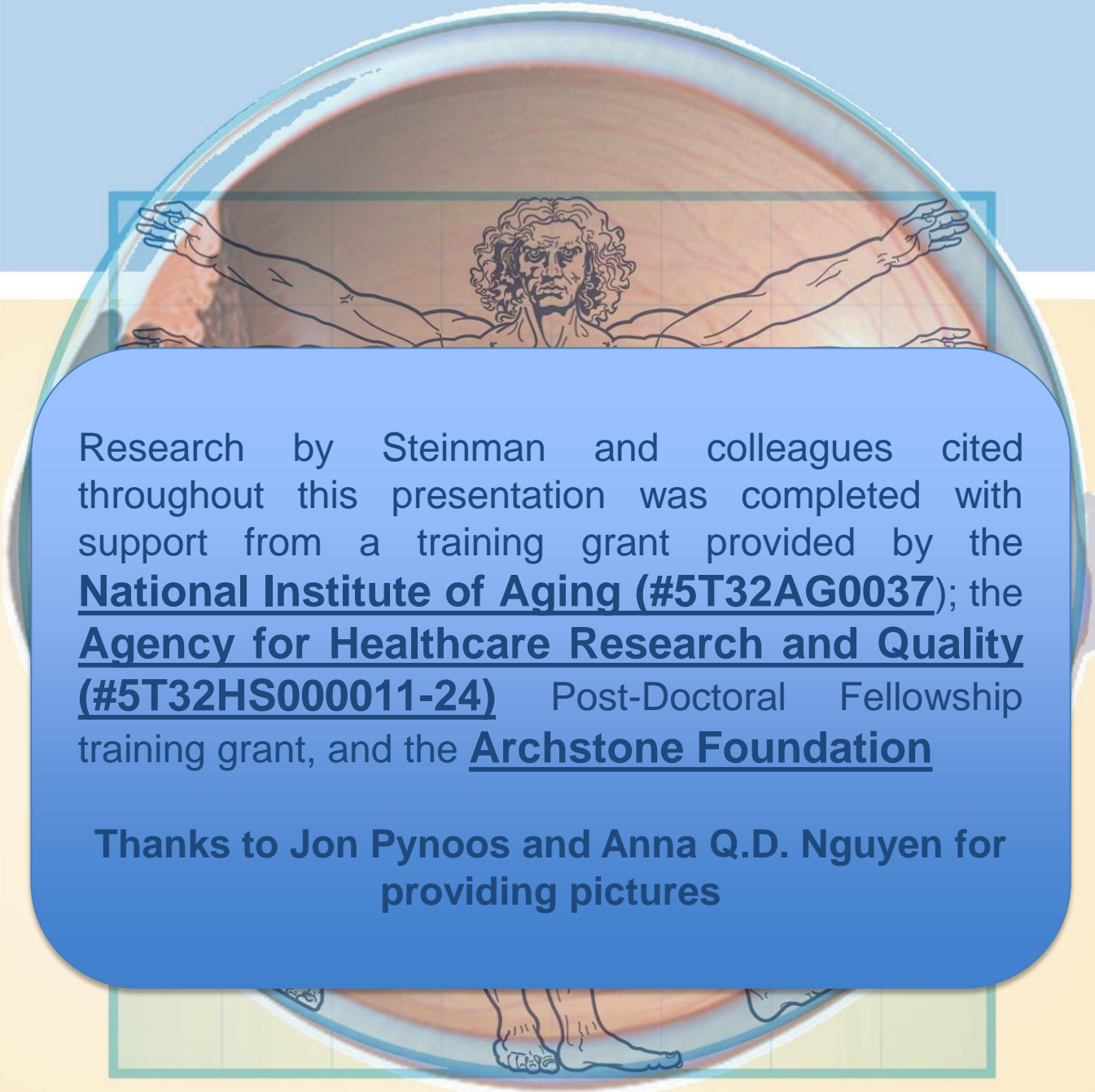


Steinman, B. A., Nguyen, A. Q. D., Pynoos, J., & Leland, N. (2011). Falls-prevention interventions for older adults who are blind or visually impaired. *InSight*, 4, 83 – 91.



Conclusions

- Effective intervention strategies consist of multiple components that address relationships between vision impairment and other fall risk factors
- Promising programs should explore dynamic relationships between falls risk factors
- Continuing need for developing falls prevention programs that are accessible to people who have vision impairments
- Need for research to demonstrate the efficacy of interventions for this high risk population



Research by Steinman and colleagues cited throughout this presentation was completed with support from a training grant provided by the **National Institute of Aging (#5T32AG0037)**; the **Agency for Healthcare Research and Quality (#5T32HS000011-24)** Post-Doctoral Fellowship training grant, and the **Archstone Foundation**

Thanks to Jon Pynoos and Anna Q.D. Nguyen for providing pictures