Published in final edited form as:

J Am Geriatr Soc. 2013 July ; 61(7): 1210–1211. doi:10.1111/jgs.12257.

The Body-Mind Connection in Aging and Dementia

Eric B. Larson, MD, MPH

Group Health Research Institute, Seattle, WA

Aging is associated with well-known changes affecting functions for all organisms. Research in Alzheimer's Disease (AD) and dementia has logically focused on the brain and especially measurements of cognitive function, along with increasingly sophisticated neuroimaging and biochemical measures. This focus has resulted in a seemingly endless stream of prospects for identifying early features of AD through sophisticated tests of cognition, cerebrospinal fluid biomarkers, and advanced neuroimaging. The paper in this edition of JAGS by Wilkins, et. al., (1) adds to our growing appreciation that impairments in physical function, which may be much easier than cognitive function to measure, seem to precede clinical onset of AD. While Wilkins' findings cannot show whether impairments in the brains of patients with AD contribute to their declining physical function or whether loss of physical function contributes to the development of cognitive decline, this study does confirm that mind and body are inextricably linked in aging and especially in the development of late-life dementia.

Studies that demonstrate this mind-body association are typically set in longitudinal cohort studies of community-residing older persons who are free of dementia when first enrolled. By regularly following study subjects as they age, investigators can detect changes that are later associated with development of AD and related dementias. Wilkins et al observed that persons with impaired performance scores at baseline more rapidly developed AD than those who were not impaired. This finding that some people "just slow down" as they approach late life and often before they develop noticeable features of a dementia with an insidious onset like AD will not surprise experienced physicians who have provided regular care to patients over time. Nor will it surprise the many lay people who are challenged to care for parents surviving into their late 70s and beyond, facing increasing decline in physical function, and then manifesting signs of cognitive impairment with late life dementia. Indeed, the inter-connectedness of mind and body during aging is likely self-evident to lay and professional alike. As such, a key tenet of geriatrics is to provide care for the whole person, realizing there is no mind-body dichotomy, but rather linked functions of mind and body that determine an individual patient's overall well being.

Corresponding Author: Eric B. Larson, MD, MPH, Vice President for Research, Group Health, Executive Director, Group Health Research Institute, 1730 Minor Ave, Suite 1600, Seattle, WA 98101-1448; <larson.e@ghc.org>.

Conflict of Interest

The editor in chief has reviewed the conflict of interest checklist provided by author and has determined that the author has no financial or any other kind of personal conflicts with this paper.

Author Contributions: Dr. Eric B. Larson is responsible for study concept, interpretation of data, preparation of manuscript.

If these findings are so self-evident, why then might the connection of physical impairment to future dementia be of interest to geriatrics and AD research? One interesting feature is that physical performance impairments (2) are not the only non-cognitive declines associated with future dementia. Added to global impairment are olfactory functional decline (3); central auditory dysfunction (4); visual spatial dysfunction (5); changes in regulation of pupillary response (6); and beat-to-beat variation in heart rate (7), among others. This constellation of changes in bodily functions begs the question: To what extent does a battery of non-cognitive measures have the potential to reliably detect AD before it becomes evident clinically? Although we do not currently have effective prevention or disease-altering treatments for AD, efforts to develop such treatments continue. Once we have them, being able to reliably target treatment to those most likely to benefit will be critical for feasible and cost-efficient treatment. Exploration of promising and easy-to-administer measures of cognitive and non-cognitive functions is likely a fruitful area for future research suggested by this and other recent publications.

The other important implication of Wilkins' finding that physical impairment often predates AD is more immediate and relates to our current efforts to prevent or delay onset of dementing disorders to as late in life as possible. It's well known that physical impairment in old age is modifiable through rehabilitation and habitual physical activity programs involving aerobic and resistive exercises or through the everyday habit of just plain walking. And, it should not be too surprising then that habitual physical activity has emerged as the modifiable risk factor with the most evidence supporting its benefit in preventing or delaying onset of dementia or late-in-life cognitive decline. (8, 9, 10) While it's self evident that habitual physical activity is never going to be 100% effective in preventing late life dementia, the public-health benefits of delaying onset of late life dementia will likely be considerable.

I believe we can expect better and more evidence of the benefits of habitual physical activity in reducing the burden of AD and late life dementia in general over the next several years. The greater challenge will be finding ways to increase physical activity throughout sedentary societies and to promote behavior change at the individual level. The fact that "Alzheimer's" or, as some used to say, "old timers' disease" is among the most, if not the most dreaded consequences of living to a "ripe old age", may be just the motivation our culture and individuals need to develop healthy exercise habits, like brisk daily walks, (8) as part of our daily routine.

Acknowledgments

Dr. Larson is funded by the National Institute of Aging.

Sponsor's Role: None

REFERENCES

1. Wilkins CH, Rose CM, Morris JC, et al. Mild physical impairment predicts future diagnosis of dementia of the Alzheimer type. *J Am Geriatrics Soc.* 2013; 61 000-000.
2. Wang, Li; Larson, EB.; Bowen, JD., et al. Performance-based physical function and future dementia in older people. *Arch Intern Med.* 2006; 166:1115–1120. [PubMed: 16717174]

3. Graves AB, Bowen JD, Rajaram L, et al. Impaired olfaction as a clinical marker for cognitive decline among Japanese Americans: Interaction with ApoE 4 status. *Neurology*. 1999; 53:1480–1487. [PubMed: 10534255]
4. Gates GA, Anderson ML, McCurry SM, et al. Central auditory dysfunction as a harbinger of Alzheimer's dementia. *Arch Otolaryngol Head Neck Surg*. 2011; 137 390-295.
5. Johnson DK, Storandt M, Morris JC, et al. Longitudinal study of the transition from healthy aging to Alzheimer disease. *Arch Neurol*. 2009; 66:1254–1259. [PubMed: 19822781]
6. Tales A, Troscianko T, Lush D, et al. The pupillary light reflex in aging and Alzheimer's disease. *Aging (Milano)*. 2001; 13:473–478. [PubMed: 11845975]
7. Zulli R, Nicosia F, Borroni B, et al. QT dispersion and heart rate variability abnormalities in Alzheimer's disease and in mild cognitive impairments. *J Am Geriatr. Soc*. 2005; 53:2135–2139. [PubMed: 16398898]
8. Lautenschlager NT, Cox KL, Flicker L, et al. Effect of physical activity on cognitive function in older adults at risk for Alzheimer disease. *JAMA*. 2008; 300:1027–1037. [PubMed: 18768414]
9. Erickson KI, Voss MW, Prakash RS, et al. Exercise training increases size of hippocampus and improves memory. *Proc Natl Acad Sci USA*. 2011; 108:3017–3022. [PubMed: 21282661]
10. Larson EB. Brains and Aging. Invited Commentary. *Arch Intern Med*. 2011; 171:1258–1259. [PubMed: 21771895]