



Enlightened Aging: Building Resilience for a Long, Active Life

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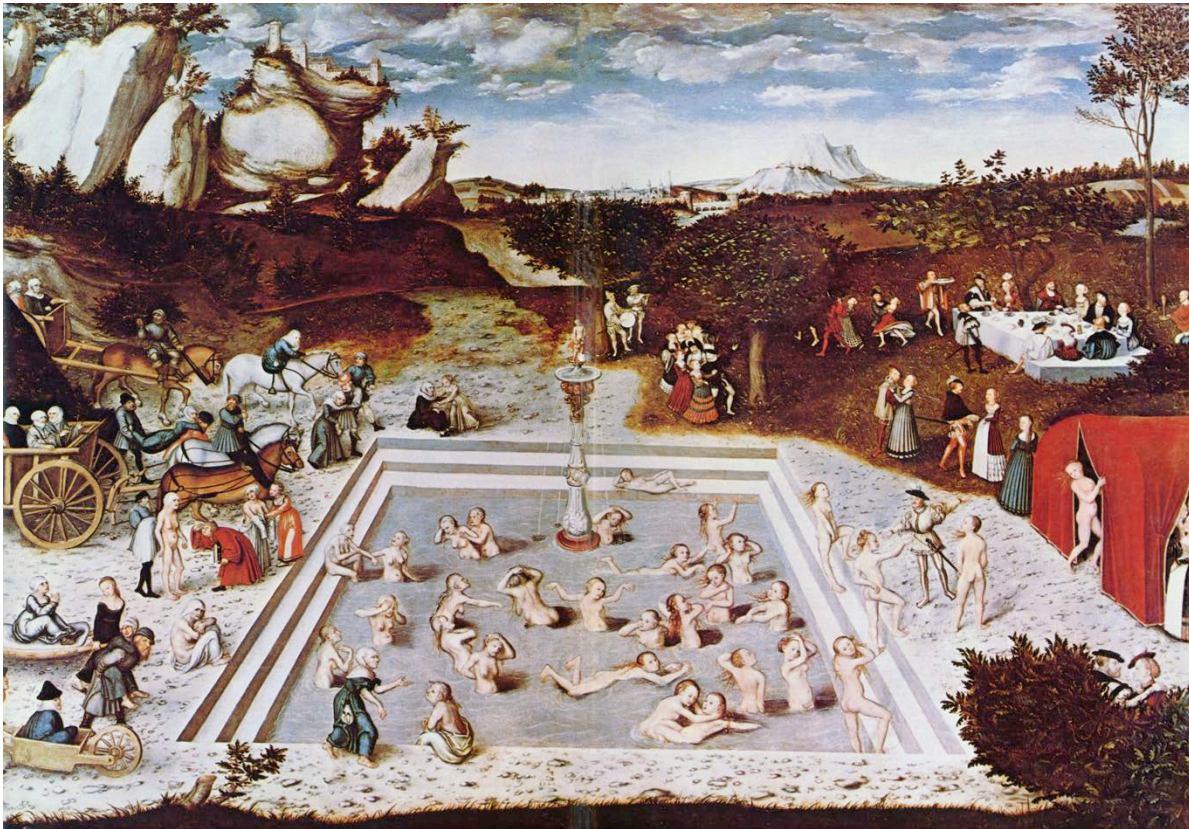
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ACT study participant Evangeline Shuler, age 100



- Community activist, mother, social worker...and tango dancer
- A role model for “enlightened aging”
- Most of us have the potential to live a shockingly good life into our 90s and 100s.

No magic bullet, no fountain of youth



"The Fountain of Youth" by German painter Lucas Cranach the Elder (circa 1546)

Looks good, but search for anti-aging "cures" can lead to:

- Over-diagnosis
- Too much medicine
- Unnecessary surgeries and treatment
- Medical harm

What is “enlightened” aging?



Knowledge of healthy aging + foresight to use it.

- We take concrete steps to prepare well for late life.
- We adapt to changes that are natural part of aging.

The ACT Study: Adult Changes in Thought

- A longitudinal study focused on promoting healthy aging.
- A collaboration of Kaiser Permanente and the University of Washington
- Continuously funded for more than 30 years by the National Institutes of Health
- Maintains an enrollment of 2,500 people age 65 and older
- Now includes one of the world's largest research populations of very old participants (over age 85).

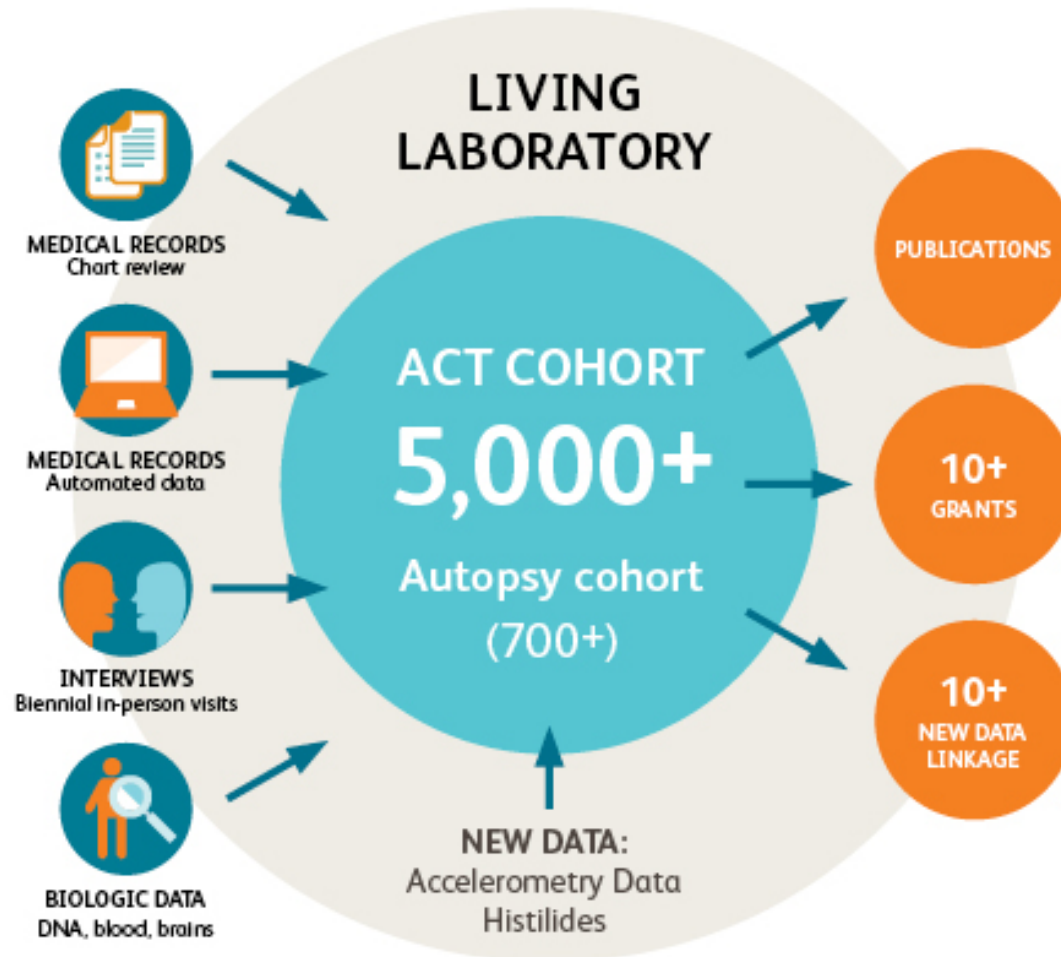
ACT's unique capabilities

The world's only study that can link outcomes for dementia, frailty, and aging to data on each participant's whole health history, including:



- Medical, lab & pharmacy records
- Brain tissue and autopsy information (neuropathology)
- DNA, other genetic material
- Extensive genomic data
- Eventually, proteomics and more

ACT Plus: Expanded aims and opportunities



Why research on healthy aging matters

Fastest growing segment of our population is the oldest old:

- 1980: 720,000 Americans over age 90.
- 2010: 1.9 million Americans over age 90

And here comes the Baby Boom!

- From 2010 to 2050, the total population aged 90 and over will more than *quadruple*.

If current trends continue...

Half of all babies born in 2000 will live to see the year 2100!



Risk of dementia grows with age

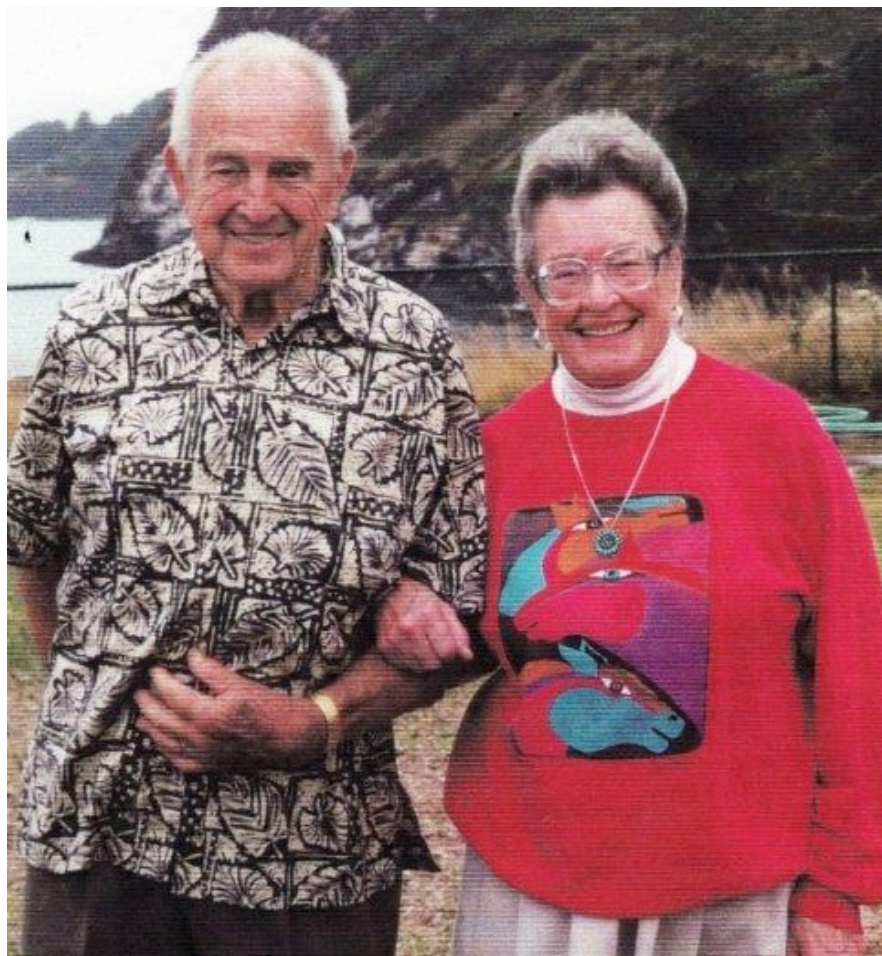
Dementia currently affects:

- 3% of people age 65-75
- 19% of people age 75-85
- 35% of people age 85-90
- 50% of people age 90-95
- 75% of people age 95 and older

But what if we could change this? What if we don't?

Much of our research focuses on ways to prevent or delay the onset of dementia.

Lessons from “The Greatest Generation”



- My parents cohort lived longer than they ever imagined they would.
- We witnessed their victories and struggles.
- What will we do differently?
- How will we benefit from new discoveries in healthy aging?
- How can we experience “enlightened aging”?

Palmer and Marion Larson, 2003

Good news: Compression of morbidity

Goal: To postpone disability and illnesses of old age until the very end.

Our studies show this compression is happening with Alzheimer's disease.

Rates of dementia are declining, showing that late-life dementia is preventable or at least can be delayed.

- Number of people with Alzheimer's and dementia is growing.
- *But the percentage of very old with these conditions is actually dropping!*
- Greater percent of very old people with Alzheimer's disease and dementia are staving off symptoms *until just a year or two before they die.*

What's behind this compression of aging?

- Advances in education
- Better health care
- Declines in cardiovascular risk (less smoking, better control of blood pressure and cholesterol)
- Healthier lifestyles
- Better socioeconomic conditions

Obesity epidemic and more diabetes could wipe out these gains.

But healthy lifestyles and better health care can turn the tide!

Cause for optimism: *We can* take steps to prevent or postpone disability until well into late life.

The Adult Changes in Thought Study: A timeline of selected findings

Selected ACT findings: Falls & Footwear



1985-88: Early studies showed just how devastating falls are—and how frequent. Contributing factors: sleeping pills, other common psychoactive drugs, weakness, and impaired balance. (Buchner, et al)

2004: To avoid falls, wear lace-up or Velcro shoes with adequate heel support and non-slip soles. Avoid high heels. And don't walk around barefoot or in stocking feet—even indoors. (Koepsell, et al)

Selected ACT findings: Hospitalization



2010: Hospitalization for acute illness is linked to greater cognitive decline for older adults. (Ehlenbach, et al)

2012: People with dementia have a significantly higher rate of hospitalization for all causes. Bacterial pneumonia, congestive heart failure, and urinary tract infections accounted for two thirds of all potentially preventable admissions. (Phelan, et al)

Selected ACT findings: Caregivers

1980-83+: Clinically significant depression is common in caregivers, especially spouses (30% to 60%). Wandering, agitation, and disturbed sleep complicate the lives of patients with Alzheimer's and their families. (Reifler, Teri et al)

2003: Exercise training combined with teaching caregivers techniques for managing behavior improved physical health and depression in patients with Alzheimer's disease. (Randomized trial set in Group Health, Teri et al)

Selected ACT findings: Drug effects



1987: Certain drugs, especially sedatives, can cause confusion and falling. (Larson et al)

2006: Statin drugs, used to treat high cholesterol, may be linked to fewer of the microscopic brain changes that are typical of Alzheimer's disease. (Li, et al)

Selected ACT findings: Drug effects

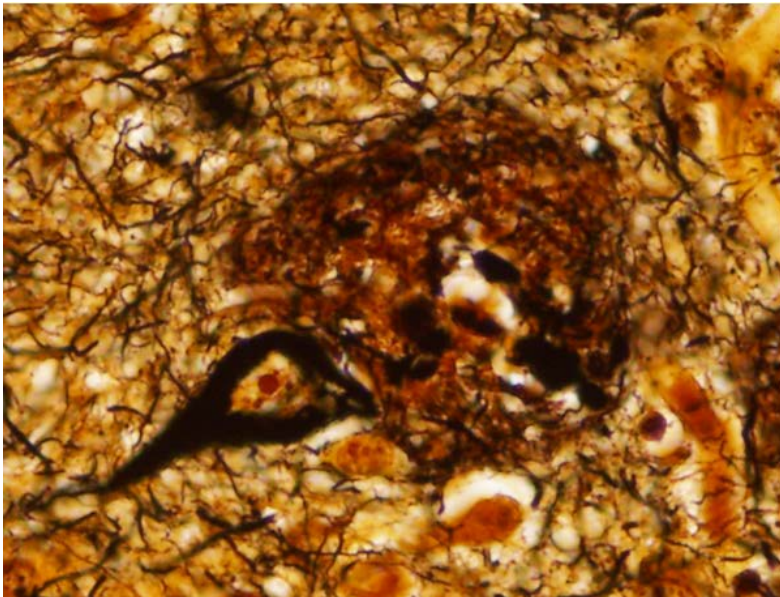


2015: Long-term use of high doses of anticholinergic drugs such as Benadryl were linked to greater risk of dementia. (Gray, et al)

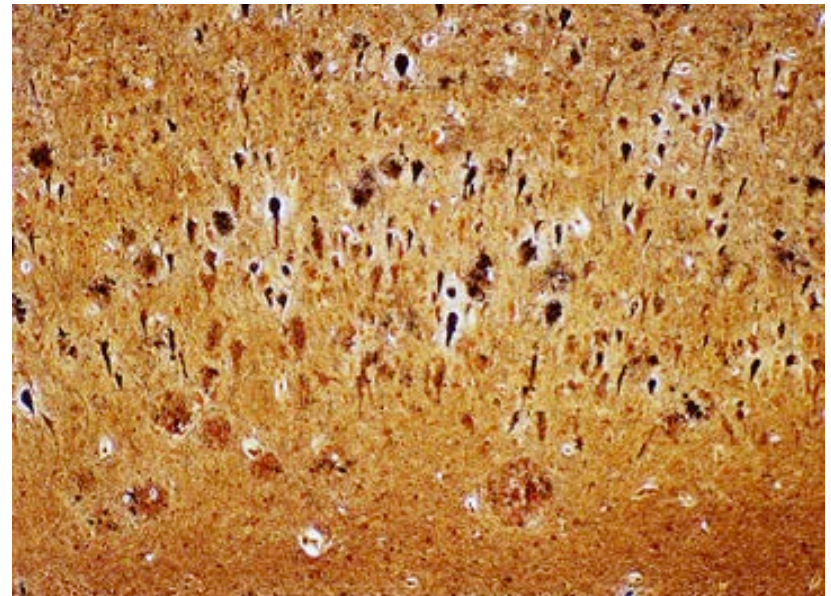
2016: Benzodiazepines (Valium, Zanax) and opioids do not seem to increase risk of dementia, but have other dangers in older people. (Gray, et al)

Selected ACT findings: “Mixed dementia”

2011: Ecology of the aging brain: People without signs of dementia can live to old-old age (older than 90)—even though their brains have advanced changes of Alzheimer’s disease (plaques and tangles).



Brain tissue with neurofibrillary plaque and neuritic tangle



Large numbers of plaques and tangles

Selected ACT findings: Physical activity



2006: Seniors who exercise three or more times a week have a 30-40% lower risk for dementia vs. those who exercise less. Risk reduction was greatest for those with lower performance levels. (Even small change = big improvement!)

Selected ACT findings: Physical activity



2006: First signs of dementia may be changes in physical function, often preceding mental decline. Good physical function is linked to delay in Alzheimer's, so re-engaging in physical activity may help to stop or slow cognitive decline. (Larson, et al)

2008: Seniors who participate in Group Health's fitness programs have lower health care costs. (Larson, et al)

The key to well being as we age: Resilience

Resilience: The ability to adapt to adversity



Resilience allows people to bounce back from physical set backs, illness, and hardships.

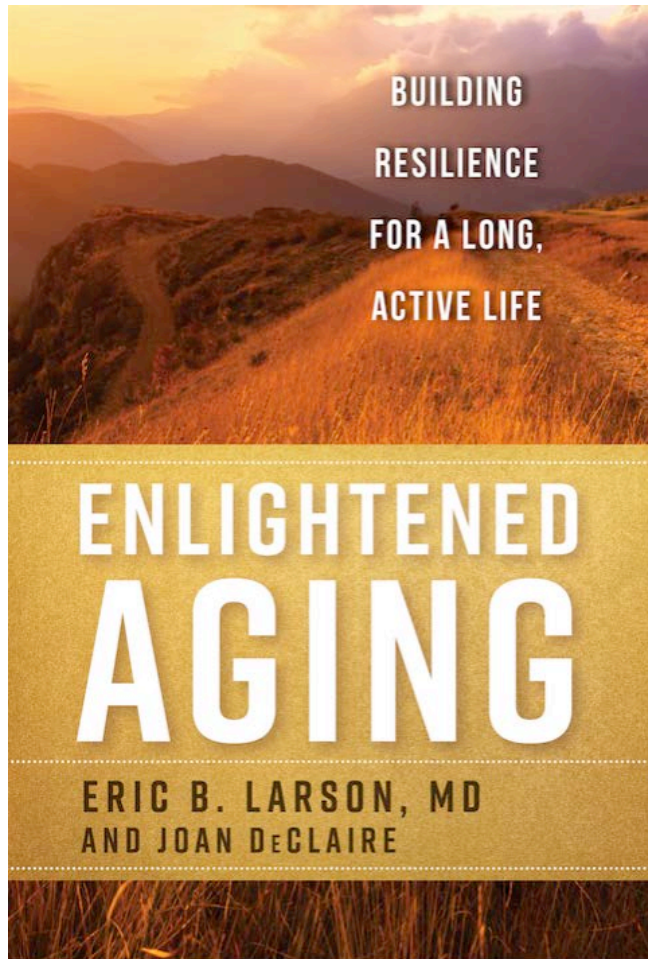
Like a tree in a windy climate, they don't break, they bend.

Remember Evangeline Shuler



- Widowed at 60, became a world traveler
- Adapted well to changes in her living arrangements, physical limitations, eventual blindness.
- Built resilience by staying active physically, mentally.
- Lived to age 107.

Enlightened aging follows a PATH that leads to resilience



The steps on this PATH are:

Pro-activity: Take an active role in managing your own health and well being.

Acceptance: Know that changes will come and accept them with mindfulness and equanimity.

THree reservoirs: Build your reserves of well being in three ways: Mentally, physically, and socially—for the long, fulfilling road ahead.

A conversation and questions