

Advancing the Science: Alzheimer's and Dementia Research

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GA Chapter

alzheimer's  association®

Our Work is About People and Science



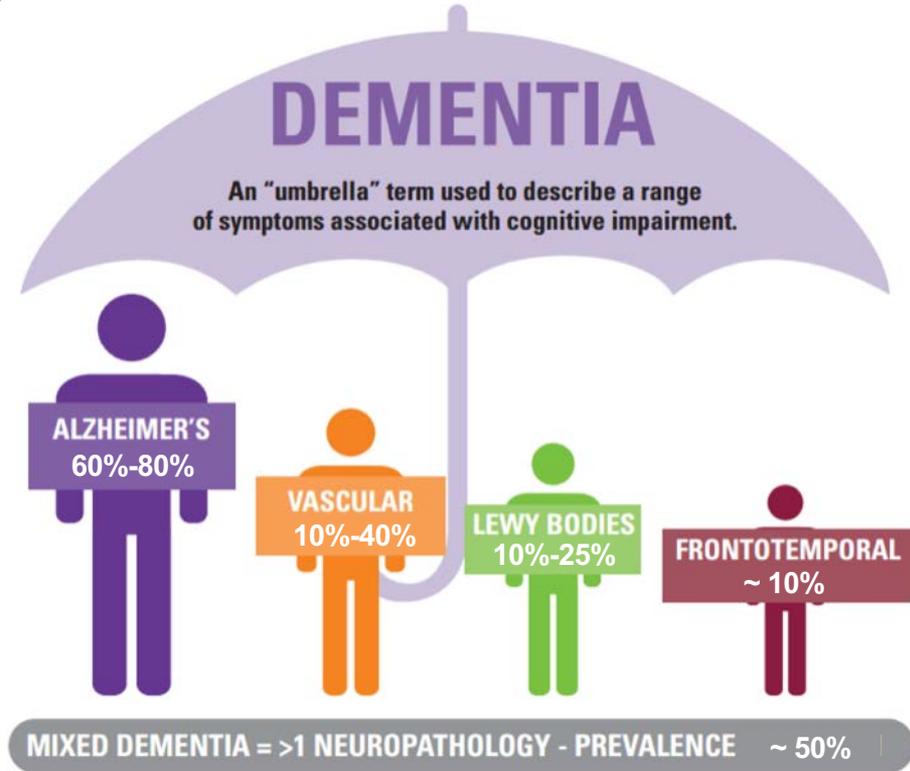
The Alzheimer's Association is a global organization working to advance care, support and research across the world

Our Time Today...

- Landscape of Alzheimer's and Dementia Science
- Highlights in Early Detection and Diagnosis
- Latest Advances in Clinical Trials, Treatments and Lifestyle Interventions
- How You Can Get Involved

Dementia is a Syndrome

- Dementia is a collection of symptoms related to cognitive decline
- Can include cognitive, behavioral and psychological symptoms
- Due to biological changes in the brain
- Alzheimer's is most common cause
- Mixed dementia is very prevalent
- Some causes of cognitive decline are reversible and not truly dementia



Continuum of Cognitive Impairment

Impairment does not interfere with activities of daily living

Impairment in two or more cognitive functions that interfere with activities of daily living

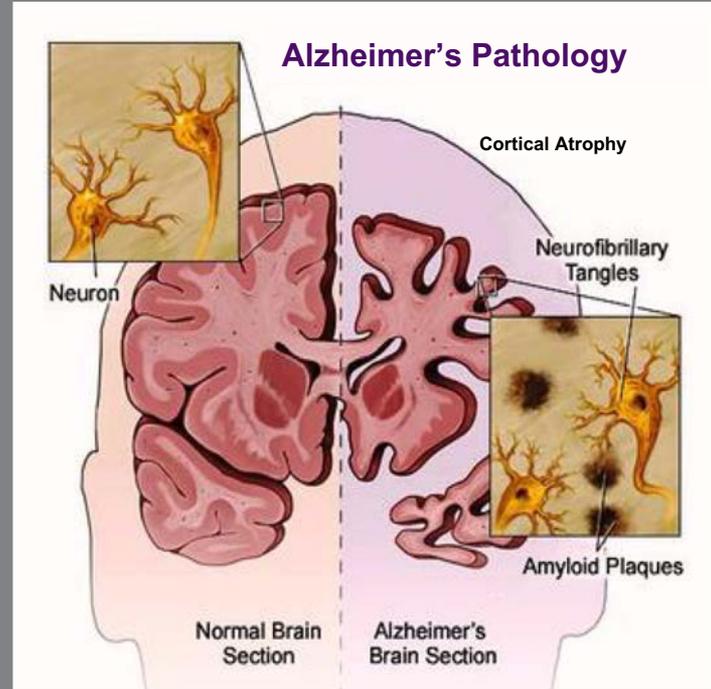


MCI is a known risk factor for dementia

Everyone who experiences dementia passes through MCI

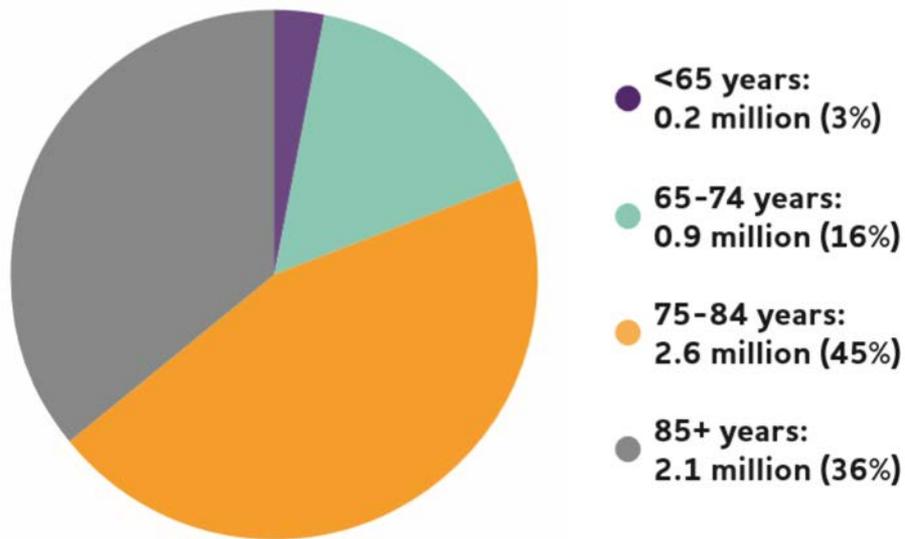
When you prevent new cases of MCI, you are preventing new cases of dementia

Hallmarks of Alzheimer's Disease



Risk Factors

Ages of People with Alzheimer's Dementia, 2019



Created from data from Hebert et al.^{A2,51}

Alzheimer's is not typical aging

- Age
- APOE-e4 gene
- Family history
- Cardiovascular disease
- Social & cognitive stimulation
- Education
- Traumatic brain injury

FDA Approved Therapies

Cholinesterase Inhibitors

- donepezil (Aricept)
- rivastigmine (Exelon)
- galantamine (Razadyne)

Approved For

All Stages

Mild - Moderate

Mild - Moderate

Glutamate Moderators

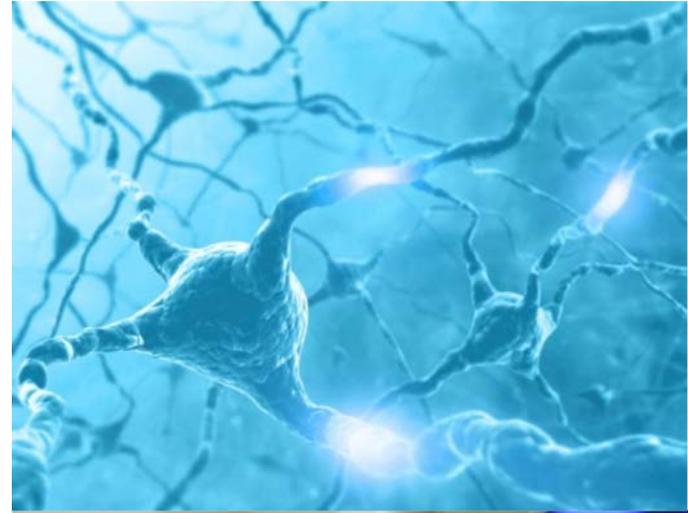
- memantine (Namenda)

Moderate - Severe

Combination

- donepezil + memantine
(Namzaric)

Moderate - Severe



Impact of Alzheimer's

M
16
AN

IN 2019, Alzheimer's and other dementias will cost the nation

\$290 BILLION

BY 2050, these costs could rise as high as

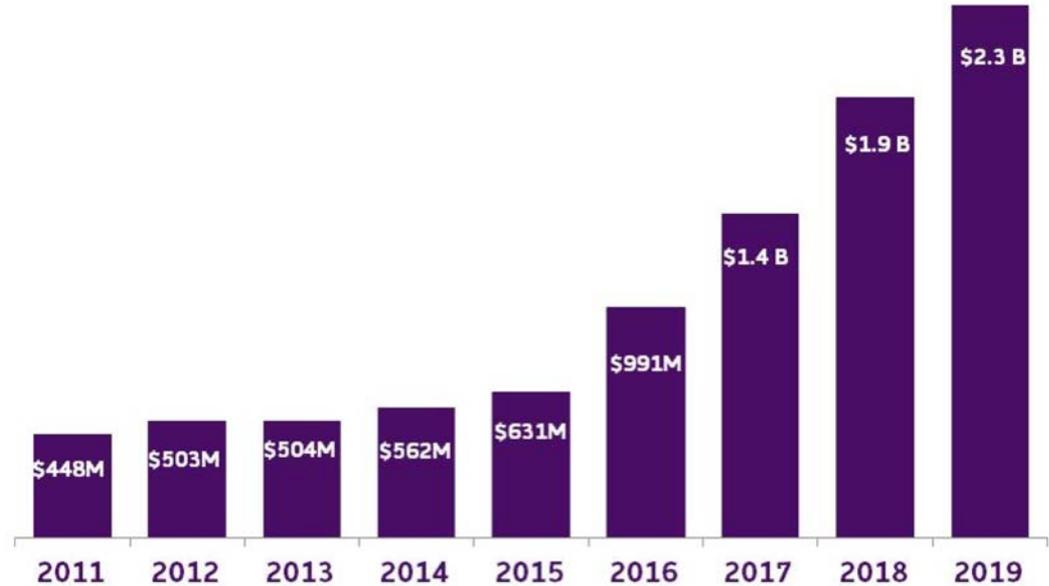
\$1.1 TRILLION



are

We Advocate

Alzheimer's and Related Dementia Research Funding at the NIH



Connector • Convener • Funder • Catalyst

alzheimer's association®

Research Roundtable



alzheimer's association®

AAIC >19

alzheimer's association®

Business Consortium

iDEAS
Imaging Dementia—Evidence
For Amyloid Scanning

U.S. POINTER
alzheimer's association®

NIH National Institutes of Health
Turning Discovery Into Health

AMP-

AD

alzheimer's association®

trialmatch™

International Research
GRANT PROGRAM

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ISTAART

alzheimer's association®

alzheimer's association®

Global Biomarker
Standardization Consortium



IADRP
International Alzheimer's and Related
Dementias Research Portfolio

WW-ADNI
alzheimer's association®

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Alzheimer's & Dementia®
THE JOURNAL OF THE ALZHEIMER'S ASSOCIATION

WORLD WIDE
FINGERS

alzheimer's association®

A world map with a light blue background and white outlines of continents. The map is centered on the Atlantic Ocean. The text is overlaid on the map in a dark purple color.

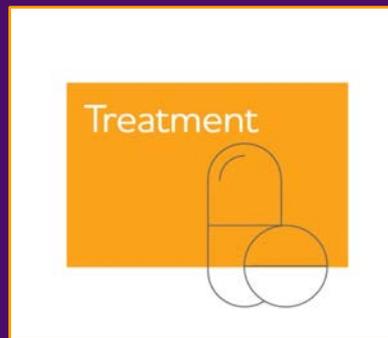
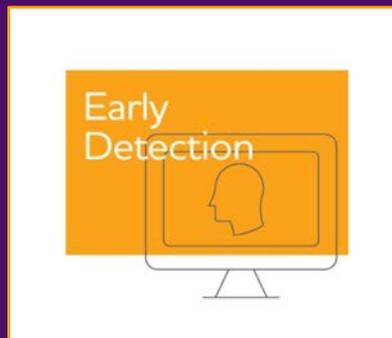
**Alzheimer's Association
Global Research Investment**

\$167+ million

500+ projects

27 countries

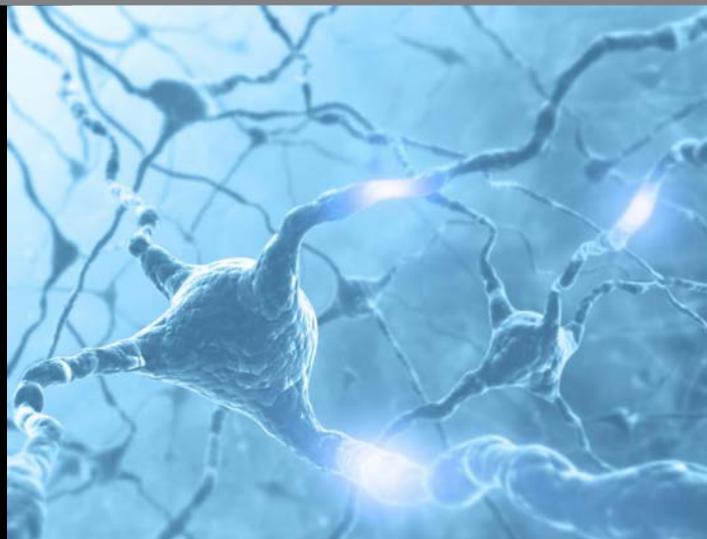
Moving the Needle on Research



Our Research Priority Areas

Inform the Structure of our Grant Program and
Global Collaborative Partnerships

Exciting Time in Research

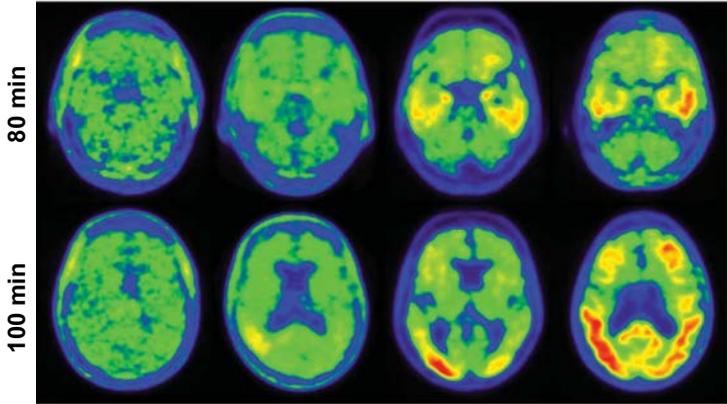


Biomarkers Are Changing the Game

Saliva Biofluid



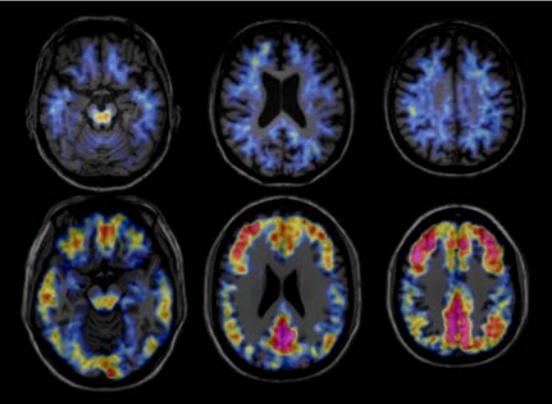
Tau PET Imaging



Blood Test



Amyloid-β PET Imaging



CSF – Lumbar Puncture



Optical Evaluation



Modernizing the Diagnosis

Cognitively Unimpaired

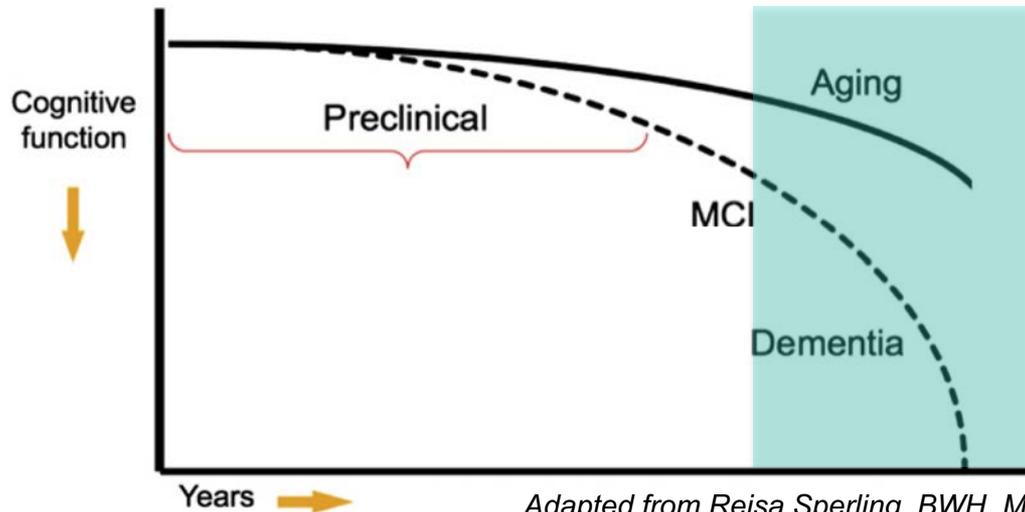
Alzheimer's Dementia

Biomarkers

History & Cognition

20

years or more before symptoms appear, the brain changes of Alzheimer's may begin.

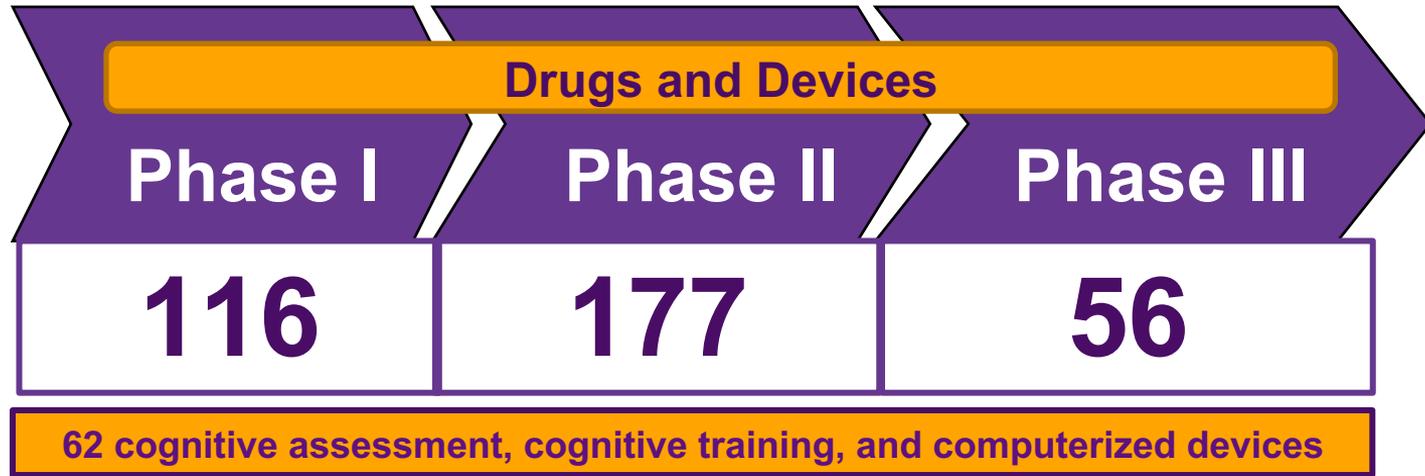


Adapted from Reisa Sperling, BWH, MGH

Progress Toward More Effective Treatment

A future Alzheimer's therapy will likely include both lifestyle interventions and medicines

Current Landscape of Clinical Trials for Alzheimer's & Dementia



As of
July.
2019

Always a Need for Participants

The Drug Discovery Process



Adapted from PhRMA 2018

Regeneration /
Brain cell health

Neuroinflammation

Misfolded Proteins

Oxidative Stress

Tau

PART THE CLOUD

Diversifying the Pipeline

Accelerating transition of
research findings from
laboratory through clinical
trials and into practice

Amyloid Beta

Growth Factors

Vascular Related

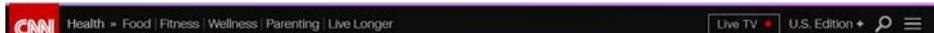
Metabolic Function

Cell Signaling &
Communication

Medicines Focused on Behavioral & Psychological Symptoms of Dementia

- A major quality of life problem for people living with dementia and their caregivers
- Ongoing clinical trials focusing on therapies for:
 - **Agitation**
 - **Sleep disturbances**
 - **Psychosis**
 - **Apathy**

In The News...SPRINT-MIND Study



Lowering blood pressure could cut risk factor for dementia

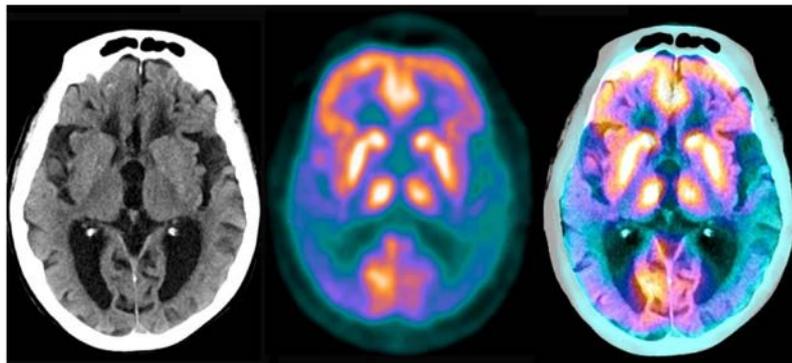
CBS EVENING NEWS WITH JEFF GLOR

the japan times

The New York Times

Study Offers Hint of Hope for Staving Off Dementia in Some People

People who received intensive treatment for hypertension were less likely to develop minor cognitive problems than those receiving standard treatment.



Why Is This Important?

There are things you can do to reduce your risk of MCI and dementia – especially regarding cardiovascular disease risk factors

Immediate opportunity with life changing impact potential



U.S. Study to Protect Brain Health through Lifestyle Intervention to Reduce Risk

**Two year multi-center
randomized clinical trial**

***Self-Guided* and *Structured*
Lifestyle Groups**

**2,000 Participants at
five U.S. sites**





alz.org/wwfingers

Changing the Trajectory of Alzheimer's Disease

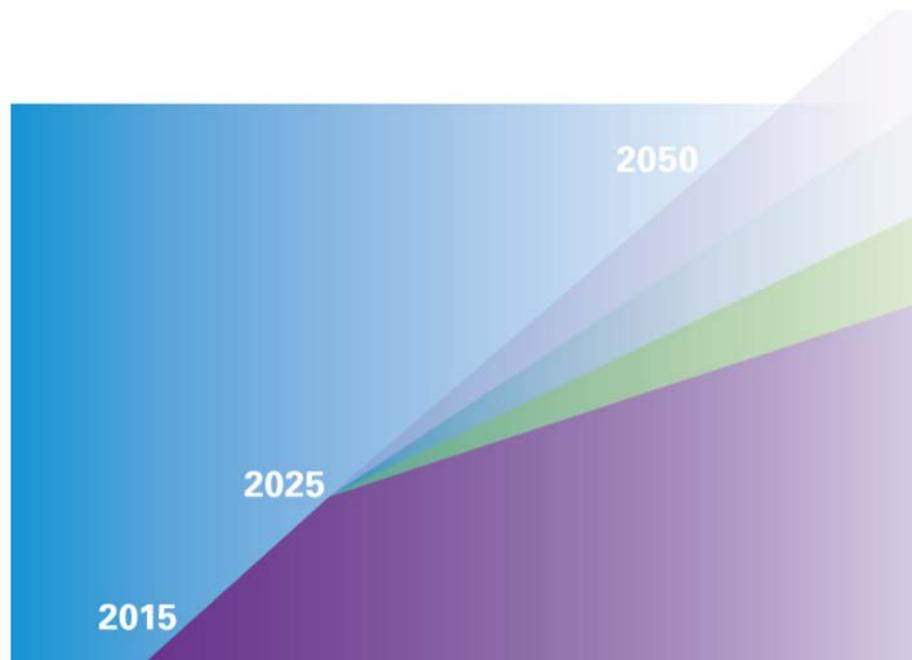
DELAYED ONSET

If we develop a treatment by 2025 that delays the onset of Alzheimer's by just 5 years, then:

5.7

MILLION

people expected to develop Alzheimer's would not in 2050.



The Alzheimer's Association International Conference (AAIC) is the world's largest gathering of researchers from around the world focused on Alzheimer's and other dementias.

2019 Was a Record Breaking Year

- Nearly 6,000 scientists from 60 countries
 - More first time attendees
 - 2,500 were ISTAART members
 - More than 1,000 were students
 - 200 travel fellowships for students and researchers from LMICs
- Over 3,400 research presentations



Infectious Agents Debate



- As the world's leading forum for discussion of emerging topics in Alzheimer's and dementia research, AAIC 2019 hosted a panel discussion of five expert speakers with differing views on the role of bacterial or viral infection in Alzheimer's disease.

Alzheimer's Risk, Progression and Resilience Differs by Sex

- New research suggests sex-specific differences may inform unique risk profiles and define the biology behind Alzheimer's
- 11 novel sex-specific risk genes for Alzheimer's disease
- Differences in the structural and functional connections in the brains of women that might contribute to accelerated spread of abnormal tau protein
- Women who participated in the paid labor force showed slower rates of memory decline in late-life

The screenshot shows the NPR website interface. At the top, there are logos for 'npr' and 'WBEZ91.5'. Navigation links include 'NEWS', 'ARTS & LIFE', 'MUSIC', 'SHOWS & PODCASTS', and 'SEARCH'. A 'SIGN IN' button, 'NPR SHOP', and 'DONATE' link are also visible. Below the navigation is the 'Shots' health news section. The main article is titled 'Researchers Explore Why Women's Alzheimer's Risk Is Higher Than Men's' and is categorized under 'TREATMENTS'. It features a play button icon, a duration of 3:36, and a 'PLAYLIST' button. The article was published on July 17, 2019, at 5:02 AM ET, and is from the 'Morning Edition' show by Jon Hamilton. A photograph of an elderly couple walking together is shown at the bottom of the article preview.

Sleep

- Use of sleep medication, especially in people who do not have sleep disturbances, may increase risk for dementia
- However poor sleep is a risk factor for Alzheimer's and also worsens cognitive function in all people
- A drug trial focused on improving irregular sleep patterns showed positive preliminary benefit
- Other research focused on behavioral sleep interventions such as light therapy and physical activity
- The Alzheimer's Association offers a variety of coping strategies for sleep issues and sun downing on our website, alz.org

Chronotherapy Improves Sleep in Mild Cognitive Impairment

Megan Brooks

July 16, 2019

 [Read Comments](#)

LOS ANGELES — A personalized behavioral medicine program helps reset the biological clock to improve sleep quality in older adults with [mild cognitive impairment](#) (MCI), results of a new proof-of-concept study show.

"Our hope is that, by improving sleep quality, we can contribute to preventing further cognitive decline in older adults with MCI, but more research is needed to test this possibility," said Ryan Falck, MSc, PhD candidate at the University of British Columbia in Vancouver, Canada.

The study was presented at a press briefing here at the Alzheimer's Association International Conference (AAIC) 2019.

Significant Improvement

Research has shown that older adults with poor sleep have an increased risk of MCI and dementia, and those with MCI have an increased risk of sleep disturbances.

Blood Biomarkers

- There is a global race to uncover and develop blood based biomarkers for Alzheimer's disease and other dementias
- More research validating amyloid beta in blood by comparing to imaging and cognitive testing
- Data presented on blood tests for alpha synuclein and neurofilament light
- Not in your doctor's office tomorrow, but are already being used for clinical trials

AAIC: A Potential New Biomarker for Alzheimer's Disease

Published: Jul 15, 2019 | By Mark Terry



Lifestyle

- Combining multiple healthy lifestyle factors may be more impactful for reducing dementia risk
 - Healthy diet
 - Moderate to vigorous physical activity
 - Light to moderate alcohol intake
 - Smoking
 - Cognitive stimulation
- 4 or 5 → 59% lower risk of Alzheimer's dementia
- 2 or 3 → 39% lower risk
- May even offset risk associated with genetics

Can Alzheimer's be stopped? Five lifestyle behaviors are key, new research suggests

Following four out of five lifestyle behaviors can protect against mental decline, even in people with increased genetic risk.

July 14, 2019, 10:00 AM CDT / Updated July 14, 2019, 10:18 AM CDT

By Linda Carroll

There's no cure for or drug to stop Alzheimer's disease, but it may be possible to [hold off dementia](#) – even in people who have a genetic risk, researchers reported Sunday at the Alzheimer's Association International Conference. The key is not any one factor; several studies show, but following a combination of healthy lifestyle habits. And the more healthy habits a person adopts, the lower the risk of cognitive decline.

People who followed four out of five lifestyle behaviors, including regular exercise, cognitive stimulation and a brain-healthy diet and not smoking, over a six-year period had a 60 percent lower risk of developing Alzheimer's dementia when compared to people who practiced only one or none of these habits, according to researchers from Rush University in Chicago.

Similarly, a UK study found that among people with a heightened genetic [risk of cognitive decline](#), dementia was 32 percent lower in those with a healthy lifestyle.



10 Ways to Love Your Brain



START NOW

It's never too late or too early to incorporate healthy habits.



How to Get Involved in Research

trialmatch®

Over 350,000 Users

300+ Clinical Studies at 500+ Locations

alz.org/trialmatch

TrialMatch is a free **clinical studies matching service** designed to provide a **customized list** of potential study matches to each user.

In Summary ...

- **Alzheimer's Association is a global leader for Alzheimer's and dementia science**
- **Exciting time in research**
 - New tools for detection and diagnosis
 - Growing diversity of therapies under investigation
- **New research leading to future of therapy that combines drugs and modifiable risk factor interventions**
- **There is HOPE in research !!**



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