Advancing the Science: Alzheimer’s and Dementia Research

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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**
- Cognitively Unimpaired
- Mild Cognitive Impairment

**Impairment in two or more cognitive functions that interfere with activities of daily living**
- Mild Dementia
- Moderate Dementia
- Severe Dementia

- 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

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Hallmarks of Alzheimer’s Disease

- **Alzheimer’s Pathology**
  - Cortical Atrophy
  - Neuritic Plaques
  - Amyloid Plaques

- Normal Brain Section
- Alzheimer’s Brain Section
**Risk Factors**

Ages of People with Alzheimer’s Dementia, 2019

- <65 years: 0.2 million (3%)
- 65-74 years: 0.9 million (16%)
- 75-84 years: 2.6 million (45%)
- 85+ years: 2.1 million (36%)

Created from data from Hebert et al.42,51

**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: donepezil
- Mild - Moderate: rivastigmine, galantamine

**Glutamate Moderators**

- memantine (Namenda)

**Approved For**

- Moderate - Severe: memantine

**Combination**

- donepezil + memantine (Namzaric)

**Approved For**

- Moderate - Severe: donepezil + memantine
Impact of Alzheimer’s

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.

We Advocate

Alzheimer’s and Related Dementia Research Funding at the NIH
Alzheimer’s Association
Global Research Investment

$165 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

Amyloid-β PET Imaging

Tau PET Imaging

Blood Test

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

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<th>Phase</th>
<th>Drugs and Devices</th>
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As of July. 2019

62 cognitive assessment, cognitive training, and computerized devices

Always a Need for Participants
Diversifying the Pipeline

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

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

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

[World Wide Fingers map]

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.

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 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!!