

Alzheimer's Disease



**Alzheimer's Association
Montana Chapter**

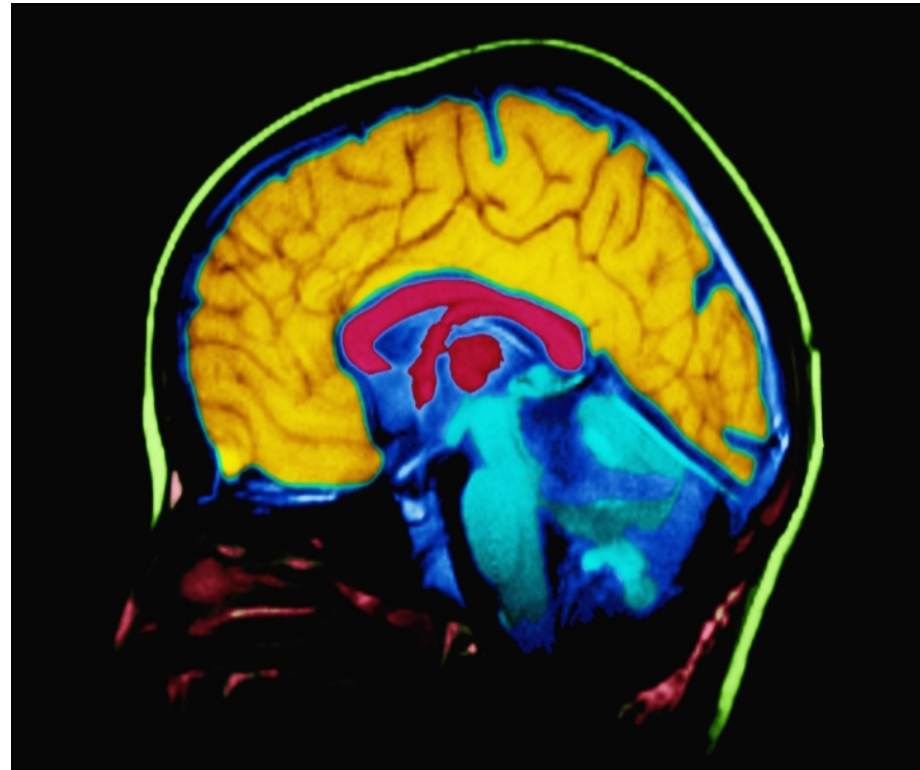
**Suzanne Belser
Executive Director**

Outline

- Basics of Alzheimer's
- Statistics & Facts
- The Brain
- The Brain & Alzheimer's
- Stages & Symptoms
- Warning Signs
- Treatment
- Caregiving
- Risk Factors
- Risk Reduction
- Alzheimer's Association - Montana Chapter

What is Dementia?

Loss of memory and other intellectual abilities serious enough to interfere with daily life.



Alzheimer's is the most common form of dementia and accounts for 70% of all cases.



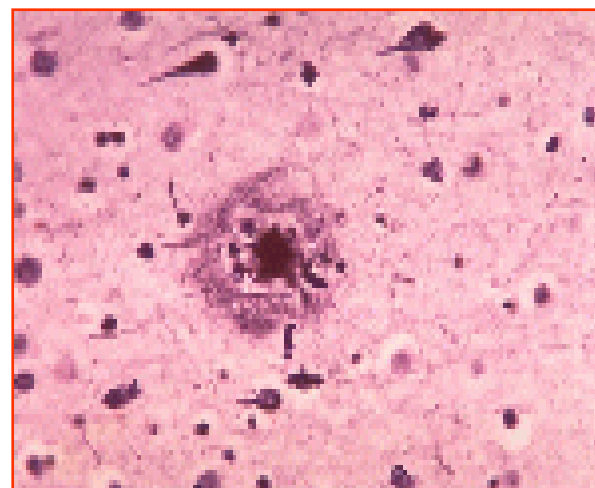
History of Alzheimer's Disease



Discovered: by Dr. Alois Alzheimer in 1906

Cause: Unknown

Cure: None



What is Alzheimer's Disease?



Alzheimer's (AHLZ-high-merz) disease is an irreversible, progressive brain disease that slowly destroys memory and thinking skills.

**Alzheimer's is NOT normal aging.
It is a progressive, fatal disease and has
no cure.**

What does Alzheimer's Do?

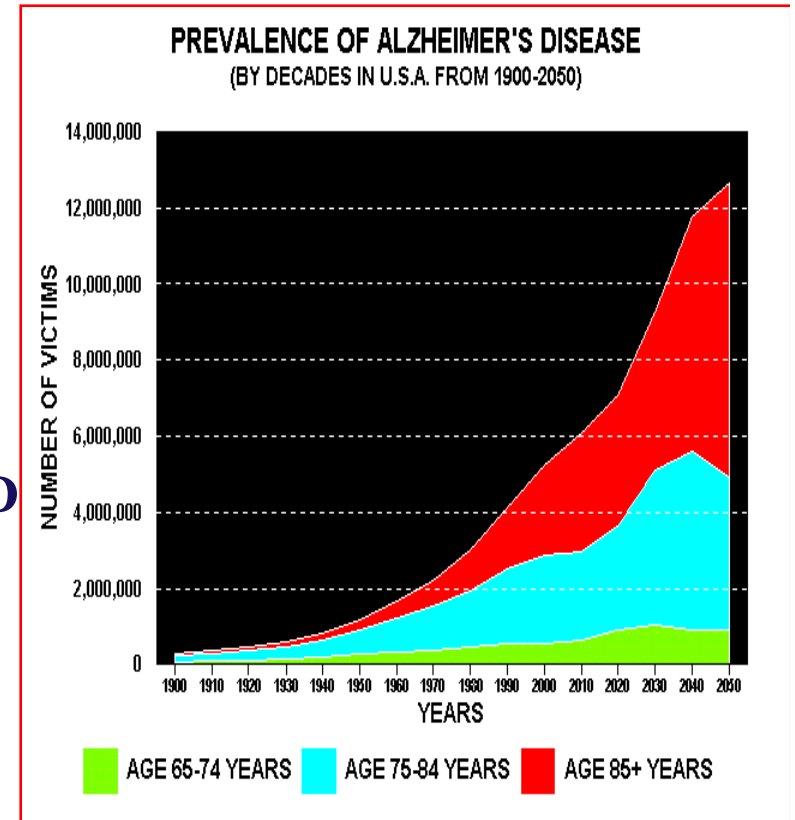
Destroys:

- **ability to remember**
- **ability to reason**
- **ability to learn**
- **ability to communicate**
- **ability to carry out daily activities**
- **ability to live**



Facts about Alzheimer's Disease

- **Today 5 million Americans suffer from AD, 500,000 under age 65.**
- **It is 6th leading cause of death in the US.**
- **7.7 million will have AD by 2030**
- **One in eight individuals 65 or older have AD**
- **Nearly one in two individuals over 85 have AD**
- **Someone develops AD every 70 seconds**



Facts about Montana

- There are 17,000 Montanans living with Alzheimer's disease
- By 2010, without a cure or better treatments, that number will jump to 21,000
- By 2025 the number will jump to 29,000
- By 2025, Montana is projected to have the third highest proportion of elders in the nation; 24.5 % of its total population
- At that time 44 out of 56 counties will have at least 20% of their population over 65 years of age.

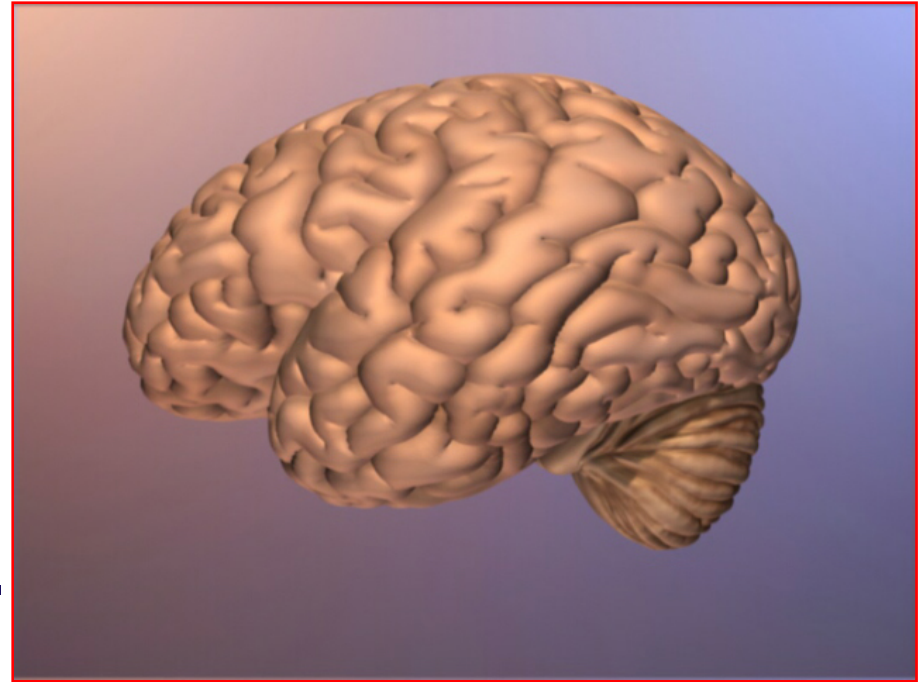
The Cost of Alzheimer's Disease



- **Ranked #1 as causing the greatest cost to society**
- **Cost of caring for people with AD = \$148 billion/Yr**
- **2007 cost to business = \$61 Billion**
- **By 2010 Medicaid cost = \$33 Billion/Yr**
- **By 2015 Medicare cost = \$189 Billion/Yr**

The Brain

- **Interprets sensations from your body, and sights, sounds and smells from the outside world.**
- **Generates thoughts, solves problems and makes plans.**
- **Forms and stores memories.**
- **Controls voluntary movement.**





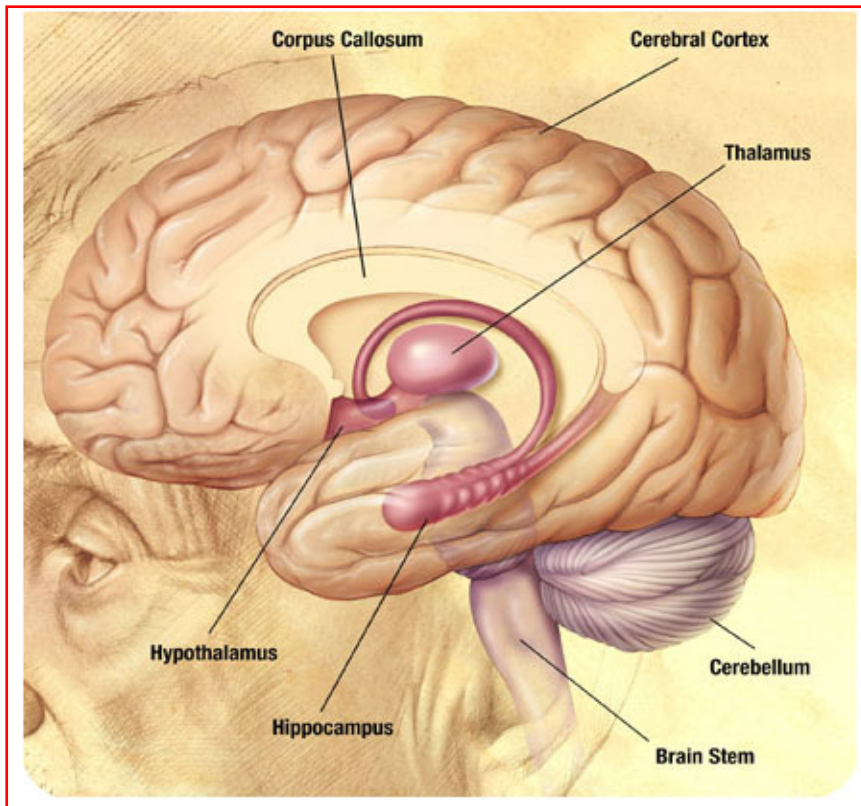
The Brain's Vital Statistics

- **Adult weight: about 3 pounds**
- **Adult size: a medium cauliflower**
- **Number of neurons: 100 billion**
- **Number of synapses (the gap between neurons): 100 trillion**

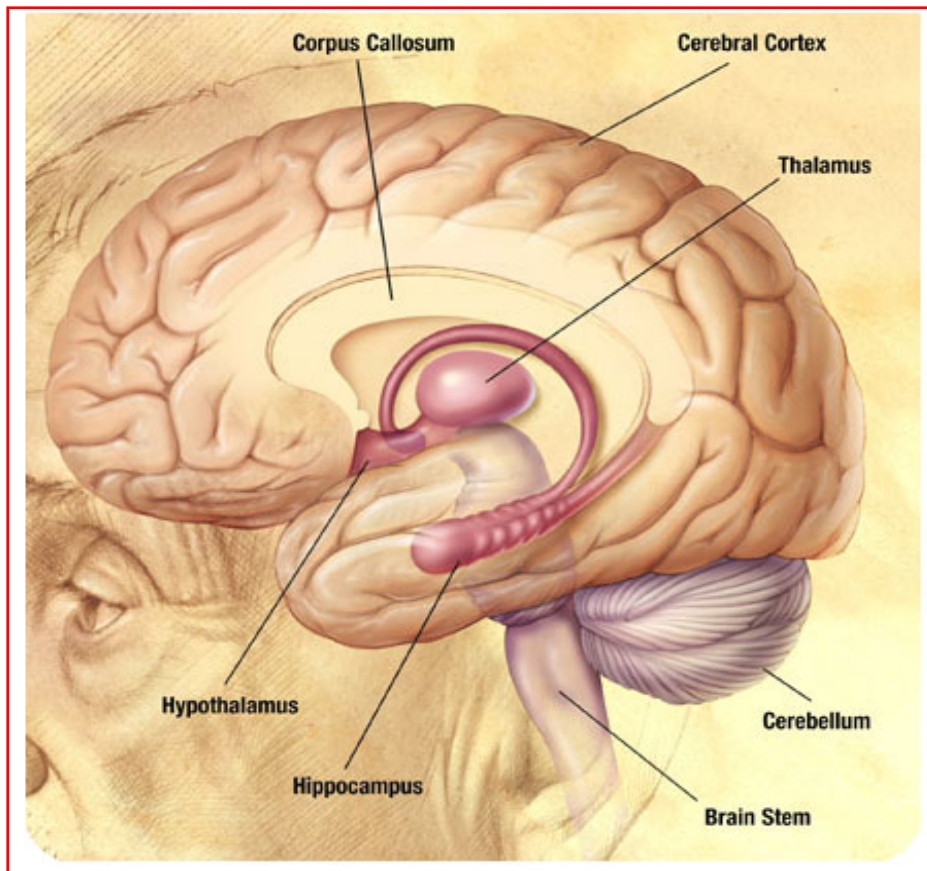
The Main Players

Cerebrum

processes sensory information received from the outside world; controls voluntary movement and regulates conscious thought and mental activity



- accounts for 85% of brain's weight
- consists of two hemispheres connected by the corpus callosum
- covered by an outer layer called the cerebral cortex

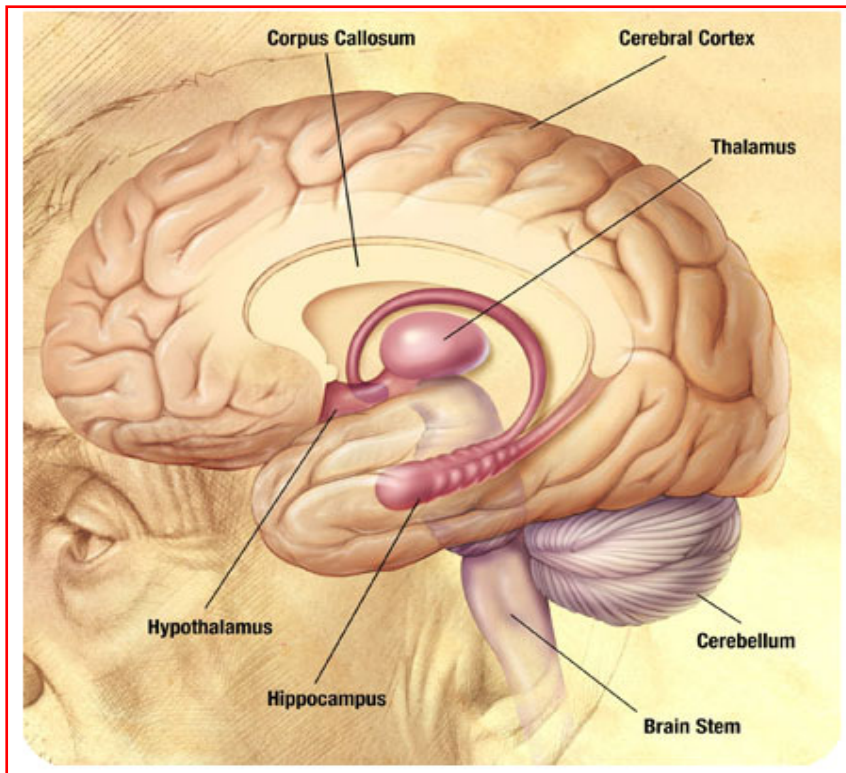


The Main Players

Cerebellum

in charge of balance and coordination: receives information from eyes, ears, and muscles and joints about body's movements and position

- **takes up about 10% of brain**
- **consists of two hemispheres**



The Main Players

Brain Stem

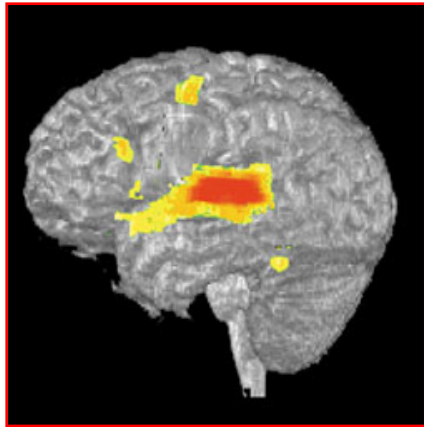
**connects the spinal
cord with the brain**

- **relays and receives messages to and from muscles, skin, and other organs**
- **controls automatic functions such as heart rate, blood pressure, and breathing**

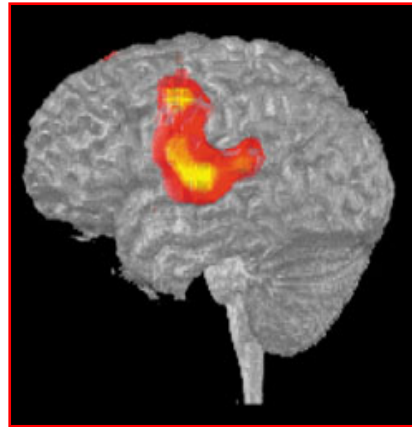
Inside the Human Brain

The Brain in Action

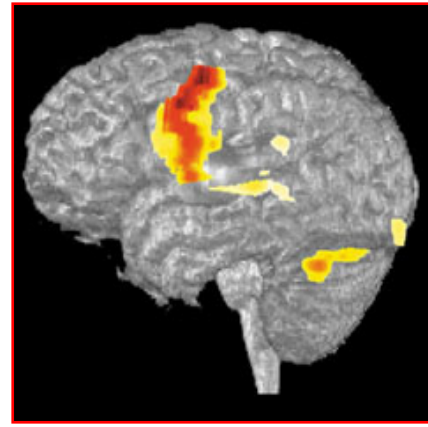
Positron emission tomography (PET) scans can measure brain activity. Chemicals tagged with a tracer “light up” activated regions.



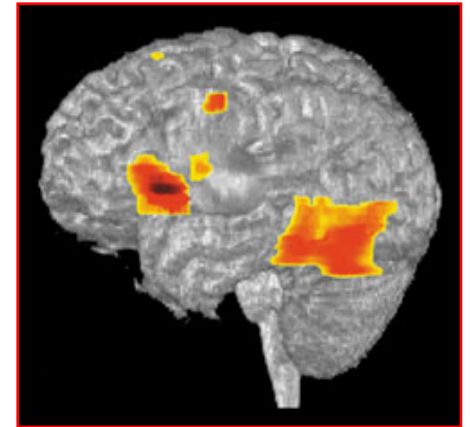
Hearing Words



Speaking Words



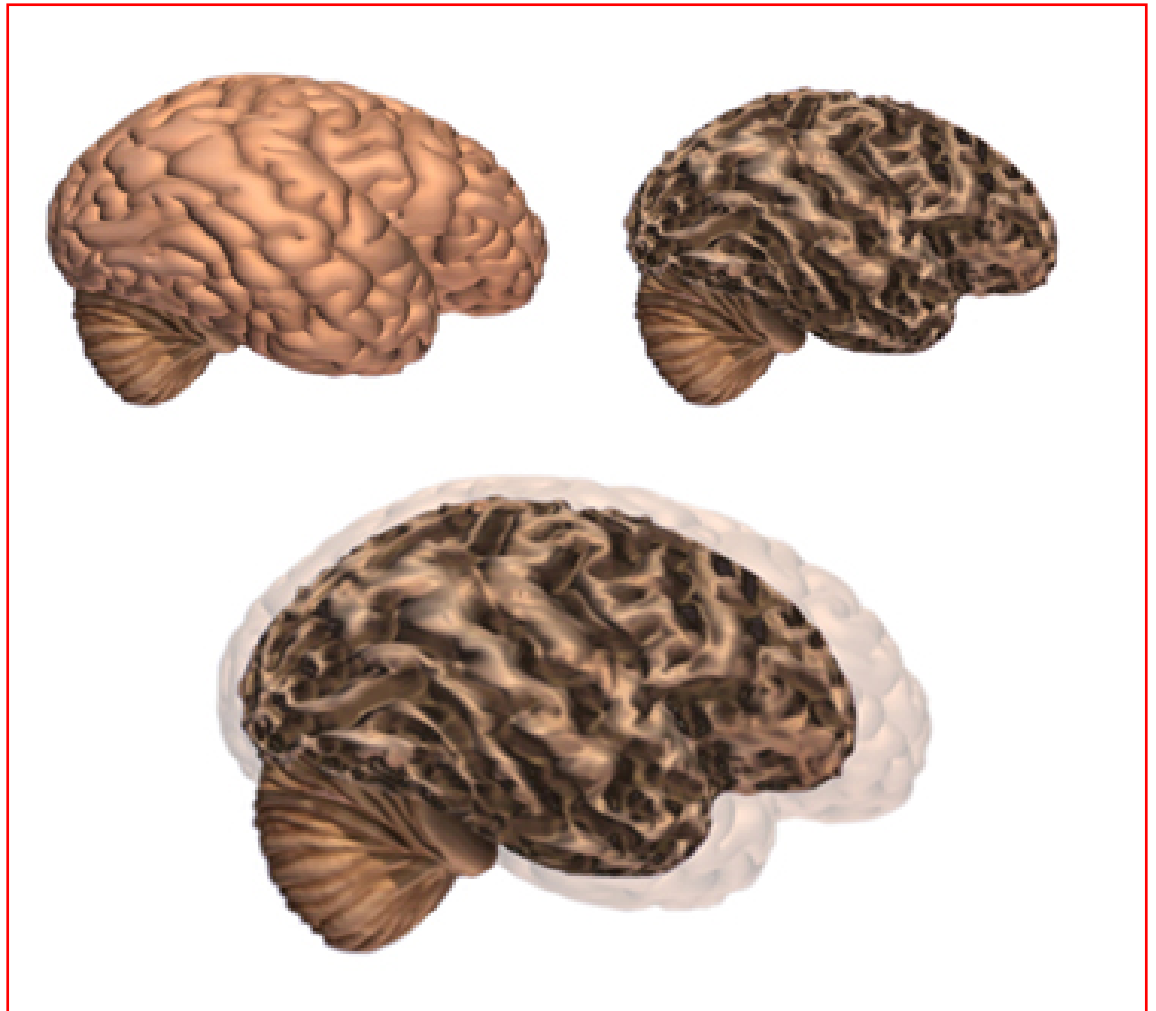
Seeing Words



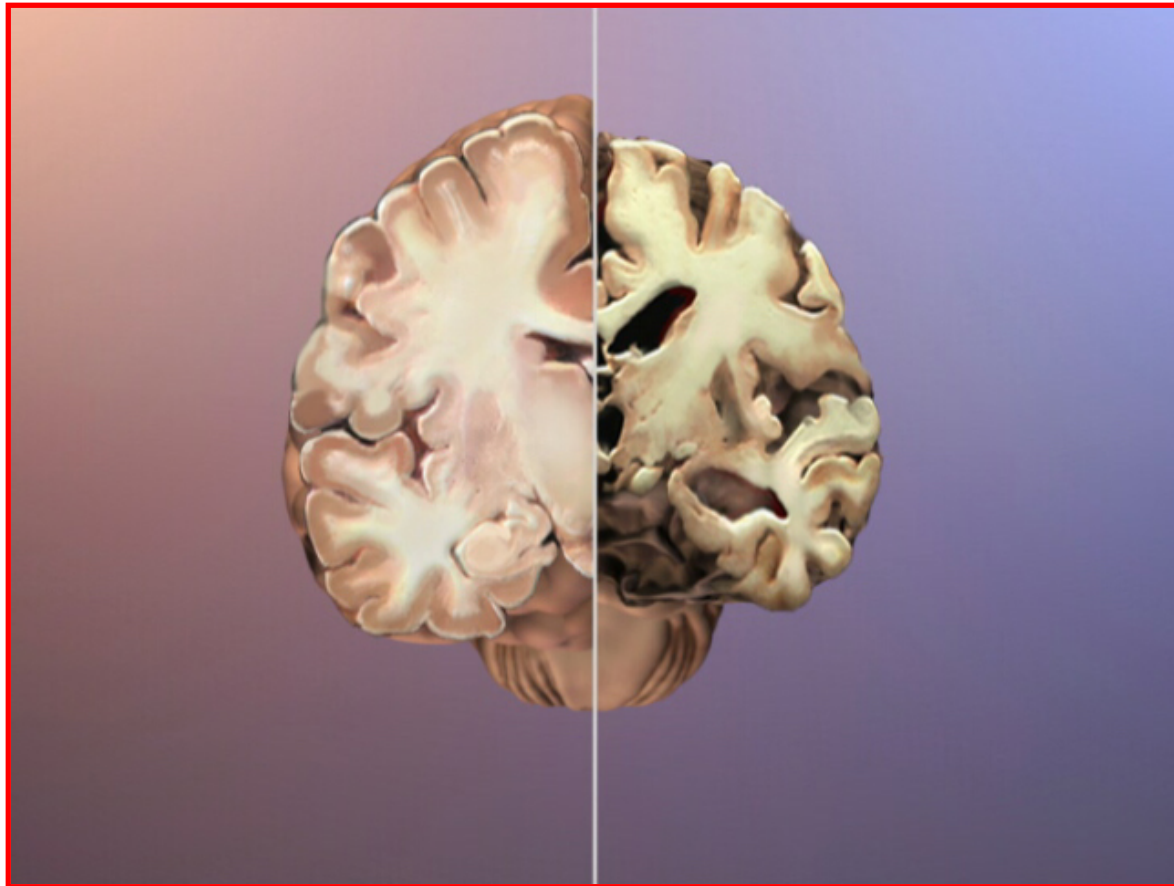
Thinking about Words

Alzheimer's Disease and the Brain

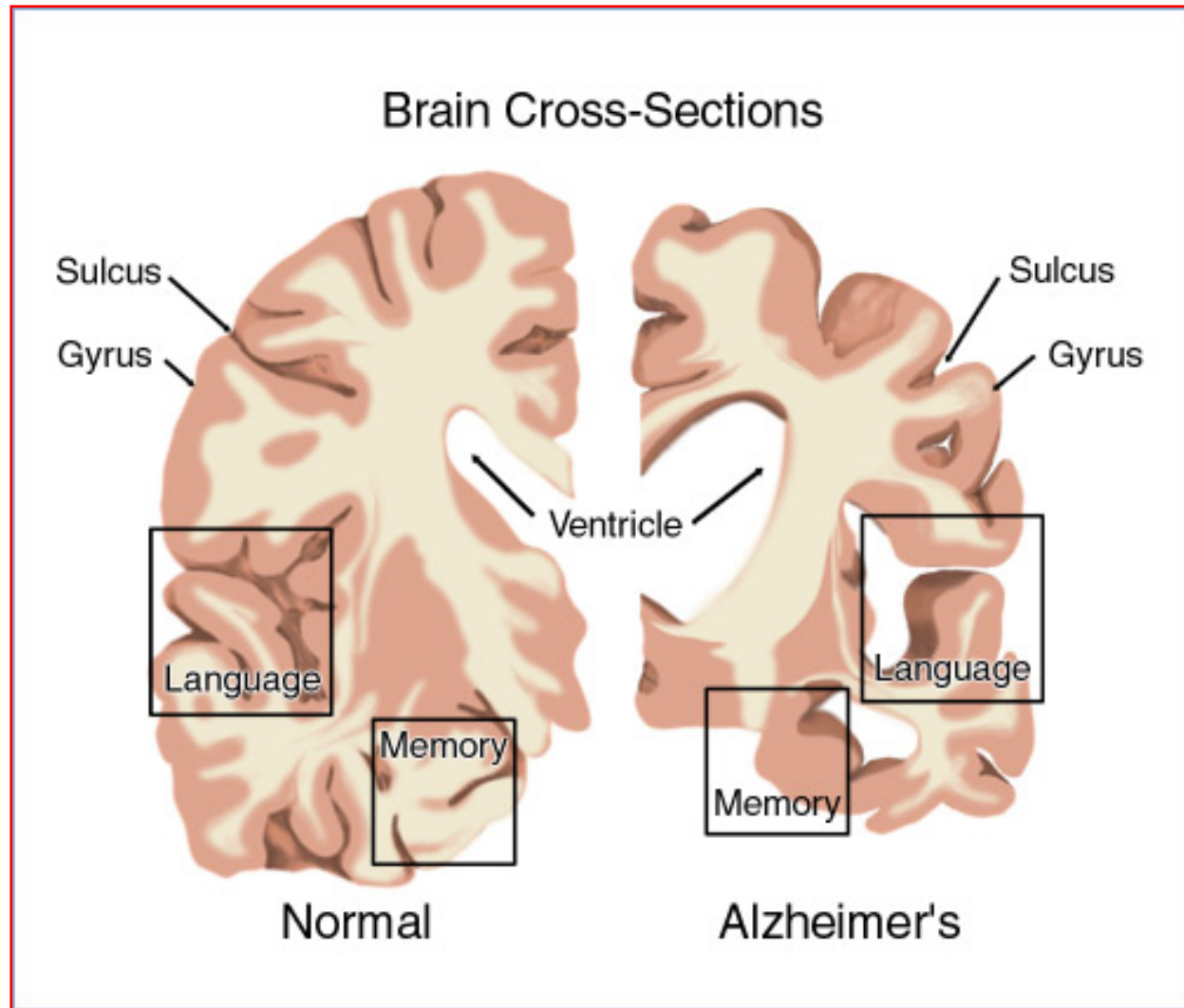
Alzheimer's disease leads to nerve cell death and tissue loss throughout the brain. Over time, the brain shrinks dramatically, affecting nearly all its functions.



Alzheimer's Disease and the Brain



Alzheimer's Disease and the Brain

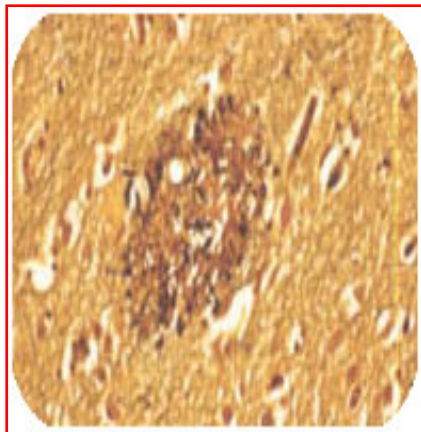


Alzheimer's and the Brain

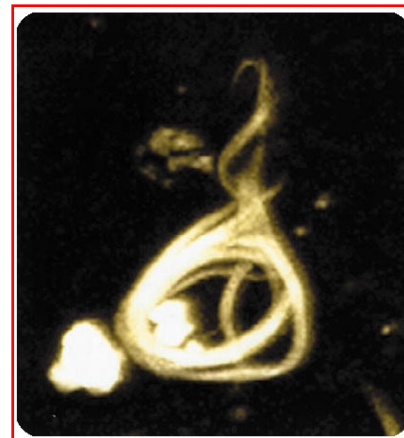
Plaques and Tangles: The Hallmarks of AD

- **beta-amyloid plaques** - dense deposits of protein and cellular material that accumulate outside and around nerve cells
- **neurofibrillary tangles** -twisted protein fibers that build up inside the nerve cell

An actual AD plaque



An actual AD tangle



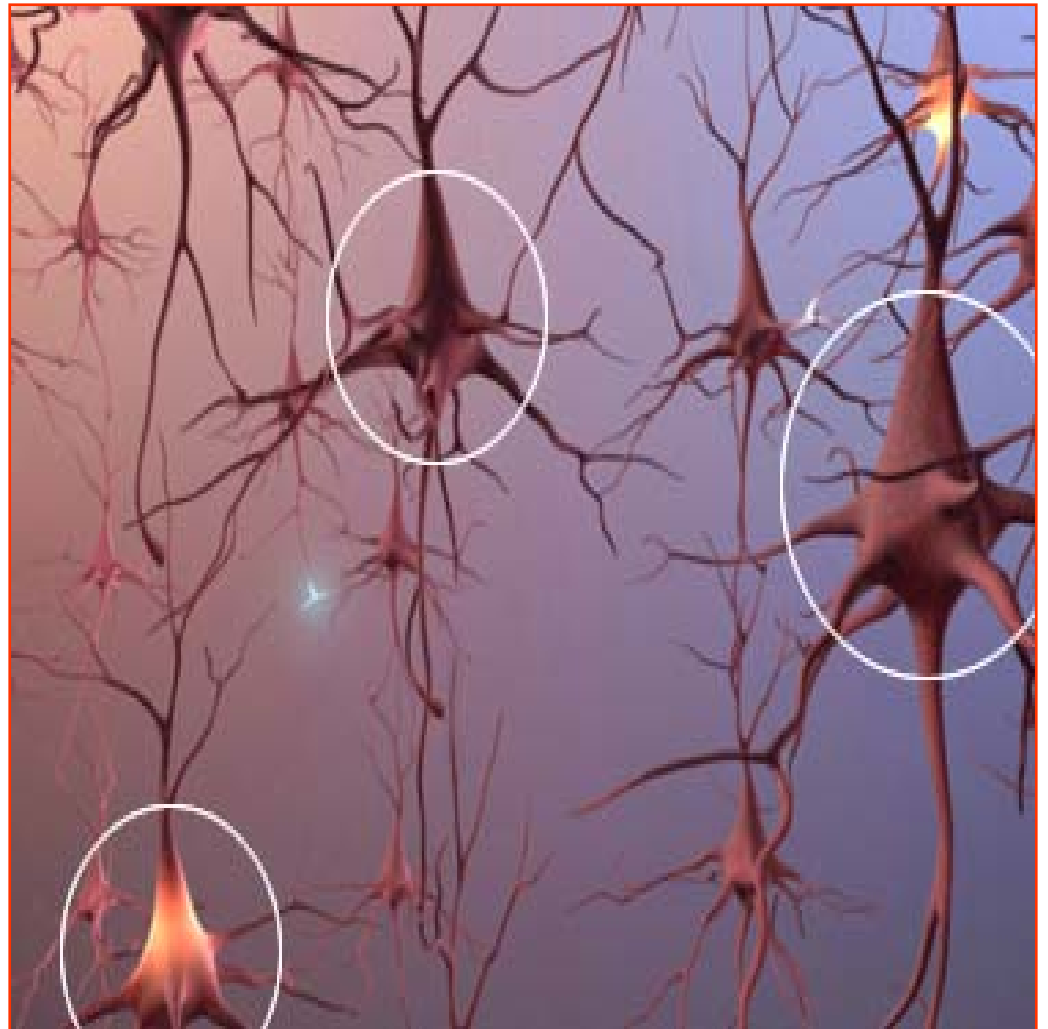
Alzheimer's and the Brain

Neurons

There are 100 billion nerve cells, or **neurons**, creating a branching network.

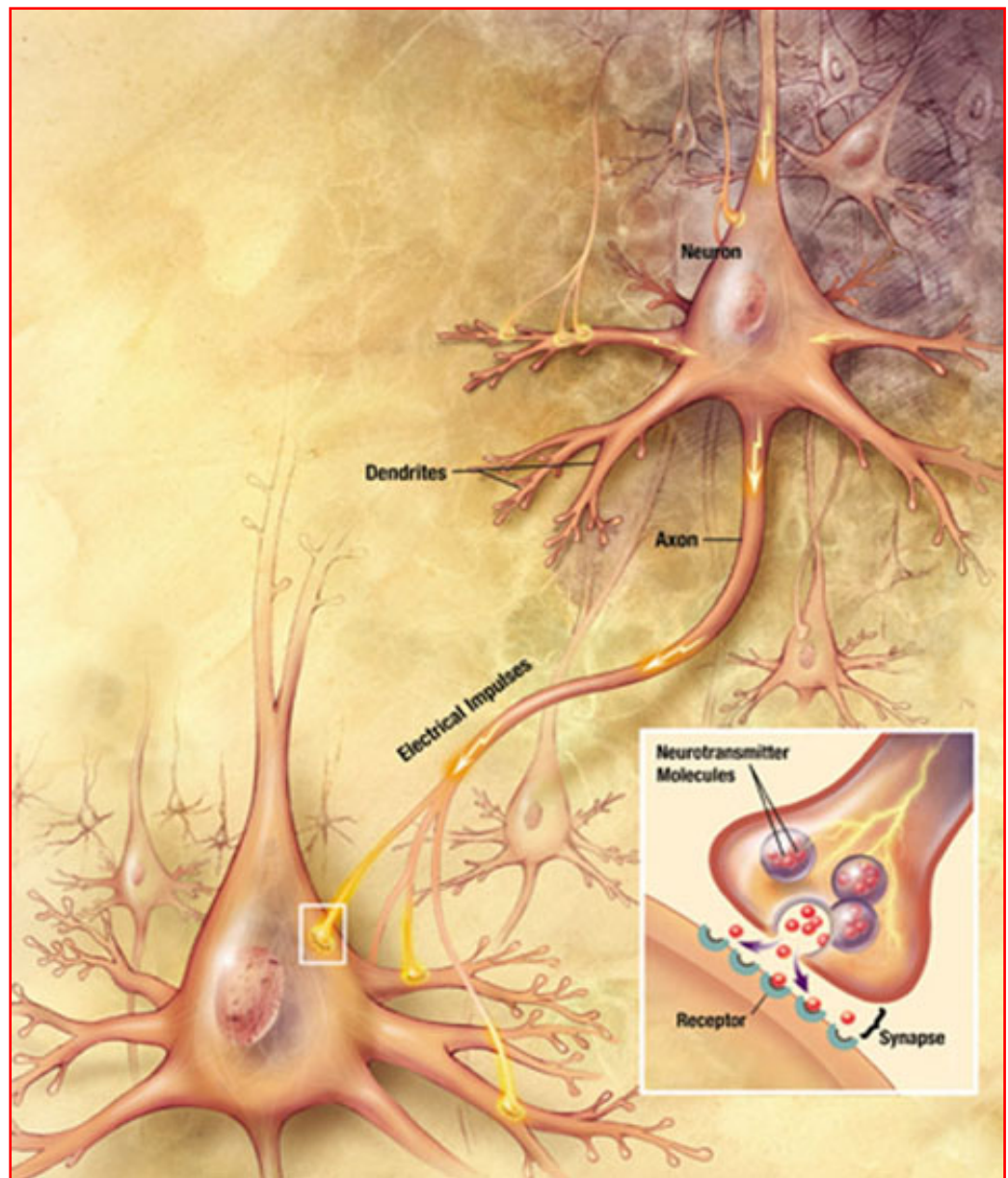
Signals traveling through the neuron forest form **memories, thoughts and feelings.**

Alzheimer's destroys neurons.



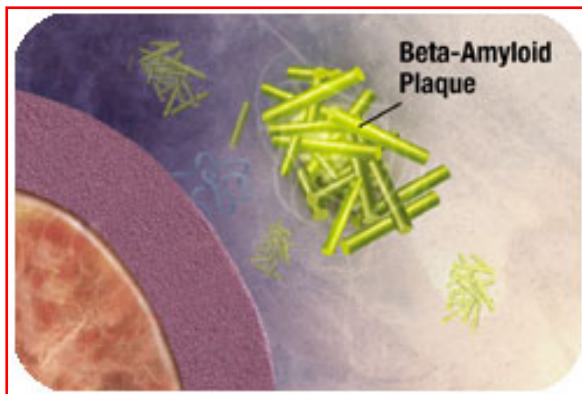
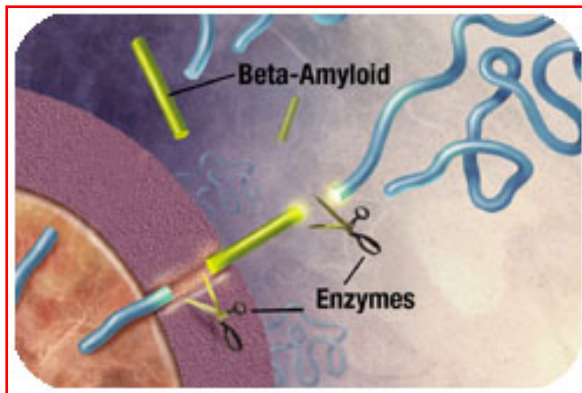
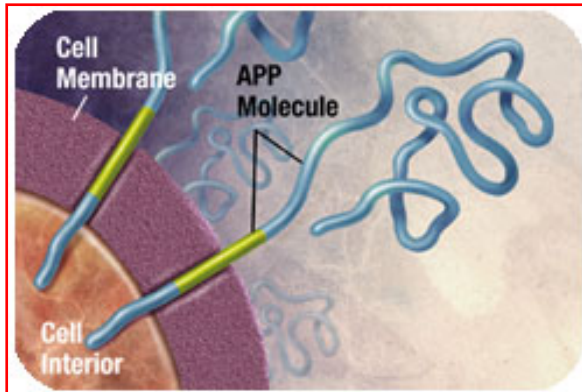
Neurons

- To stay healthy, neurons must:
 1. communicate with each other
 2. carry out metabolism and
 3. repair themselves.
- Alzheimer's disrupts all three of these essential jobs.



Alzheimer's and the Brain

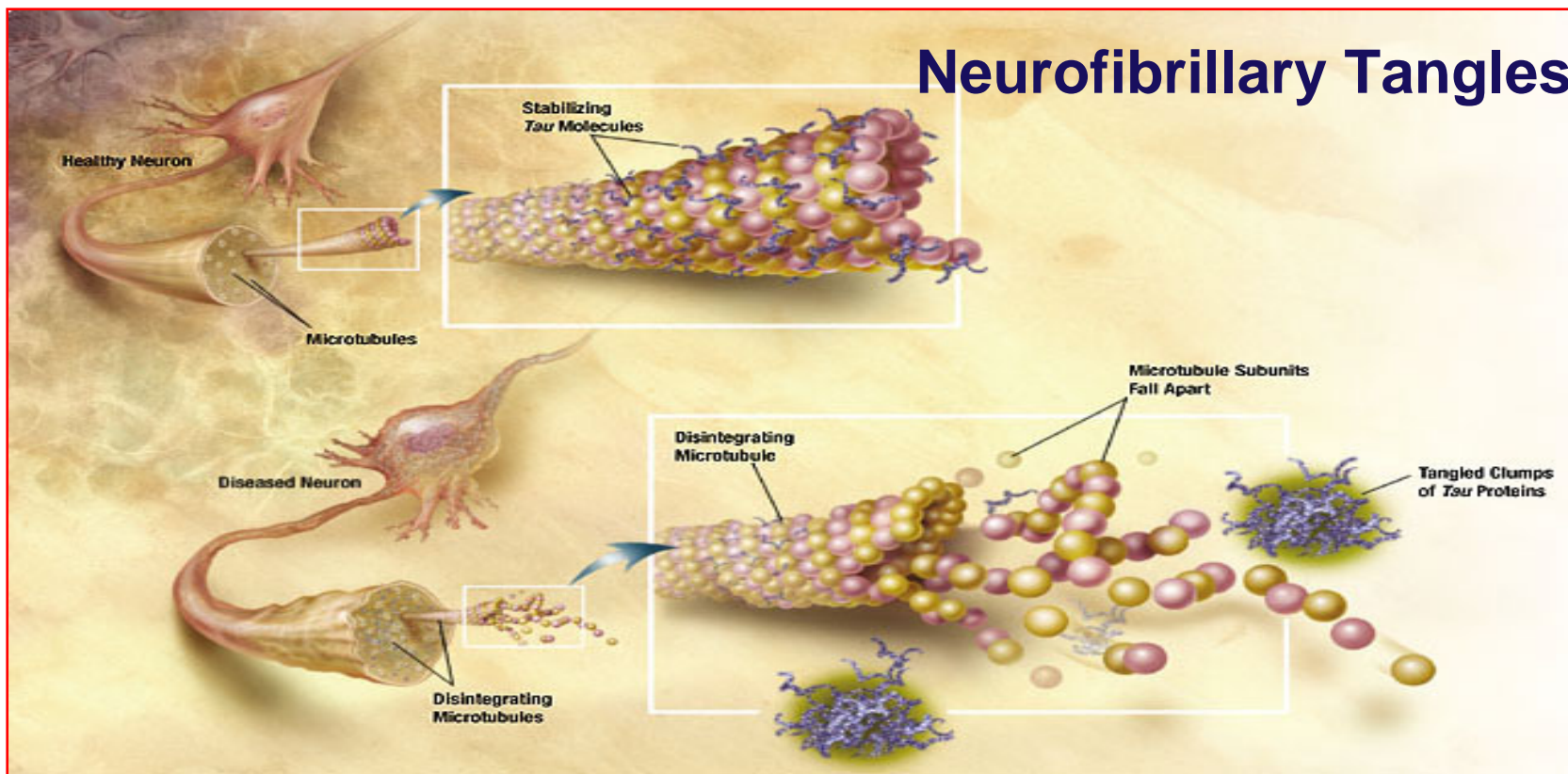
Beta-amyloid Plaques



1. Amyloid precursor protein (APP) is the precursor to amyloid plaque. APP sticks through the neuron membrane.
2. Enzymes cut the APP into fragments of protein, including beta-amyloid
3. Beta-amyloid fragments come together in clumps to form plaques.

In AD, many of these clumps form, disrupting the work of neurons. This affects the hippocampus and other areas of the cerebral cortex

Alzheimer's and the Brain

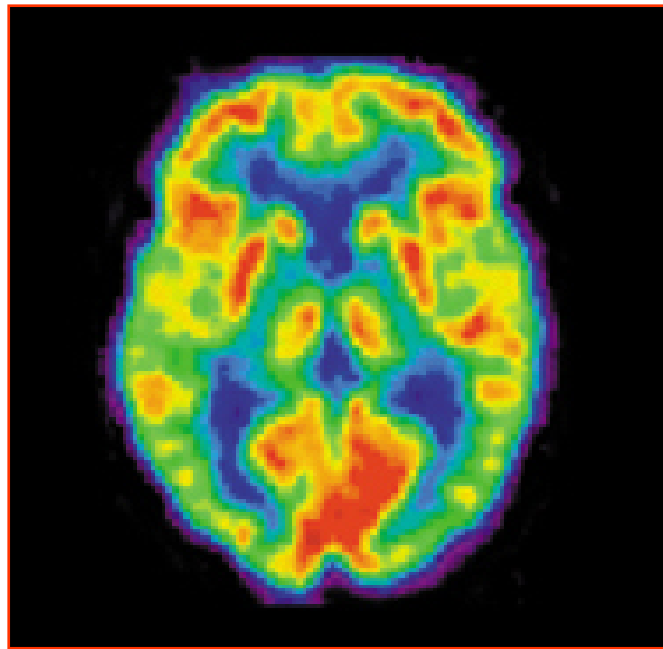


Neurons have an internal support structure partly made up of microtubules. A protein called *tau* helps stabilize microtubules. In AD, *tau* changes, causing microtubules to collapse, and *tau* proteins clump together to form neurofibrillary tangles.

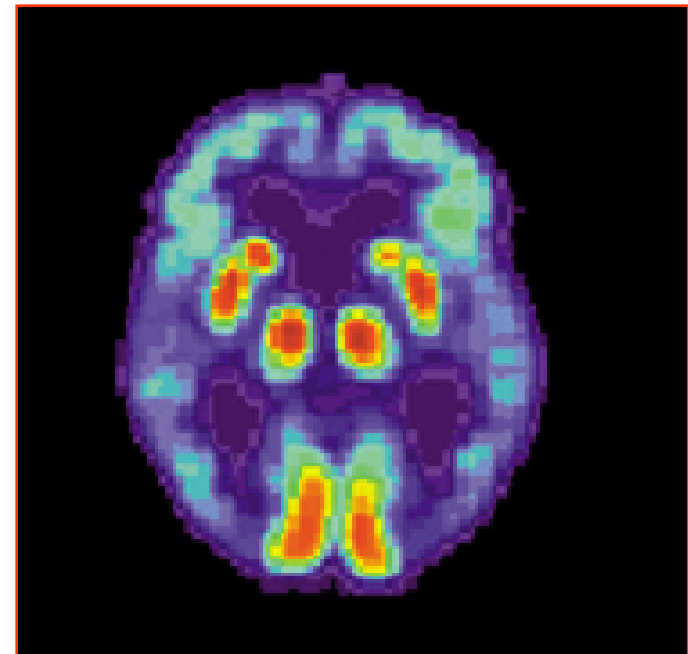
Alzheimer's and the Brain

Mental Activity

**Pet Scan of
Normal Brain**

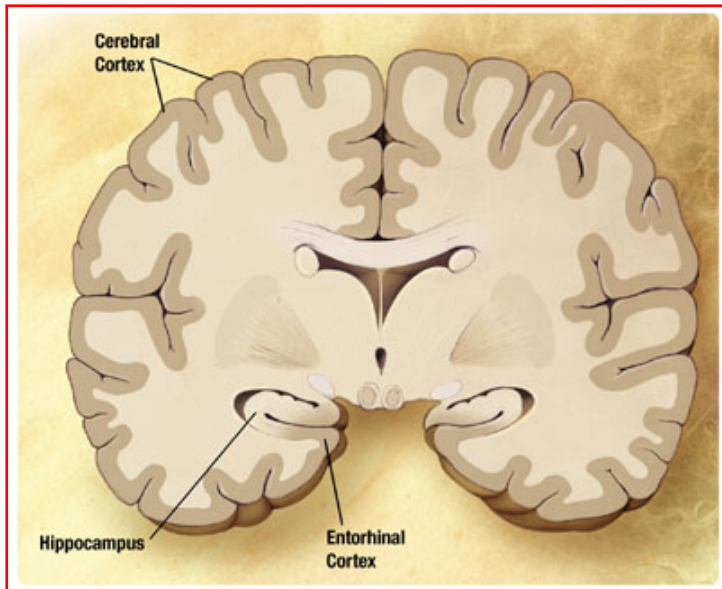


**Pet Scan of
Alzheimer's Brain**



Alzheimer's Symptoms

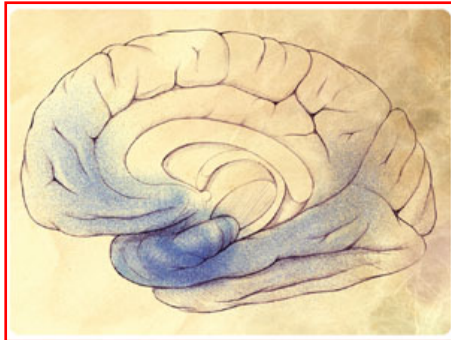
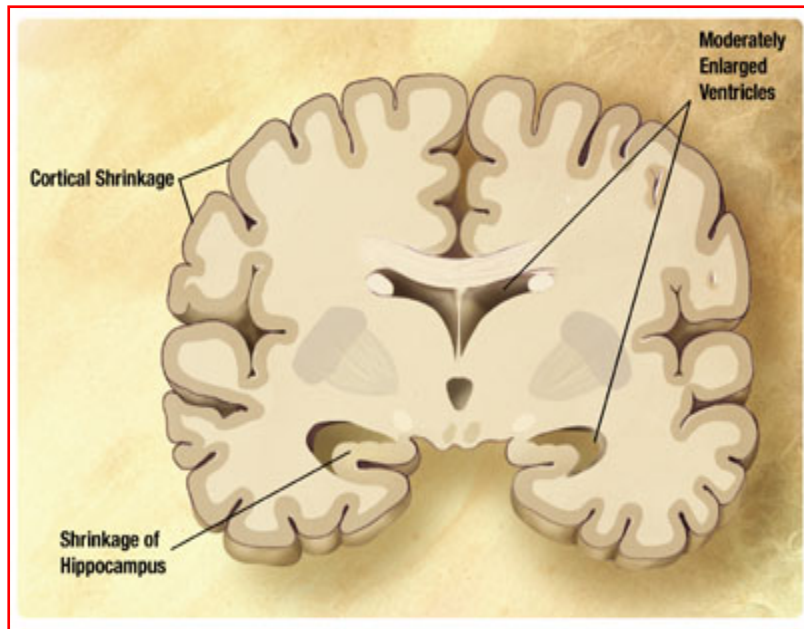
Early Stage – changes may begin 20 years or more before diagnosis.



- Signs of AD are first noticed in the entorhinal cortex, then proceed to the hippocampus.
- Affected regions begin to shrink as nerve cells die.
- *Early AD signs* can include memory loss, confusion, trouble handling money, poor judgment, mood changes, and increased anxiety

Alzheimer's Symptoms

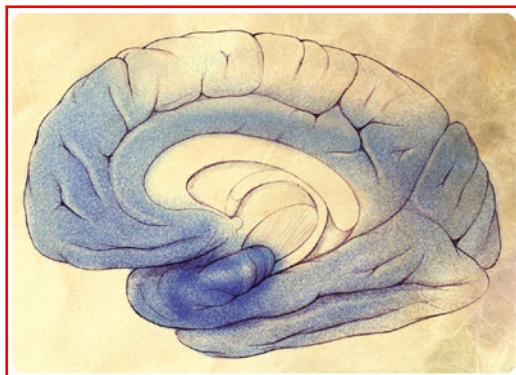
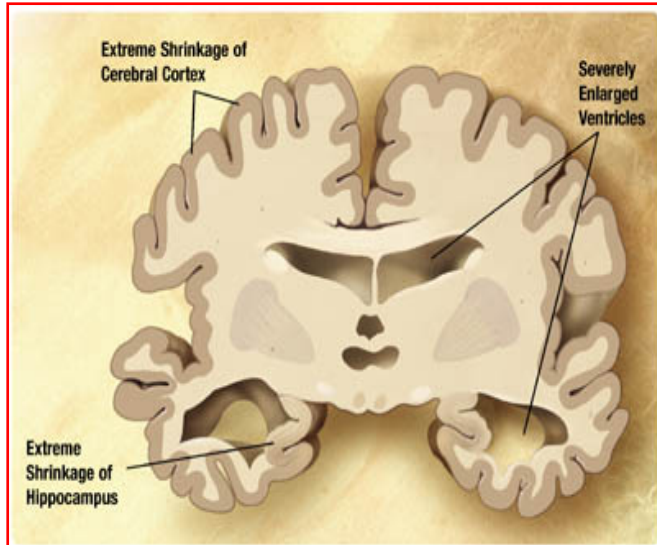
Middle Stage – generally last from 2 - 10 years.



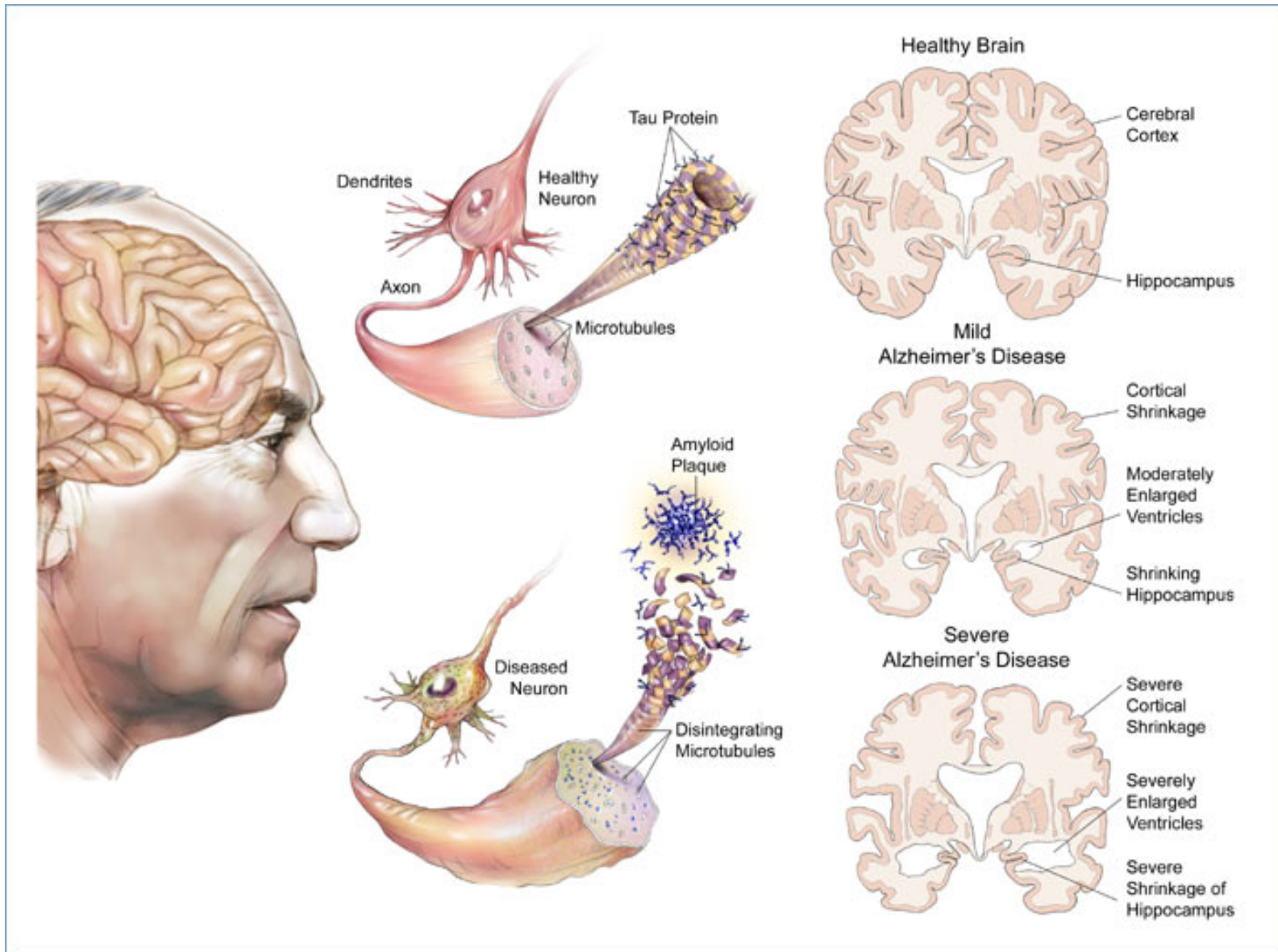
- AD spreads through the brain. The cerebral cortex begins to shrink as more and more neurons stop working and die.
- Middle stage AD *signs* can include increased memory loss and confusion, problems recognizing people, difficulty with language and thoughts, restlessness, agitation, wandering, and repetitive statements.

Alzheimer's Symptoms

Late Stage – may last from 1 - 5 years.



- In late stage AD, extreme shrinkage occurs in the brain. Patients are completely dependent on others for care.
- Symptoms can include weight loss, seizures, skin infections, groaning, moaning, or grunting, increased sleeping, loss of bladder and bowel control.
- Death usually occurs from aspiration, pneumonia or other infections.



Warning Signs of Alzheimer's

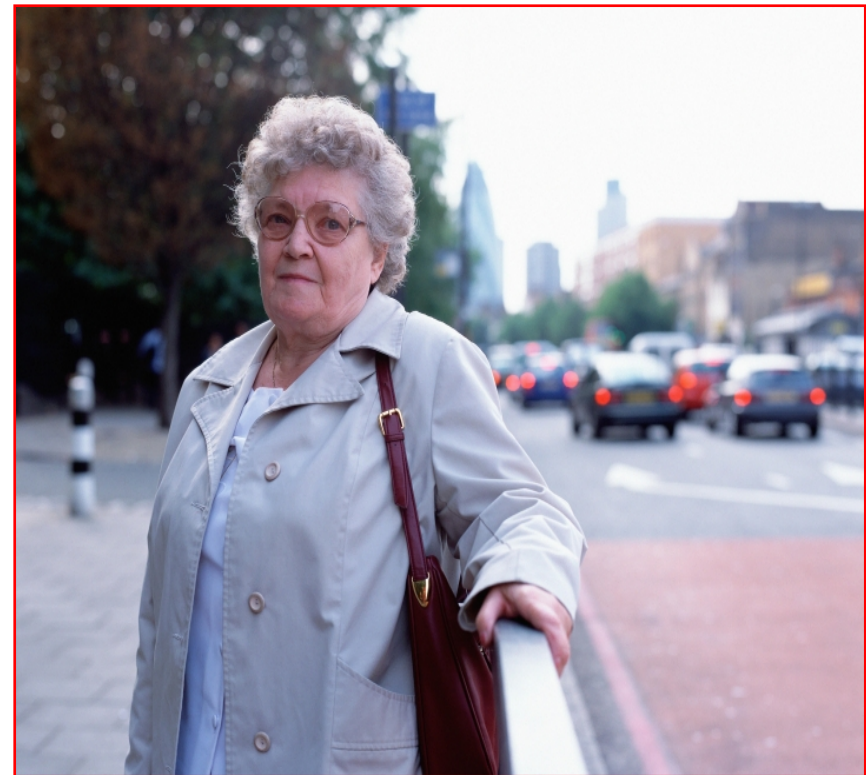


- **Memory loss**
- **Difficulty performing familiar tasks**
- **Problems with language**

Warning Signs of Alzheimer's



- **Disorientation to time and place**
- **Poor or decreased judgment**
- **Problems with abstract thinking**





Warning Signs of Alzheimer's



- Misplacing things
- Changes in mood or behavior
- Changes in personality
- Loss of initiative

Warning Signs of Alzheimer's

What's the difference?



Someone with Alzheimer's

Forgets whole experiences

Rarely remembers later

Is gradually unable to follow written/spoken directions

Is gradually unable to use notes

Is gradually unable to care for self

Someone with normal age-related changes

Forgets part of an experience

Often remembers later

Is usually able to follow written/spoken directions

Is usually able to use notes

Can usually care for self

Memory problems that aren't part of normal aging

- Forgetting things much more often than you used to
- Forgetting how to do things you've done many times before
- Trouble learning new things
- Repeating phrases or stories in the same conversation
- Trouble making choices or handling money
- Not being able to keep track of what happens each day

Getting a Diagnosis

- **Medical and social history**
- **Mental status evaluation**
- **Physical exam**
- **Neurological exam**



Alzheimer's Disease Treatments

No known treatment can stop AD

Drugs used to treat mild to moderate AD symptoms include:

- **Aricept**
- **Exelon**
- **Reminyl**
- **Namenda**



These drugs can help improve some patients' abilities to carry out activities up to a year or so. They do not slow the progression of the disease.

The Search for New Treatments

Researchers also are looking at other treatments including:

- **cholesterol-lowering drugs called statins**
- **anti-oxidants (vitamins) and folic acid**
- **anti-inflammatory drugs**
- **substances that prevent formation of beta- amyloid plaques**
- **nerve growth factor to keep neurons healthy**



Alzheimer's Research Grants

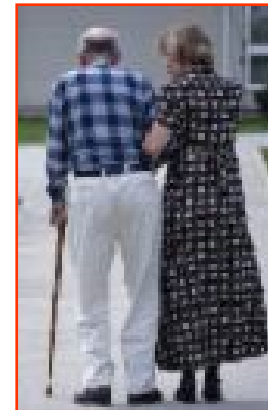
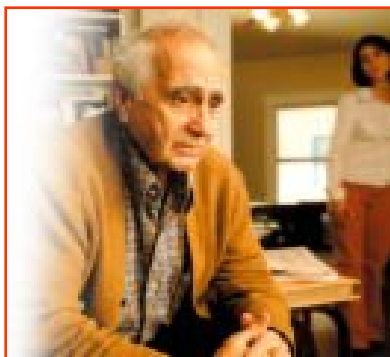
- Alzheimer's Association awarded 131 grants to researchers in 2008
- Largest private non-profit funder of Alzheimer's research
- Since 1982, the Association has committed over \$250 million to more than 1,700 best of field grant proposals

The Demands of Care Giving



“There are only four kinds of people in the world - those who have been caregivers, those who currently are caregivers, those who will be caregivers, and those who will need caregivers”...

Rosalynn Carter

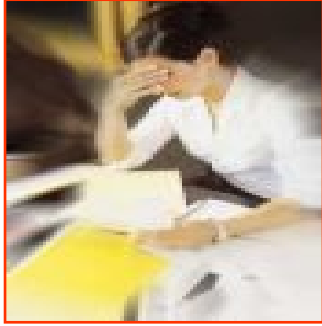




The Demands of Care Giving

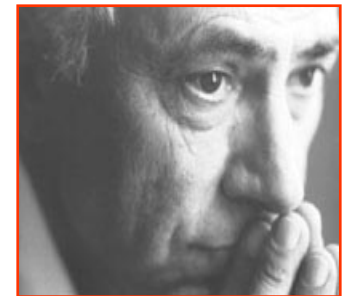


- **10 million caregivers and a third are 60 or older**
- **Family caregivers provide an estimated \$257 billion annually in services**
- **Total un-reimbursed monthly expenses for family caregivers is \$1.5 billion.**
- **70% of AD sufferers live at home**



The Demands of Care Giving

- **A significant percentage of family caregivers report physical or mental health problems due to care giving.**
- **Caregivers report chronic conditions at nearly twice the rate of non-caregivers**
- **Caregivers have a 63% chance of dying earlier than non-caregivers**

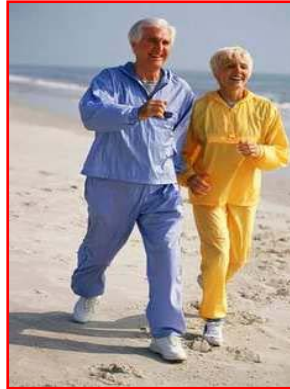


Communicating with the Memory-impaired person

- **Have realistic expectations**
- **Don't rush the person**
- **Keep it short and simple**
- **Use multi-sensory cues**
- **Do not argue or correct**
- **Limit choices**
- **Be aware of body language (yours and theirs)**

Keys to opening the door . . .

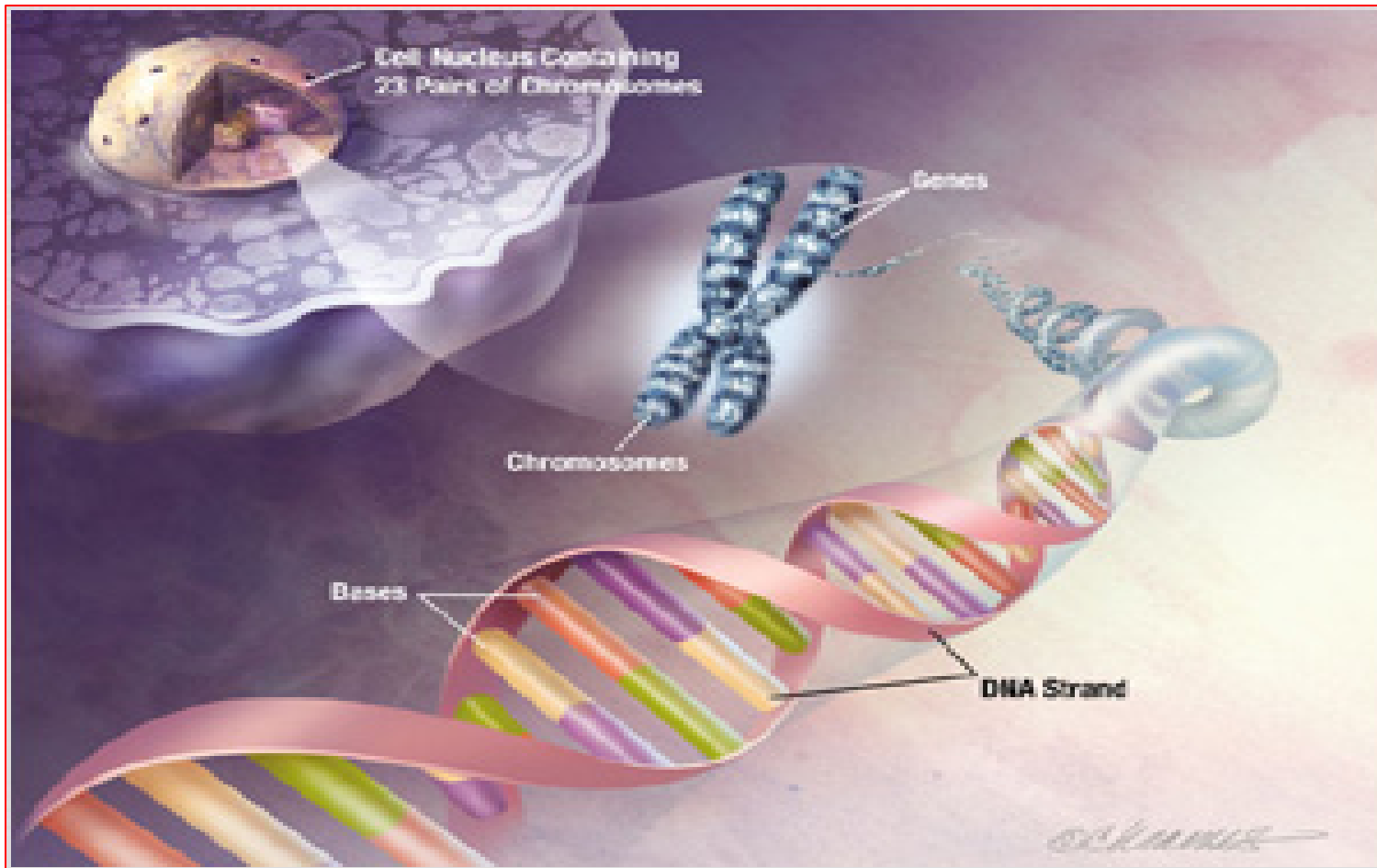
Alzheimer's Disease Risk Factors



AGE



Alzheimer's Disease Risk Factors



GENETICS

Alzheimer's Disease Risk Factors



CARDIOVASCULAR HEALTH

Alzheimer's Disease Risk Factors

Diet



LIFESTYLE HABITS

Smoking

Alcohol



Lack of exercise



Stress



Loneliness



Alzheimer's Disease Risk Factors



SOCIAL & INTELLECTUAL ENGAGEMENT

Alzheimer's Disease Risk Factors

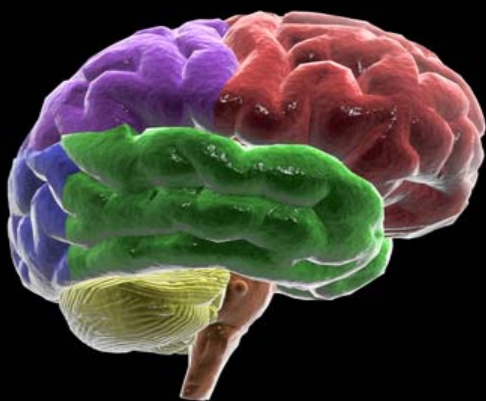


HEAD INJURY

Reducing Your Risks



three primary areas



brain



body



person

staying sharp



activity: test your brain

RED

ORANGE

BLUE

YELLOW

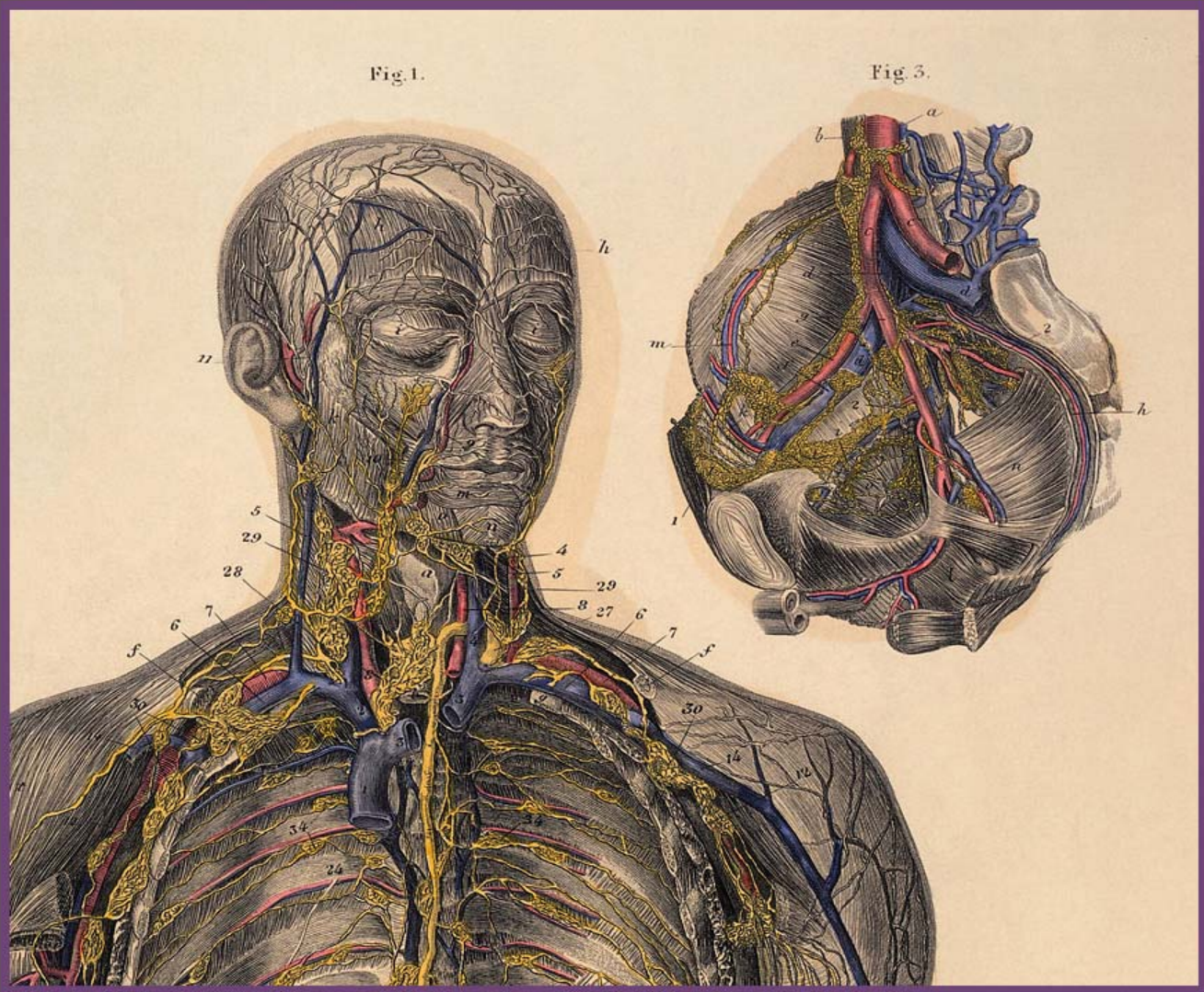
GREEN

BLUE

YELLOW

BLACK

heart-brain connection



monitor your numbers



... Blood pressure



..... Blood sugar



... Cholesterol



..... Weight

a healthy lifestyle



healthy food



folic acid and other b vitamins



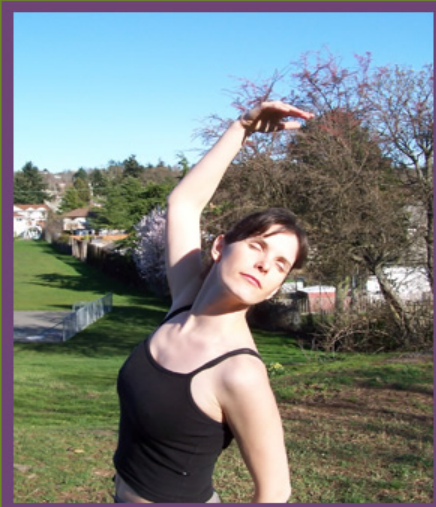
limit consumption of . . .



physical activity is great for both



exercise ideas



more healthy habits



part 3: the person



social outlets



social interaction



how do you relieve stress?



seek help for depression



keep a purpose in life



The Alzheimer's Association **MISSION**



The mission of the Alzheimer's Association Montana Chapter is to enhance the care and support for individuals, their families, and caregivers and to eliminate Alzheimer's disease through the advancement of research.



Programs and Services Offered by the Alzheimer's Association Montana Chapter

Information and Referral



Resource Library



Community Education

Care Consultation



Support Groups



**MedicAlert/Safe
Return™**



HELP-LINE

24/7 toll free (1-800-272-3900)

Yes You Can Help



License Plate Program

Is one way to raise awareness as well as funds, which will be used to provide needed services statewide. If you would like to purchase a plate, please call the office at 406-252-3053 or purchase one at your county treasurer's office.





**Learn how you can join or organize a walk in your area
check our web site at
[www. alz.org/montana](http://www.alz.org/montana)**

Angels for Alzheimer's

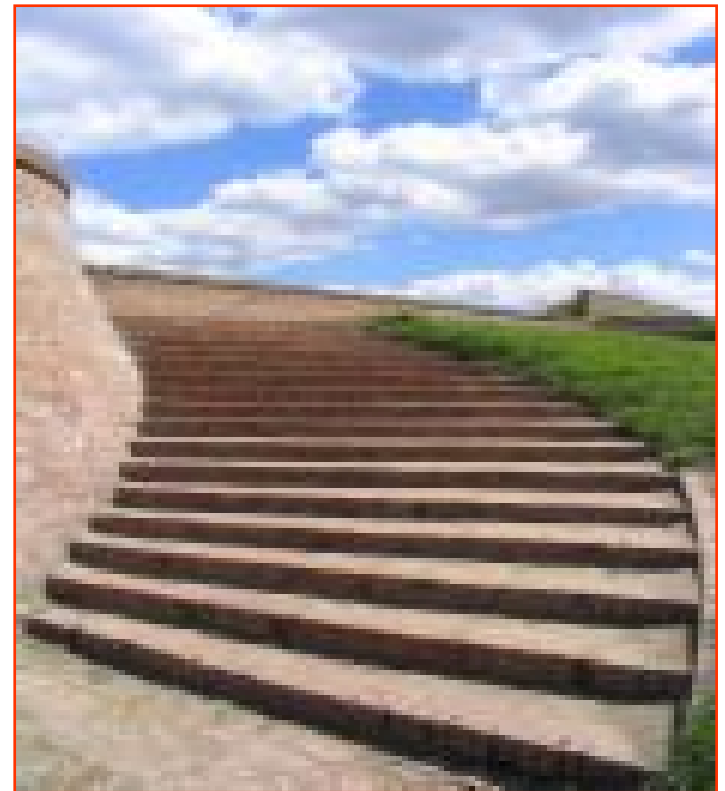
We invite you, your family, your service organization, and your community to participate by donating HANDMADE angels to the “Angels for Alzheimer’s” program.

For more information, call 406-252-3053



Sustaining Partners

- Platinum (\$1000 per year and up)
- Gold (\$750-\$999 per year)
- Big Sky (\$500-\$749 per year)
- Meadowlark (\$250-\$499 per year)



Thank You

The Alzheimer ' s Association

Montana Chapter

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