



# MEMORY LOSS: SCIENCE AND THE SEARCH FOR A CURE



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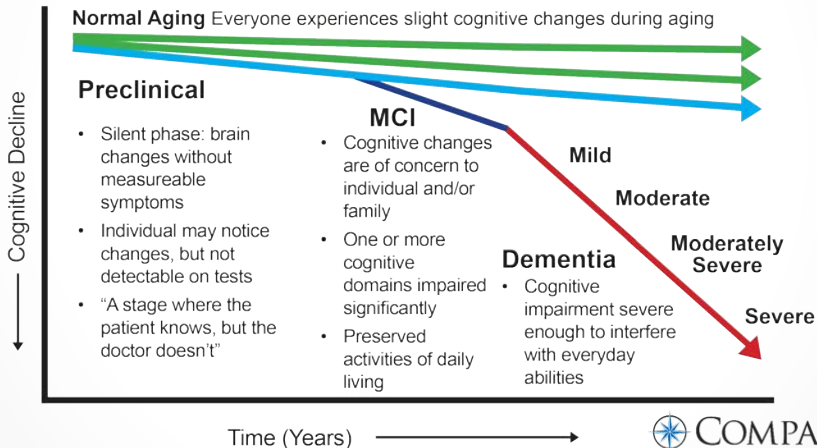
# AGENDA

- ▲ Normal versus Pathological Aging
- ▲ Diagnosis
  - Step 1. Assessments
  - Step 2. Imaging
- ▲ Existing Treatment versus the Efforts of Science and Research
  - Symptomatic versus Disease Modifying
  - Prevention & New Options for Genetic Testing
- ▲ Getting Involved
  - Prevention, Education, Involvement
  - Free Memory Screenings
  - CFMCC Kick Off

# THE NEUROPSYCHOLOGIST

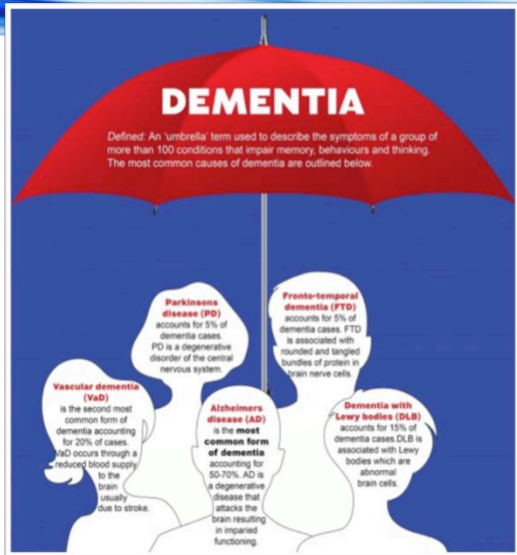
- ▲ **Neuropsychology:** is the study of brain-behavior relationships. It is a subspecialty of Clinical Psychology.
- ▲ A Neuropsychologist is a licensed Doctor of Clinical Psychology (PsyD or PhD) with specialty training and/or board certification (ABPP) in neuropsychology or related field.
- ▲ This is different from a general Clinical Psychologist, who mainly focuses on evaluating and treating behavioral/emotional problems and providing regimented therapy to those related concerns.

# WHAT'S NORMAL? WHAT'S NOT?



# DEMENTIA: AN UMBRELLA TERM

- ▲ Alzheimer's Disease = 50-70%
- ▲ Lewy Body = 15%
- ▲ Vascular Dementia = 20%
- ▲ Front-temporal = 5%
- ▲ Parkinson's Disease = 5%



# MECHANISMS OF ALZHEIMER'S DISEASE

*The disease process usually starts in the mesial temporal area of the brain spreading eventually to the rest of the cerebral cortex (prefrontal/parietal/occipital), relatively sparing the motor strip until late stages.*

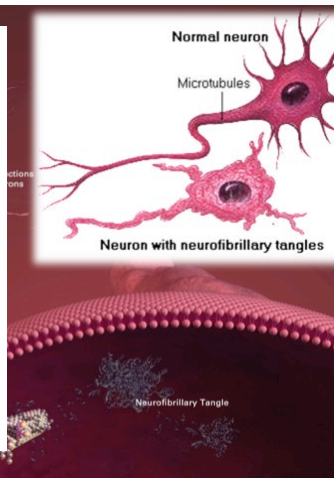
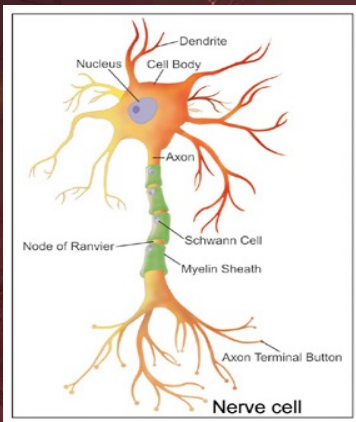
## **AMYLOID PLAQUES (Beta Amyloid)**

- ▲ One of the believed hallmarks of Alzheimer's disease is the accumulation of **amyloid plaques** between nerve cells (neurons) in the brain.
- ▲ Destroys communication between the neurons.

## **NEUROFIBRILLARY TANGLES (Tau)**

- ▲ **Neurofibrillary tangles** consist of insoluble twisted fibers that are found inside of the brain's cells.
- ▲ Consist of a **protein called tau** which forms a microtubule.
- ▲ In Alzheimer's disease the **tau** protein **is abnormal** and the microtubule structures collapse
- ▲ The cell dies (apoptosis)

# PLAQUE AND TANGLES



# DIAGNOSIS

## ▲ Step One

- Memory Tests And Memory Screens (Short Term Memory, Orientation, Recall)
- Neuropsychological Testing
- Indicates Level Of Functioning
- Not Fully Diagnostic – Only A First Step

## ▲ Step Two

- Brain Imaging
  - MRI, PET
    - Can show the shape (MRI), or vascular issues (Flow).
    - Dye to identify plaque build-up in the brain (PET - A.D. specific)



## PREVENTION AND THE USE OF MEMORY TESTING

- ▲ A Neuropsychological Assessment
  - is *standardized* and objective
  - question/answer type evaluation
  - identifies how various parts of the brain are functioning compared to others of similar age, education, gender etc.
- ▲ Helps compare your current thinking abilities/function to estimated previous abilities
  - Generates a baseline for later comparison
    - i.e. before an illness or injury
- ▲ Aids in identifying a clinical diagnosis as well as strategies for treatment and alleviation of symptoms.

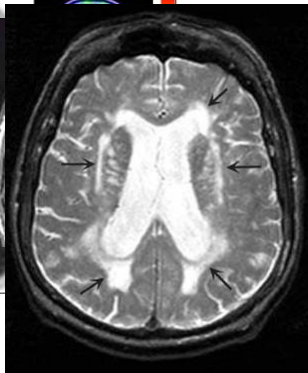
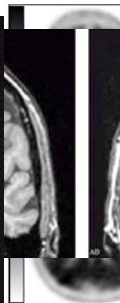
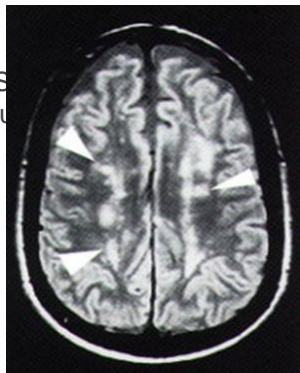
## BRAIN IMAGING

Vascular Dementias – Small Vessel Disease

- 3<sup>rd</sup> Most Common Type of Dementia (18%)

Negative florbetapir-PET study

MRI: Shows  
the structure  
of the



# WHAT EXISTS NOW FOR TREATMENT?

## ▲ Now: FDA Approved Treatment Focused on Symptoms

- Exelon
- Namenda
- Aricept
- Razadyne
- Axona – medical food



- ▲ Does not change the course of the disease – may slow down
- ▲ Progression of memory loss is inevitable with these medications
- ▲ Often leaves patients and families feeling hopeless

## WHAT RESEARCH IS DOING?

### ▲ Looking Forward:

- Monoclonal Antibodies – Removing Plaque using the body's immune system.
- BACE inhibitors – Stops Plaque Build-up
- Prevention of disease state- *Stop it before it starts*
  - Genetic testing to identify risk with medications aimed at preventing onset

## RESEARCH GIVES BACK...

- ▲ Disease Modifying Treatments. You can't get this stuff anywhere else!
- ▲ Free and Attainable Diagnostics
  - Neuropsychological testing – tracking and monitoring any cognitive changes over time
  - Imaging and

# WORKING TOGETHER TOWARDS A CURE

## WHAT CAN I DO?

### ▲ GET INVOLVED!

- Learn about memory loss (mission accomplished!)
- Help with prevention efforts and research – every piece of information and data gathered is one step closer to a cure.
- Get your memory tested!
  - Brain change can occur 15 years before symptoms show.

Early detection is key for both research and treatment.

- Time and travel are compensated to help make the process easier for those who wish to help.



**COMPASS**  
RESEARCH

WORKING TOGETHER TOWARDS A CURE

WHAT CAN WE DO?

Continue to expand your knowledge of memory loss and prevention.

*Join Central Florida Memory Care Coalition*  
**Wednesday, April 29, 2015, 4:00 – 8:00 pm**

Orlando Science Center  
**FREE ADMISSION**  
*Education, Food and Fun*



**PUT THOSE BLUE CARDS TO USE!**

Memory Testing Only



Or

Prevention Studies and Research





# THANK YOU

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