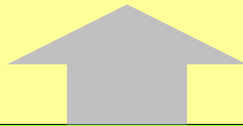


The Whole Person in Dementia

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“BOOK LEARNING”



What happens during it

Who gets it and how often

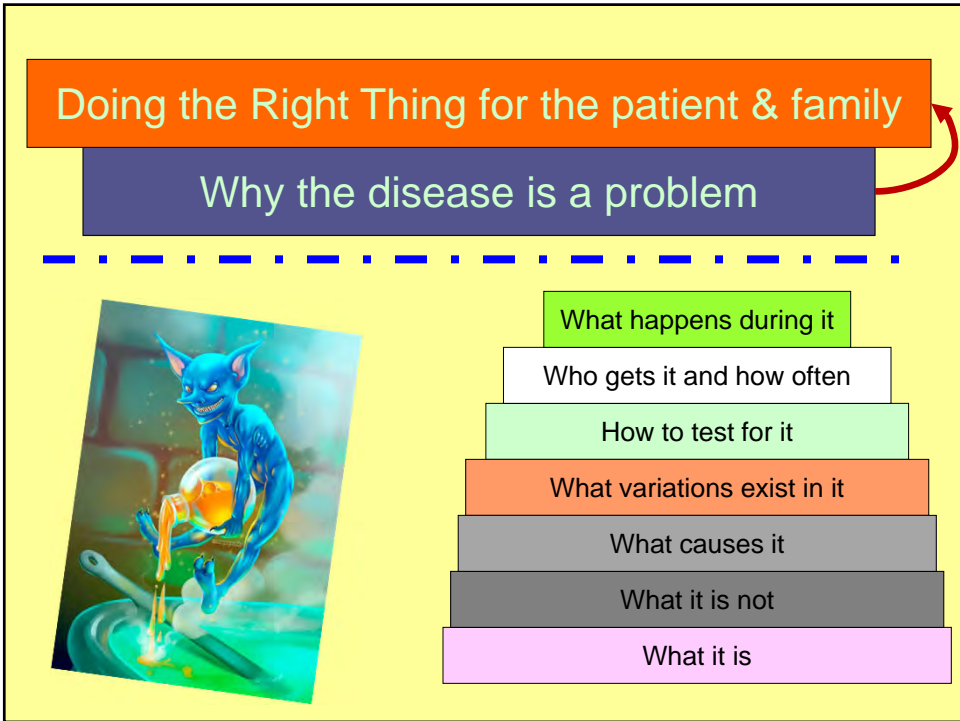
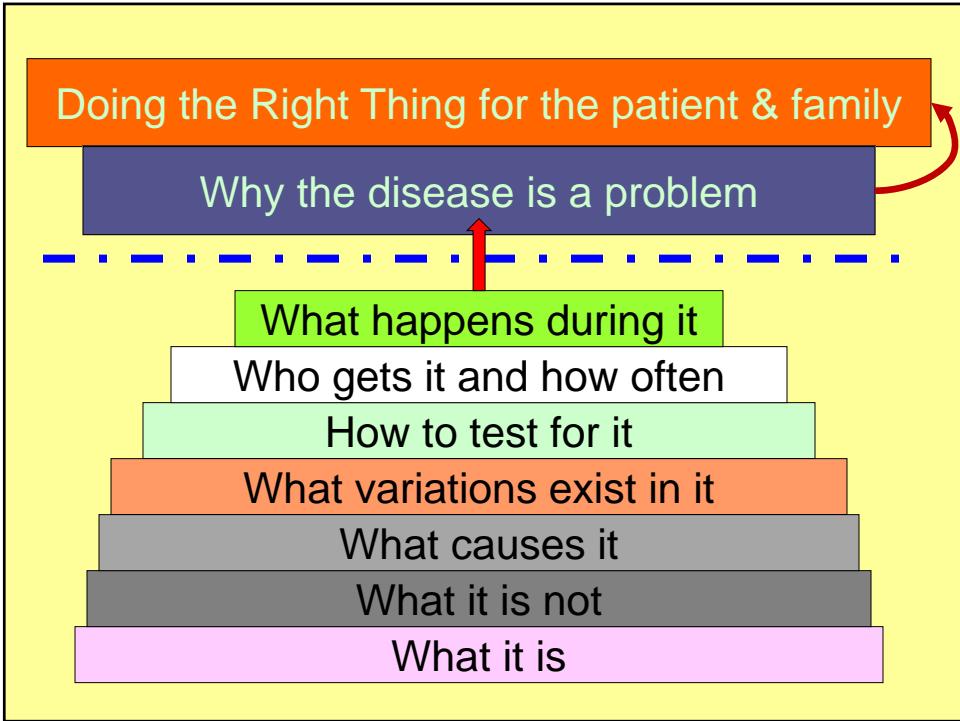
How to test for it

What variations exist in it

What causes it

What it is not

What the disease is



Scenario #1

One of your parents develops memory problems, cannot remember which pills they took, gets lost in the car, and is paranoid about neighbors stealing things. They left the stove on and almost burned the house down.

-Practically, what do you do?

-What are your main needs?

-How can medical care help you?

Scenario #2

Your parent requires assistance with dressing, eating, bathing, and toileting. They cannot remember your name. You are the only one available to care for them.

-Practically, what do you do?

-What are your main needs?

-How can medical care help you?

Scenario #3

You live with your parents, aunts, uncles, and cousins in a large multigenerational household. Someone is always home. People are flexible in their schedules. Your parent needs assistance with dressing, eating, bathing, and toileting. They cannot remember anyone's name.

-Practically, what do you do?

-What are your main needs?

-How can medical care help you?

Definition of Dementia (#1)

A **significant chronic loss** in **memory and/or mental functions**, involving **structural damage** to the brain.

Definition of Dementia (#2)

A progressive neurodegenerative condition with functional consequences.

NOT

- Lifelong
- Abrupt or acute
- Normal aging
- Insignificant

NOT NECESSARILY

- A problem with memory
- Alzheimer's
- Disturbed behavior
- Age-related
- Fatal

Definition #3: DSM-5 Criteria for Major Neurocognitive Disorder (Dementia)

- Significant cognitive decline in one or more domains
- The impairments interfere with independence (i.e. cause **FUNCTIONAL** problems)
- The symptoms are not due to delirium or another mental disorder
- Domains of cognition:
 - Complex attention (multitasking)
 - Executive function (complex tasks)
 - Learning and memory
 - Language
 - Perceptual-motor (coordinated activities)
 - Social cognition (appropriateness)

DSM-5 Major Neurocognitive Disorder (Dementia) Descriptors

- Possible vs probable
- With or without behavioral disturbance (psychosis, mood problems, agitation)
- Severity: based on **FUNCTIONING**
 - Mild: Instrumental activities of daily living (ADLs) are affected
 - Moderate: Basic ADLs affected
 - Severe: Fully dependent in ADLs

Delirium, Dementia and Depression

	Common Features	Hallmarks
Delirium	Subjective confusion	<ul style="list-style-type: none"> • Confusion / Impaired attention • Rapid onset; waxing and waning • Due to a medical cause
Dementia	Difficulty performing tasks "Not right" on interview	<ul style="list-style-type: none"> • Problems in specific domains • Chronic and progressive, slow onset • Functional decline
Depression	Loved ones are worried	<ul style="list-style-type: none"> • Decreased concentration and interest • Sensorium is clear

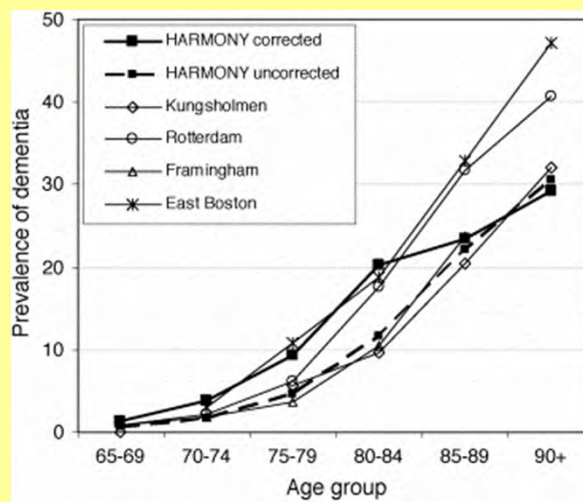
Dementia Prevalence

About 1% at age 65

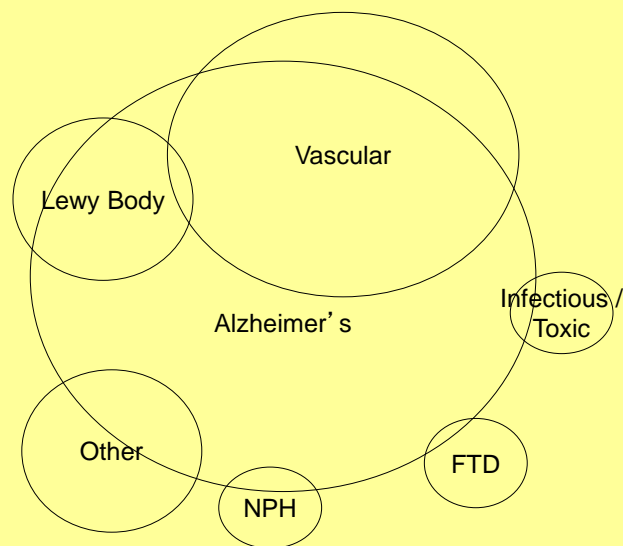
6-8% if older than 65

30% if older than 80

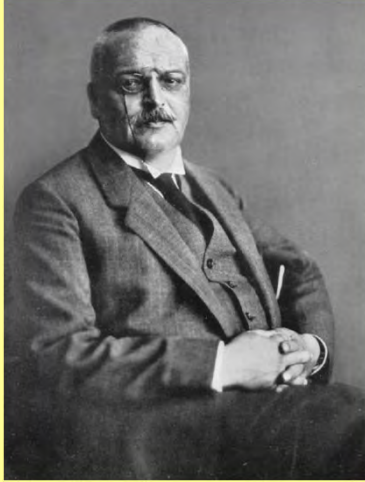
Frequency of Dementia



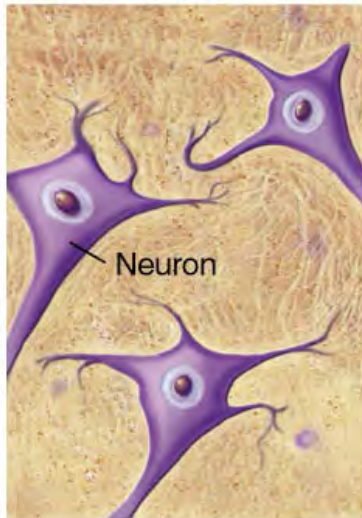
Types of Dementia:
Alzheimer's
Vascular
Lewy Body
Frontotemporal
"Reversible"



Alzheimer's Disease

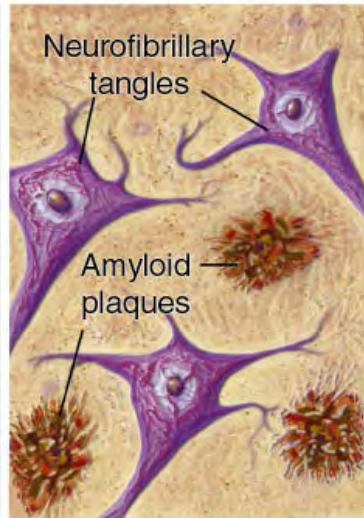


Normal



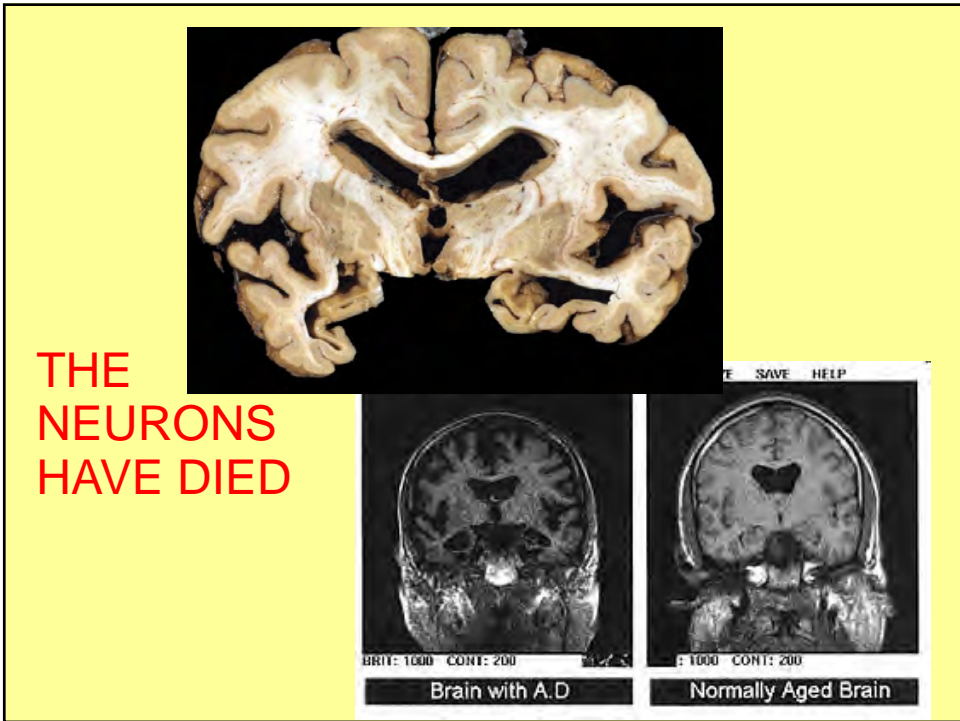
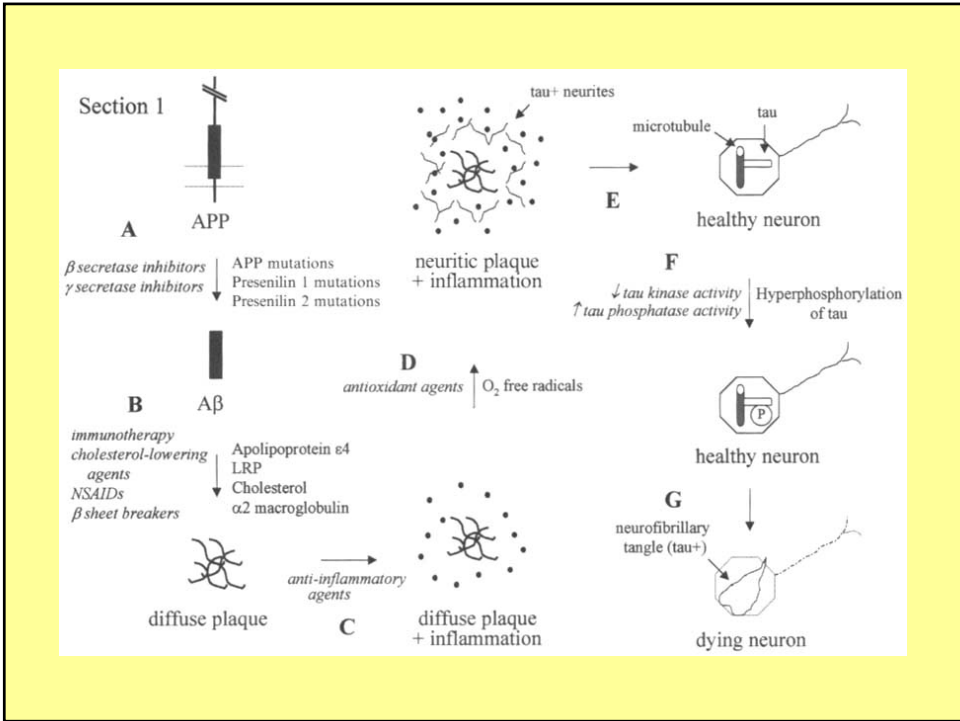
Neuron

Alzheimer's



Neurofibrillary tangles

Amyloid plaques



Alzheimer's Disease

Memory impairment + one of the following:

- Aphasia (speech problem)
- Apraxia (motor activity problem)
- Agnosia (recognition problem)
- Executive dysfunction

Functional impairment secondary to cognitive deficits

Not another cause

Clinical Hallmarks of Alzheimer's

Slow, steady decline over **years**

Generally impaired insight into disease process

Generally a late presentation for medical care

Little waxing and waning

Death typically from medical causes in about 8-10 years

Mild Alzheimer's

- MMSE or MoCA 20-24
- Usually during the first 2-3 years after diagnosis
- Primarily memory, language, and problem-solving deficits
- Mild difficulty with day-to-day functioning, decision-making
- Often noticed, without any action taken

Conditions that can mimic early Alzheimer's

Delirium (including medication side effects and poorly managed medical conditions)

Sleep apnea

Vision and hearing problems

Mental health issues, especially PTSD

Moderate Alzheimer's

- MMSE or MoCA 11-20
- 3-6 years following diagnosis
- Speech and coordinated action decline
- Loss of IADLS and increased need for assistance with ADLs
- May show psychiatric symptoms such as paranoia

Severe Alzheimer's

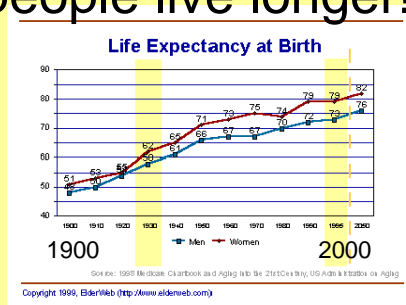
- Usually 6-10 years following diagnosis
- Severe language deficits
- May show pronounced behavioral symptoms such as agitation and aggression (not necessarily worsening)
- Very late in the course can see muscle rigidity, gait disturbances, incontinence, swallowing problems

“When you’ve seen one case of Alzheimer’s, you’ve seen one case of Alzheimer’s.”

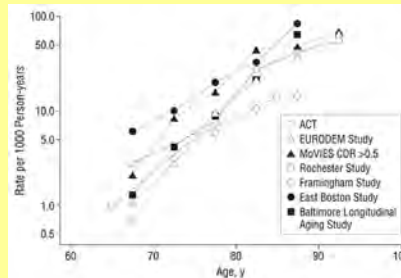
Genetics of Alzheimer’s

- Early age of onset (< 60 years) is more likely to be inherited or “familial”
- Most Alzheimer’s starts after age 70 and is “sporadic”
- Having a relative with “sporadic” Alzheimer’s does not increase risk very much
- The presence of a gene (apolipoprotein ε4) increases risk, but is not a guarantee
- Most forms are probably a consequence of multiple random brain changes that accumulate over time

Why is there more Alzheimer's? Because people live longer!



Incidence of Alzheimer's
Disease by Age



Vascular Dementia

MICROVASCULAR (small blood vessel)
pathology - different than strokes

Clinically similar to Alzheimer's

Vascular dementia WITH Alzheimer's more
common than either alone

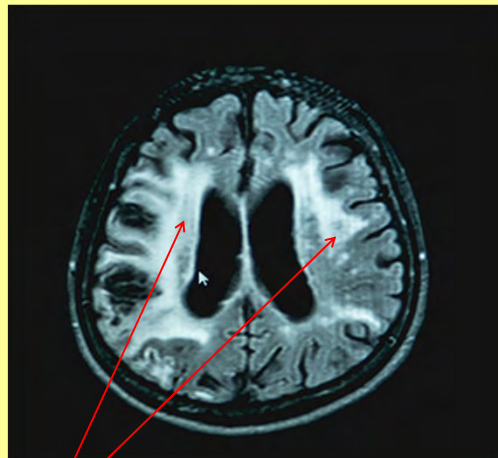
Risk factors: **hypertension**; smoking;
hypercholesterolemia; diabetes;
cardiovascular disease

Not necessarily definitive findings on
neuroimaging

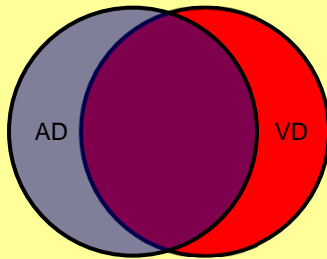
Vascular Dementia

The mystery of vascular dementia:
even after the risk factors are
corrected, the cognitive and
functional declines continue

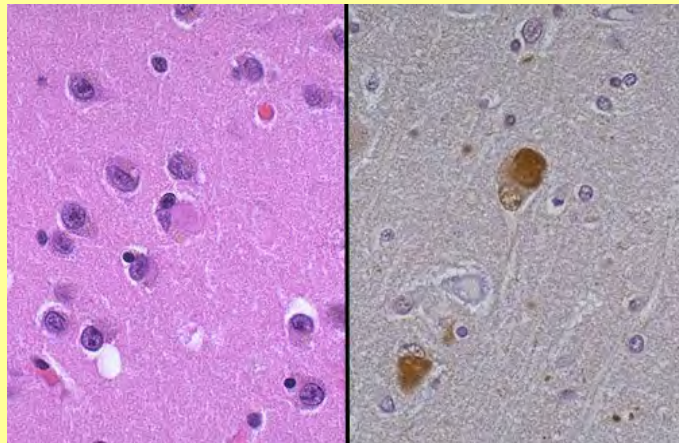
Vascular Dementia



Periventricular white matter hyperintensities



Lewy Body Dementia:
Occurs throughout the brain
(Alzheimer's is mainly in the outer layers)



Dementia with Lewy Bodies

Overall incidence 7-26% of dementia cases

More often with Alzheimer's than by itself

"Parkinsonism" (stooped posture, shuffling gait, slow movements, cogwheeling, masked facies)

Visual hallucinations (usually not scary or bizarre)

Waxing and waning

Cognitive & memory impairment may come **AFTER** these other symptoms

Negative sensitivity to antipsychotics

Frontotemporal Dementia

Frontal brain atrophy: can usually be seen on brain imaging

Personality changes, disinhibition, executive dysfunction

Later memory and cognitive impairment

Earlier age of onset than Alzheimer's or vascular dementia

Usually familial

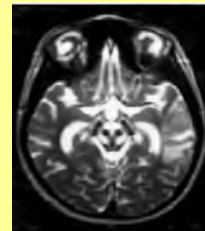
Frontotemporal changes



“Reversible” Dementias

Normal pressure hydrocephalus	Heavy metals
Alcohol-related	Wilson disease
B12 deficiency	Severe endocrinopathies
Folate deficiency	Creutzfeldt-Jakob disease
Electrolyte abnormalities	Autoimmune disease
Thiamine deficiency (Korsakoff)	Lipid storage diseases
HIV/AIDS	Mass lesions or trauma
Advanced Lyme disease	
Neurosyphilis	
Carbon monoxide	

Almost none of these happen commonly or go a long time without being identified



General Workup

Take a good history

Do a good physical exam

Rule out delirium

Rule out reversible causes

Symptom-Diagnosis mismatch:

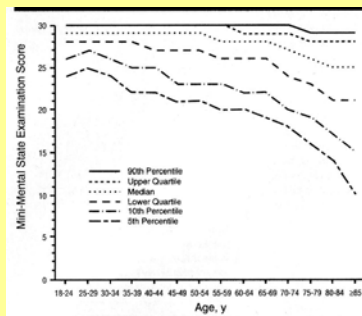
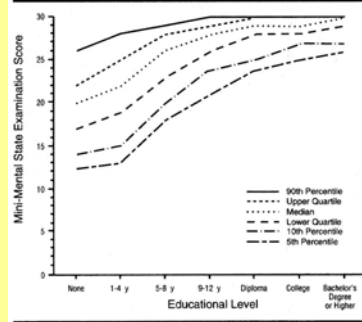
Low → less workup **High** → more workup

Basic tests: CBC, Chem-7, B12, folate, thyroid, calcium

Neuroimaging (CT, MRI) are not routinely indicated

MMSE Norms

Age	Education				Total
	0-4y	5-8y	9-12y	>=12y	
18-24	23	28	29	30	29
25-29	23	27	29	30	29
30-34	25	26	29	30	29
35-39	26	27	29	30	29
40-44	23	27	29	30	29
45-49	23	27	29	30	29
50-54	23	27	29	29	29
55-59	22	27	29	29	29
60-64	22	27	28	29	28
65-69	22	28	28	29	28
70-74	21	26	28	29	27
75-79	21	26	27	28	26
80-84	19	25	26	28	25
>=85	20	24	26	28	25
Total	22	26	29	29	29



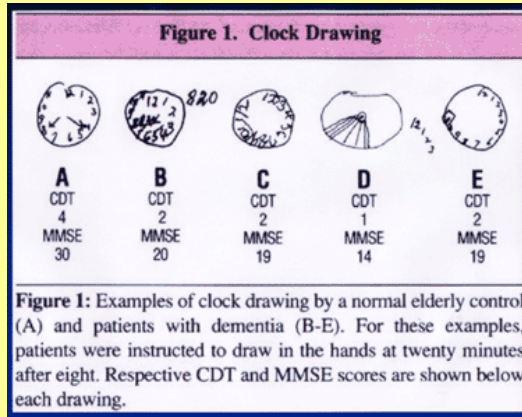
During dementia: about 3 POINT DROP PER YEAR

Clock drawing (MiniCog)

- “Remember these 3 words: apple, table, penny”
- (Back to #1 until able to repeat all 3 items)
- “Draw a clock face”
- “Put on the numbers”
- “Put on hands to make the time be ELEVEN-TEN”
- “What were the 3 items?”

Scoring:

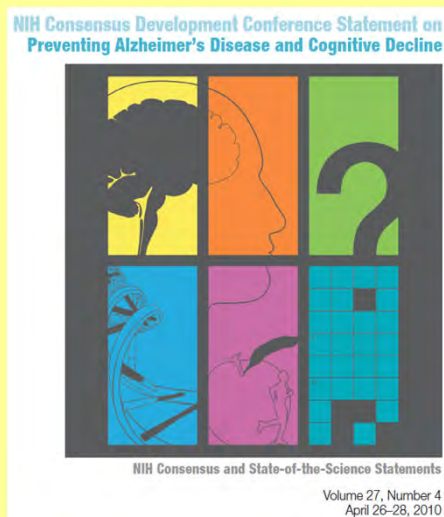
Clock drawing: 2 if no errors –
NO PARTIAL CREDIT!!
 Each delayed recall item: 1



Interpretation:

0-2: Positive screen
 3-5: Negative screen

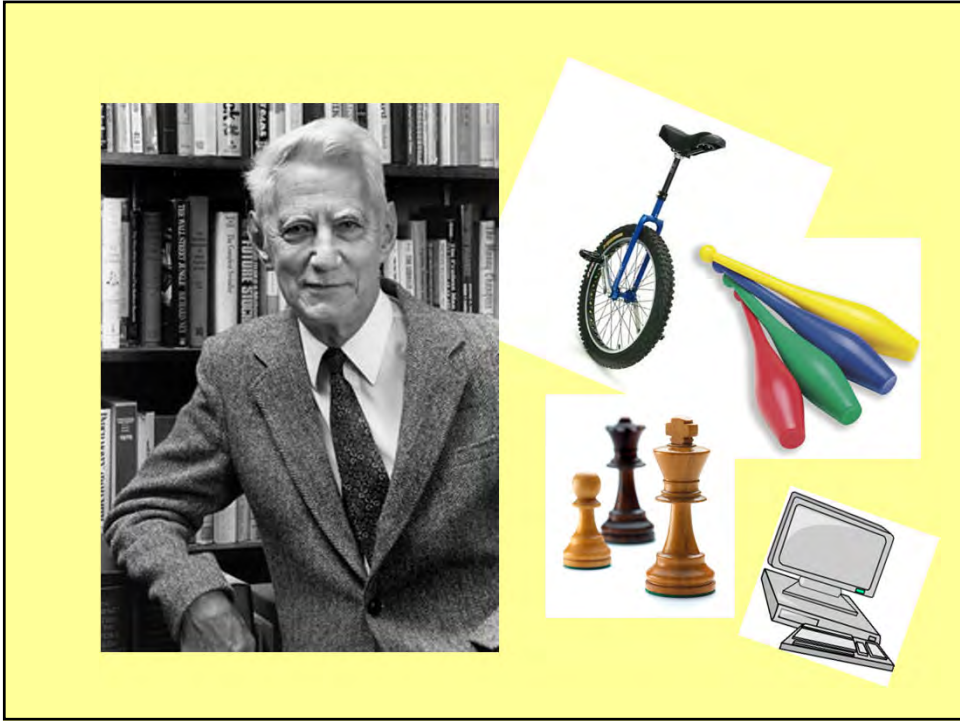
Prevention of Dementia?



Conclusion

“Currently, firm conclusions cannot be drawn about the association of any modifiable risk factor with cognitive decline or Alzheimer’s disease. Evidence is insufficient to support the use of pharmaceutical agents or dietary supplements to prevent cognitive decline or Alzheimer’s disease.”





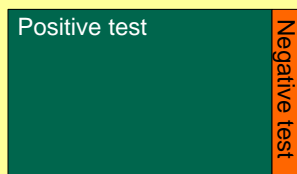
Screening for Dementia?

📌 New blood test predicts Alzheimer's, dementia

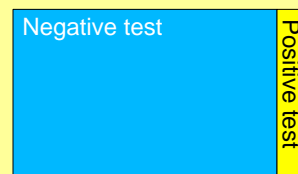
Researchers have developed a new blood test that can predict with 90% accuracy whether a healthy person will develop Alzheimer's or cognitive decline within 3 years. They report how they identified and validated the 10 biomarkers that form the basis of the test in a study published in *Nature Medicine*.

Screening for dementia

- Test predicts with 90% accuracy
 - if you have the disease, you will get a positive test 9 out of 10 times
 - if you do not have the disease, you will get a negative test 9 out of 10 times



Has dementia



No dementia

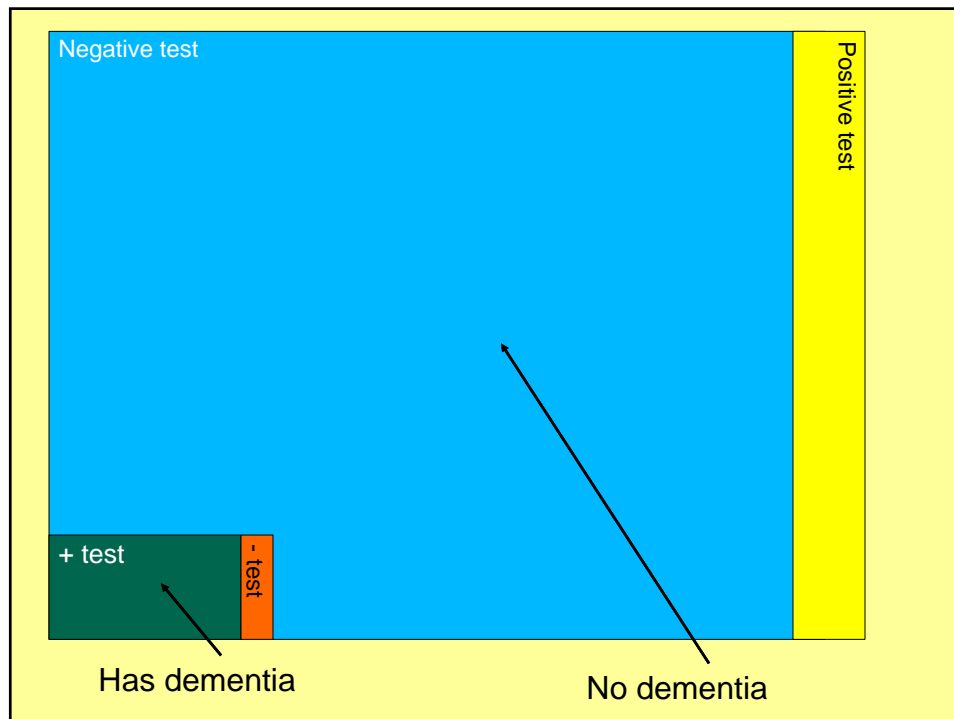
Screening math

1000 people aged 70-80; prevalence of dementia is 4%

40 of them have dementia (4%); 960 do not (96%)

Of the 40 who do have dementia, 36 will have a positive test → **4 (0.4% overall) will wrongly be told they do not have dementia**

Of the 960 who do not have dementia, 96 will have a positive test → **96 (10% overall) will wrongly be told they do have dementia**



- If you get a **negative** test (868 people did), your likelihood of **having dementia is 0.4% (false negative)**
- If you get a **positive** test (132 did), your likelihood of **not having dementia is 73% (false positive)**
- **Two out of three** people who are told they have dementia by this test will **not** in fact have it

Screening

- Given the high false positive rate, routine screening for dementia is not recommended
- It works better to wait until people observe that they are having concerns or problems

The truly important issues:

Why is dementia a problem?

How can we help people with dementia?

Caring for the Whole Patient, the Family, and the Environment

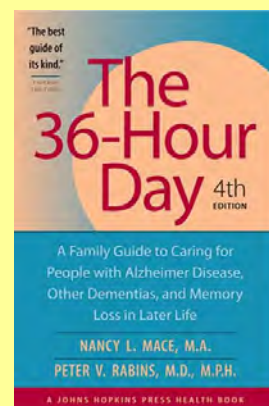
Listen

Don't make assumptions about what is easy or difficult

Screen caregivers and family members for depression

Focus on aggregate quality of life for the whole family unit

Recommend the Alzheimer's Association, County Senior Services, private social workers



Agitation

Figure out what is going on **before** turning to medications

Main reasons for agitation:

- Delirium
- Unmet needs
- Conditioning
- Natural response

Antipsychotic medications have a **black box** warning for dementia (about double risk of death)

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