



UNIVERSITATEA DE STAT DE MEDICINĂ ȘI FARMACIE
„NICOLAE TESTEMIȚANU” DIN REPUBLICA MOLDOVA

CEREBRAL CORTEX

DEMENTIA

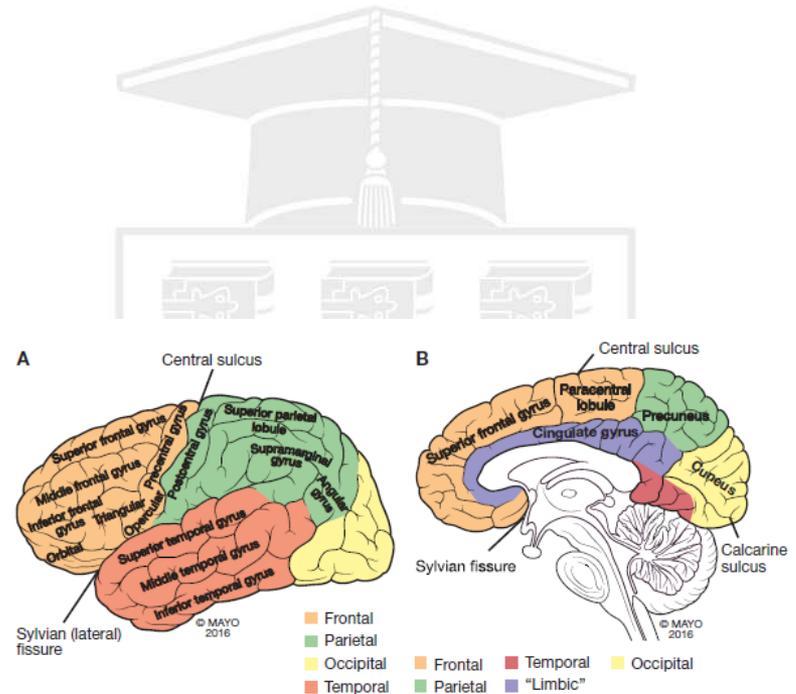
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Catedra Neurologie 1
USMF „Nicolae Testemițanu”**



OBJECTIVES

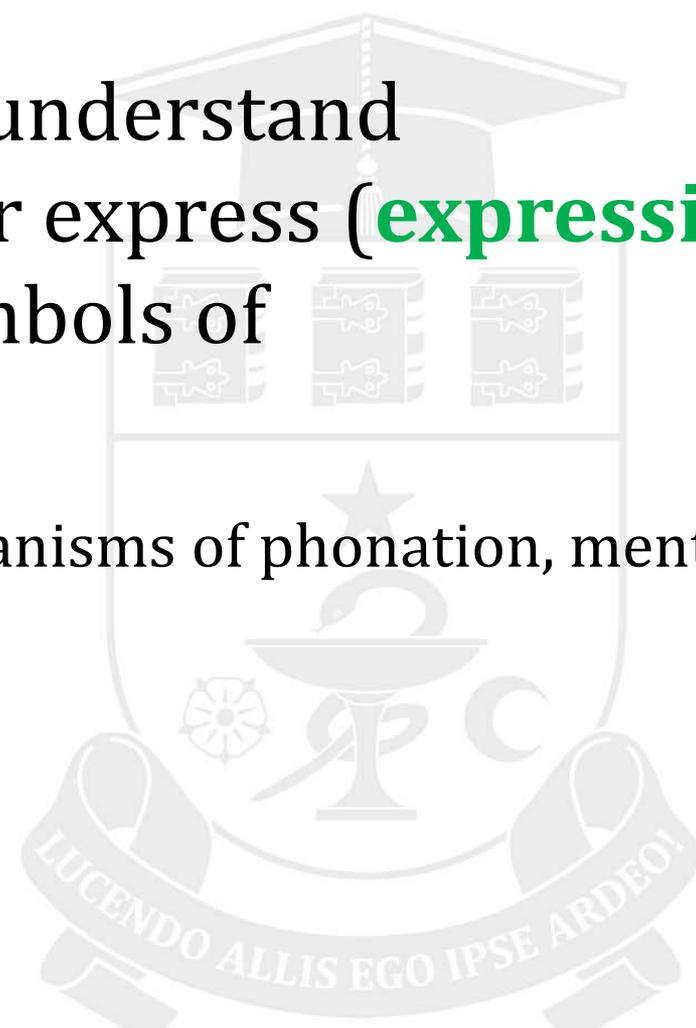
- Cerebral cortex. Signs, symptoms and syndromes of involvement
 - Aphasias
 - Apraxias
 - Agnosias
- Signs of damage to the cerebral lobes: frontal, temporal, parietal, occipital
- Dementias
 - Alzheimer's disease
 - Vascular dementia
 - CNS damage in alcoholism





Aphasias

- **Aphasia** – inability to understand (**receptive aphasia**) or express (**expressive aphasia**) words as symbols of communication
- (sensory system, motor mechanisms of phonation, mental status – Nr)

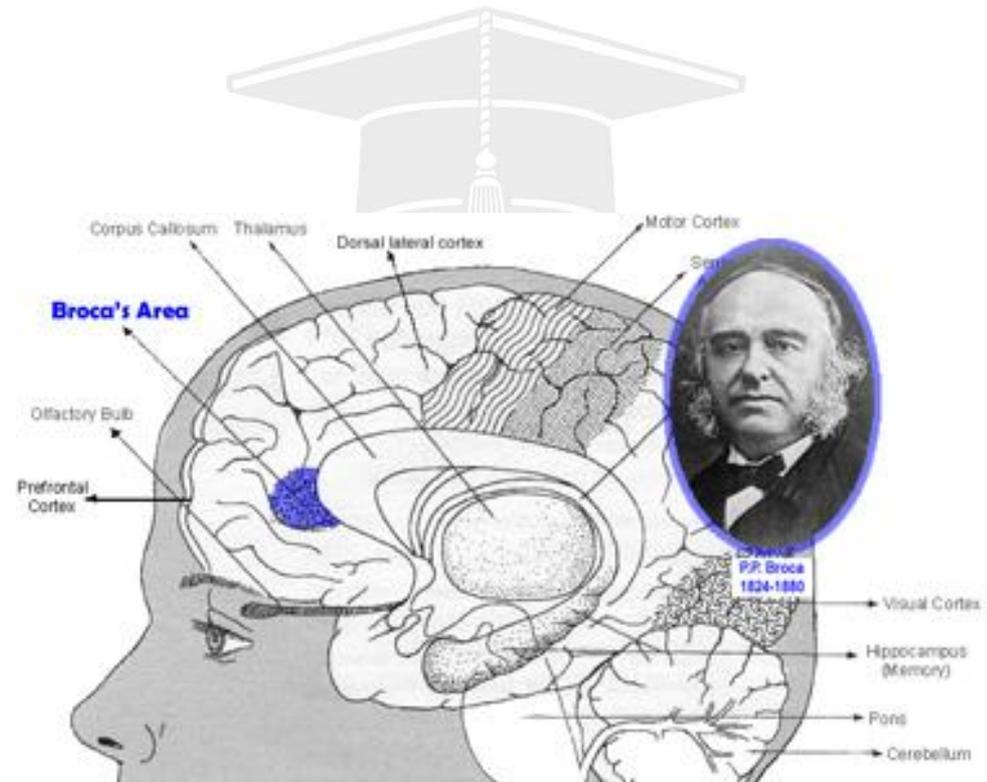




Broca's expressive aphasia

- It refers to expressive (or motor) both oral, and written language

Broca proved that the cerebral hemispheres (right and left) have different functions – the phenomenon of lateralization





Broca's expressive aphasia

- **Impairment of spontaneous speech**
 - **anagrammatism** - mistakes in declension of nouns, conjugation of verbs, arrangement of words in a sentence;
 - **verbal paraphasia** – using distorted words or some words instead of others;
 - **jargonaphasia** - the patient uses his own jargon, incomprehensible to others;
 - **echolalia** – repeating as an echo what the examiner says, including repeating the question asked by the examiner.



Broca's expressive aphasia

- **Automatic speech** (counting, listing days of the week, months of the year, playing fragments of poems...) – less affected
- **Anomia** – impairment of the ability to find the names of objects, images, colors
- **Agraphia** – the impossibility of graphic expression



Broca's expressive aphasia





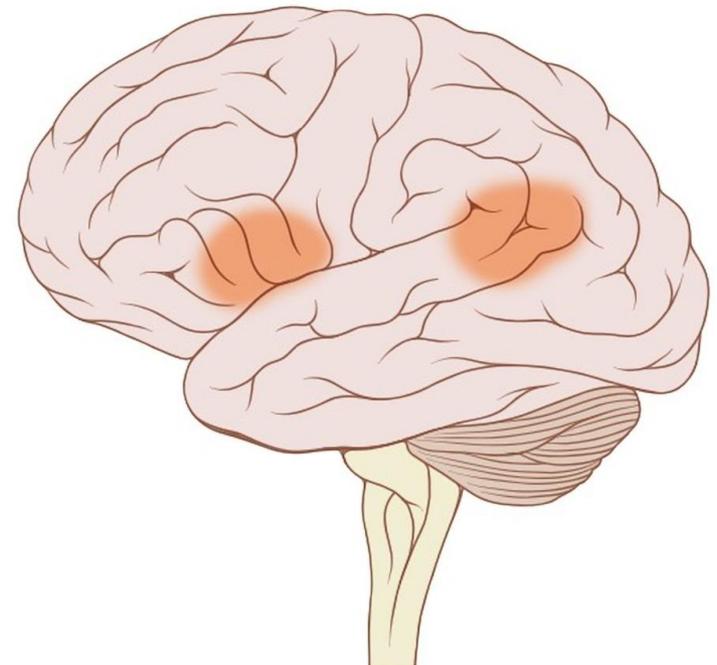
Wernicke's receptive aphasia

- **Sensory (receptive)** both oral, and written language
- **Verbal deafness** – inability to understand the meaning of spoken words (normal hearing)
- **Persistence or intoxication by order** – the patient executes the first order correctly, if given another order – continues to execute the first



Broca
(Brodmann area 44)

Wernicke
(Brodmann area 22)





Wernicke's receptive aphasia

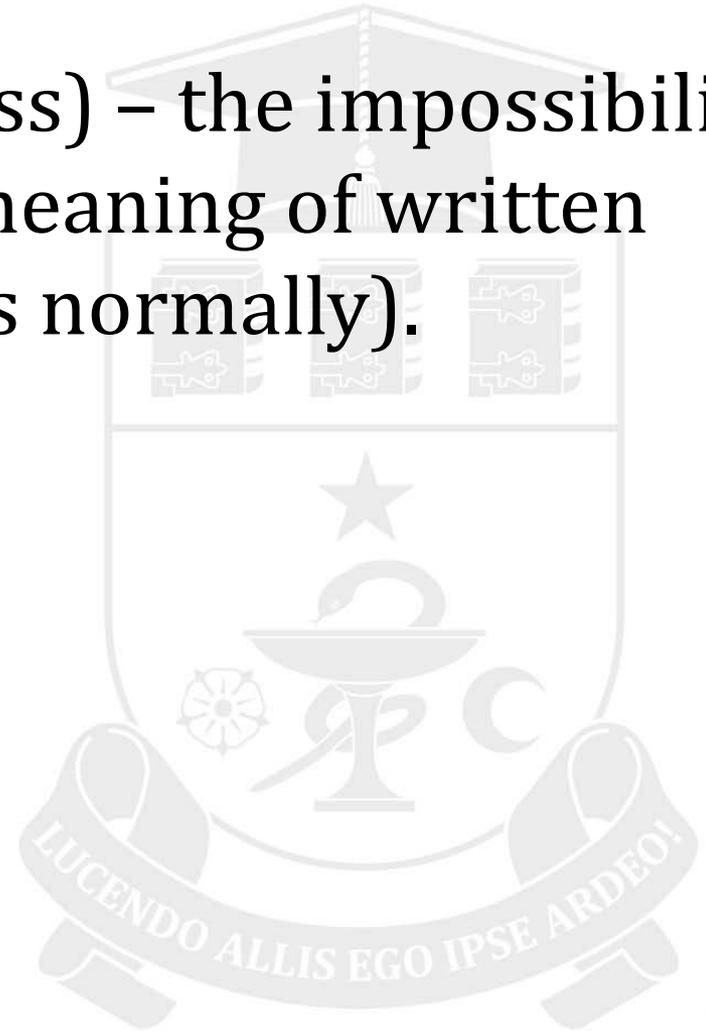
For the determination of minor receptive disorders:

- **Head** test (the patient is asked to bring the right hand to the left ear)
- The **Pierre Marie** test (the test of the 3 papers (of different sizes): put the big one on the table, the small one – in epy pocket, the middle one – use it as a fan



Wernicke's receptive aphasia

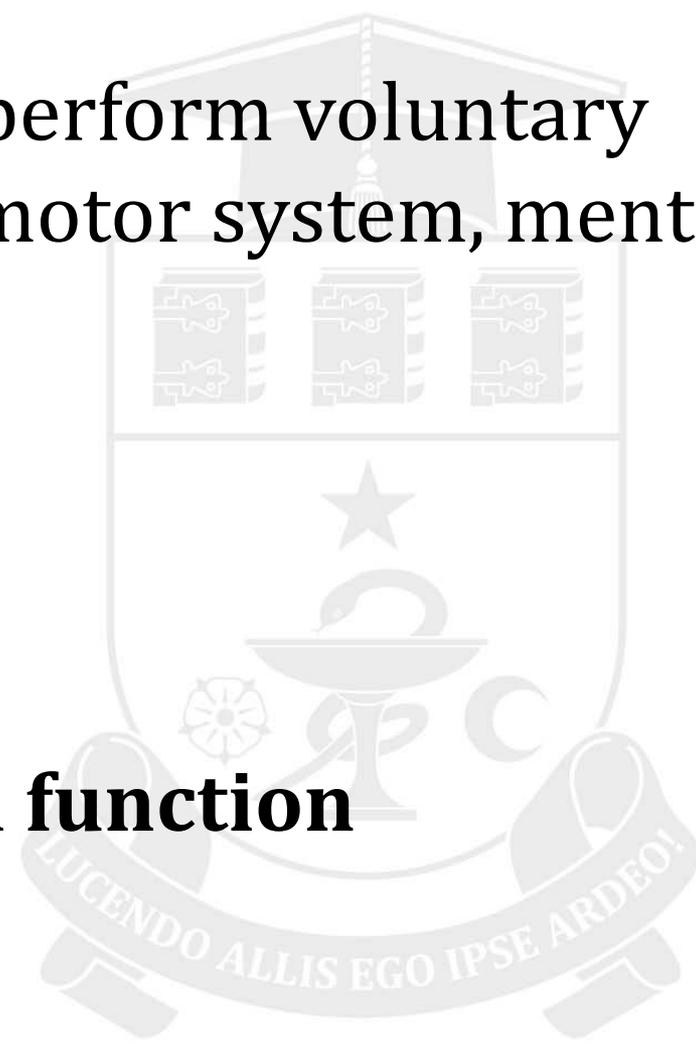
- **Alexia** (verbal blindness) – the impossibility of understanding the meaning of written words (the patient sees normally).





Apraxias

- **Apraxia** – inability to perform voluntary movements and acts (motor system, mental functions – intact)
- **Global apraxias**
- **Localized apraxias**
- **Apraxias specific for a function**



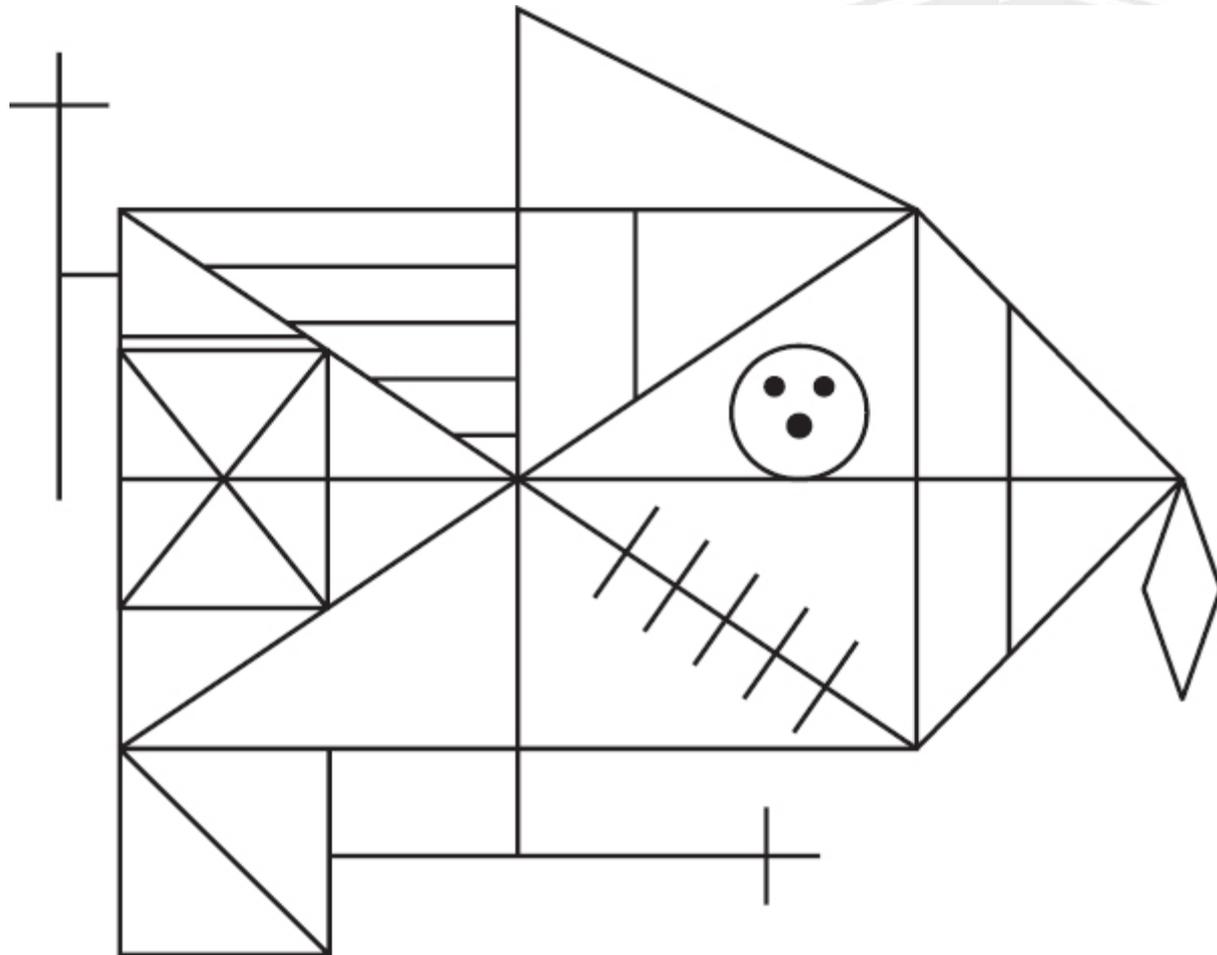


Global apraxias

- **Ideo-motor** – inability to perform actions and gestures when asked, but otherwise able to perform spontaneously
 - military salute, pioneer salute, show fist, drink water, cut bread, wave goodbye, comb hair, use scissors, flip a coin, show how to hitchhike
- **Ideational** – the patient is able to carry out individual components of a complex motor act, but she cannot perform the entire sequence properly.
 - In showing how to drive a car, the patient might try to put the car in drive before starting the engine.
 - When asked to demonstrate how to mail a letter, the patient may seal the envelope before inserting the letter, or mail the letter before affixing the stamp.
- **Constructive** – difficulty building, drawing, arranging something (asked to draw geometric figures, build figures from matchsticks, etc.)



The Rey-Osterrieth complex figure for evaluating constructional ability.





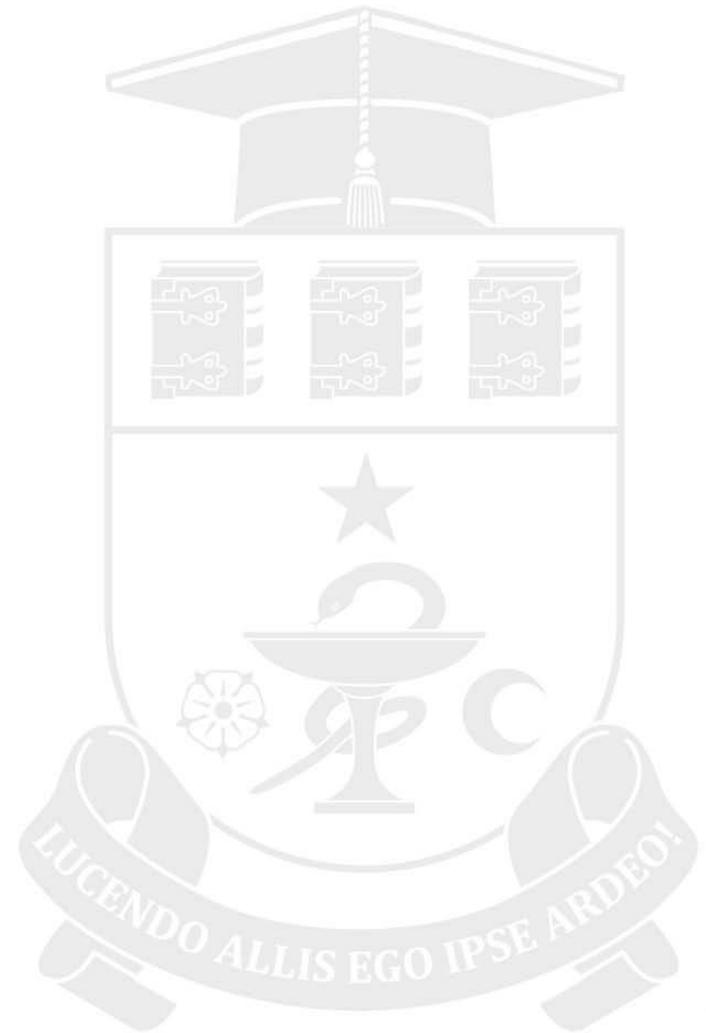
Localized apraxia

- **Buccofacial (oral) apraxia**
 - unable to execute on request complex acts involving the lips, mouth, and face;
 - include such activities as whistling, coughing, pursing the lips, sticking out the tongue, blowing a kiss, pretending to blow out a match, or sniffing a flower.
- **Mimic apraxia**
- **Apraxia of voluntary swallowing**



Apraxia specific to a function

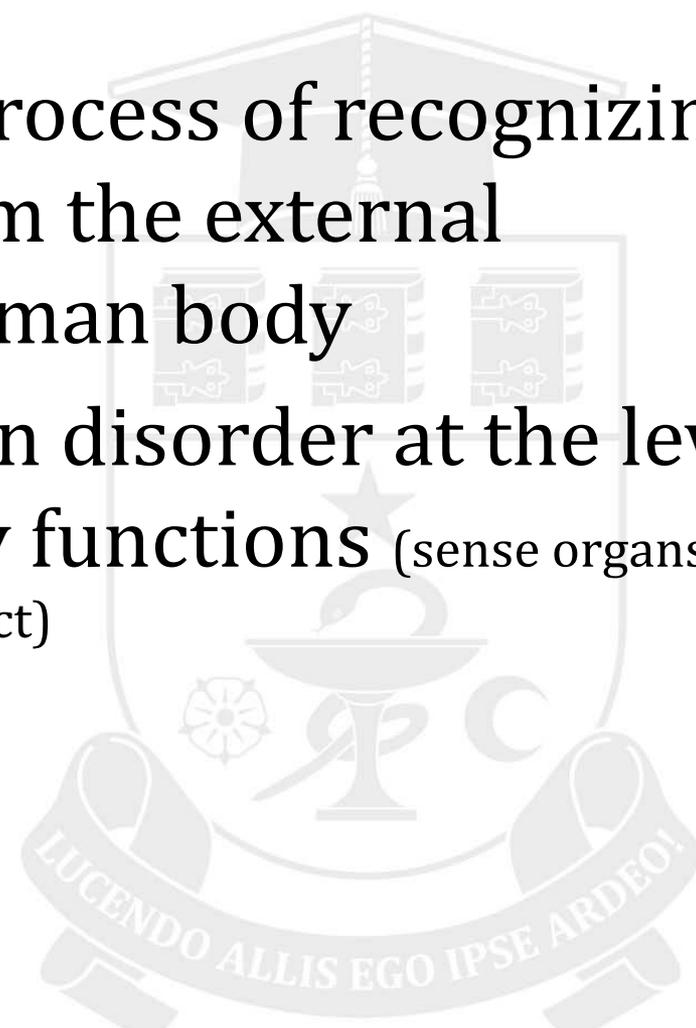
- **Apraxia of writing**
- **Dressing apraxia**
- **Gait apraxia**
- **Apraxia of speech**
- **Musical apraxia**
- **Trunk apraxia**





Agnosia

- **Gnosis** – the cortical process of recognizing excitations coming from the external environment or the human body
- **Agnosia** – a recognition disorder at the level of one or more sensory functions (sense organs, transmission pathways, cortex - intact)





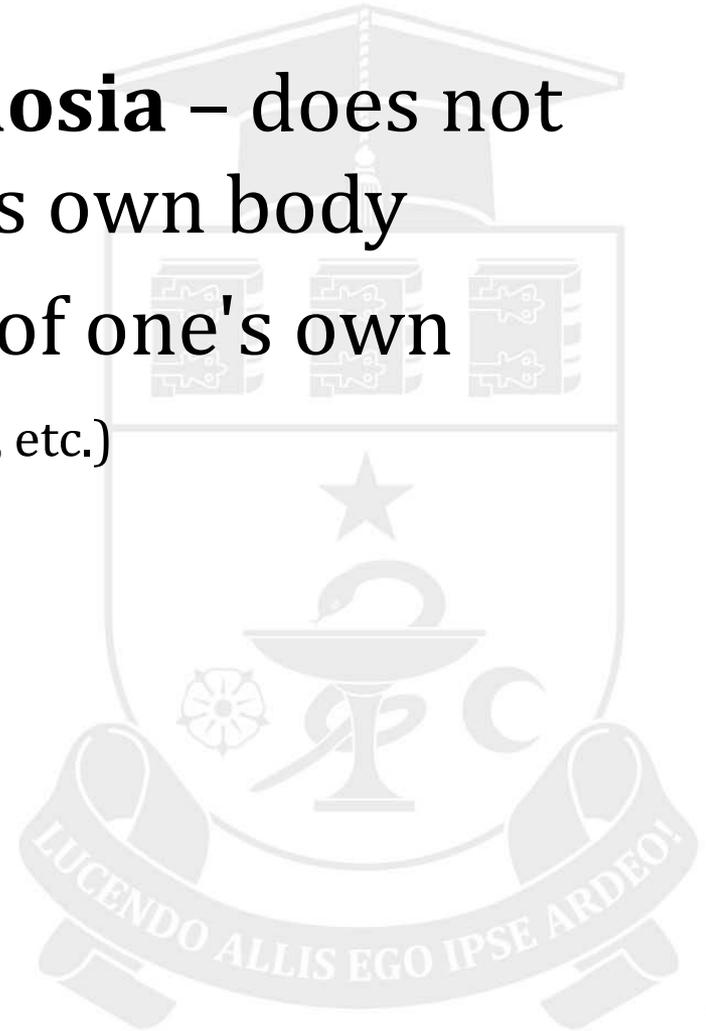
Agnosia

- **Tactile agnosia (stereognosia)** - inability to recognize and name a palpated object with closed eyes
 - **Visual agnosia** – visual recognition deficit
- Oliver Sacks** *"The Man Who Mistook His Wife for a Hat"*
- **Auditory agnosia** – does not recognize sounds



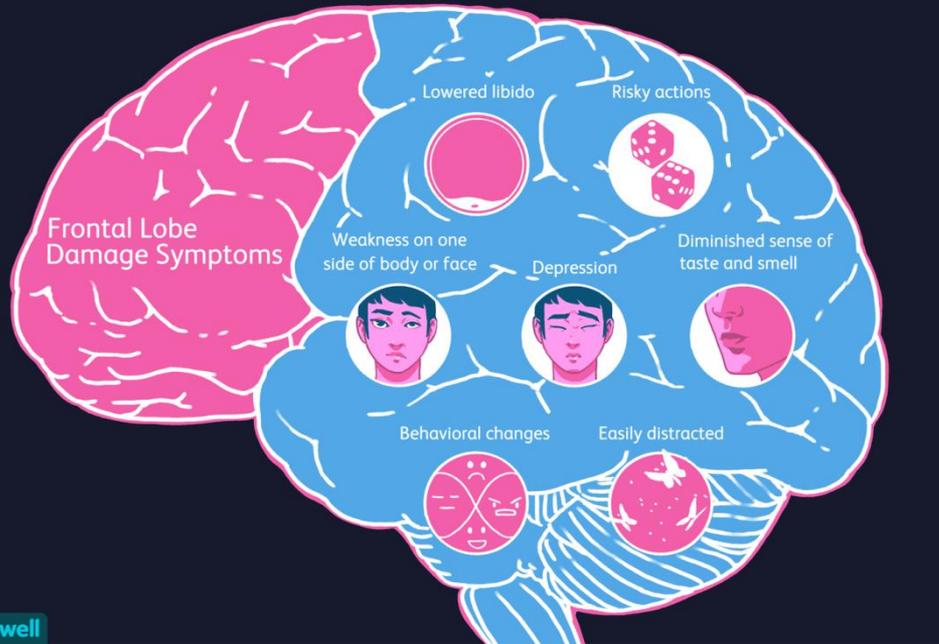
Agnosia

- **Bodily (corporal) agnosia** – does not recognize parts of one's own body
- **Anosognosia** – denial of one's own suffering (paralysis, amavrosis, etc.)





Frontal lobe



- **Spastic (central) hemiparesis on the opposite side**
- **Conjugate deviation of the head and eyeballs to the opposite side**
- **Grasping reflex (Janishevski)**
- **Broca's aphasia**
- **Frontal epilepsy (jacksonian seizures)**

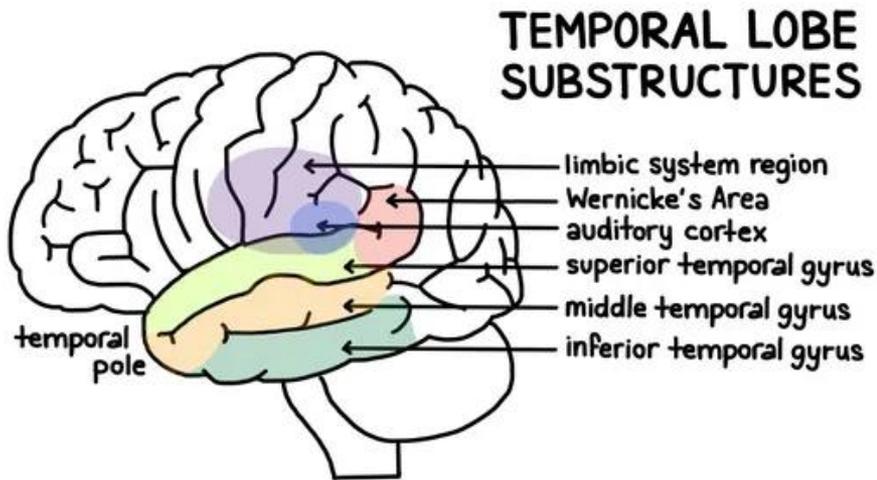


Frontal lobe syndrome

- **Psychiatric disorders (Jastrovitz moriac complex)** – cognitive dysfunctions, fixation amnesia, attention deficit, decreased abstract thinking, lack of initiative and spontaneity
- Patients have an adaptive behavior, they become tolerant, gentle, abulous, apathetic, akinetic, withdrawn, depressed
- Hyperactivity, personality disorders, stupid jokes, obscenities, disinhibition (moria)



Temporal lobe syndrome

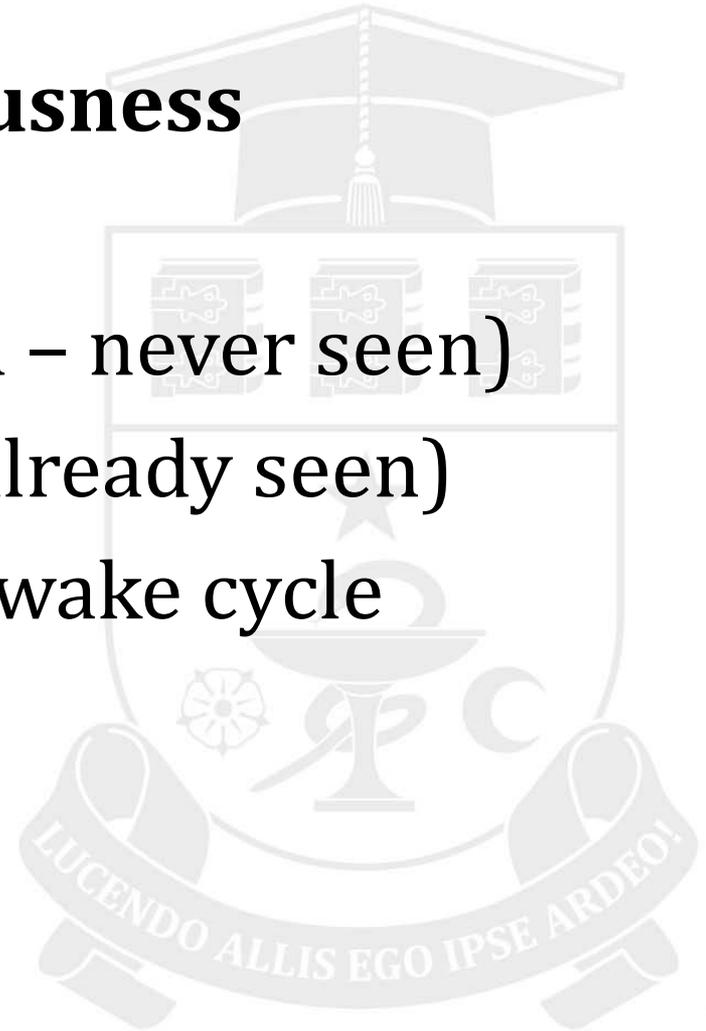


- **Wernicke's sensory aphasia**
- **Hearing disorders**
- **Taste disturbances**
- **Olfactory disturbances**
- **Vestibular disorders**
- **Visual disturbances**
(contralateral homonymous hemianopia)
- **Temporal epilepsy** with psychomotor or psychosensory seizures



Temporal lobe syndrome

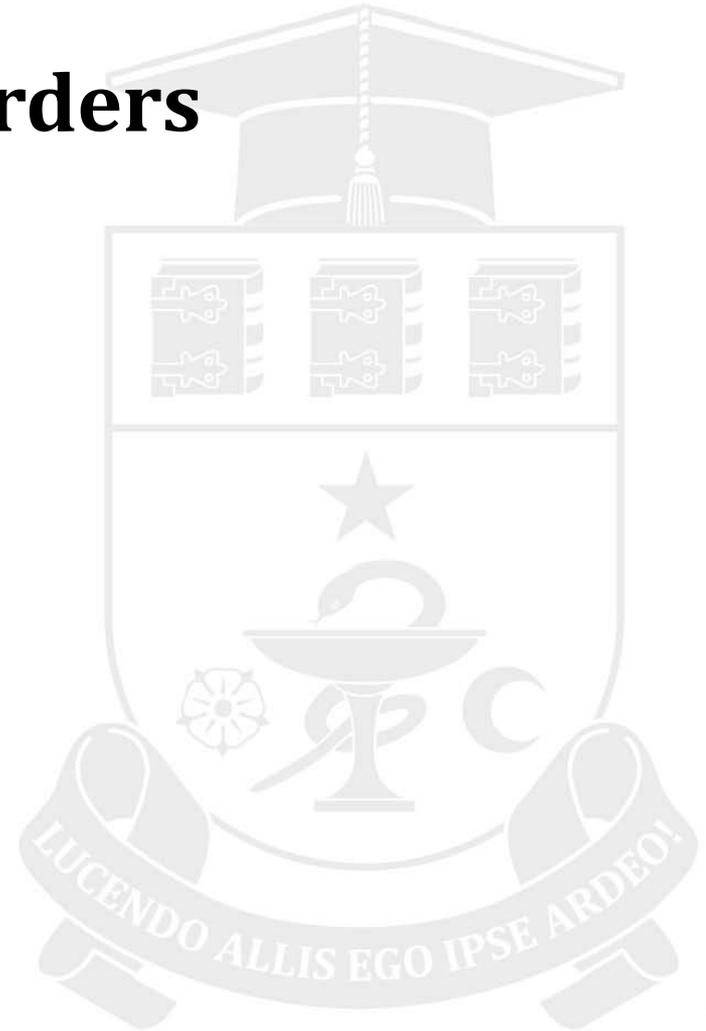
- **Alteration of consciousness**
 - Dreamy state
 - Strangeness (jamais vu – never seen)
 - Familiarity (deja vu – already seen)
 - Disorders of the sleep-wake cycle
 - Hypersomnia
 - Narcolepsy





Temporal lobe syndrome

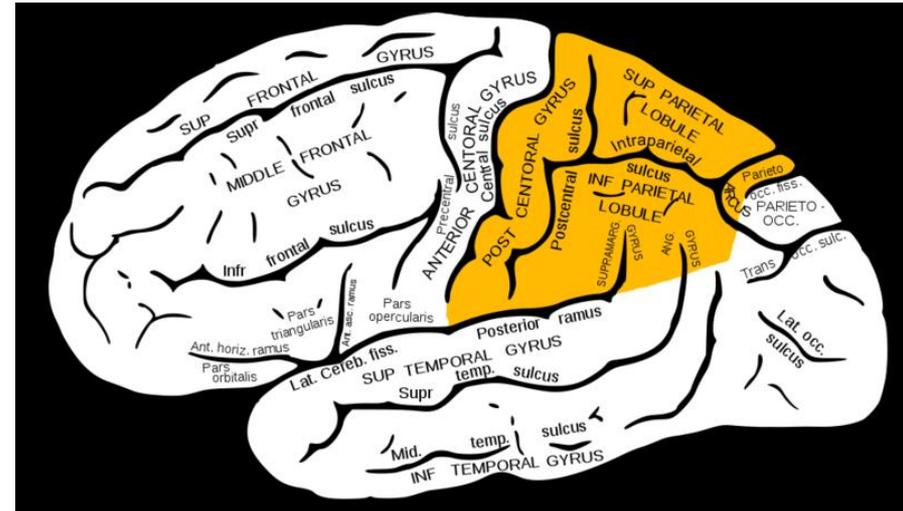
- **Complex mental disorders**
 - Bulimia
 - Hypersexuality
 - Memory disorders
 - Anxiety, panic attacks





Parietal lobe syndrome

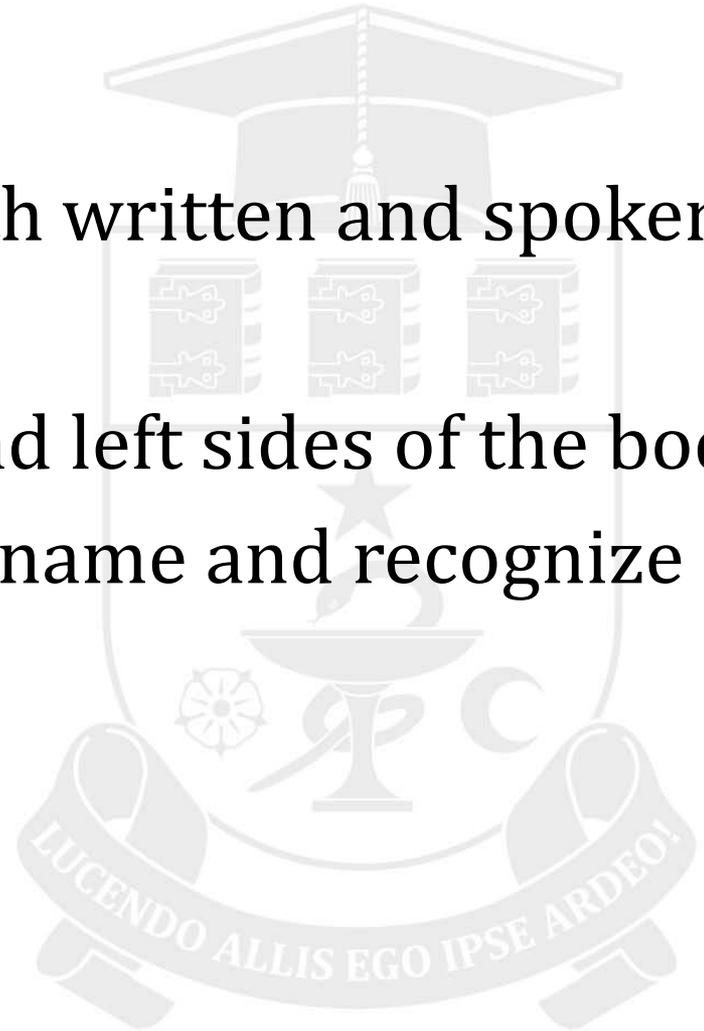
- **Contralateral sensitivity disorders**
- **Visual disturbances** – homonymous hemianopia
- **Sensitive Jacksonian seizures**
- **Anton – Babinsky syndrome**
(affection of the non-dominant PL)
 - Body scheme disorders
 - Neglect of the hemiplegic half of the body
 - Tactile, visual illusions and hallucinations
 - Dressing apraxia





Parietal lobe syndrome

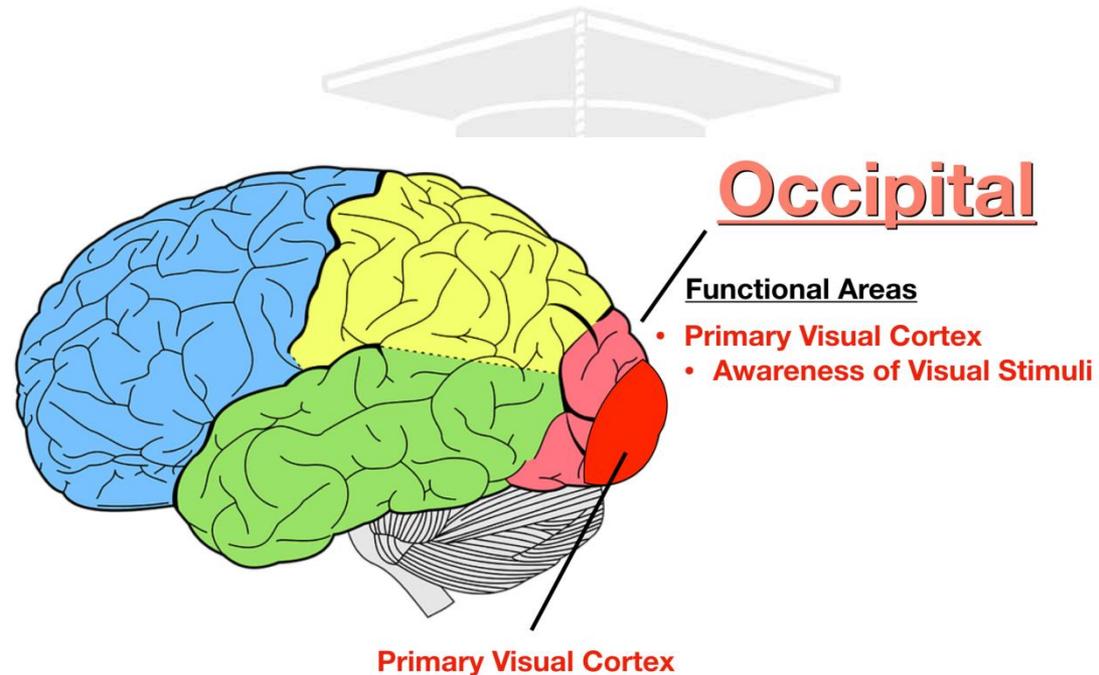
- **Gerstman syndrome**
 - Language disorders (both written and spoken)
 - Agraphia
 - Confusion of the right and left sides of the body
 - Digital agnosia – cannot name and recognize the fingers of the hands
 - Bilateral asomatognosia
 - Ideational apraxia





Occipital lobe syndrome

- Visual field defects
- Cortical (mental) blindness
- **Anton syndrome** – visual anosognosia
- Visual agnosia
- Achromatopsia



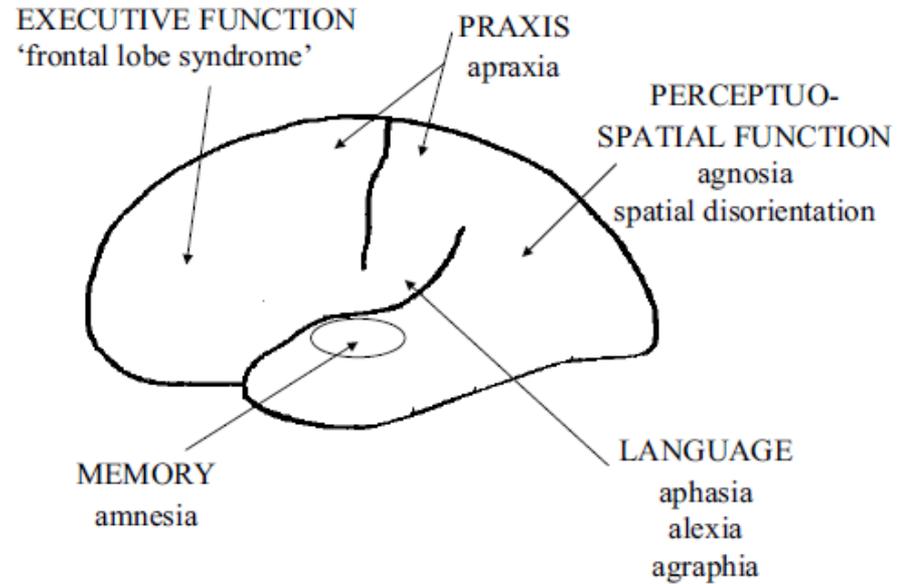


DEMENTIA

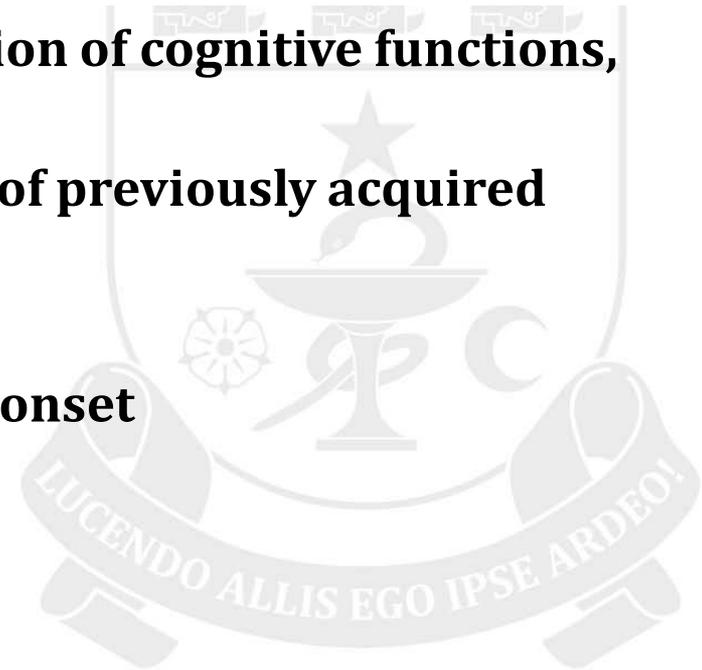




Dementia



- Syndrome characterized by disruption of cognitive functions, mainly **memory**
- Impairment of learning ability, loss of previously acquired knowledge and practical skills
- **Progressive** evolution
- Longevity of life – **5 – 10** years from onset





Main causes of disability in low GDP countries

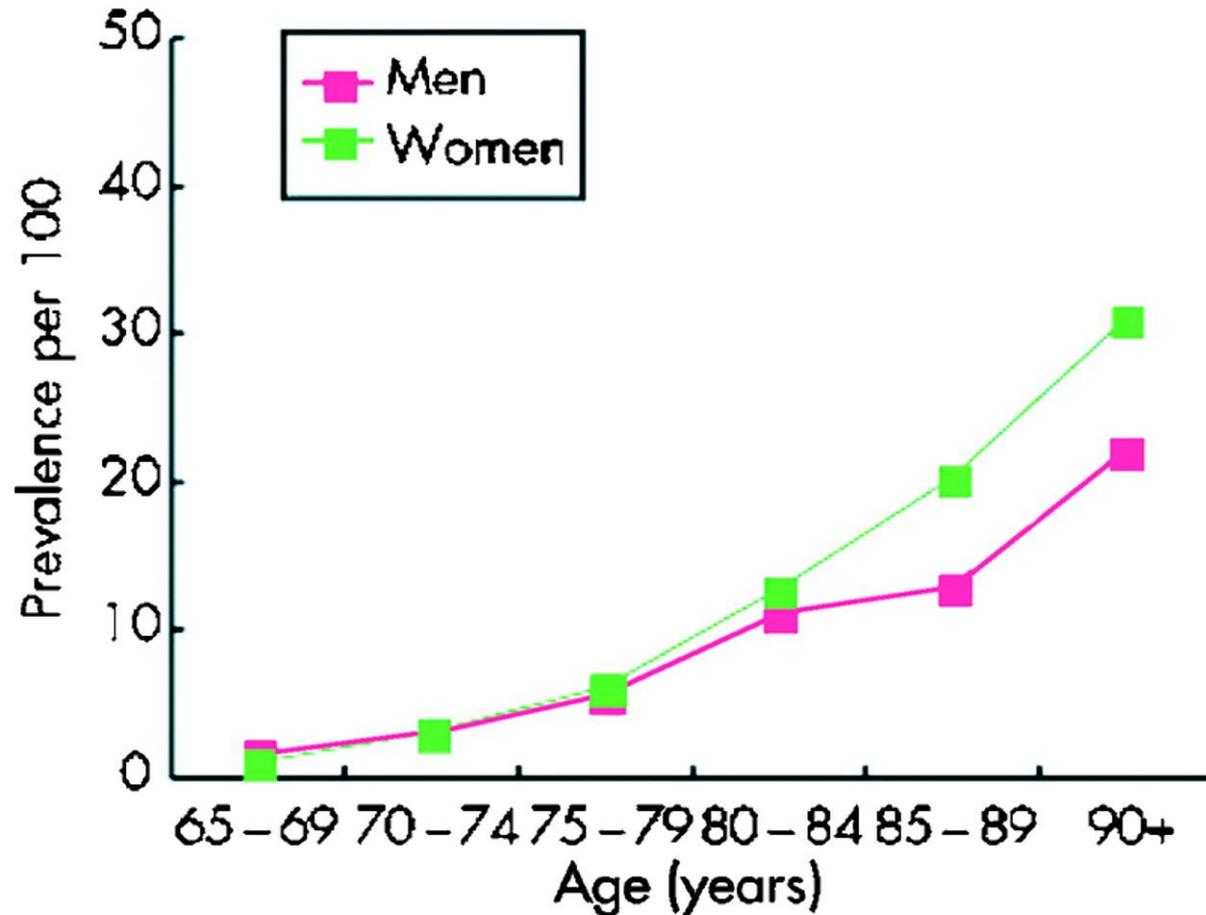
	YLD ($\times 10^6$) (contribution to total chronic-disease YLDs [%])	Rank order (by YLD)	PAPF*	Rank order (by PAPF)
Dementia	8.3 (10.2%)	3	25.1%	1
Cerebrovascular diseases	3.5 (4.3%)	8	11.4%	2
Musculoskeletal diseases	7.2 (8.9%)	4	9.9%†	3
Neuropsychiatric diseases (other than dementia)	5.9 (7.3%)	6	8.3%	4
Eye diseases	27.5 (33.9%)	1	6.8%	5
Digestive diseases	1.6 (1.9%)	11	6.5%	6
Diabetes mellitus	2.1 (2.6%)	10	4.1%	7
Respiratory conditions	4.3 (5.3%)	7	3.3%‡	8
Hearing loss	9.2 (11.3%)	2	2.2%	9
Skin conditions	0.5 (0.6%)	15	2.1%	10
Heart disease	6.1 (7.6%)	5	0.8%§	11
Oral conditions	2.6 (3.3%)	9	Not assessed	..
Malignant neoplasm	0.9 (1.1%)	12	Not assessed	..
Endocrine disorders	0.8 (1.0%)	13	Not assessed	..
Genitourinary diseases	0.6 (0.7%)	14	Not assessed	..
Total chronic disease burden	81.1 (100%)

YLD=years lived with disability. PAPF=population-attributable prevalence fraction. *From directly measured association with WHO disability assessment schedule 2.0. †Self-reported arthritis or rheumatism. ‡Self-reported symptoms of chronic obstructive pulmonary disease. §Self-reported angina or myocardial infarction. ¶For people aged 60 years and older in countries with low and middle incomes (2004).

Table 5: Contributions of chronic diseases and disorders to disability according to Global Burden of Disease estimates of years lived with disability¶ and median population-attributable prevalence fractions from 10/66 population-based studies



Prevalence of dementia by age and sex

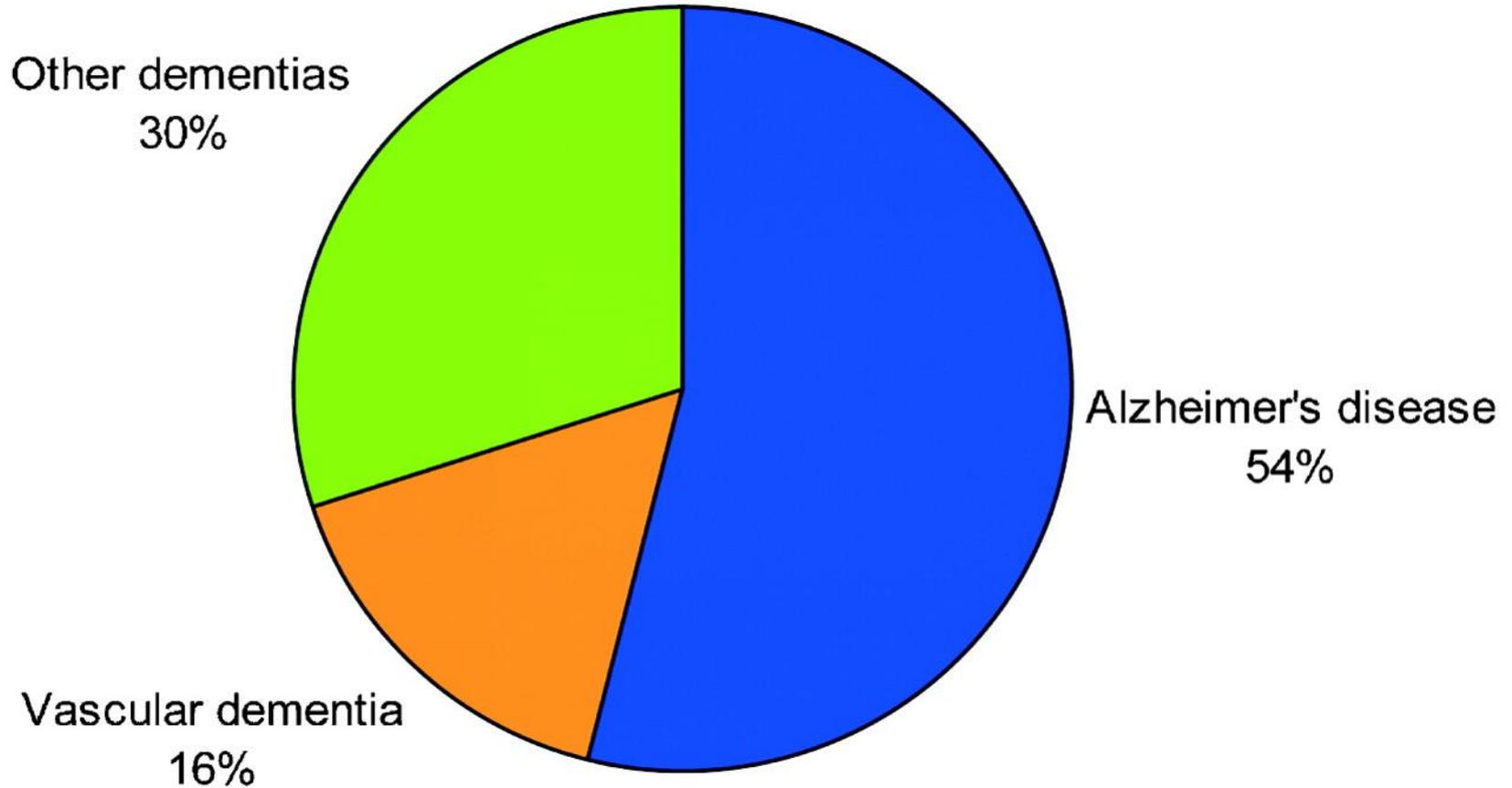


Kester M I , Scheltens P Pract Neurol 2009;9:241-251



Etiology of late-onset dementias (> 65 years of old)

(Lobo et al, 2008)

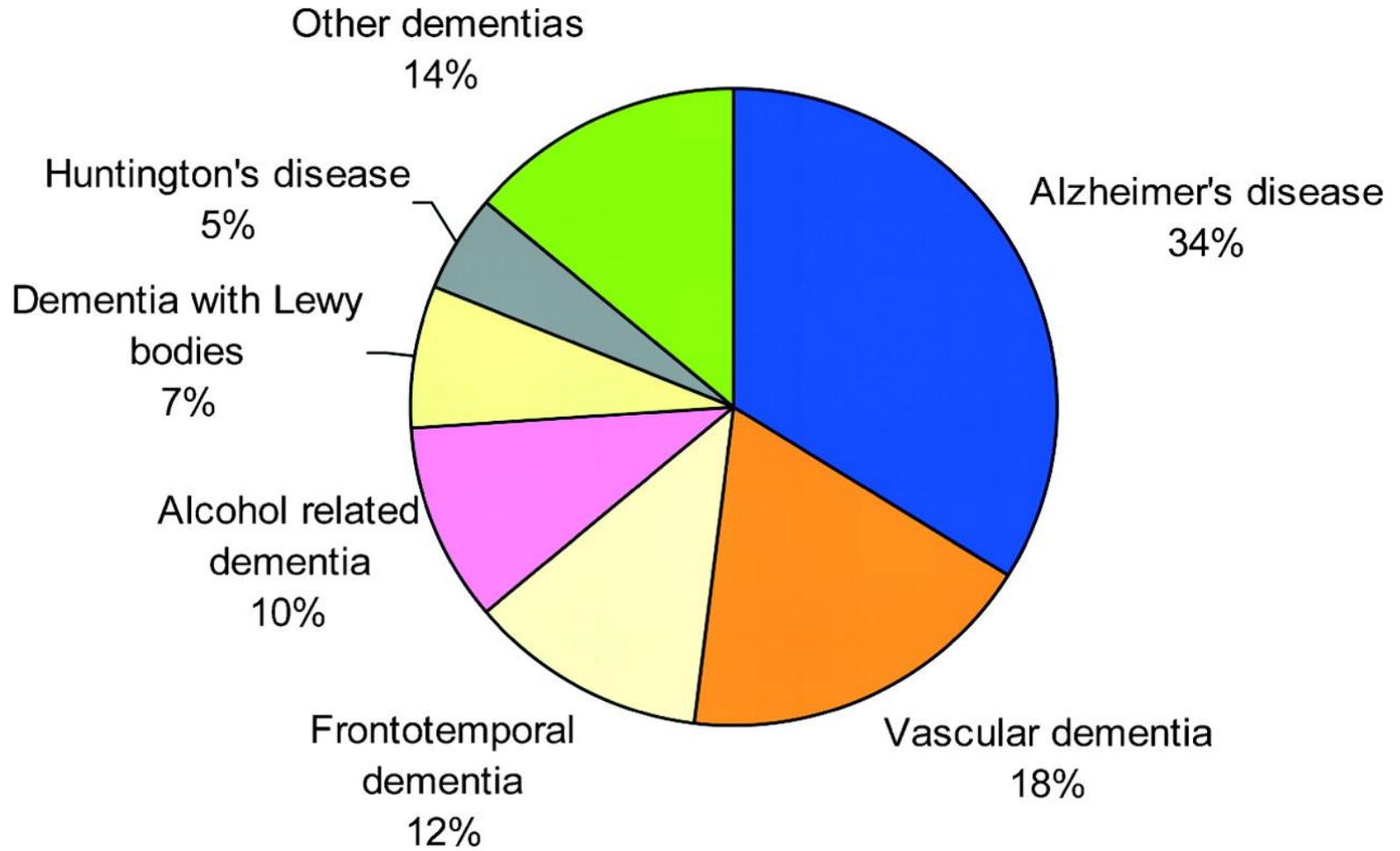


Kester M I , Scheltens P Pract Neurol 2009;9:241-251



Etiology of early -onset dementias (< 65 years of old)

(Harvey et al, 2003)





Neurodegenerative diseases – wide spectrum

- Alzheimer's disease
- Fronto-temporal lobar degeneration (FTLD)
- Parkinson's disease
- Dementia with Lewy bodies
- Cortico-basal degeneration
- Multisystemic atrophy (MSA)
- Progressive supranuclear palsy
- Amyotrophic lateral sclerosis
- Spinal muscular atrophy (SMA)
- Spinocerebellar ataxia (SCA 2/3/8/12/19, A.Harding type I)
- Huntington's disease
- Wilson's disease
- Creutzfeldt-Jakob disease
- Neuroacanthocytosis
- Subacute panencephalitis sclerozantă subacută
- Hereditary neuropathies
- Fatal familial insomnia
- Spastic hereditare paraplegy
- Etc

Dementia



ALZHEIMER'S disease

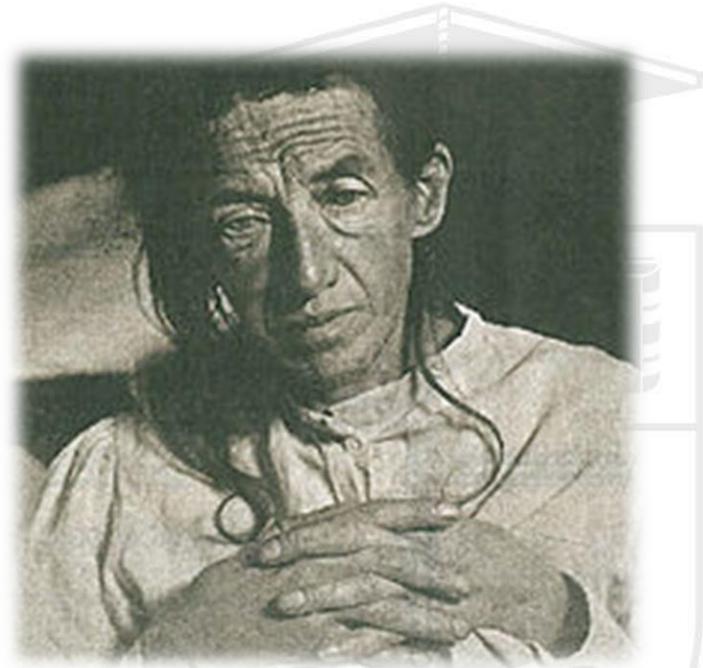




Alzheimer's



**Alois Alzheimer
(1864-1915)**



Described in 1906

"What is your name?" "Auguste." "Family name?" "Auguste." "What is your husband's name?" - she hesitates, finally answers: "I believe ... Auguste." "Your husband?" "Oh, so!" "How old are you?" "Fifty-one."



Alzheimer's disease

Patient Auguste Deter

51 years old

Severe amnesia

Delusions

Disorientation Speech disorders

Behavioral disorders

Hospitalized in Frankfurt

Progressive evolution

She died over 4.5 years

At the morphological examination:

- **brain atrophy**
- **neuronal loss with amyloid plaques and neurofibrillary tangles**



Spreading of Alzheimer's disease

AD – the most common neurodegenerative disease
(in the USA \approx 6 million patients,
worldwide \approx 30 million)

The most important risk factor : **age**

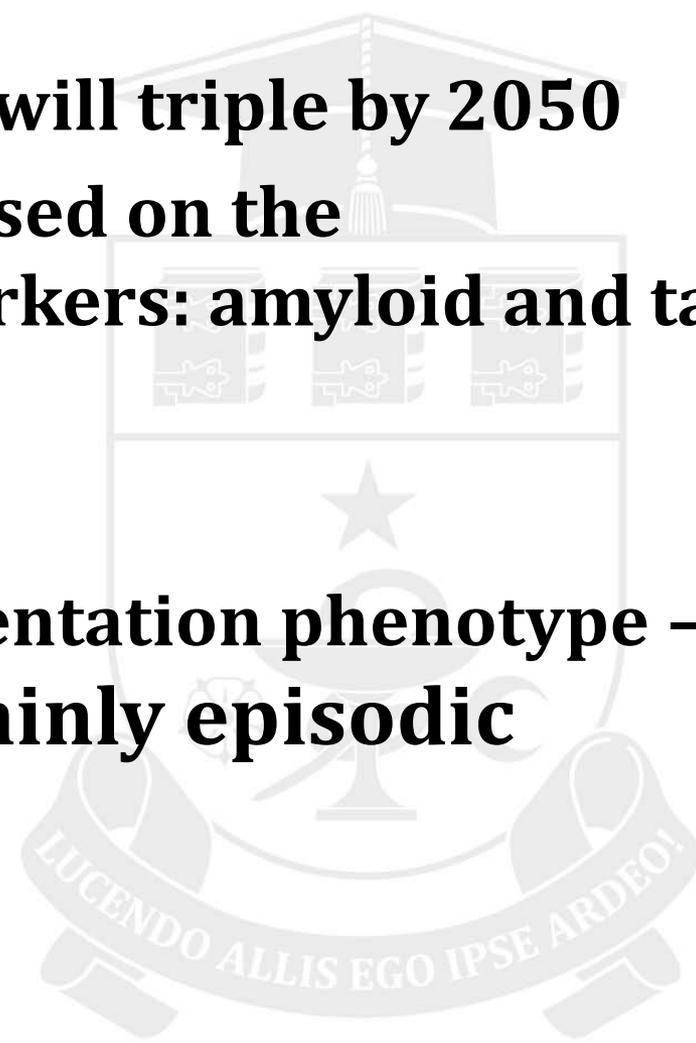
65-74	75	80	>85
~5%	~10%	~20%	~50%

Late-onset or sporadic AD – the most common form of AD, there is no clear pattern of inheritance



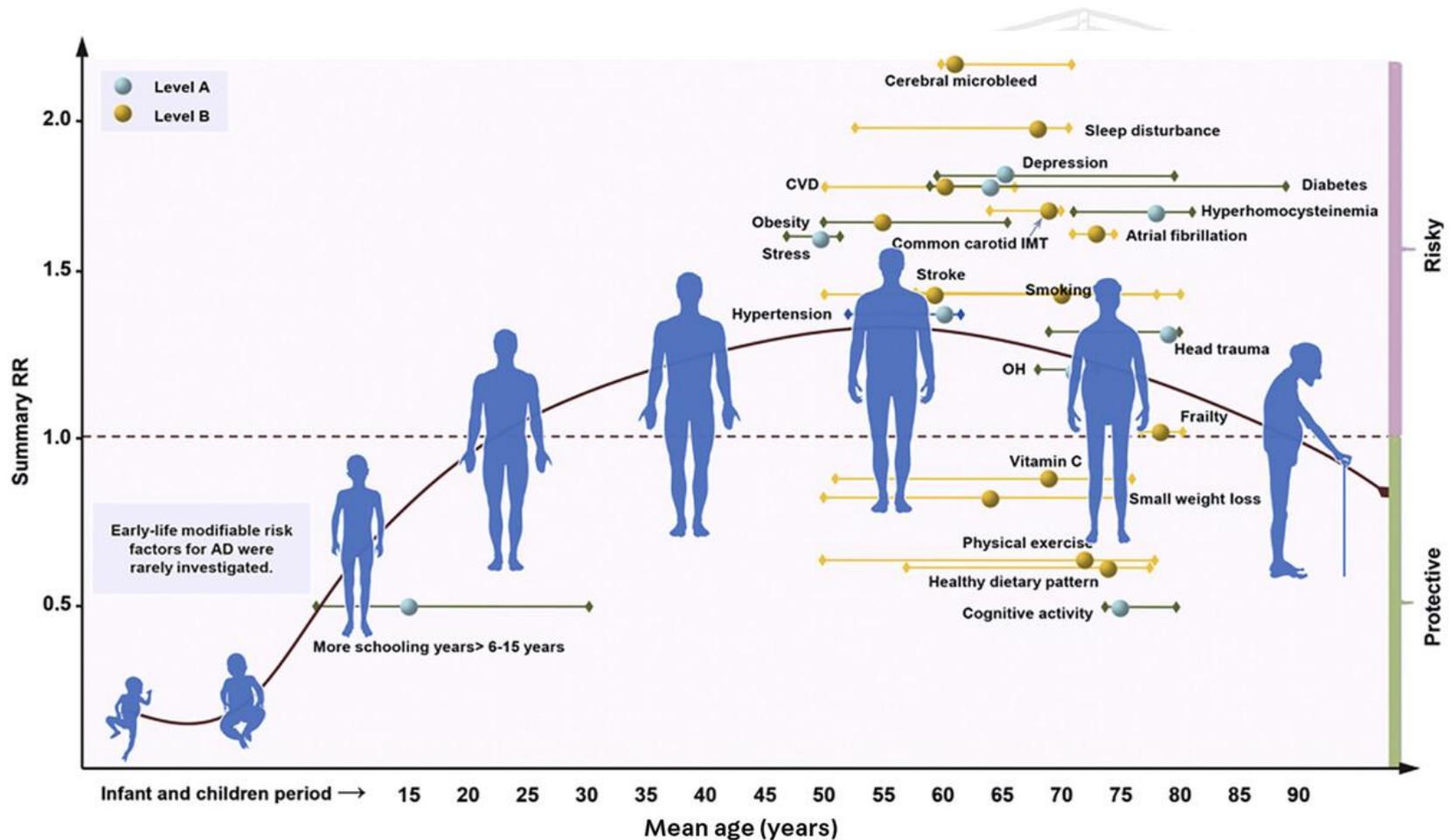
Alzheimer's disease

- **The number of patients will triple by 2050**
- **Current research is focused on the determination of biomarkers: amyloid and tau**
- **PET**
- **CSF examination**
- **The most common presentation phenotype – memory disorders, mainly episodic memory**





A life course Alzheimer disease (AD) risk estimate (relative risk [RR]) of potential modifiable risk factors based on evidence (Level A or Level B) from publications.



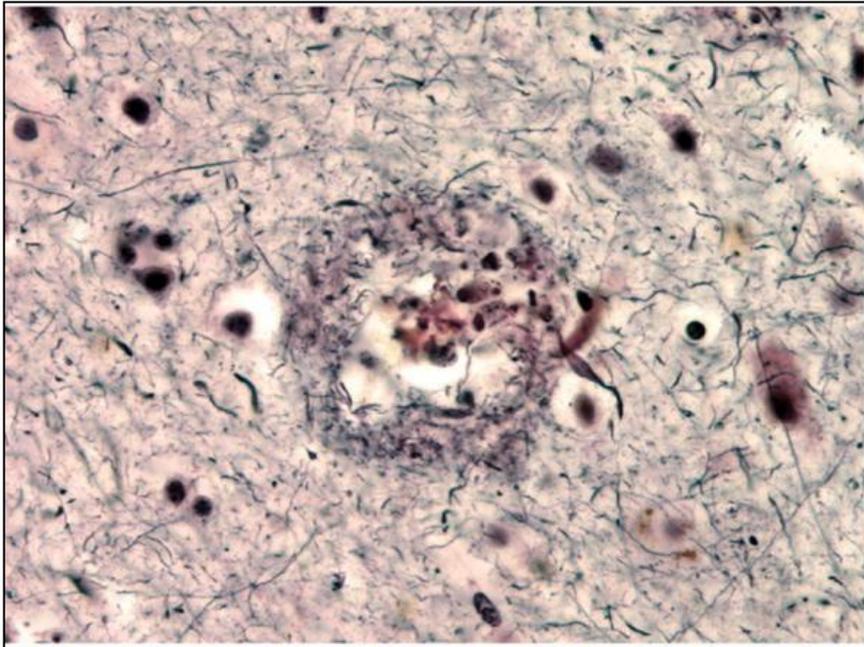
The length of the horizontal lines indicates the age at which each risk factor may have the greatest impact and therefore the point of intervention.



The typical anatomical changes of Alzheimer's disease: amyloid plaques, neurofibrillary tangles

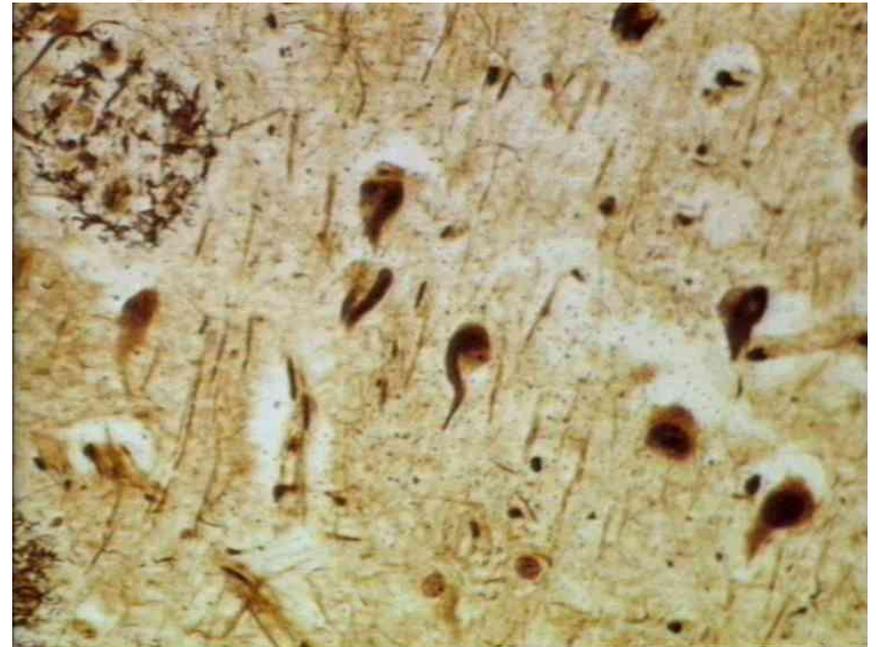
Amyloid plaques

contain large amounts of the peptide "**b-amyloid**" or Ab42



Neurofibrillary tangles

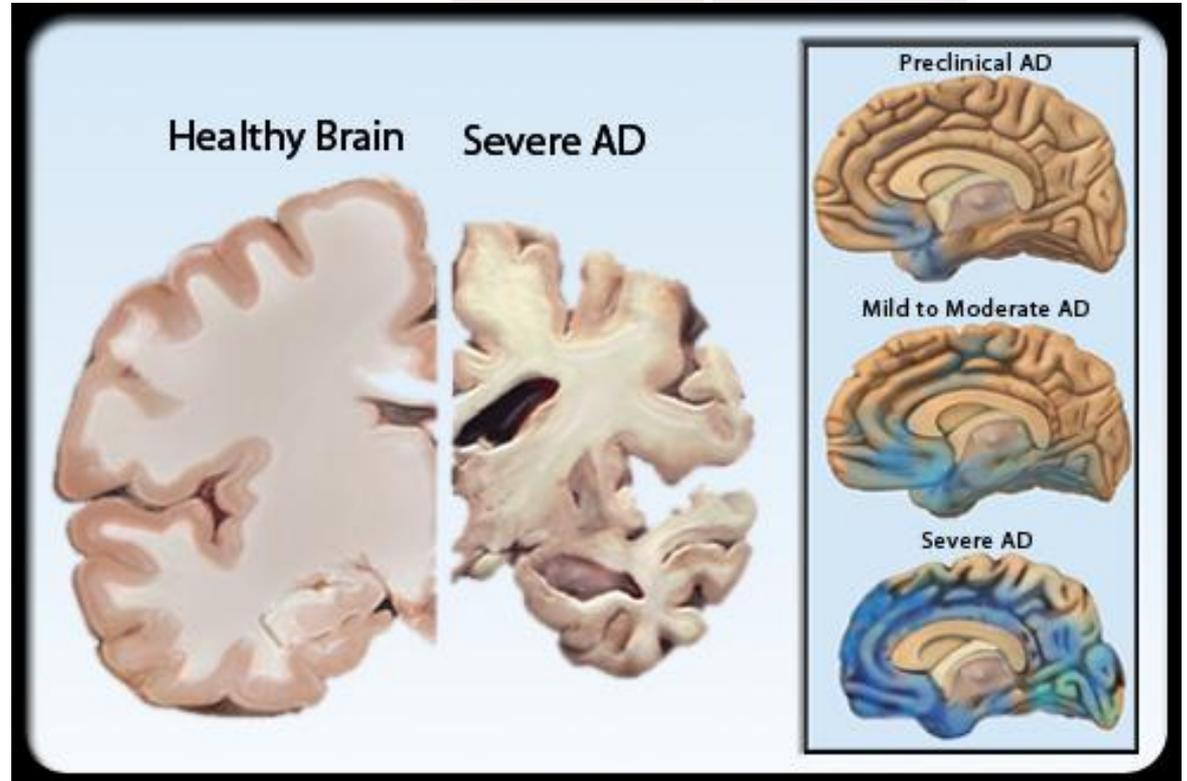
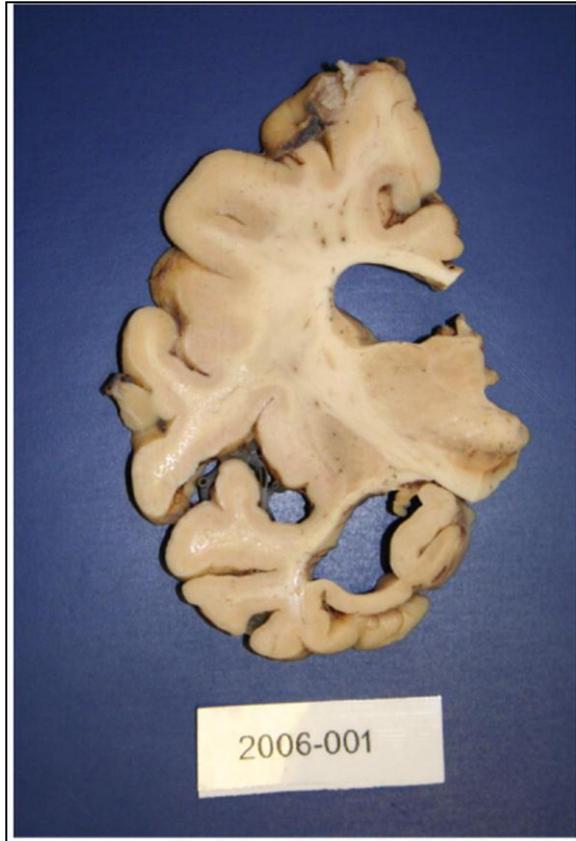
they are contained in the "**tau**" microtubule protein.



Expressed decrease in the volume of the brain,
mainly of the hippocampus and the olfactory cortex



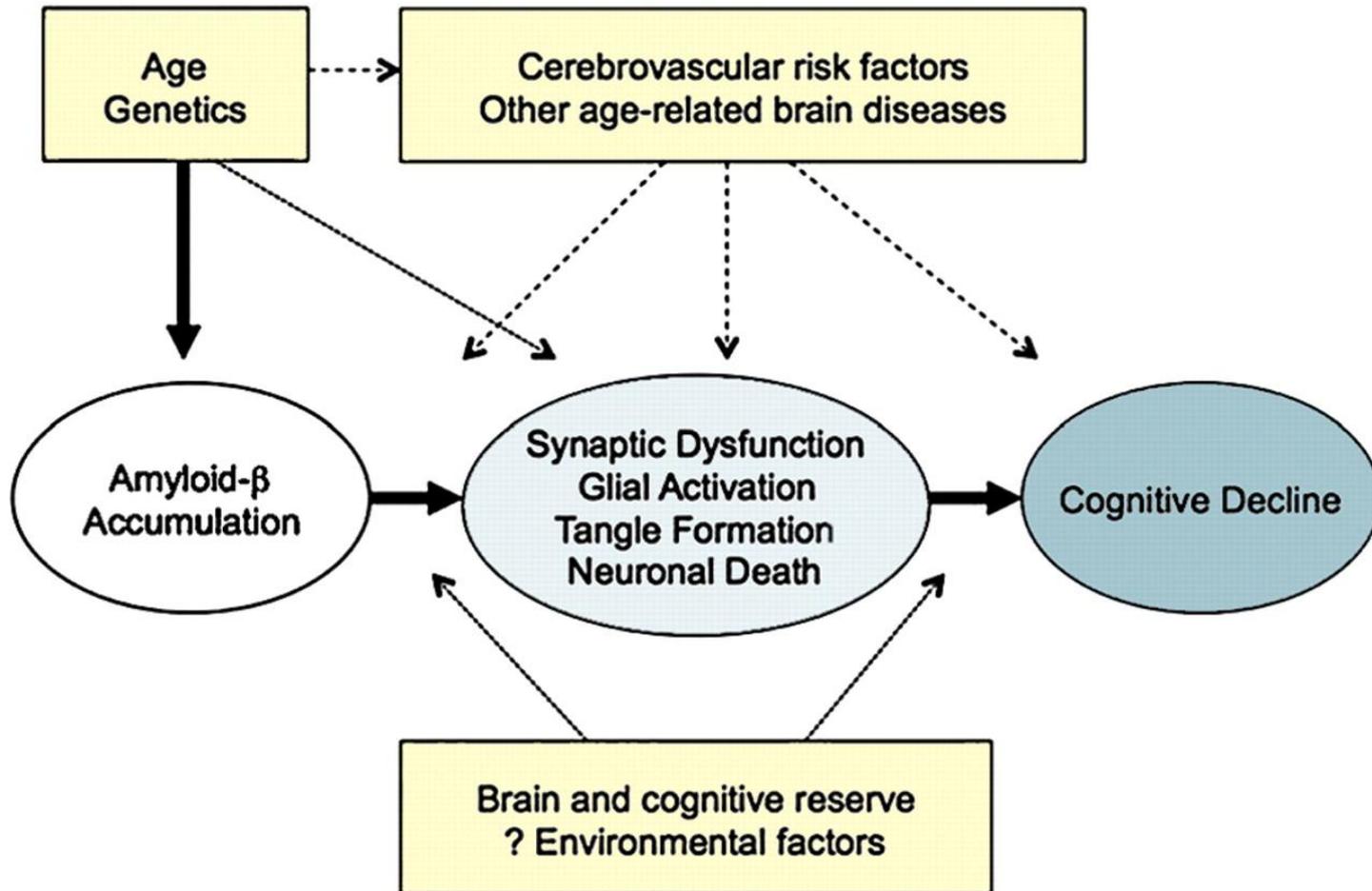
Brain atrophy in AD





Pathophysiological stages of AD evolution

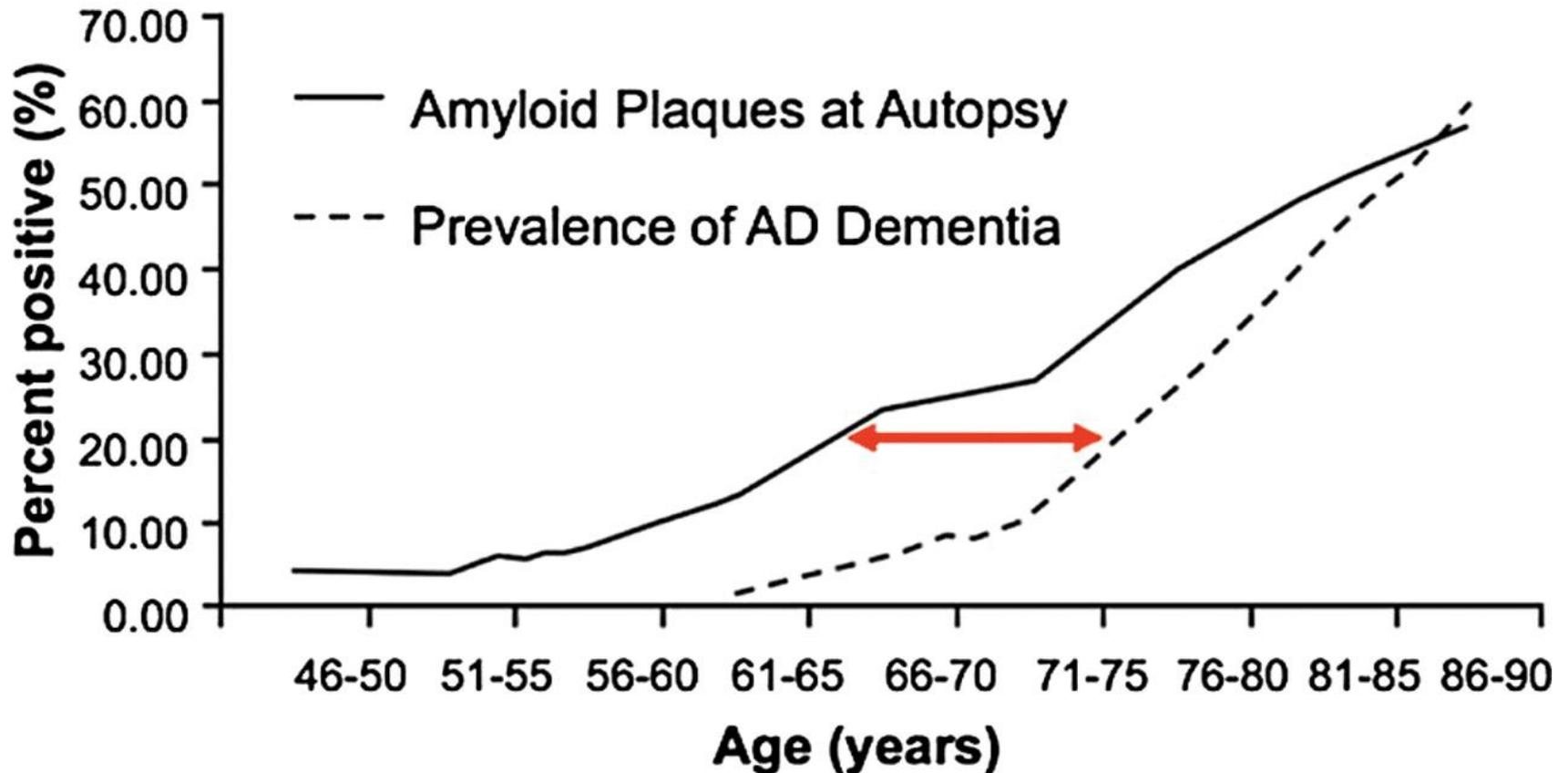
Hypothetical model of AD pathophysiological cascade





Correlation between amyloid plaques and dementia

Appearance of Plaques vs Dementia

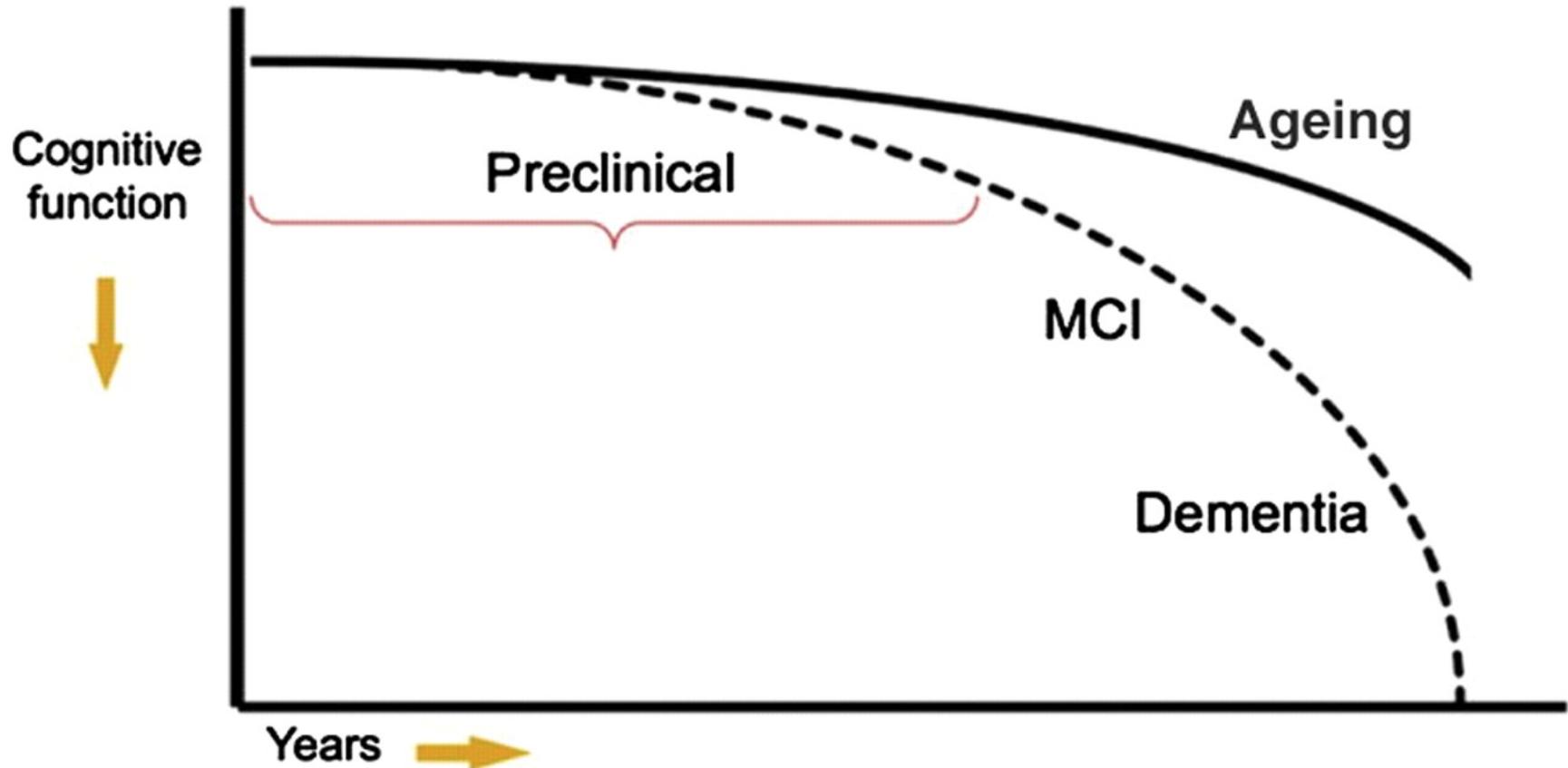


Budson A E , Solomon P R Pract Neurol 2012;12:88-96



Evolutionary model of AD and physiological aging

The continuum of Alzheimer's disease





Early onset dementia

- Onset before 65 years
- 5-6% cases of all AD cases
- The presentation differs from the amnestic form of late AD
- More often it starts with speech disorders and visuospatial disorientation
- Clearer genetic predisposition
- More aggressive clinical course
- High prevalence of Traumatic Brain Injuries
- More obvious psychosocial disorders
- More preserved are the hippocampus and posterior brain structures
- More obvious tau pathology



Genetic factors

Chromosome	Gene	% of Alzheimer Disease
21	<i>APP</i>	<1
14	<i>PS-1</i>	1–5
1	<i>PS-2</i>	<1
19	<i>APOE</i> (ϵ 4 allele)	50

APP = amyloid precursor protein; PS-1 = presenilin-1;
PS-2 = presenilin-2; APOE = apolipoprotein E.

ALZHEIMER DISEASE UPDATE

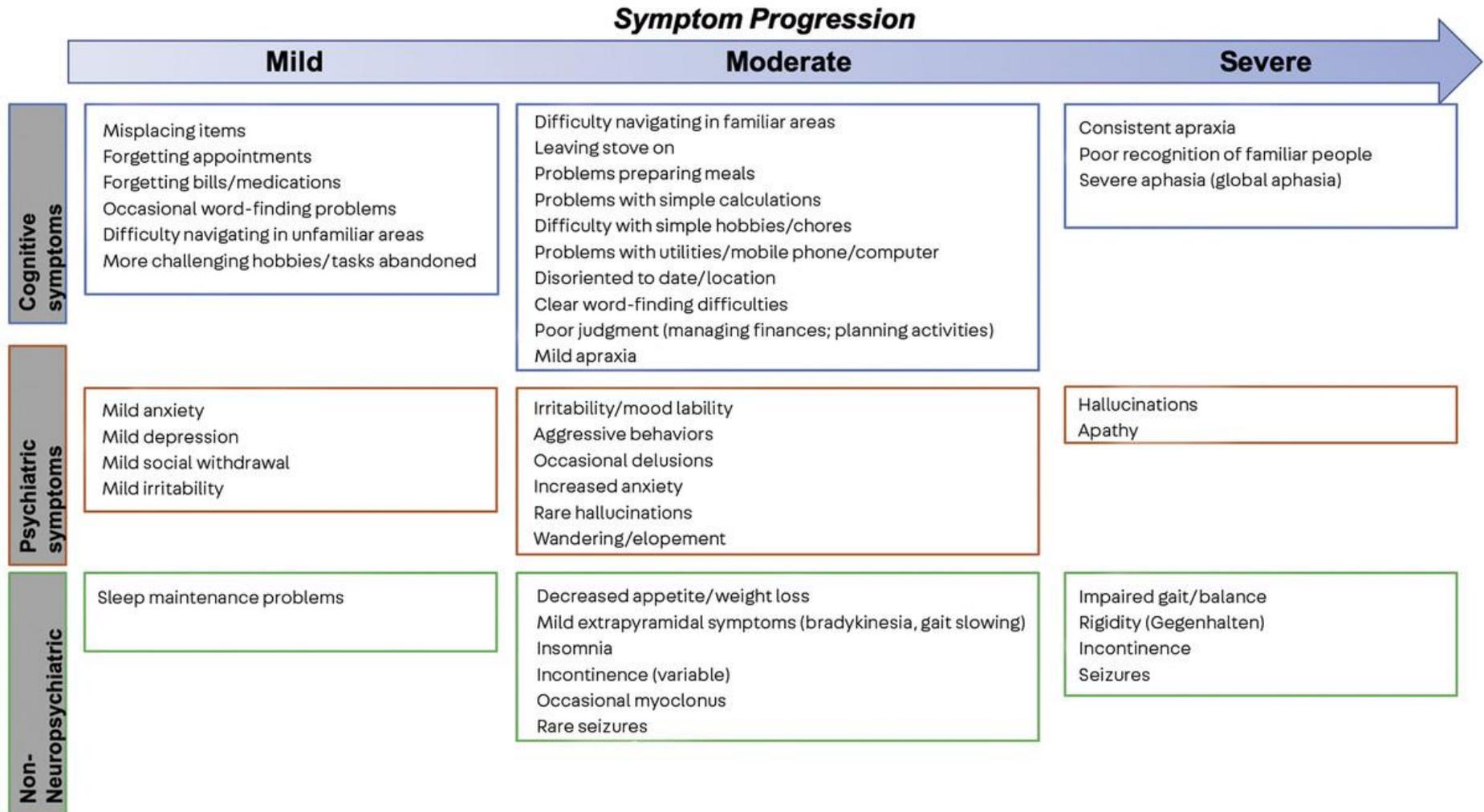
Matthews, Brandy

CONTINUUM: Lifelong Learning in Neurology. 16(2) Dementia:15-30, April 2010.





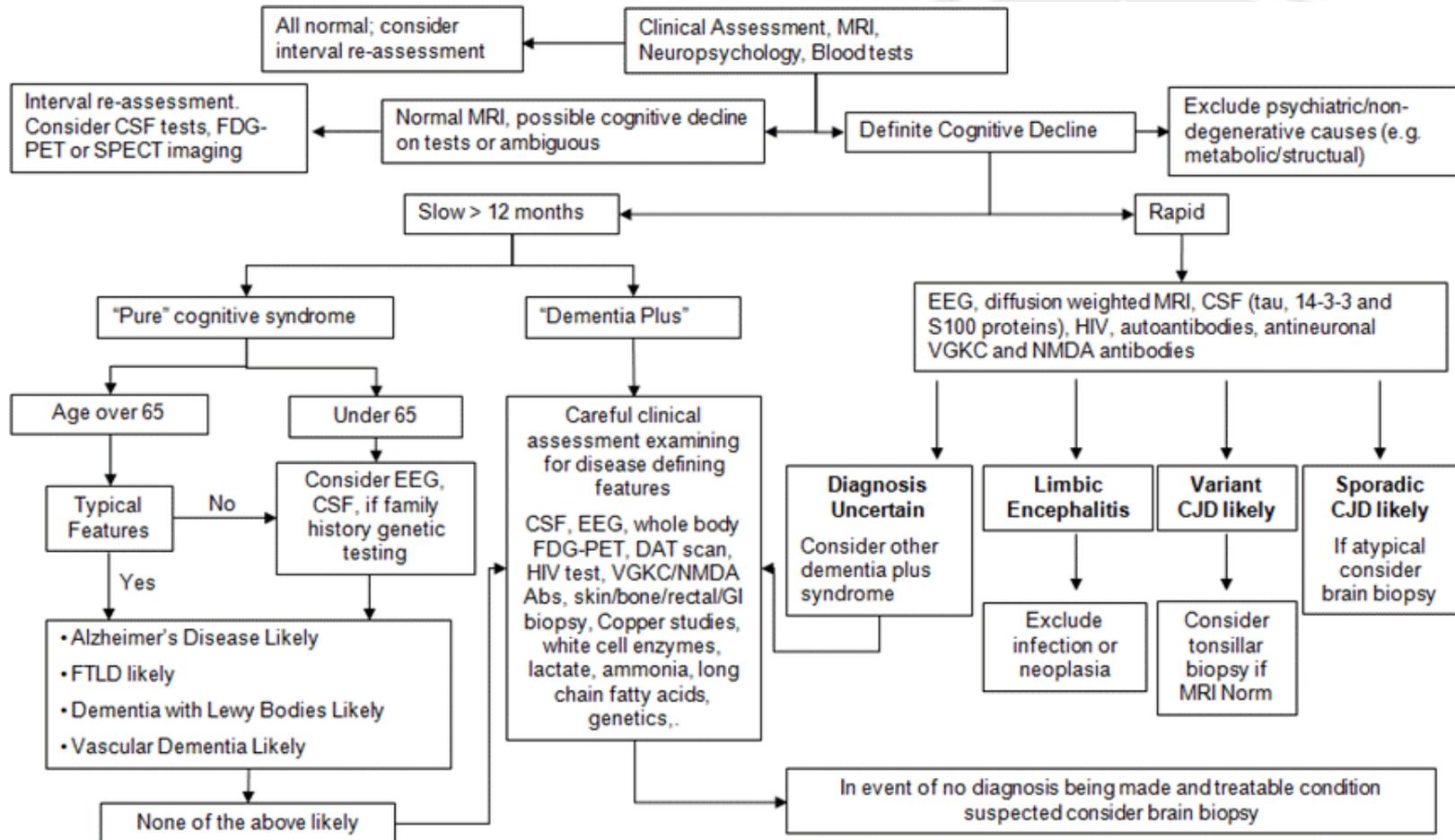
Cognitive and noncognitive symptoms associated with Alzheimer disease progression





Diagnostic algorithm

www.ebrainjnc.com



MONTREAL COGNITIVE ASSESSMENT (MOCA-B)

BASIC

Name _____
 Sex _____ Age _____
 Education _____ Date of exam _____
 Administered by _____

EXECUTIVE FUNCTION

SCORE

START TIME _____

(/1)

IMMEDIATE RECALL

	ROSE	CHAIR	HAND	BLUE	SPOON	No point
Perform 2 trials even if 1 st trial is successful	1 st trial					
	2 nd trial					

FLUENCY Name maximum numbers of **FRUITS** in 1 minute

1.....	2.....	3.....	4.....	5.....	6.....	N items
7.....	8.....	9.....	10.....	11.....	12.....	2 points if N=13 or more
13.....	14.....	15.....	16.....	17.....	18.....	1 point if N=8-12
						0 point if N= 7 or less

(/2)

ORIENTATION [] time (± 2 hr) [] day [] month [] year [] place [] city (/6)

CALCULATION Provide 3 ways to pay using 1 dollar coins, 5 dollar and 10 dollar bills for an object that costs exactly "13 Dollars" (3 points if 3 ways, 2 points if 2 ways, 1 point if 1 way, 0 point if no correct way) (/3)

[] 1..... [] 2..... [] 3.....

ABSTRACTION To what category these objects belong to? (e.g. orange - banana = fruit) (/3)

[] train - boat [] north - south [] drum - flute

DELAYED RECALL

Recall with No cue	ROSE	CHAIR	HAND	BLUE	SPOON	(/5)
Recall with category cue	[]	[]	[]	[]	[]	
Recall with multiple choice cue	[]	[]	[]	[]	[]	

Points are awarded for recall with No cue (1 point for each item)

VISUOPERCEPTION

scissors	T-shirt	banana	lamp	candle	3 points if N=9-10 2 points if N=6-8 1 point if N=4-5 0 point if N=0-3 N _
watch	cup	leaf	key	spoon	

Identify drawings. No more than 60 seconds. See complementary sheet. (/3)

NAMING Identify a animals. See complementary sheet. [] zebra [] peacock [] tiger [] butterfly (/4)

ATTENTION Name the numbers in circles. See complementary sheet. 1 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5 ERROR ___ N (/1)

No point if 2 errors or more

Name the numbers in circles & squares: 3 8 5 1 3 0 2 9 2 0 4 9 7 8 6 1 5 7 6 4 ERROR ___ N (/2)

See complementary sheet. 1 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5

2 points if 2 errors or less
1 point if 3 errors
0 point if 4 errors or more

END TIME _____

Adapted by : Parunyou Julayanont MD
 Copyright : Z. Nasreddine MD
 Final Version June 04, 2014

TOTAL SCORE (/30)
 Add 1 point if education < 4 year AND add 1 point if illiterate
 TOTAL TIME min sec

MONTREAL COGNITIVE ASSESSMENT (MOCA-B)

BASIC

COMPLEMENTARY WORKSHEET

VISUOPERCEPTION

NAMING

ATTENTION

① 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5

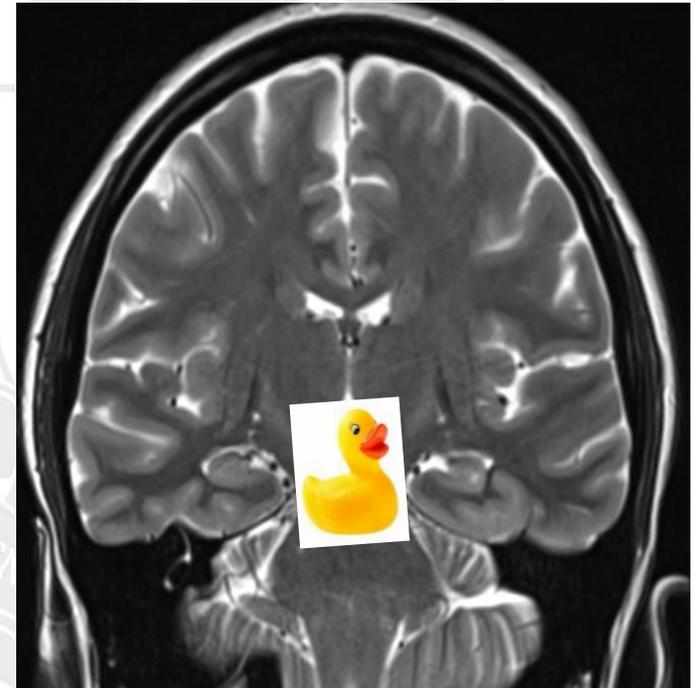
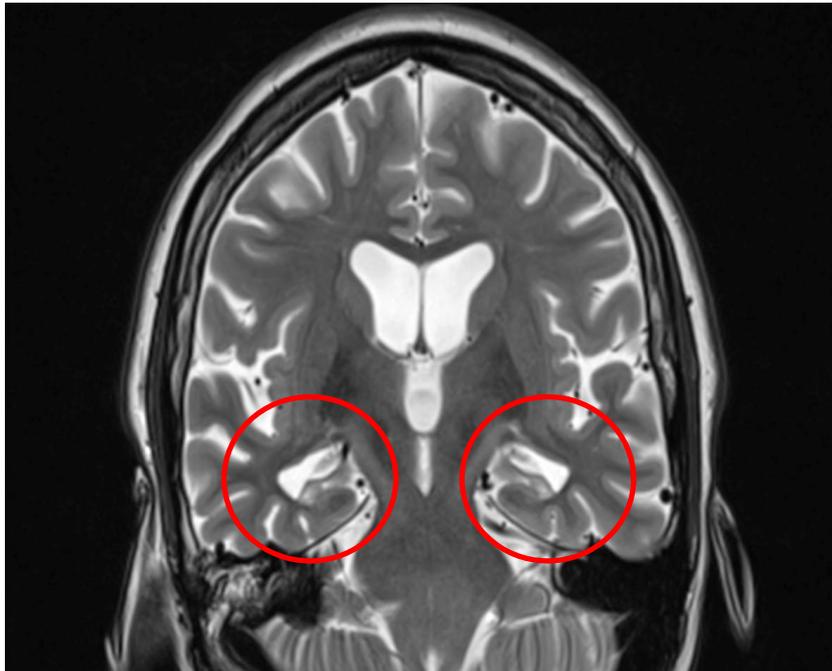
3 8 5 1 3 0 2 9 2 0 4 9 7 8 6 1 5 7 6 4

1 5 8 3 9 2 0 3 9 4 0 2 1 6 8 7 4 6 7 5



MRI in AD

1. Mesial temporal atrophy (hippocampal area) – which is presented by the volumetric decrease of the hippocampus with the deletion of corticomedullary differentiation, evaluated especially in the coronary plane. **Duck sign** used to describe the normal hippocampus

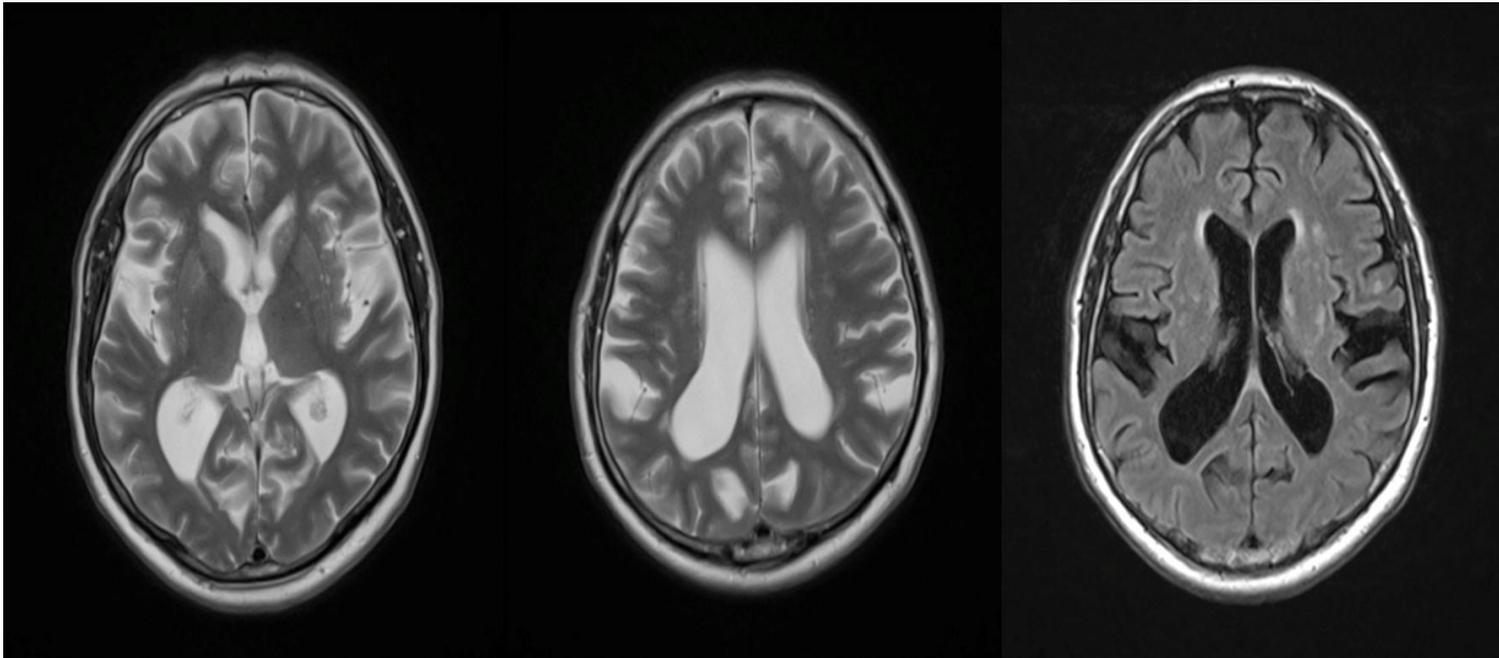


Courtesy Dr. Maria Moldovanu, Centrul Diagnostic German



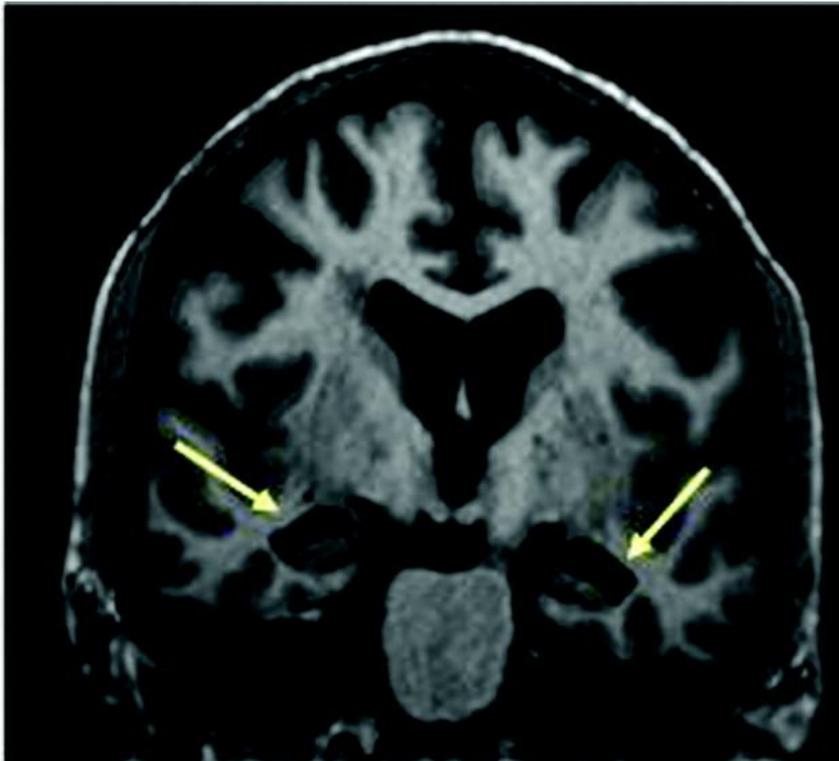
MRI in AD

2. Temporo-parietal cortical atrophy - presented by cortical atrophy of the parietal and temporal lobes, usually bilateral, relatively symmetrical with the obvious reduction of the cortical layer

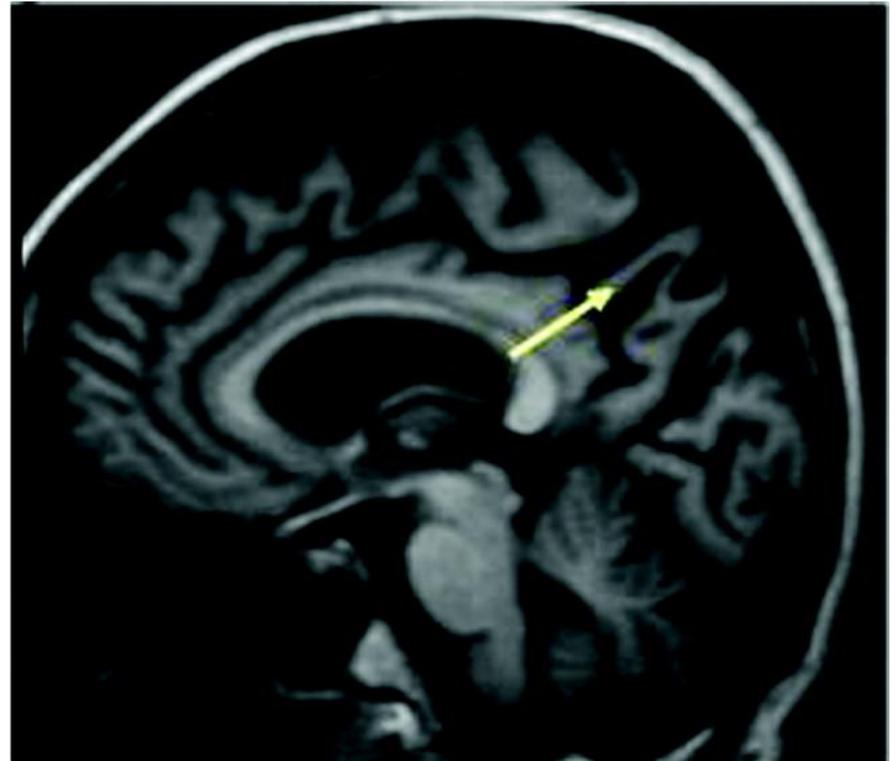




IRM în cadrul MA



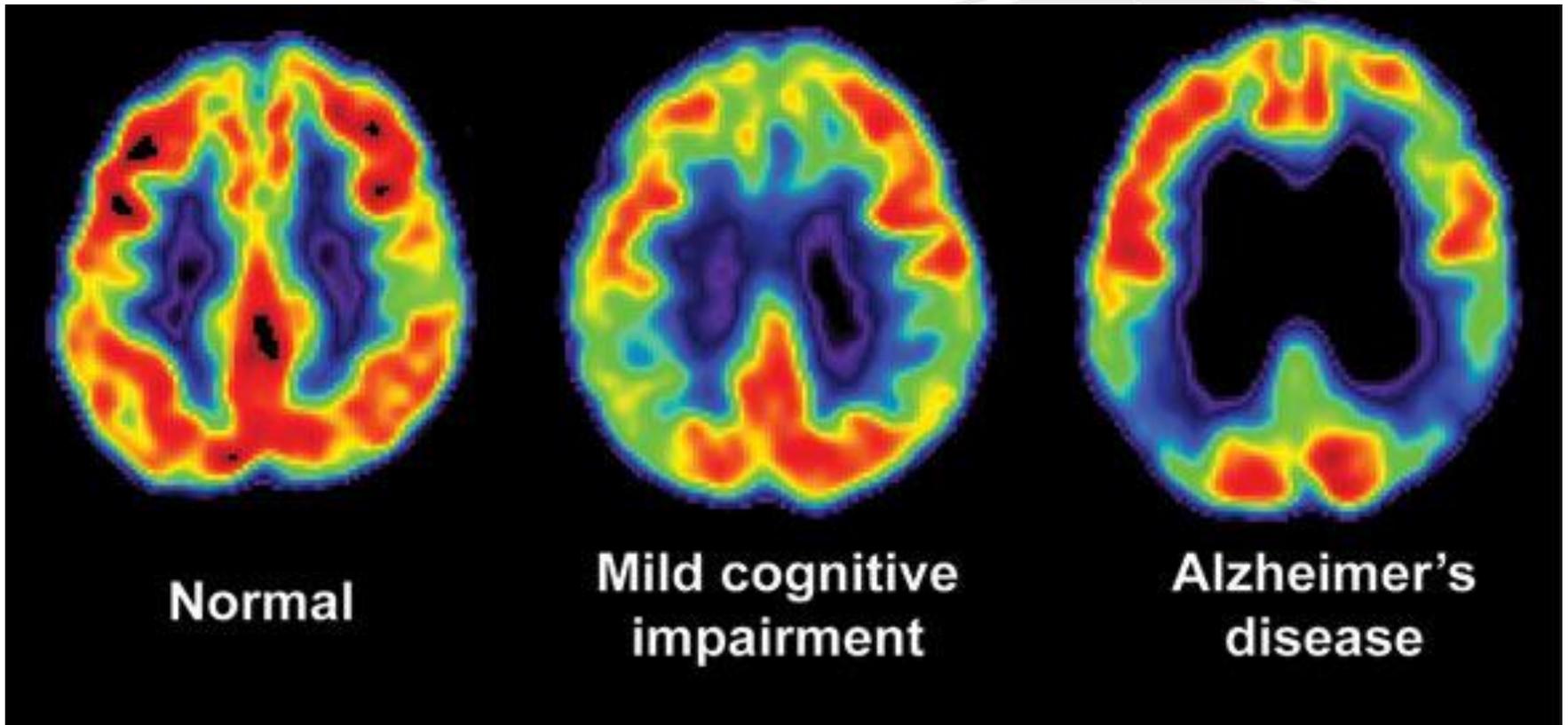
atrofia hipocampului



atrofia părților posterioare ale creierului

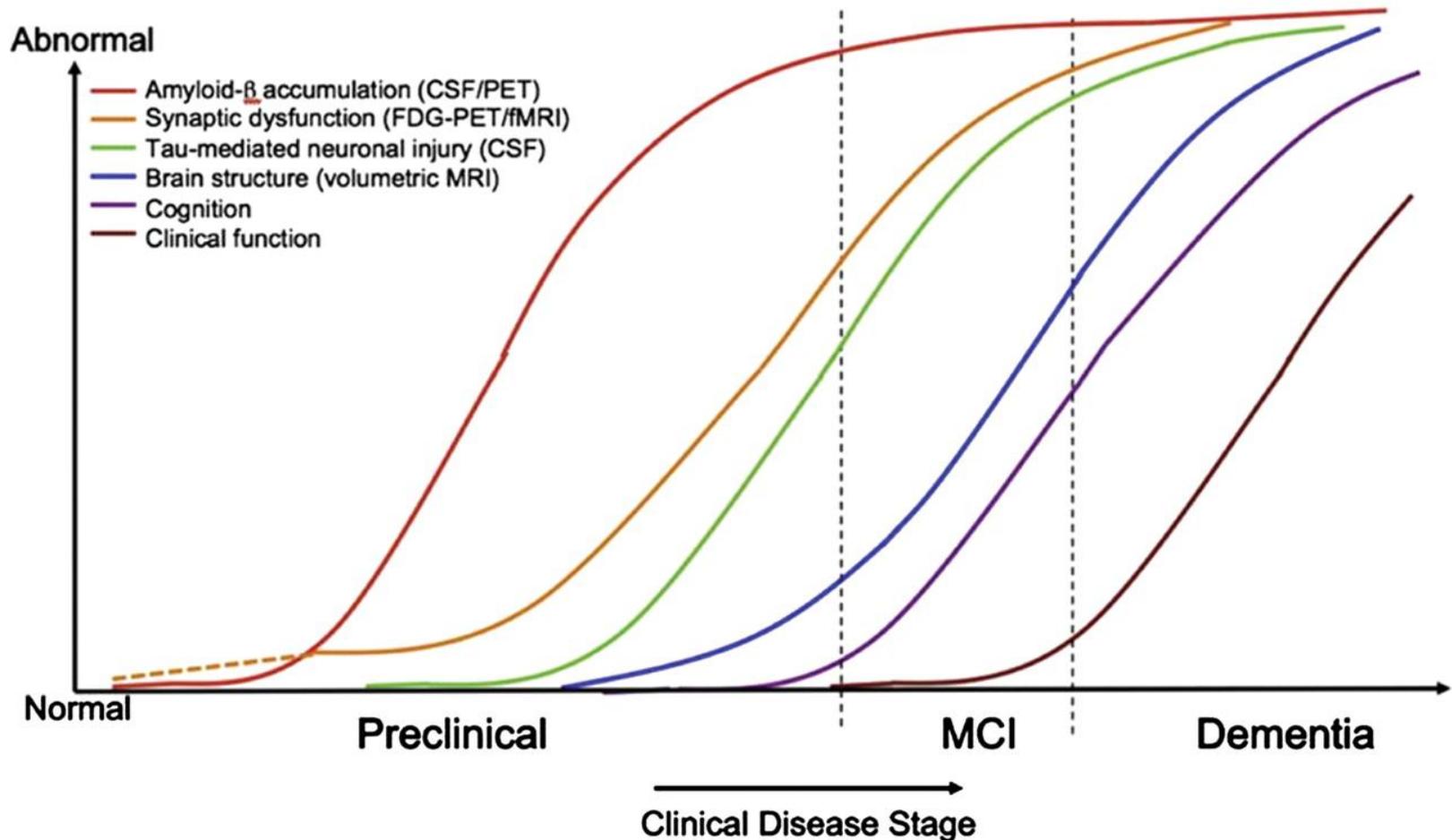


PET in AD





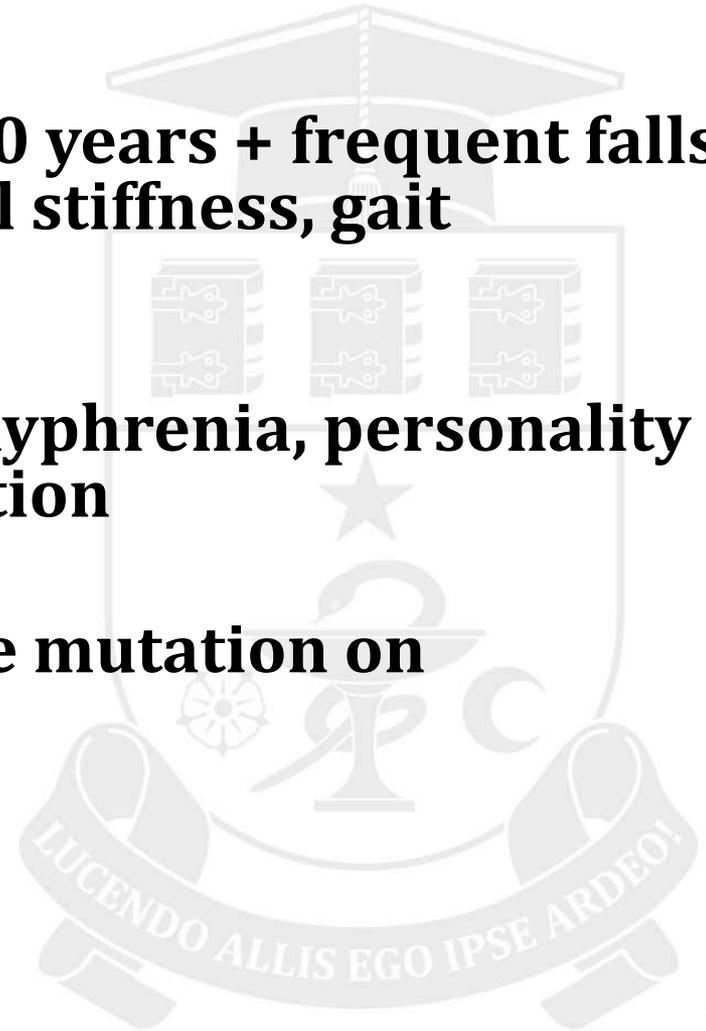
Diagnosis of AD by means of biological markers





Progressive supranuclear palsy

- **Cognitive problems at 50-70 years + frequent falls, vertical vision paresis, axial stiffness, gait disturbances, retropulses**
- **Cognitive dysfunction: bradyphrenia, personality changes, executive dysfunction**
- **Familial forms - MAPT gene mutation on chromosome 1q31**





The face of the PSP patient



Asymmetric blepharospasm, asymmetric extended dystonic expression

Morris H R et al. Postgrad Med J 1999;75:579-584



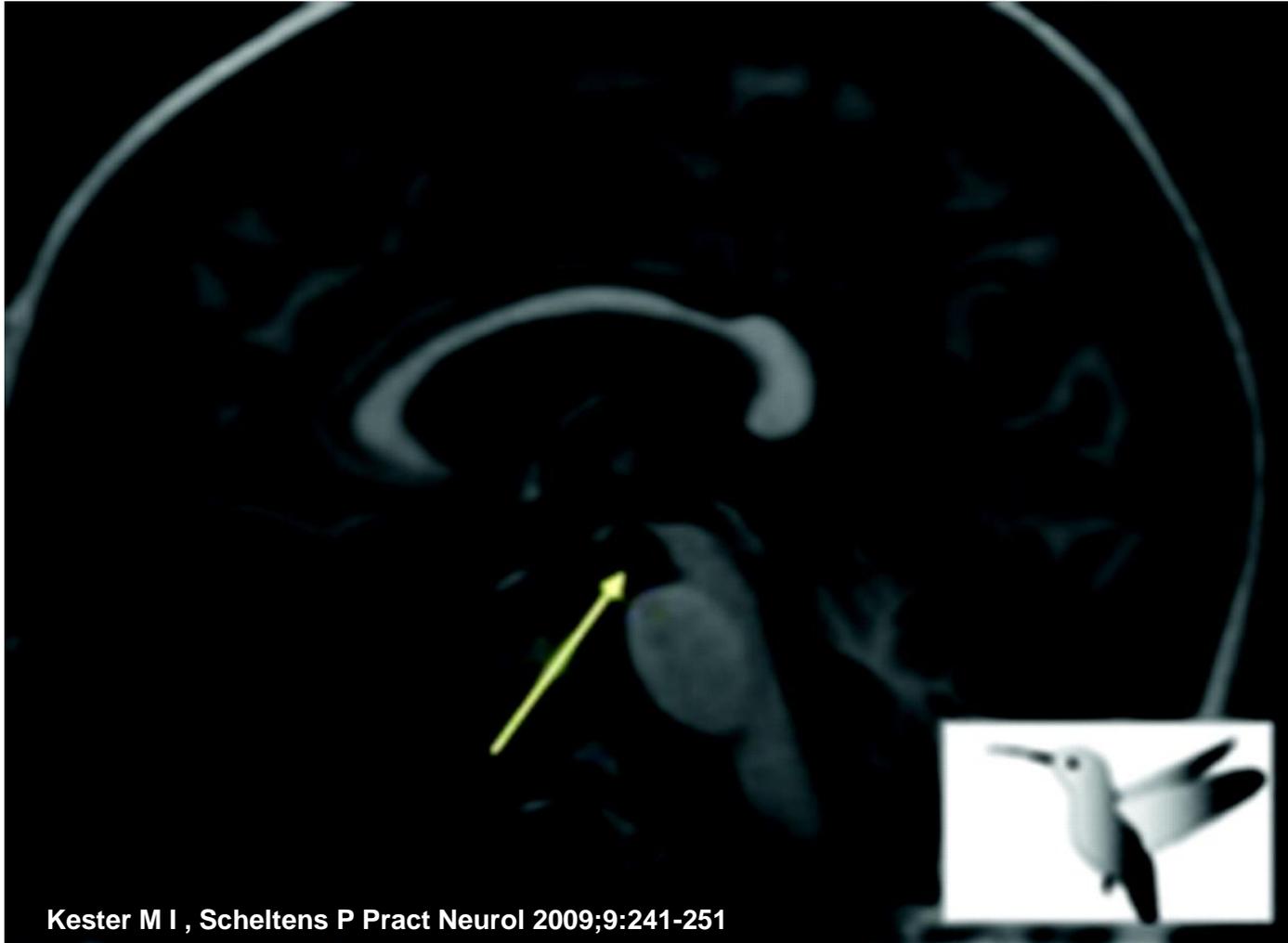
PSP: atrophy of the midbrain, dilatation of the cerebral aqueduct, gliosis of the substantia nigra and the peri-aqueductal region



Morris H R et al. Postgrad Med J 1999;75:579-584



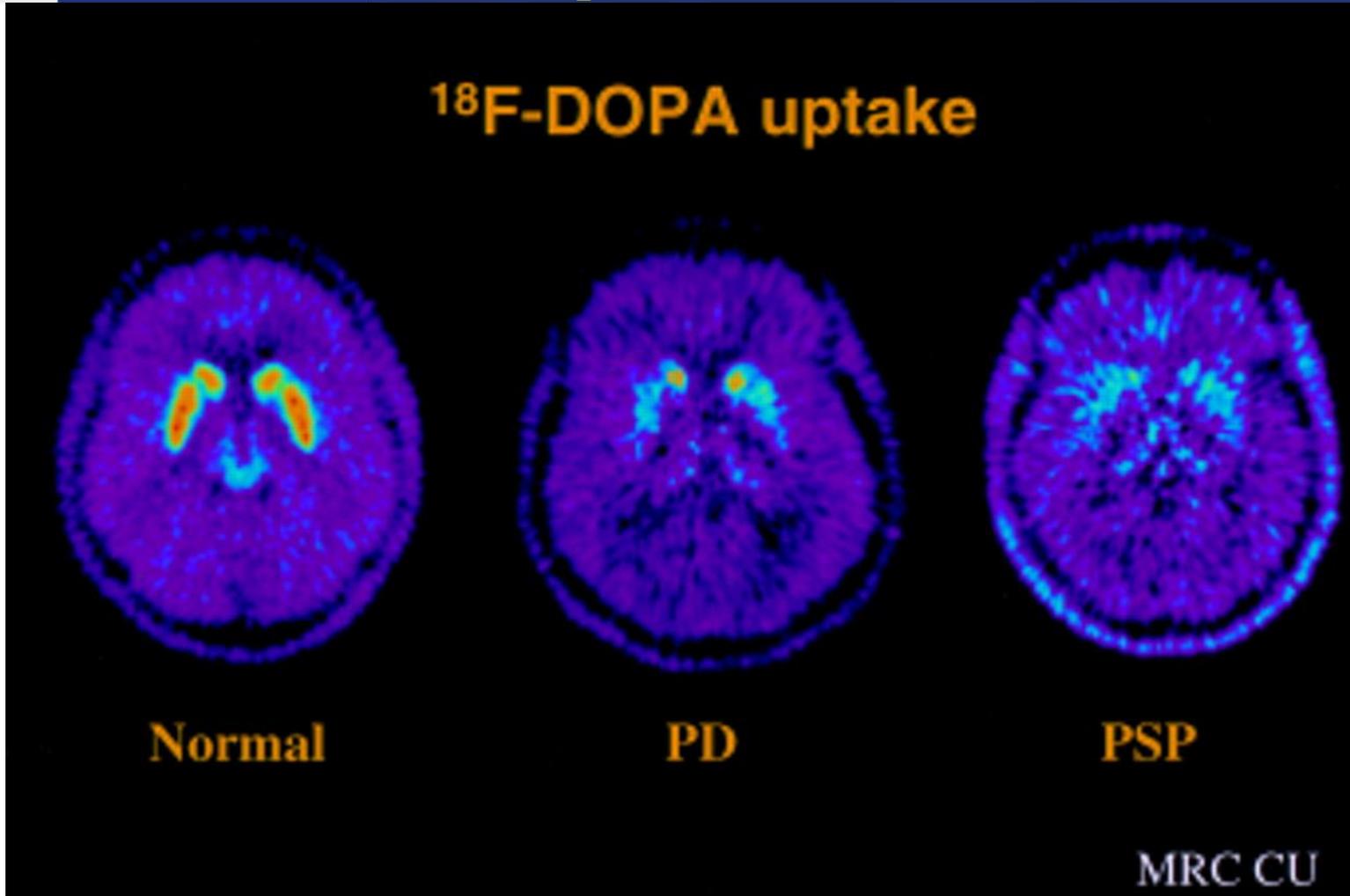
Progressive supranuclear palsy with the “hummingbird sign” (arrow) on a mid sagittal T1 weighted MR image.



Kester M I , Scheltens P Pract Neurol 2009;9:241-251



18-FDOPA uptake scan showing loss of uptake in the putamen in PD and both caudate and putamen in PSP.





- Cognitive deficit related to vascular brain damage
- Clinical manifestations in relation to the volume and location of the vascular focus
- Acute impairment of intellectual abilities after stroke, worsening in stages
- Walking disorders, frequent falls
- Urinary incontinence
- The neurological examination reveals focal deficits such as hemiparesis, sensitivity disorders, pseudobulbar syndrome, extrapyramidal syndrome

VASCULAR DEMENTIA



INTRODUCTION

- **VASCULAR DEMENTIA** is a cognitive decline involving one or more domains (memory, thinking, behavior) caused by reduced **CEREBRAL BLOOD FLOW** or **VASCULAR BRAIN DAMAGE**.



Vikaas Shandily

RISK FACTORS

- Increasing age
- **HYPERTENSION**, diabetes, **DYSLIPIDEMIA**
- Smoking, obesity, sedentary lifestyle
- **ATRIAL FIBRILLATION**, **ISCHEMIC HEART DISEASE**
- Prior **STROKE** or **TIA**
- Peripheral or **CEREBROVASCULAR ATHEROSCLEROSIS**

MAIN CAUSE / PATHOPHYSIOLOGY

- **CEREBRAL VESSEL DAMAGE** → reduced blood flow → **ISCHEMIA/INFARCTS** → neuronal loss and white-matter injury.
- Commonly follows **STROKE(S)**, **TIAs**, small-vessel disease, or long-standing uncontrolled hypertension, diabetes, and atherosclerosis.



TYPES

- **POST-STROKE DEMENTIA** (single strategic infarct)
- **MULTI-INFARCT DEMENTIA**
- **SUBCORTICAL SMALL-VESSEL DISEASE** (white-matter lesions, **LACUNES**)
- **MIXED DEMENTIA** (vascular + Alzheimer pathology)

CLINICAL FEATURES

- Stepwise cognitive decline after strokes, or gradual decline in small-vessel disease.
- Early impairment of **ATTENTION**, processing speed, and **EXECUTIVE FUNCTION** > memory.
- **GAIT DISTURBANCE**, falls, urinary urgency or incontinence common.
- Mood and behavioral changes: **DEPRESSION**, **APATHY**, irritability, emotional lability.

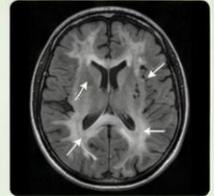


DIAGNOSIS

- History of stepwise decline with vascular risk factors
- Cognitive testing (MMSE, MoCA) showing **EXECUTIVE DYSFUNCTION**
- Neuroimaging (CT/MRI): **INFARCTS**, **LACUNES**, **WHITE-MATTER CHANGES**

Vikaas Shandily

- Assessment of vascular risks (BP, glucose, lipids, ECG for AF)



MANAGEMENT

- No curative treatment; focus on prevention of further **VASCULAR INJURY**
- Aggressive control of **VASCULAR RISK FACTORS**
- **ANTIPLATELET** or **ANTICOAGULATION** when indicated
- Cognitive, functional, and behavioral support
- Management of mood, sleep, and sensory deficits

PROGNOSIS

- Chronic and progressive, often **STEPWISE**
- Course depends on **STROKE RECURRENCE** and **RISK-FACTOR CONTROL**

PREVENTION

- Strict control of **BLOOD PRESSURE**, **DIABETES**, and **LIPIDS**
- Smoking cessation, regular exercise, healthy diet
- Early treatment of **TIA**, **STROKE**, and **ATRIAL FIBRILLATION**
- Long-term adherence to **VASCULAR-PROTECTIVE THERAPY**



C Miller Fisher

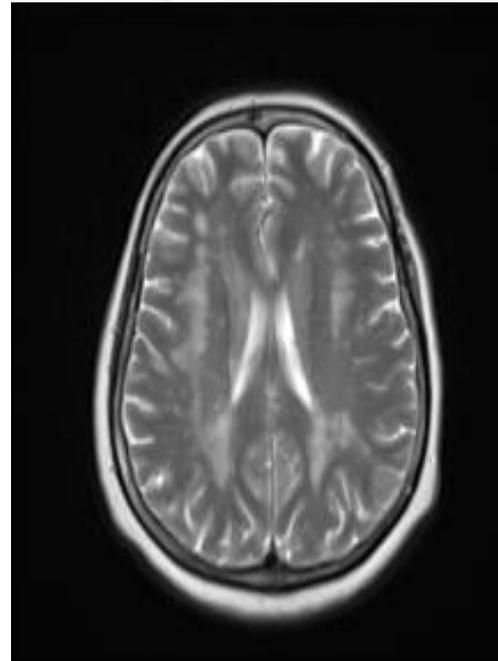
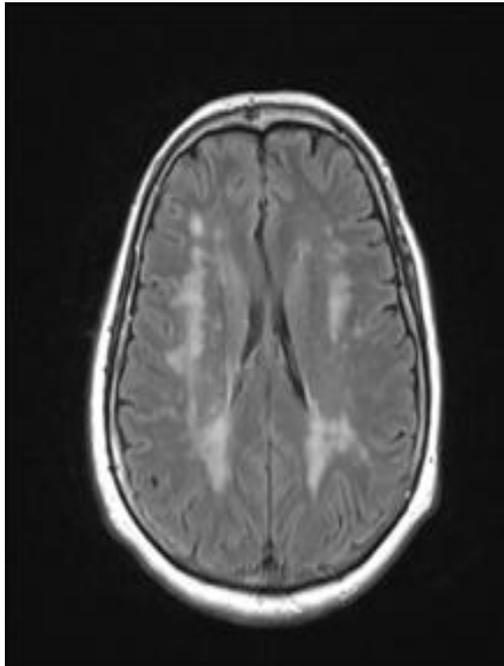


- lacunar infarcts rediscovered in the modern era
- described several new syndromes in neurology
- proposed the term TIA
- <https://wfneurology.org/education/e-learning-hub/wfn-webinar-series/inspiring-people-in-neurosciences>



Vascular dementia (multiinfarct)

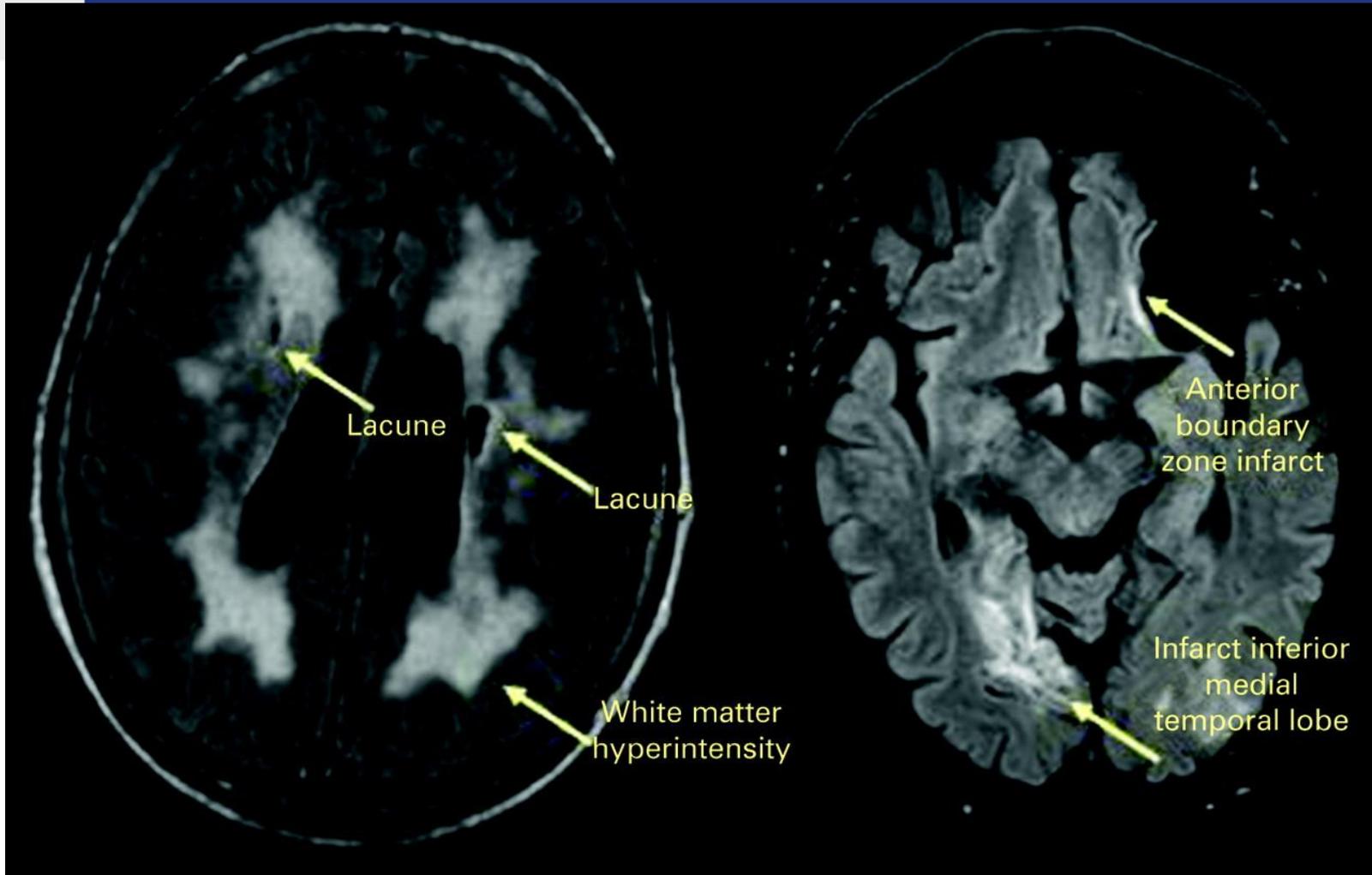
Imaging shows multiple ischemic lesions. Affecting the cerebral hemispheres and basal ganglia is bilateral, rarely unilateral.



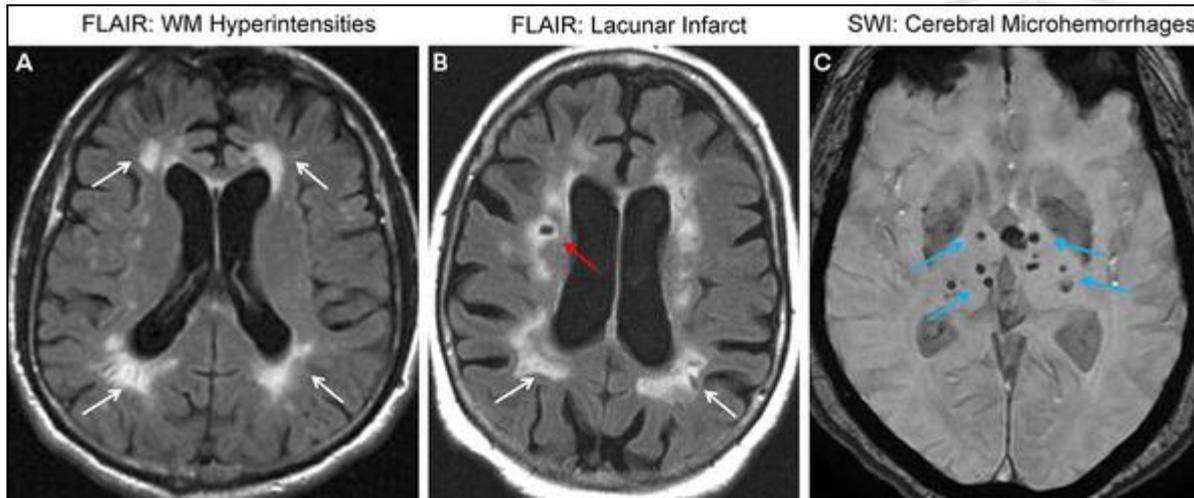
Courtesy Dr. Maria Moldovanu, Centrul Diagnostic German



Vascular Dementia



DX - extensive periventricular white matter hyperintensities and two small lacunes
SIN - an infarct of the inferior medial temporal lobe (arrow) and an anterior boundary zone infarct. Axial FLAIR MR image.



Neuroimaging in Dementia.

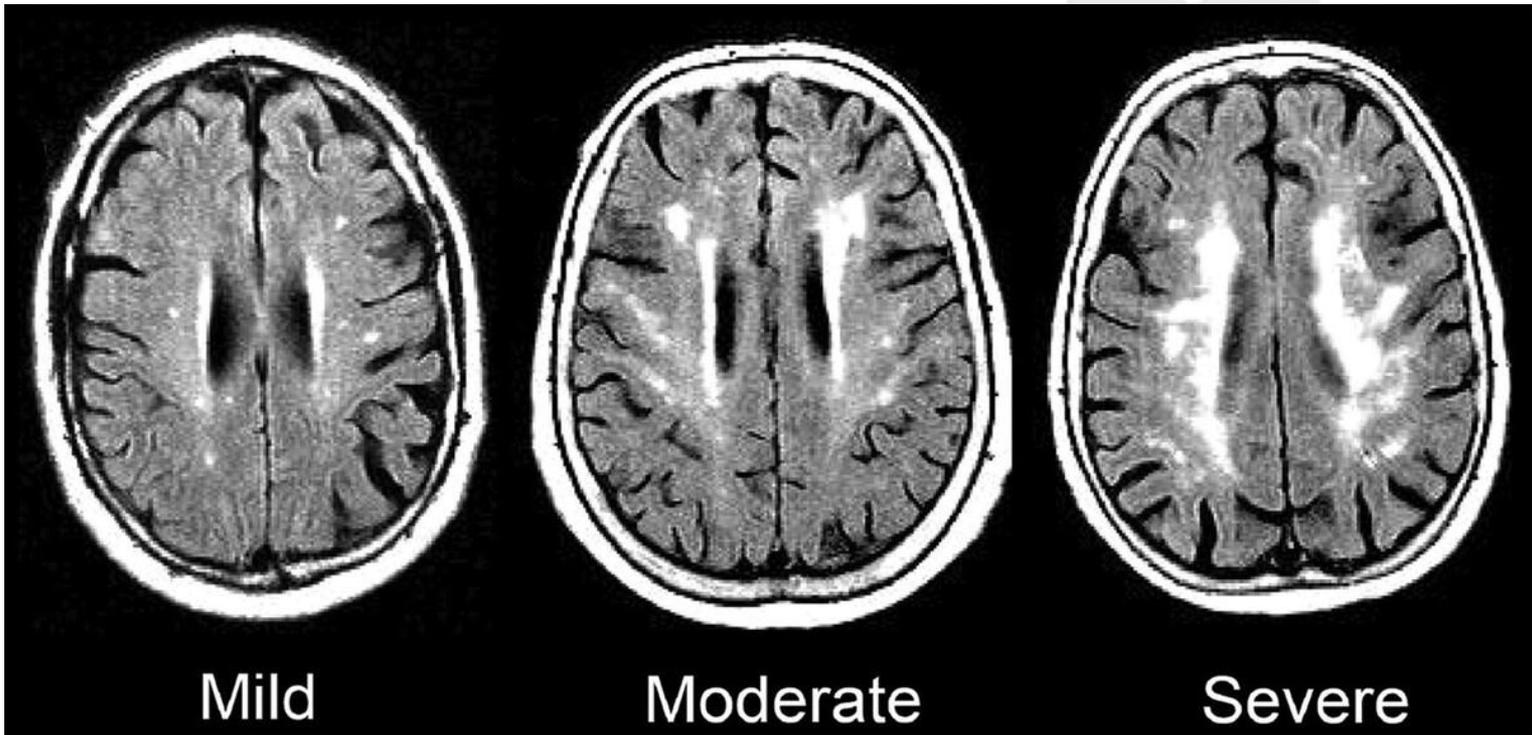
Risacher, Shannon; Apostolova, Liana; MD, MS

CONTINUUM: Lifelong Learning in Neurology. 29(1):219-254, February 2023.

DOI: 10.1212/CON.0000000000001248



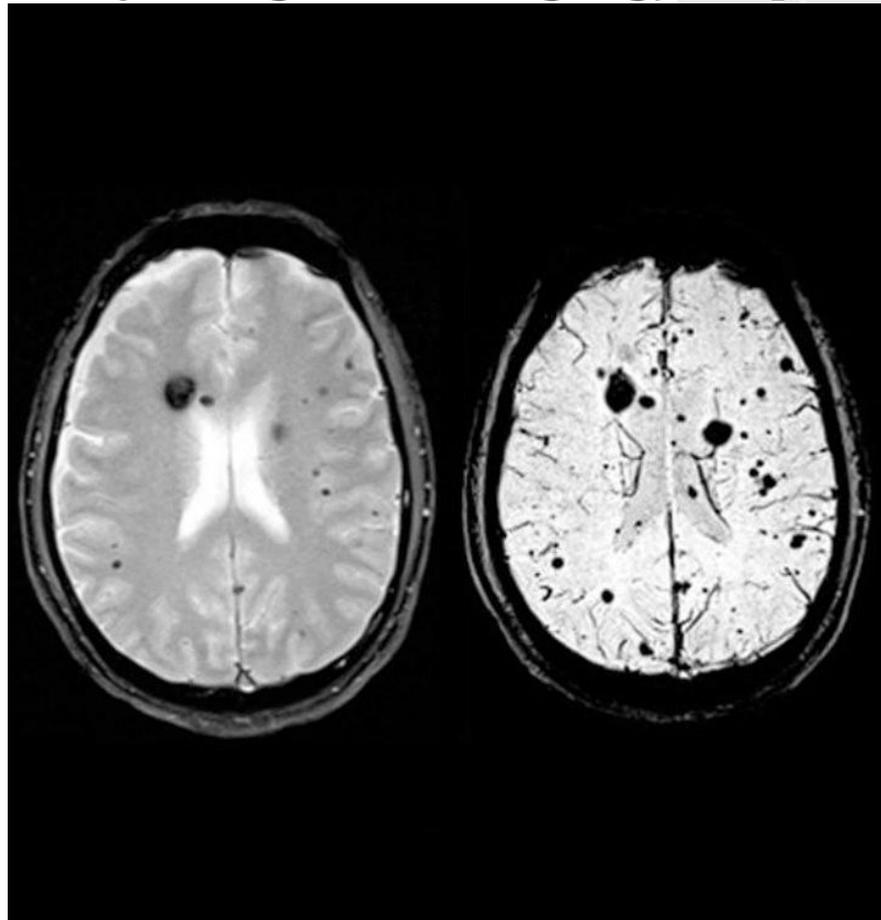
Visual reference for the Fazekas scale





Vascular dementia (multiinfarct)

Multiple punctate microhemorrhages can be observed in SWI (Susceptibility weighted imaging) sequences.

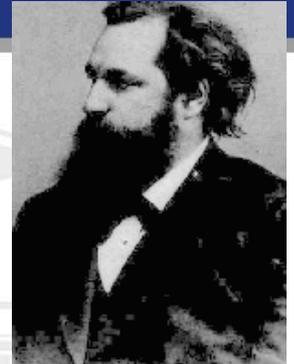


Courtesy Dr. Maria Moldovanu, Centrul Diagnostic German

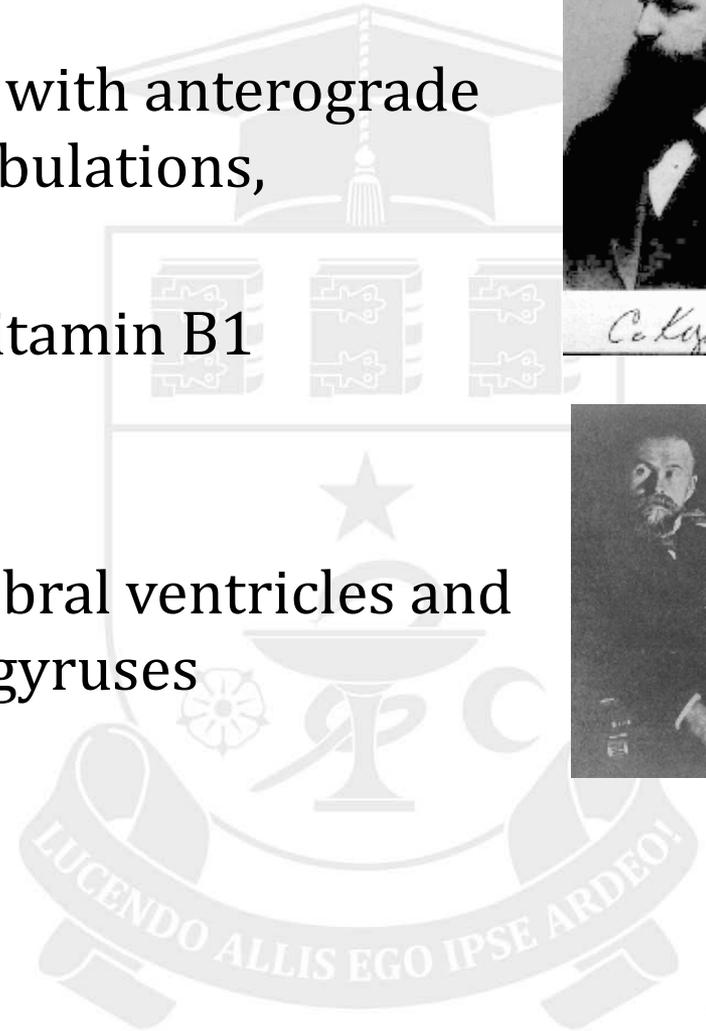


Alcohol related dementia

- Amnestic Korsakoff syndrome with anterograde and retrograde amnesia, confabulations, perseverations
- Wernicke's encephalopathy (vitamin B1 deficiency)
- Cognitive deficit
- CT/MRI – widening of the cerebral ventricles and fissures between the cerebral gyri



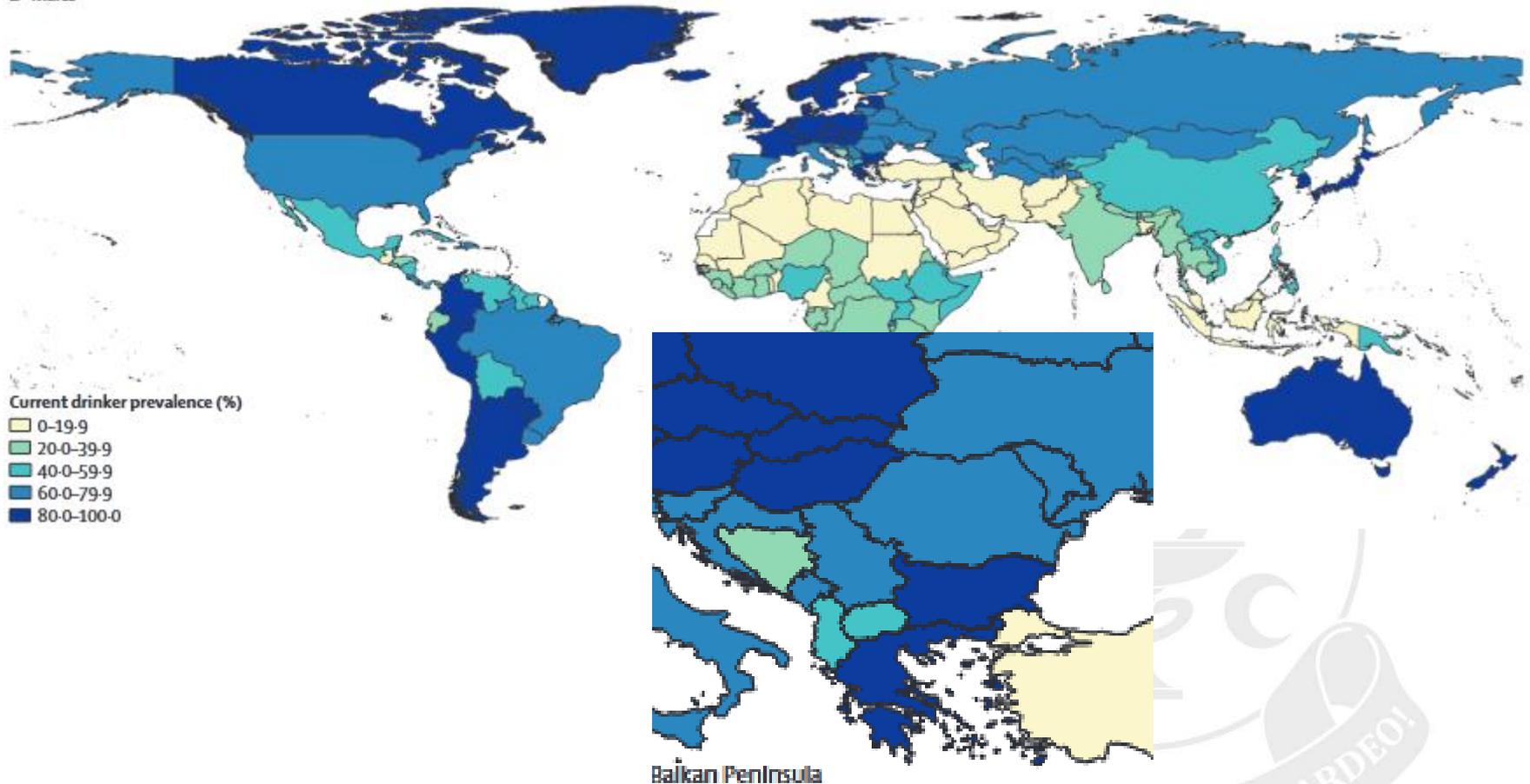
С. К. Купцов





Alcohol use and burden for 195 countries, 1990–2016 (Males)

B Males

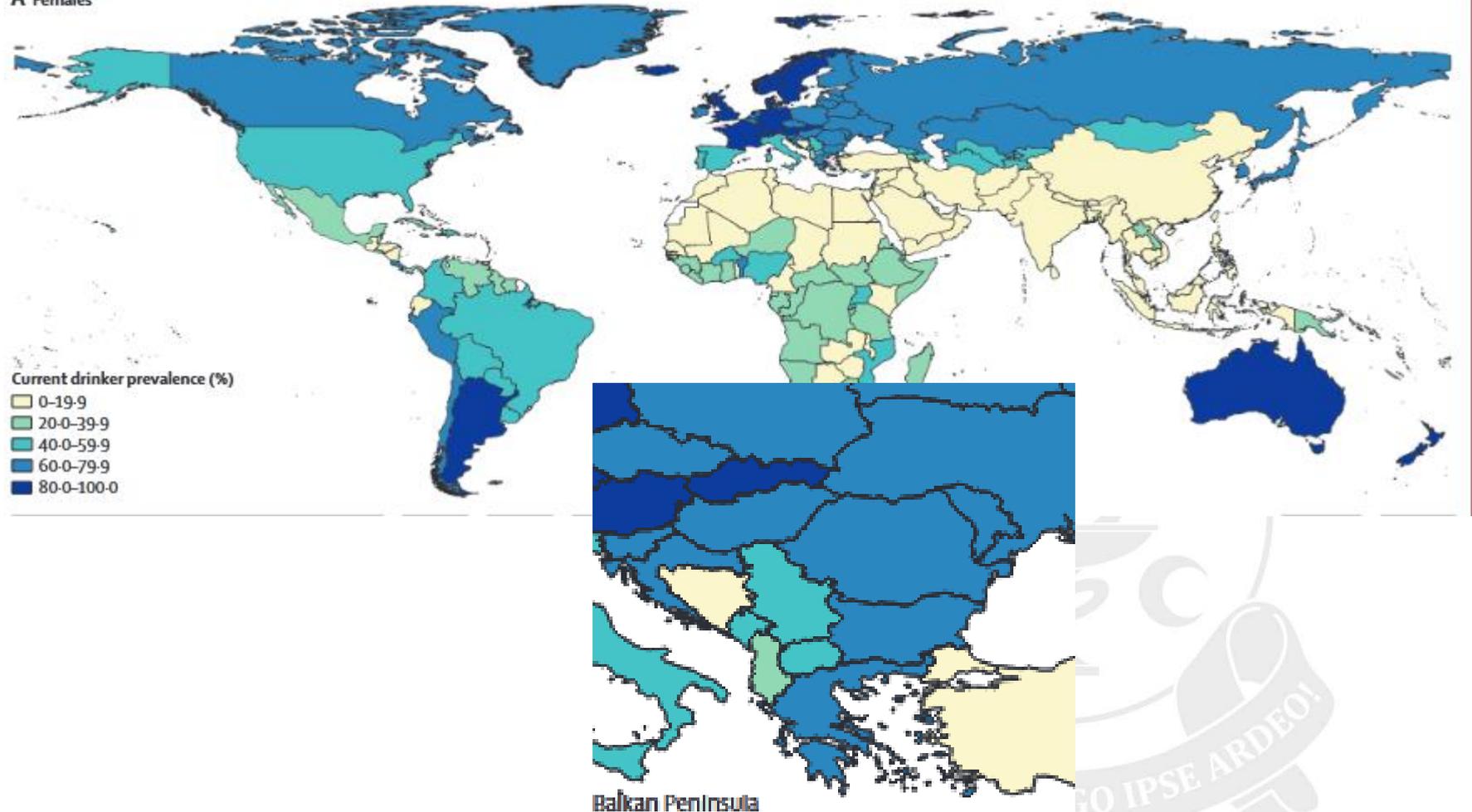


Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016 *Lancet* 2018; 392: 1015–35



Alcohol use and burden for 195 countries, 1990–2016 (Females)

A Females



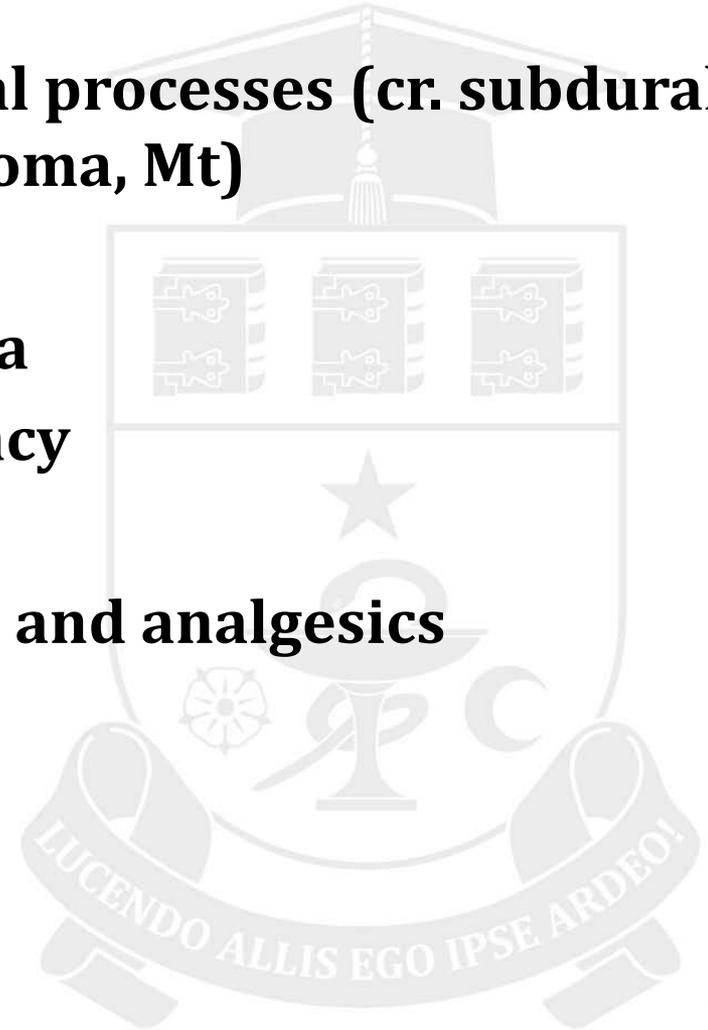
Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016 *Lancet* 2018; 392: 1015–35



Other causes (potentially curable)

< 1%

- **Space occupying intracranial processes (cr. subdural hematoma, meningioma, glioma, Mt)**
- **Hyper- and hypothyroidism**
- **Hyponatremia, hypocalcemia**
- **Hepatic/renal cr. insufficiency**
- **Cr. Infections CNS – syphilis**
- **Induced by drugs - sedatives and analgesics**





Laboratory analyses

- **General blood analysis**
- **Electrolytes**
- **blood sugar**
- **Liver and kidney function**
- **Thyroid gland function**
- **Vitamin B12**
- **Serological tests for syphilis, HIV, Lyme disease**
- **CSF examination (amyloid beta 1-42, tau, protein)**
- **CT/MRI**
- **Functional imaging**
- **EEG**

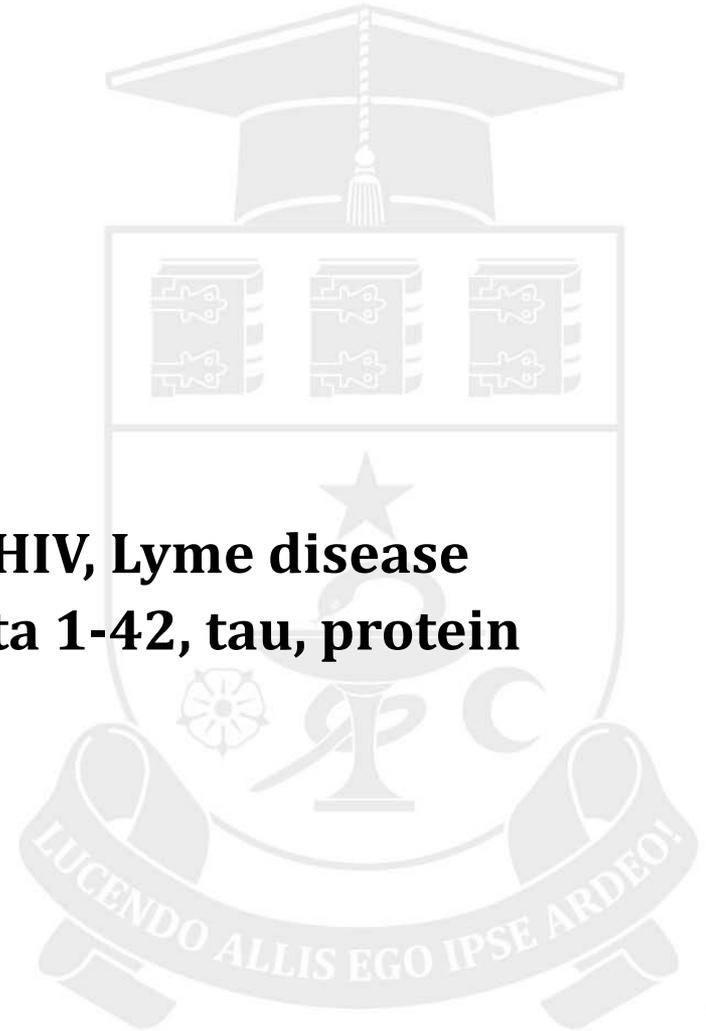


TABLE 1-3

Medications Approved for the Symptomatic Treatment of Alzheimer Disease Dementia^a

Medication	Mechanism	Recommended Titration ^b
Donepezil	Selective acetylcholinesterase inhibitor	Begin 5 mg daily; increase in 4 weeks to goal 10 mg daily
Galantamine	Acetylcholinesterase inhibitor, allosteric nicotinic receptor modulator	Begin 4 mg 2 times a day; increase by 4 mg per dose increments every 4 weeks to goal of 12 mg 2 times a day
Galantamine ER	Acetylcholinesterase inhibitor, allosteric nicotinic receptor modulator	Begin 8 mg daily; increase by 8 mg/d increments every 4 weeks to goal of 24 mg daily
Rivastigmine oral	Mixed acetylcholinesterase and butyrylcholinesterase inhibitor	Begin 1.5 mg 2 times a day; increase by 1.5 mg per dose increments every 4 weeks to goal of 6 mg 2 times a day
Rivastigmine transdermal patch	Mixed acetylcholinesterase and butyrylcholinesterase inhibitor	Begin 4.6 mg daily; increase in 4 weeks to goal of 9.5 mg daily
Memantine	Noncompetitive glutamate NMDA receptor antagonist	Begin 5 mg daily; increase by 5 mg/d increments every week to goal of 10 mg 2 times a day ^c
Memantine XR	Noncompetitive glutamate NMDA receptor antagonist	Begin 7 mg daily; increase by 7 mg increments every week to goal of 28 mg daily ^d

ER, extended-release; NMDA, N-methyl-D-aspartate; XR, extended-release.





Simptomatic treatment

- *Psychotic symptoms*

Risperidone 0,5-1,5 mg

în BP și Demența Lewy body neuroleptice sunt contraindicate

- *Depression*

Citalopram 10-40mg

Nortriptyline 50 mg

- *Agitation*

Trazadone 50-100 mg x 3 ori pe zi

Risperidone 0,25 mg x 2 ori pe zi

Valproate 250-500 mg x 3 ori pe zi

- *Anxiety and panic attacks*

Citalopram 10-40 mg

Alprazolam 0,25 mg x 3 ori pe zi

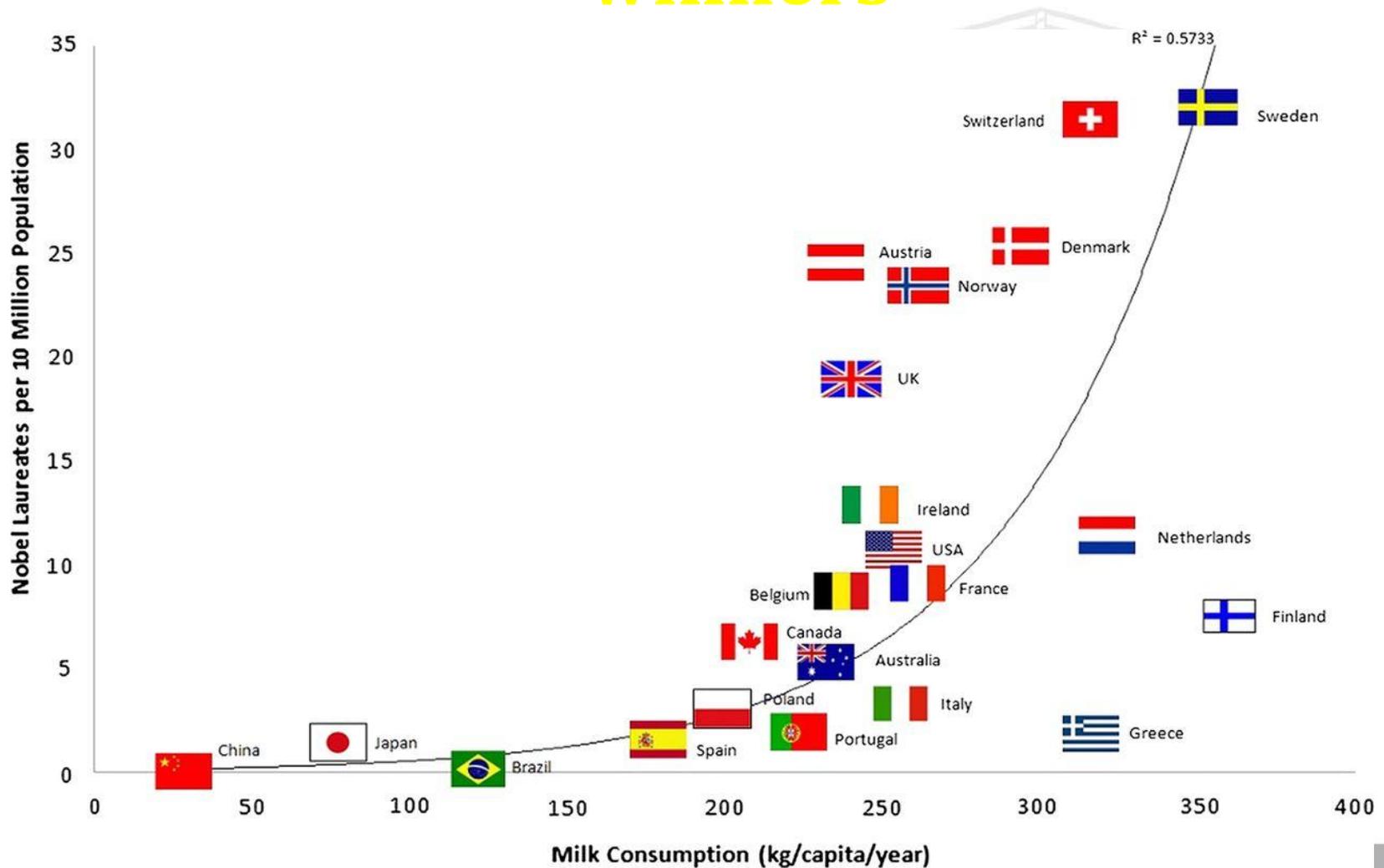
- *Delirium*

Haloperidol 0,5 – 1,5 mg 2-3 ori pe zi





The correlation between milk consumption and the Nobel Prize winners





Questions???

