



Aging & Dementia

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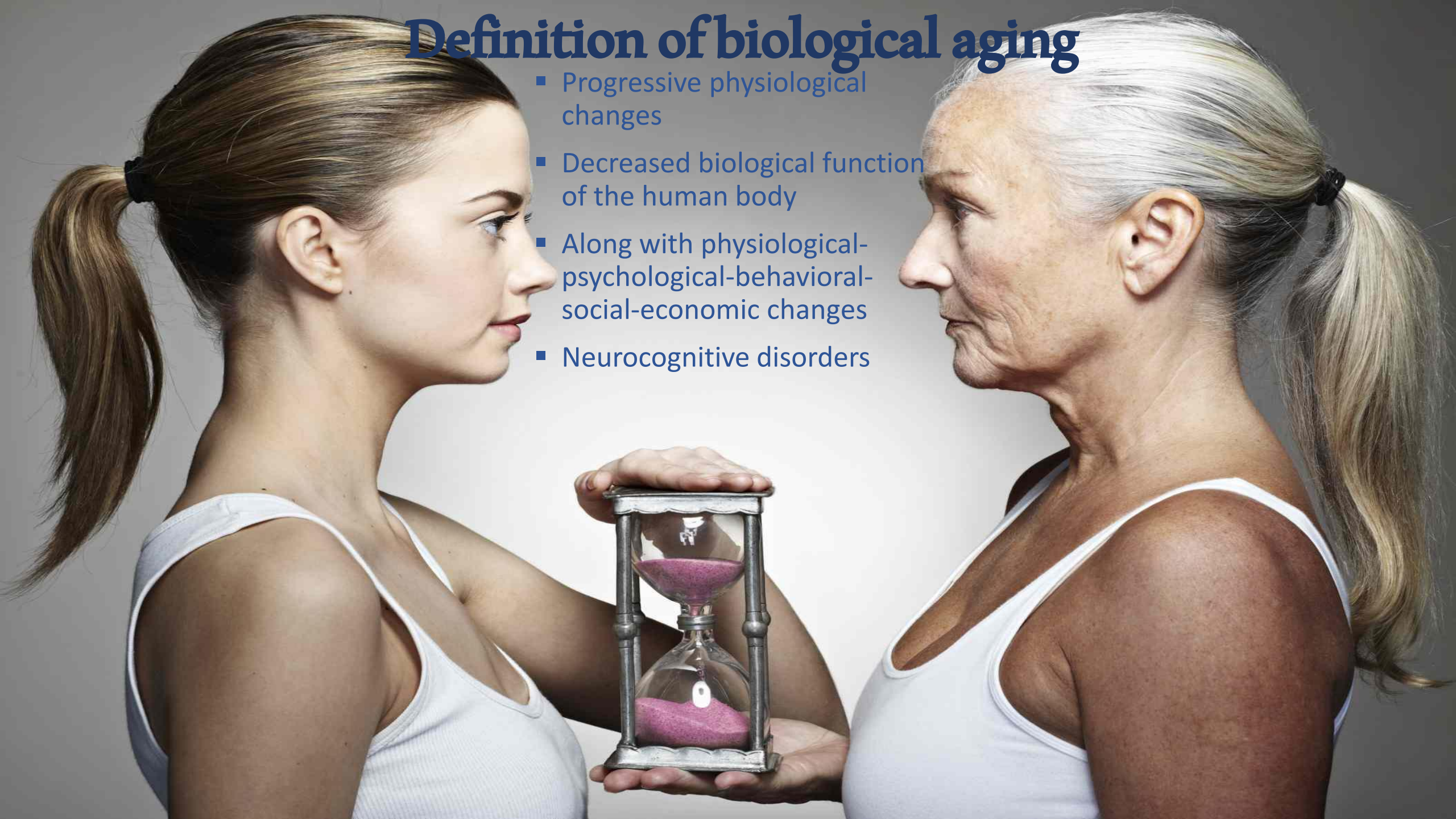
Definition of aging

- The last stage of a person's life
- The beginning of the decline process
- Decreased manpower over time



Definition of biological aging

- Progressive physiological changes
- Decreased biological function of the human body
- Along with physiological-psychological-behavioral-social-economic changes
- Neurocognitive disorders



Theory of life and aging

Modern theory

Planned aging

Theory of trial and error

Biochemical aging

Theory of Free radical and mitochondria

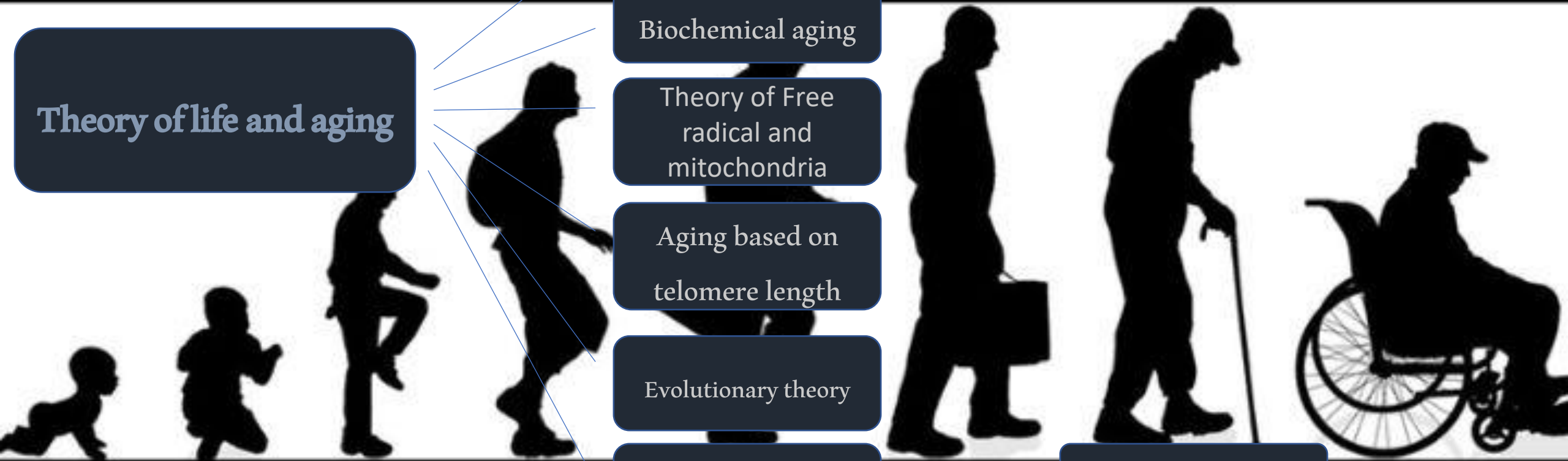
Aging based on telomere length

Evolutionary theory

Systematic theory

Neuroendocrine

Immunogenetics



Definition of dementia

- Progressive destruction of cognitive functions
- It occurs in a field of consciousness



Types of dementia

Alzheimer's disease

Lewy Body Dementia

Vascular dementia

Fronto-Temporal
Dementia

Parkinson

Huntington

Dementia caused by
other general medical
disorders

Dementia caused by
drug use

Definitions of types of dementia

- **Lewy Body Dementia:**

Caused by abnormal sediments

- **Pre-temporal dementia:**

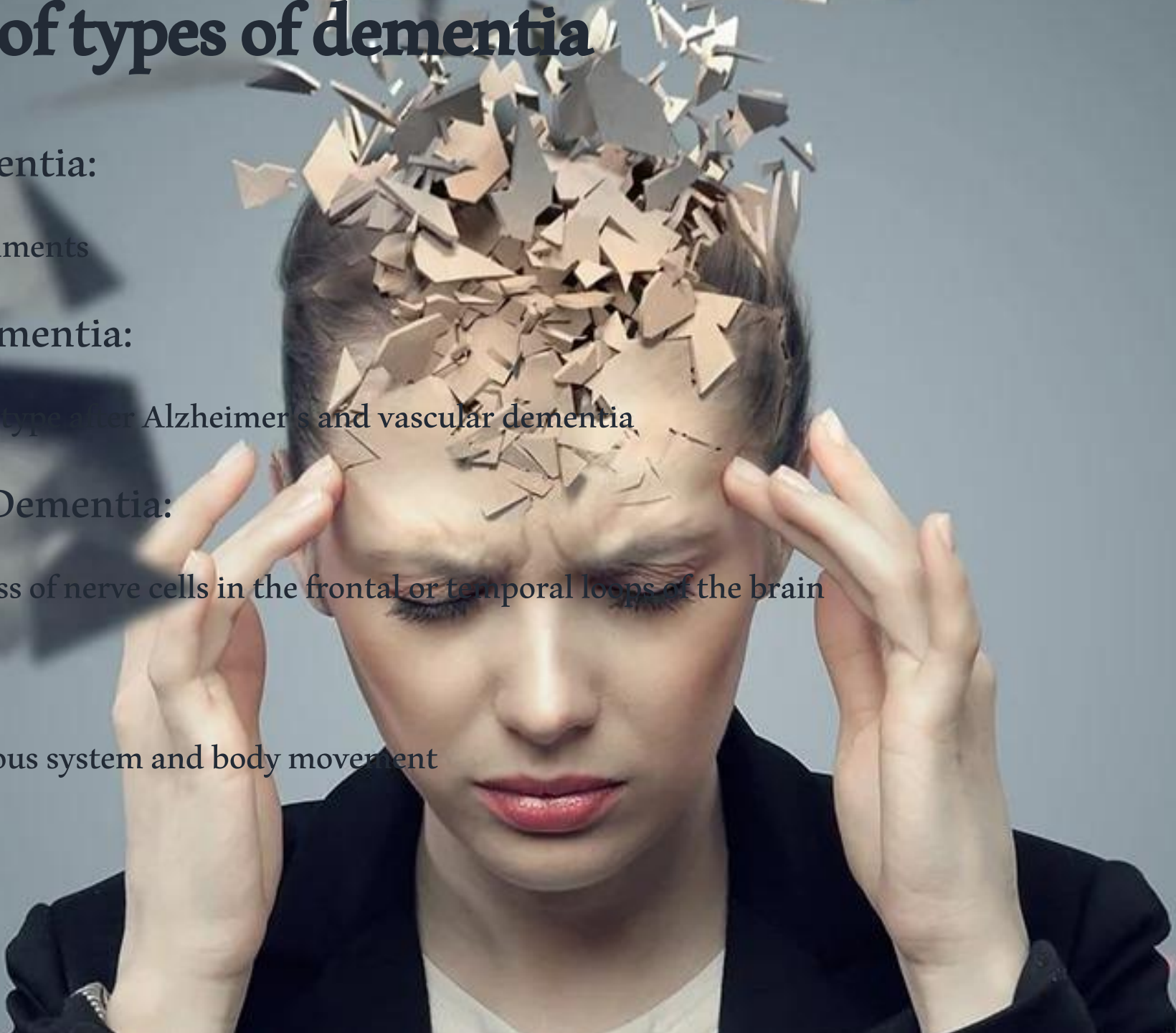
The third most common type after Alzheimer's and vascular dementia

Fronto-Temporal Dementia:

Due to the progressive loss of nerve cells in the frontal or temporal loops of the brain

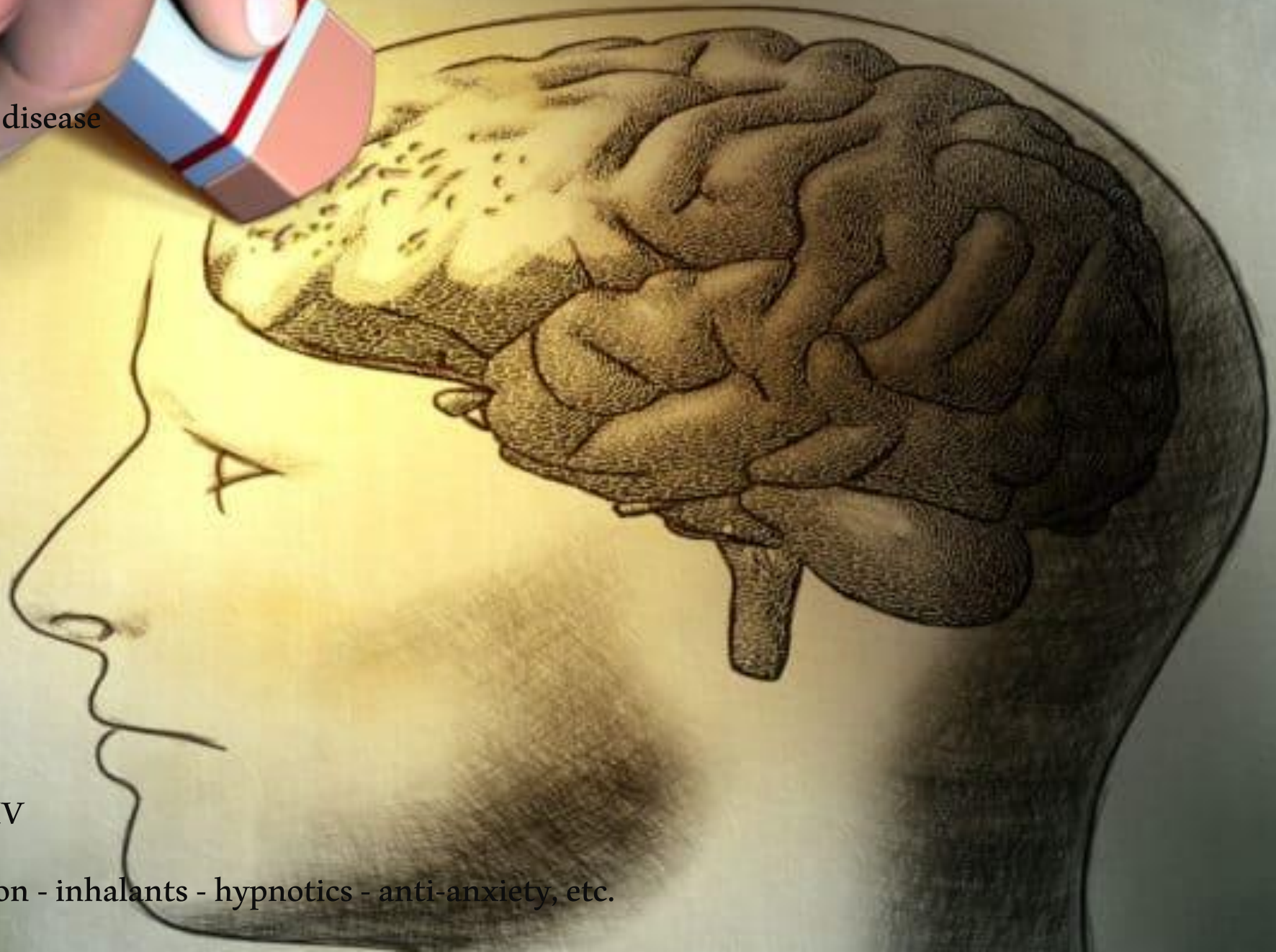
- **Parkinson:**

Destructive central nervous system and body movement



Causes of dementia

- Brain cell death
- Neurodegenerative disease
- Head injuries
- Strokes
- Brain tumors
- age increasing
- Family history
- Genetic mutations
- Gender
- Brain surgeries
- Prion infection– HIV
- Alcohol consumption - inhalants - hypnotics - anti-anxiety, etc.



Clinical manifestations

1. Difficulty in learning - Lack of attention - Problem in communication
2. Challenge in the field of reasoning - judgment - problem solving
3. Sight - hearing problems
4. getting lost
5. Forgetting names
6. Character change
7. sleep disorders
8. Difficulty walking and dryness of the body (Parkinson's)

.....





Outbreaks and epidemics

- Alzheimer's disease is the sixth leading cause of death in the United States
- About 2.6 million people in the United States suffer from dementia:
- In the ages of 65-74 about 3.5%
- About 13.8% in the ages of 75-84
- At the age of 85 and above about 34.6%
- One out of every three elderly people dies of dementia
- Parkinson's disease causes 117,400 deaths annually
- The ratio of men to women is 3: 2
- Occurs in people over 60 years

Table 1 Prevalence (among patients with dementia) and heritability estimates per dementia type

	Prevalence	Heritability
Alzheimer's disease	34-54 %	33 %
Vascular dementia	18-32 %	<1 %
Frontotemporal lobar degeneration	10-20 %	50 %
Lewy body dementia	4-7 %	40 %

Treatment of dementia

FDA Approved Drugs:

- Razadyne(Galantamine)
- Exelon(Rivastigmine)
- Aricept(Donepezil)
- Namenda(Memantine)
- Psychotherapy
- Memory care
- Care in special medical centers
- Accept it



Ways of diagnosis

- Cbs
- microRNA₁₃₂ Marker
- Odor association with dementia
- Anthony Norsia Test
- Clock - Drawing test



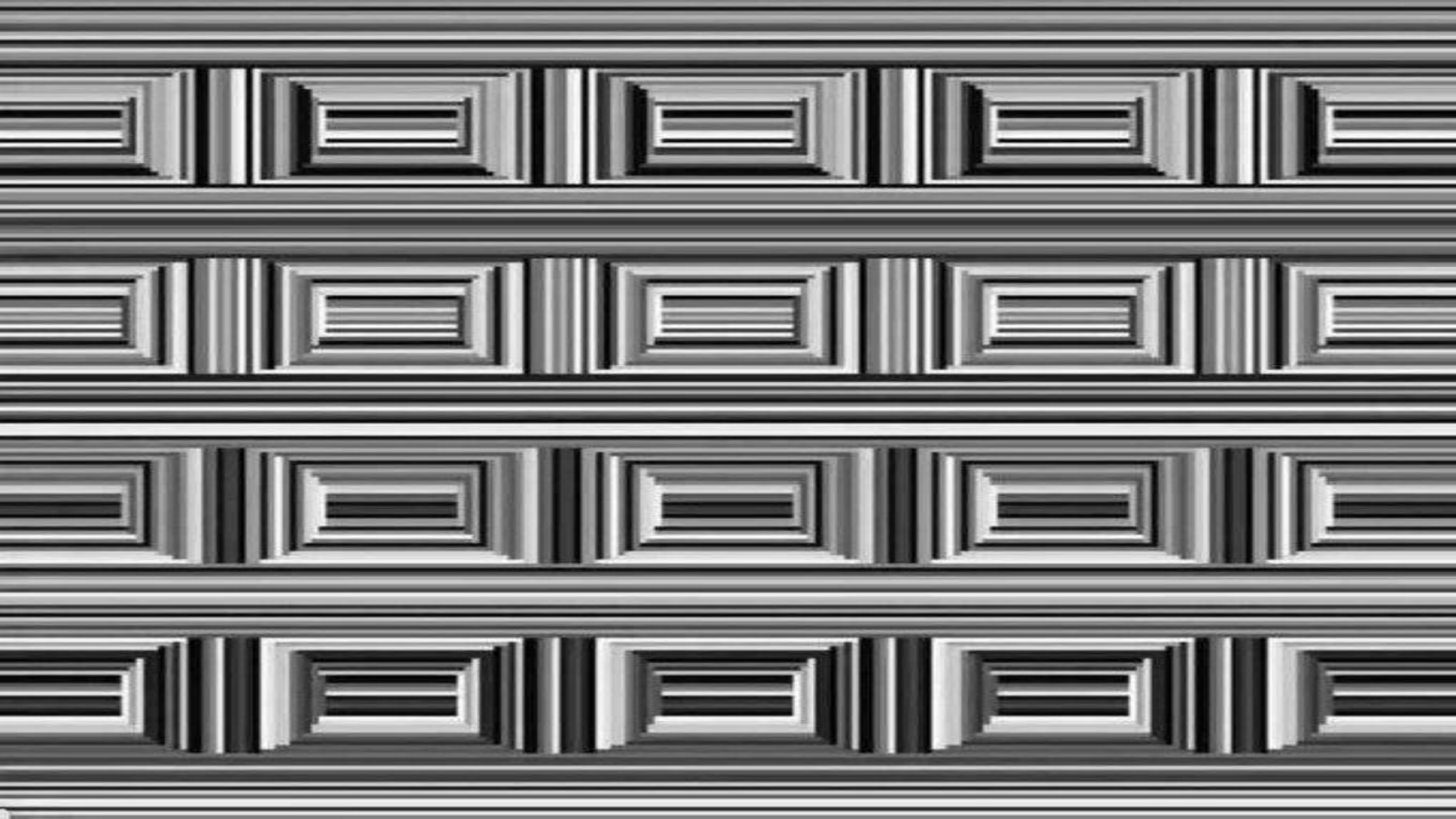


Table 3 Main genetic risk factors FTL D

Chr	Gene	Chromosomal location	Mutation frequency	# of mutations
3	CHMP2B	3p11.2	<1 %	11
9	C9orf72	9p21.2	14-48 %	1
9	VCP	9p13.3	<1 %	20
17	GRN	17q21.32	3-26 %	148
17	MAPT	17q21.32	0-50 %	72

Table 4 Main genetic risk factors for Lewy body dementias

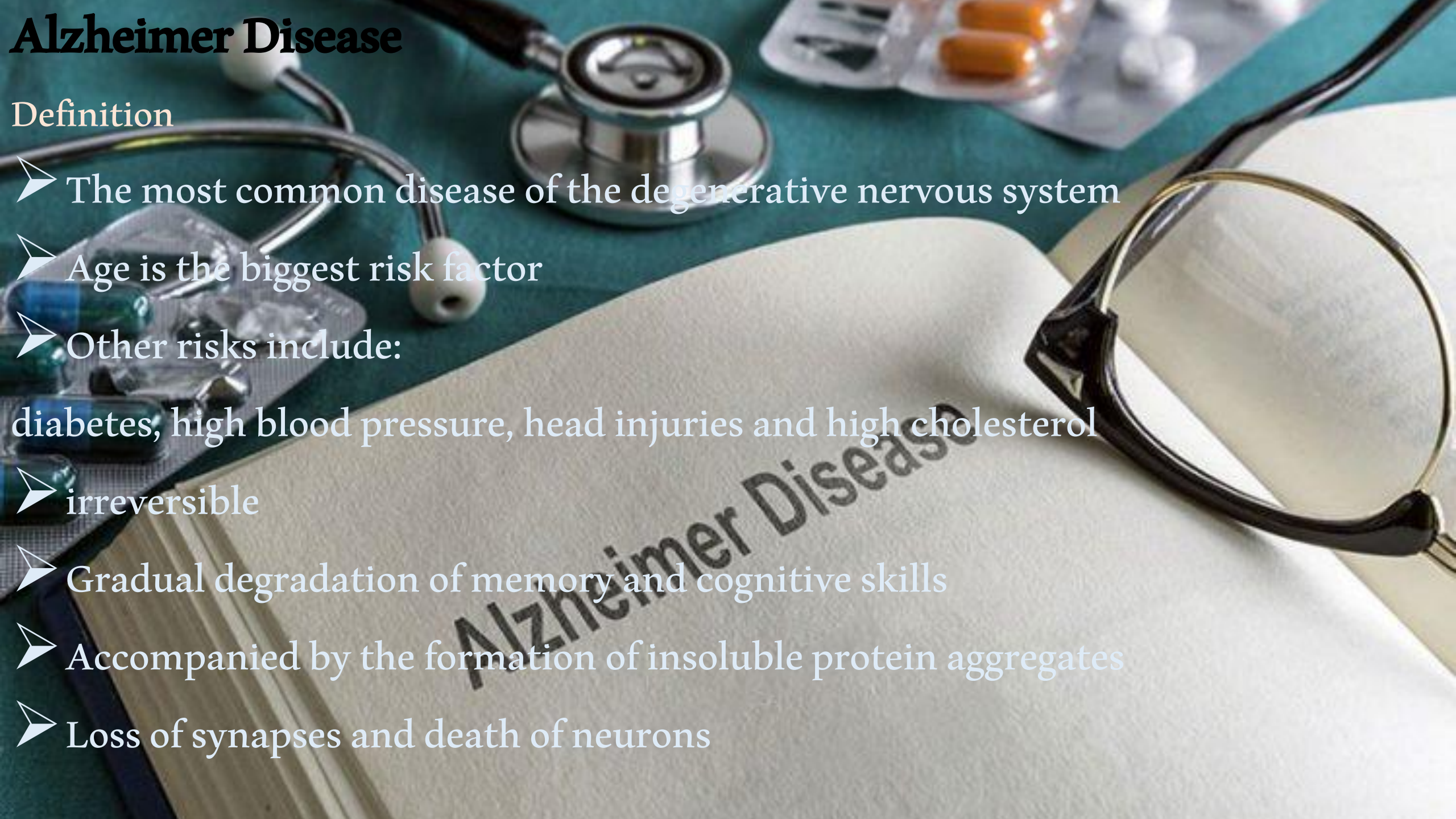
Chr	Gene	Chromosomal location	#mutations
1	GBA	1q21	7
4	SNCA	4q21	25
17	MAPT	17q21.1	36

prevention

- No smoking
- Do not consume alcohol
- Healthy diet
- Regular exercise
- Control of high blood pressure
- Learn several foreign languages
- Strengthen brain power
- Reduce coffee consumption
- Reduce salt consumption
- Consumption of turmeric- B12- banana,....



Alzheimer Disease

The background of the slide features a medical-themed collage. A silver stethoscope is draped across the top left. To its right, there are blister packs containing orange and white pills. In the bottom right, a pair of black-rimmed glasses with gold-colored temples rests on a white, open book. The book's pages are visible, and the title 'Alzheimer Disease' is printed in a large, bold, black font across the center of the right page.

Definition

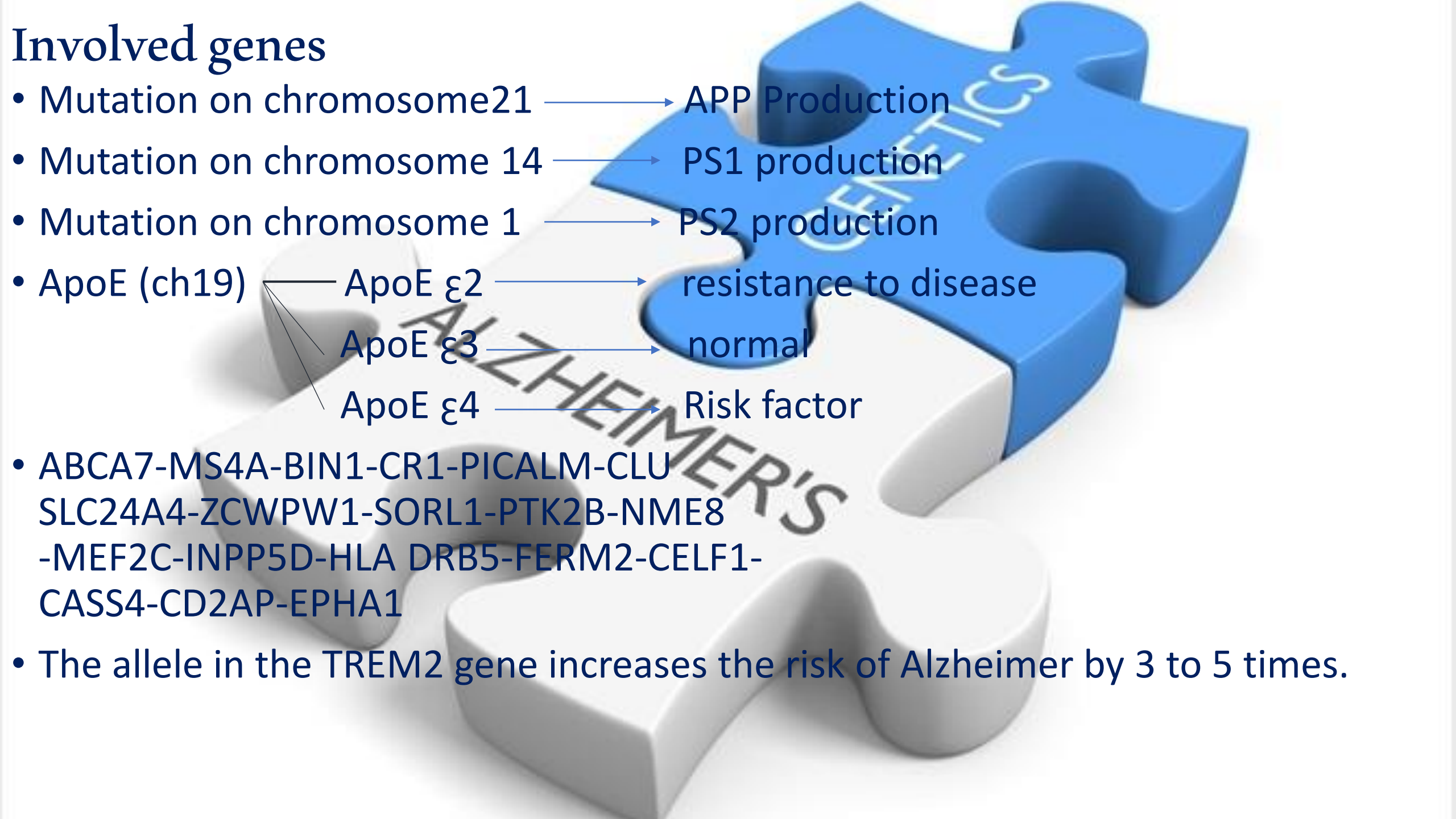
- The most common disease of the degenerative nervous system
- Age is the biggest risk factor
- Other risks include:
diabetes, high blood pressure, head injuries and high cholesterol
- irreversible
- Gradual degradation of memory and cognitive skills
- Accompanied by the formation of insoluble protein aggregates
- Loss of synapses and death of neurons

Clinical manifestations

- Memory loss
- Impact on cognitive and functional abilities
- Impact on emotions and mood
- Impact on physical abilities
- Impact on Behavior and Ethics



Involved genes

- Mutation on chromosome 21 → APP Production
 - Mutation on chromosome 14 → PS1 production
 - Mutation on chromosome 1 → PS2 production
 - ApoE (ch19)
 - ApoE ϵ 2 → resistance to disease
 - ApoE ϵ 3 → normal
 - ApoE ϵ 4 → Risk factor
 - ABCA7-MS4A-BIN1-CR1-PICALM-CLU
SLC24A4-ZCWPW1-SORL1-PTK2B-NME8
-MEF2C-INPP5D-HLA DRB5-FERM2-CELF1-
CASS4-CD2AP-EPHA1
 - The allele in the TREM2 gene increases the risk of Alzheimer by 3 to 5 times.
- 
- A 3D puzzle with several pieces. One blue piece is labeled 'GENETICS' and another white piece is labeled 'ALZHEIMER'S'. The puzzle is partially assembled, with some pieces missing, symbolizing the complex nature of Alzheimer's disease and its genetic components.



Diagnosis

- GWAS
- Whole genome sequencing
- Whole exome sequencing



prevention

- Healthy weight
- Balanced diet
- Regular daily exercise
- enough sleep
- Mediterranean diet
- Learn new content
- Bridge
- Working with crossword puzzles
- Communication
- Daily consumption of vegetables and fruits
- Vit A,C,E



treatment

- Treatment of general symptoms:

Cholinesterase inhibitors-Memantine

- Psychiatric-neurological treatment:

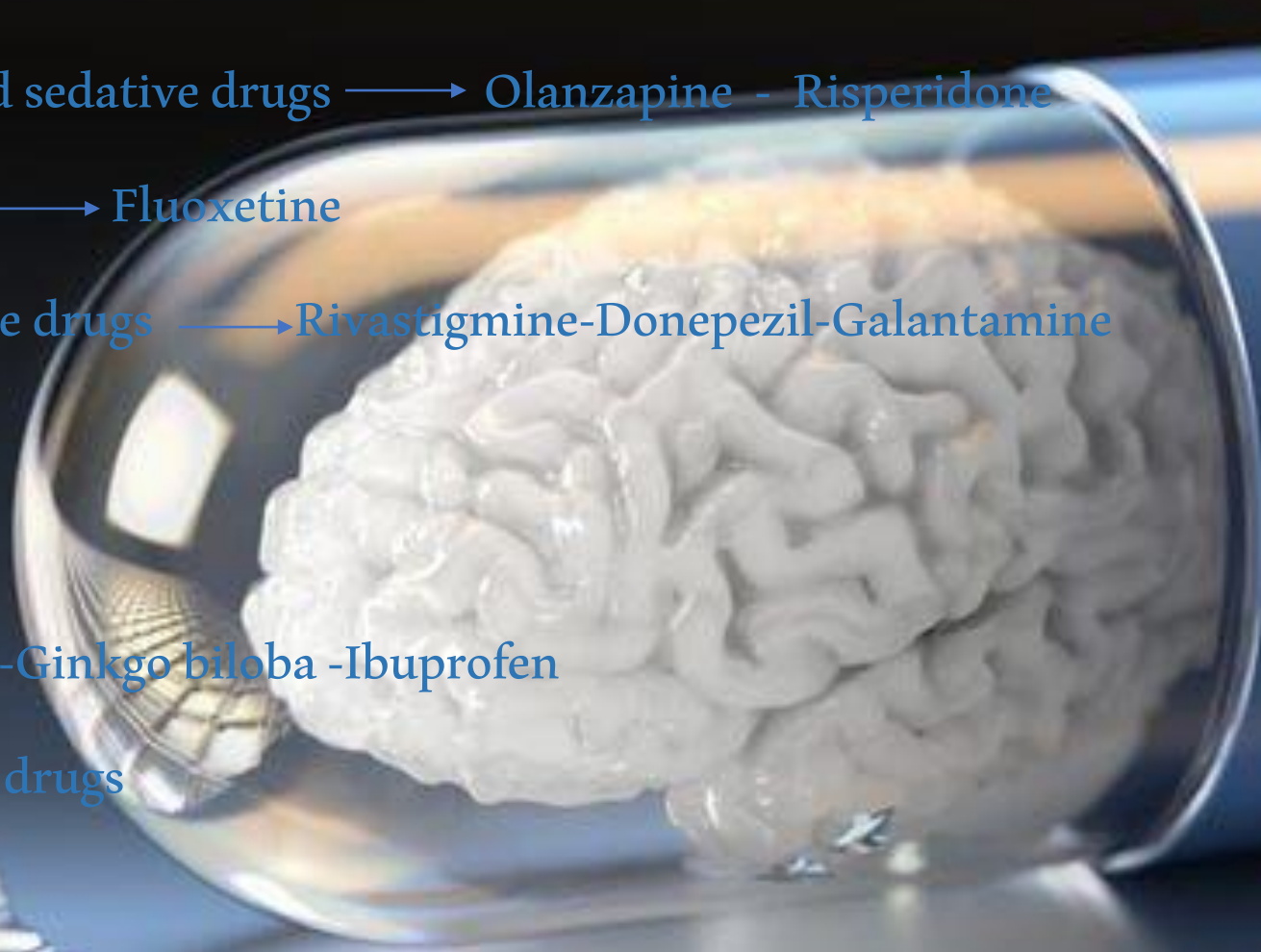
Anticonvulsants - antidepressants and unusual antipsychotics such as risperidone

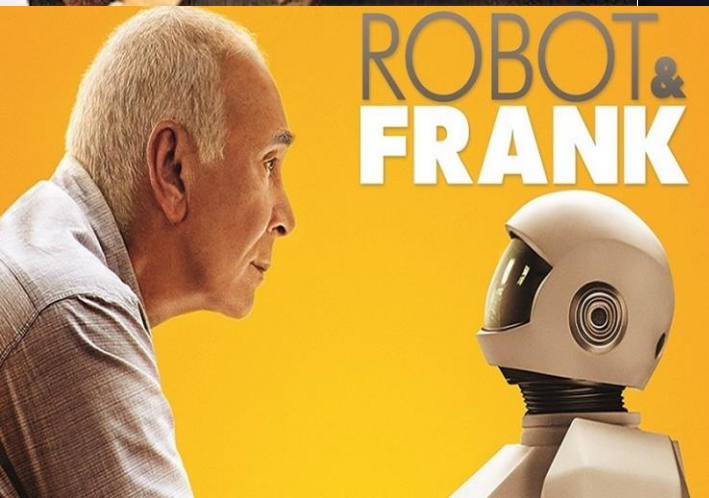
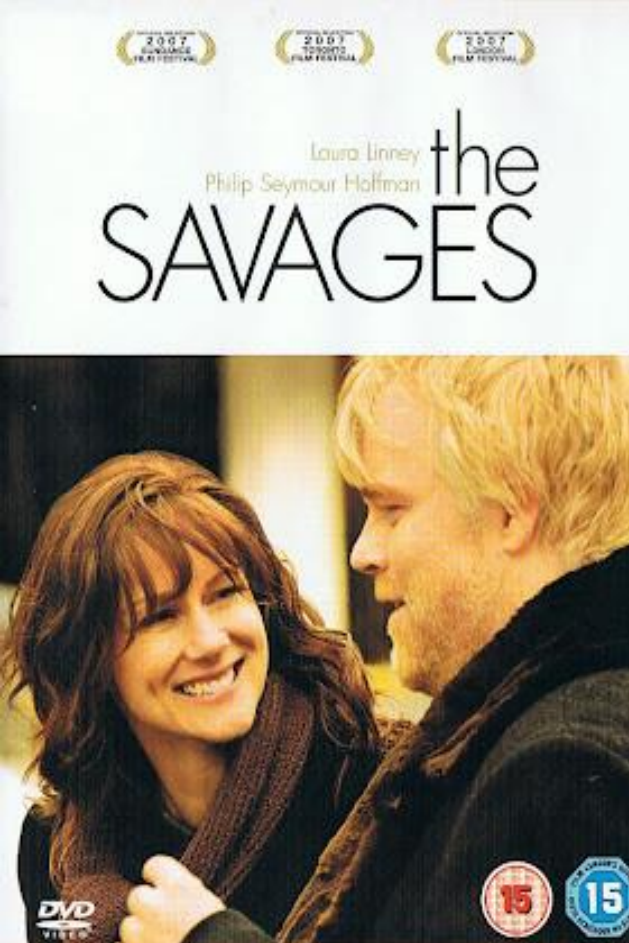
- Disease remediation strategies:

Vit E-Ginkgobibola-Immunotherapy-Gene Therapy

medicines

- Antipsychotic and sedative drugs —→ Olanzapine - Risperidone
- Antidepressants —→ Fluoxetine
- Anticholinesterase drugs —→ Rivastigmine-Donepezil-Galantamine
- Memantine
- vitE,B
- Omega3-Estrogen-Ginkgo biloba -Ibuprofen
- Antihypertensive drugs





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YOUR ATTENTION!

