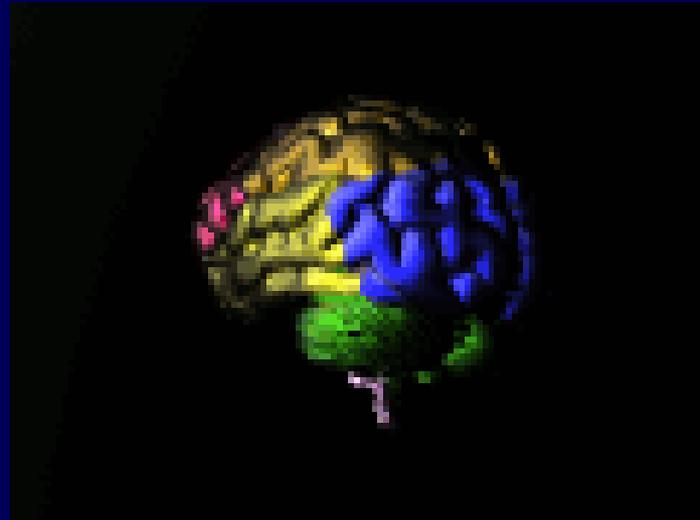


# Medical Profession **Psychiatry**

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Assistant Professor  
Semmelweis University  
Department of Psychiatry and Psychotherapy

**Psychiatry:** the meeting point of clinical profession, biology, social sciences, and human care



# Synopsis

- Historical roots
- Scientific background
- Clinical practice

# The Graeco-Roman period

**Alcmaeon** (ca. 500 B.C.):  
mental processes are  
located in the brain

**Plato** (427?-347 B.C.):  
tripartite soul of thought,  
desire, emotion; rational  
part in the brain

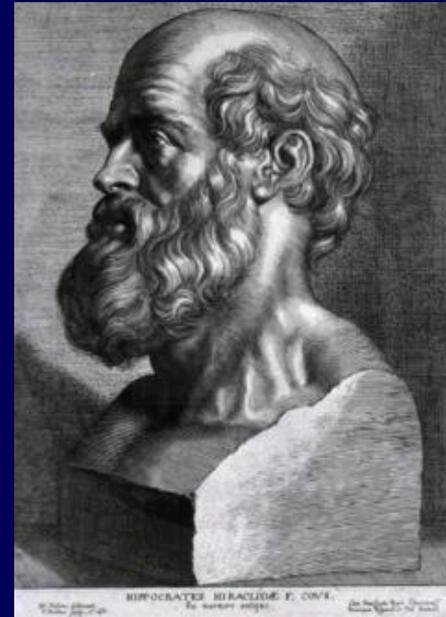
**Aristotle** (384-322 B.C.):  
the task of the brain is to  
cool the blood



Raphael's Plato

## Hippocrates (460-377 B.C.)

- The body humor hypothesis:
  - Black bile – melancholia
  - Yellow bile – mania
- Hysteria – disease of uterus
- Paranoia
- Sacred disease - epilepsy



Rubens` Hippocrates

## Galen (129-199 A.D.)

- Imagination, reason and memory
- Morositas – deadening of the emotional life
- Paraphrosune – paranoia
- Alienation – bizarre behavior



Mural painting depicting Galen and Hippocrates (Anagni)

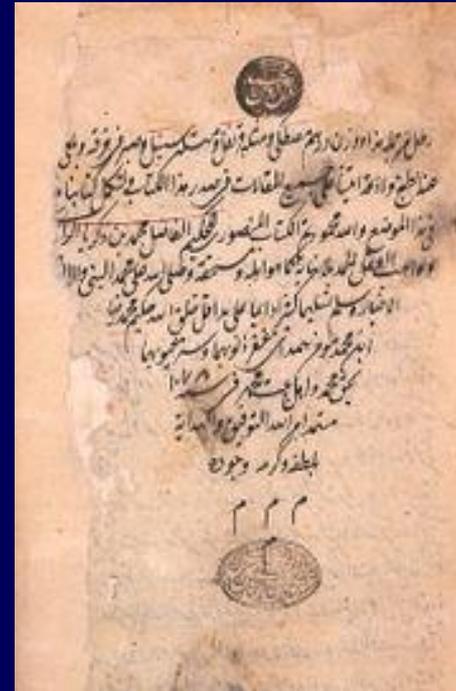
The first ward for the mentally ill:

Hospital of Baghdad

**Al-Razi** (865-925): scholar of Greek medicine,  
philosopher and alchemist



ابو بكر محمد بن زكريا الرازي



Textbook of Al-Razi

# Psychiatric Asylums in Europe



Bethlem Hospital, London (1330)



Salpêtrière, Paris (1675)

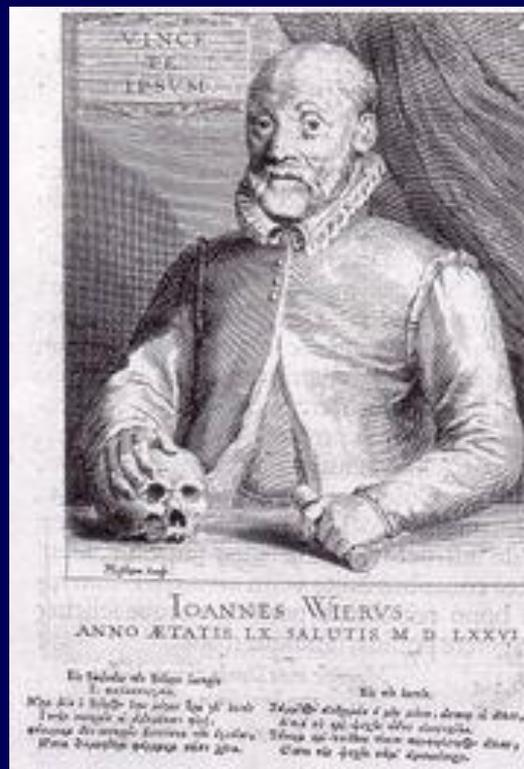


Asylum of Budapest (1886)

**Paracelsus**  
(1493-1541)



- experimentation in learning about the human body
- sickness and health in the body relied on the harmony of man, the microcosm, and Nature, the macrocosm
- using this analogy not in the manner of soul-purification but that humans must have certain balances of minerals in their bodies
- illnesses of the body and soul had chemical remedies that could cure them – the **concept of medicine**



**Johann Weyer** (1515-1588)

**Psychiatric illness is not a consequence of transcendent factors**

- *De Praestigiis Daemonum et Incantationibus ac Venificiis* (On the Illusions of the Demons and on Spells and Poisons), 1563
- *De Lamiis Liber* (Book on Witches), 1577
- *Pseudomonarchia Daemonum* (The False Kingdom of the Demons), 1577



**Thomas Willis** (1621-1675)

- *“Cerebri anatomi”*, 1664 (the term “neurology”)
- *“Pathologicae cerebri, et nervosi generis specimen”*, 1667
- *“Two Discourses concerning The Soul of Brutes, Which is that of the Vital and Sensitive of Man”*, 1672 (the first English work on medical psychology)

## Philippe Pinel (1745-1826)

Humanization of the treatment of the mentally ill



Dr. Philippe Pinel at the Salpêtrière, 1795 by Robert Fleury.  
Pinel removing the chains from patients  
at the Paris Asylum for insane women.

# Origins of modern psychiatry

1808 - **Johann Christian Reil** (1759 -1813): the term Psychiatry (psyche – soul, iatros – doctor)

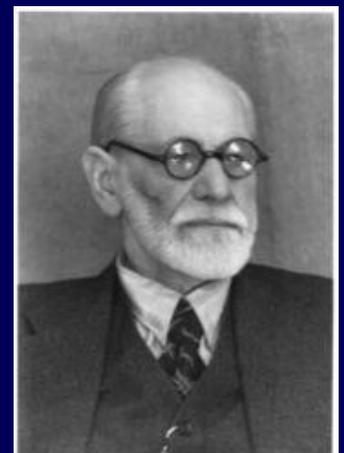
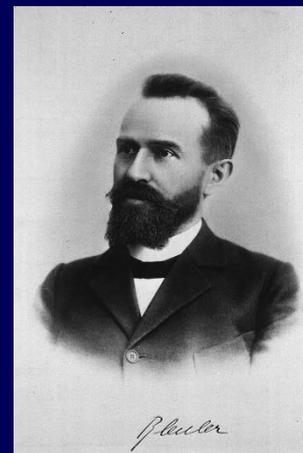
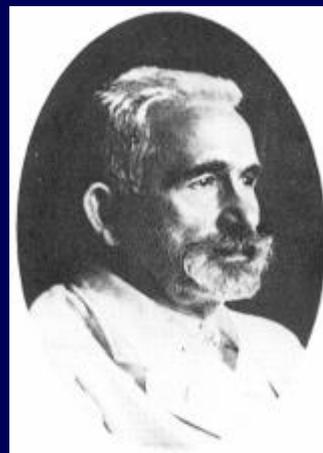
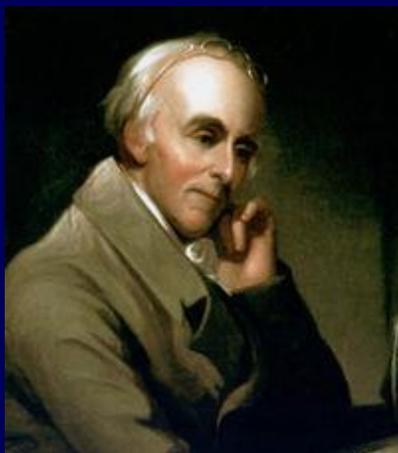
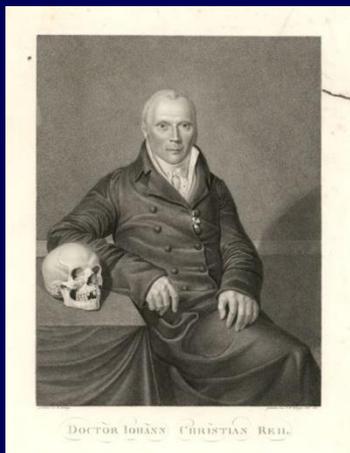
America - **Benjamin Rush** (1745-1813), American Psychiatric Association (1844)

1865 - The first psychiatric **university department** in Berlin (1882 in Budapest)

1890s - **Emil Kraepelin** (1856-1926): classification of mental disorders

1908 - **Eugen Bleuler** (1857-1939): the term Schizophrenia (skhizein – to split, phren – mind)

1880s - **Sigmund Freud** (1856-1939): psychoanalysis



## Kraepelin's view

Treated patients with  
severe mental  
disorders in asylums

Origin of illness:  
brain pathology

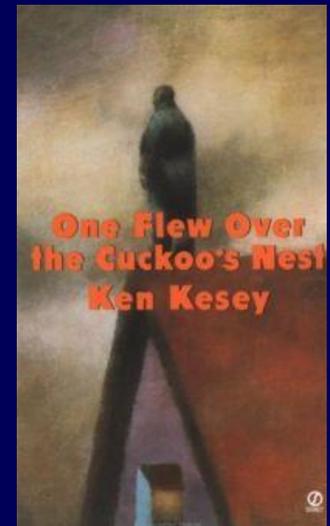
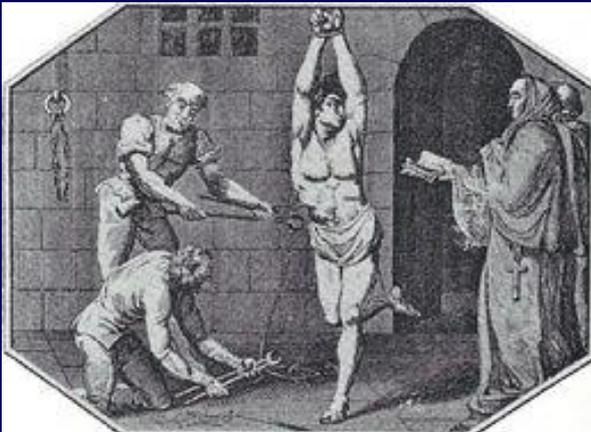
## Freud's view

Treated less severe  
outpatients

Origin of illness:  
repressed unconscious  
(sexual) desires,  
abnormal psychosexual  
development

# The dark side of psychiatry

- Torture of patients in medieval ages
- Patients were closed in large institutions
- Political psychiatry (Soviet Union and Nazis)
- Lobotomy, insulin coma, electroconvulsive therapy in wake patients
- No scientific bases of mental illness
- Psychoanalysis is a myth and not science
- 1960: **antipsychiatry** (David Cooper, Thomas Szasz)



# What happens if we reject and forget psychiatry?

- Attempts in Italy as an influence of antipsychiatry
  - Patients on the street and behind the bars
  - Patients as victims and criminal offenders
- Restriction of psychiatry services due to financial shortcuts (USA today)
  - US Dept. of Justice (1999): 16% of inmates in jails have severe mental illness
  - Human Right Watch Report (2003): on a given day 70000 psychotic patients are in prisons

# Response and development

- **Development of neuroscience**

Molecular genetics (biobanks), brain imaging, and pharmacology

- **Modern clinical psychiatry and community mental health care**

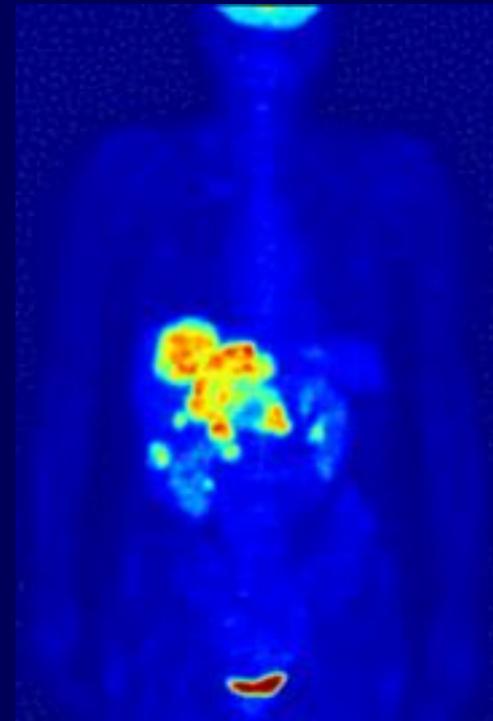
Closing asylums and helping patients find their way back to the community using psychopharmacology, psychotherapy, and social therapy

Is it true that psychiatric disorders  
lack scientific bases?

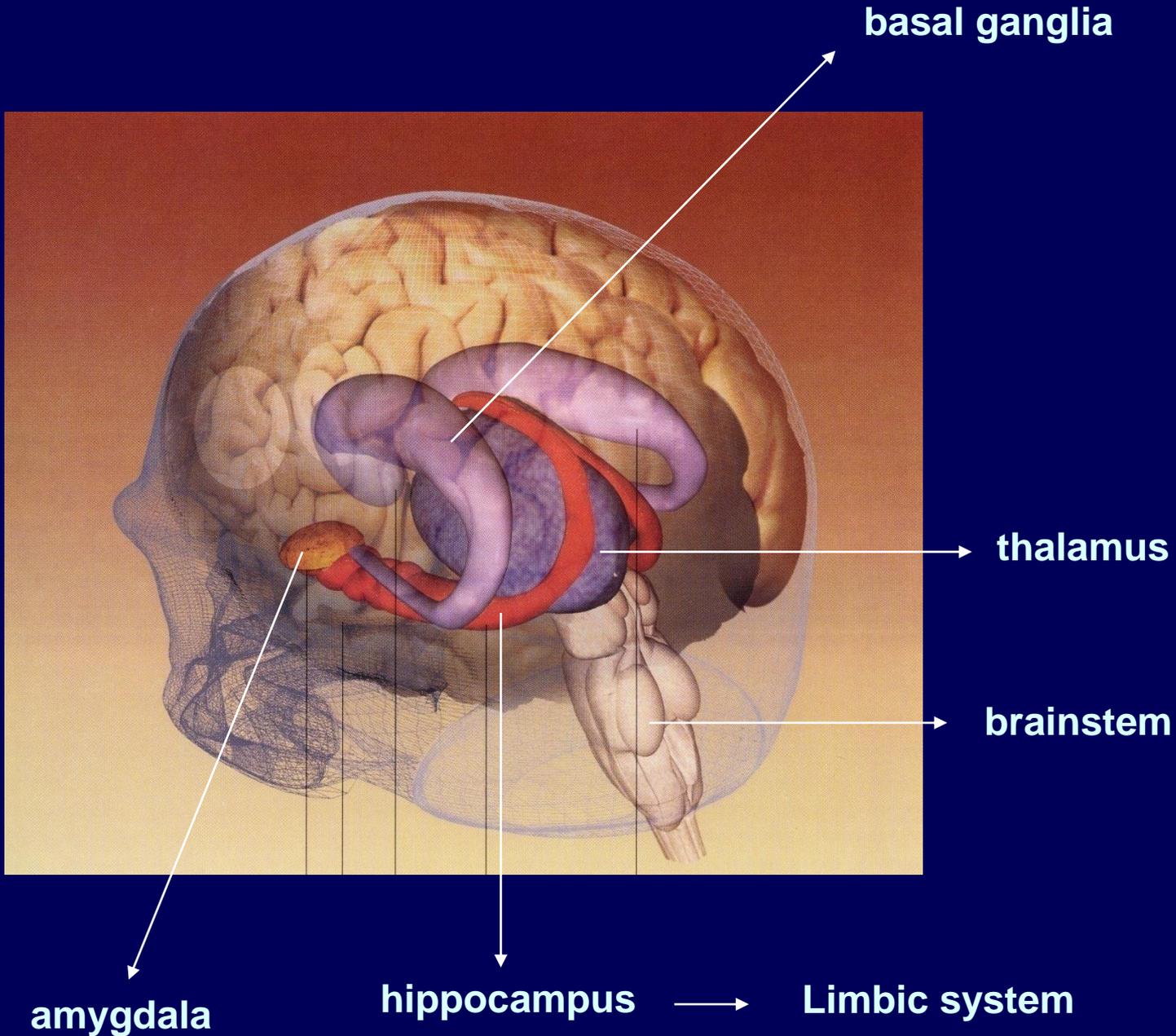
**NO!**

Modern neuroimaging methods allow the visualization of brain working during thinking, feeling, and deciding:

- Positron emission tomography (PET)
- Functional magnetic resonance imaging (fMRI)



Positron emitting radioligand in the body



## Frontal lobe:

- Higher cognition (lateral part)
- Emotional and social functions (bottom part)
- **Schizophrenia**

## Basal ganglia:

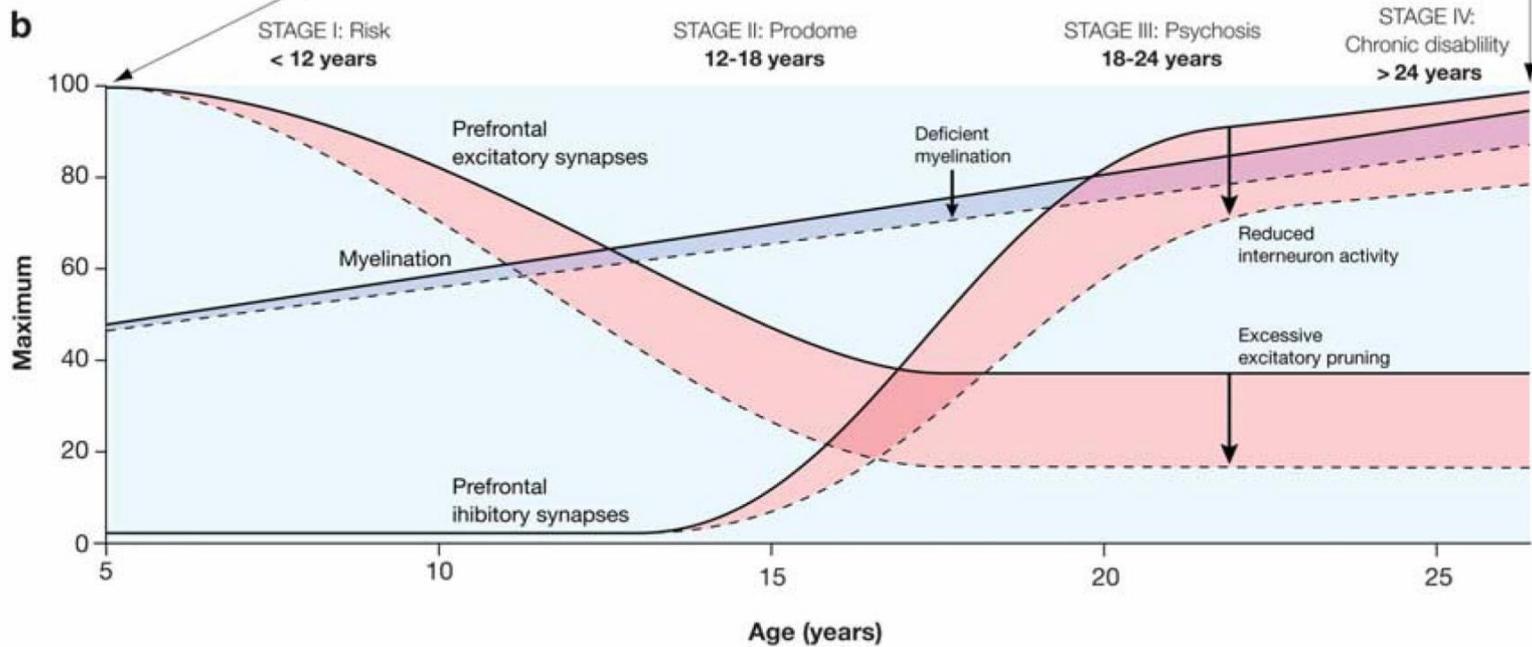
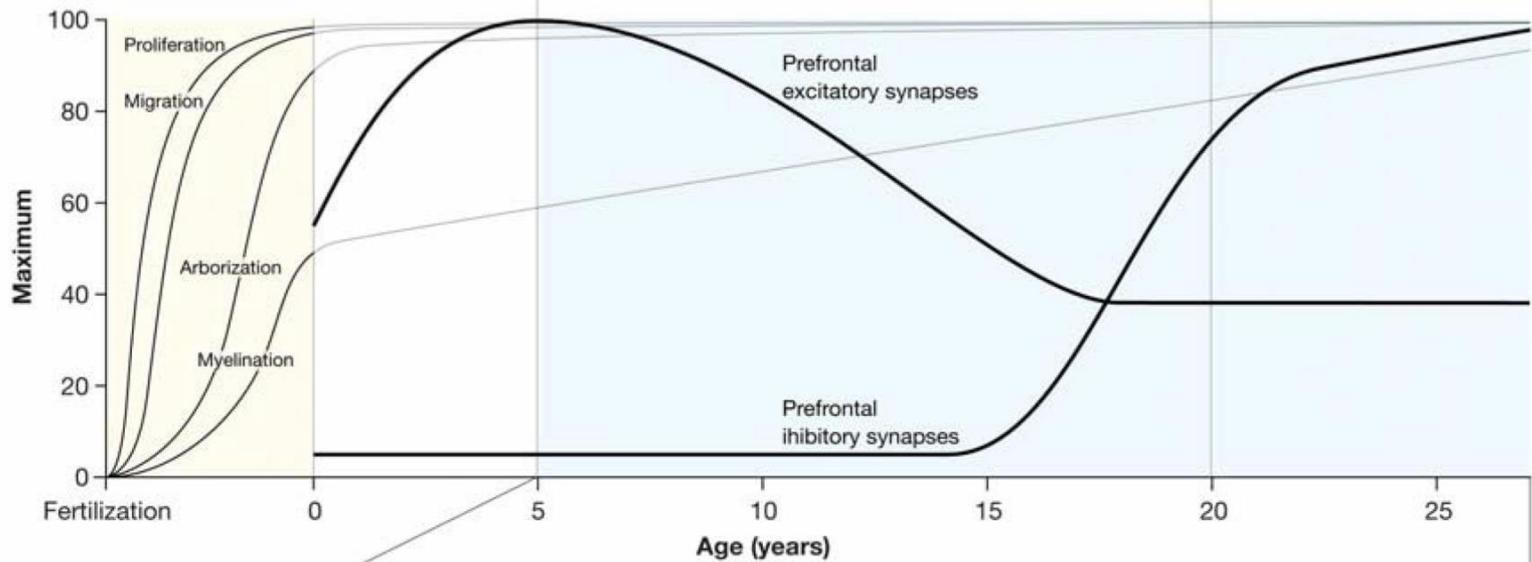
- Movement regulation
- Skill and habit learning (feedback and reward)
- **Parkinson`s disease**

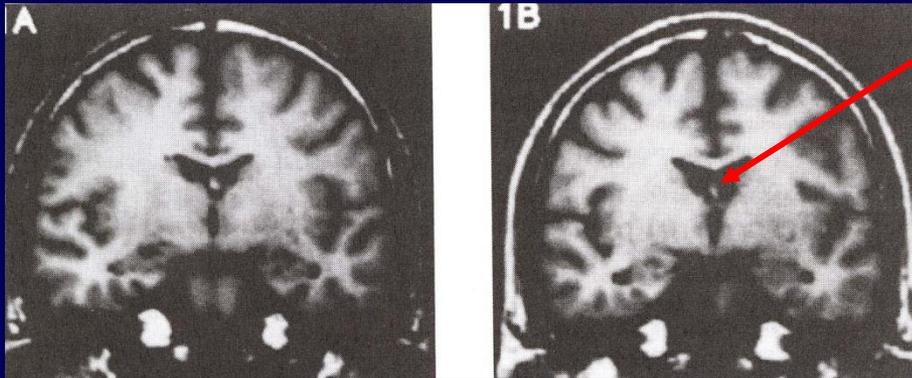
## Amygdala:

- Emotion, fear, anxiety
- **Depression**

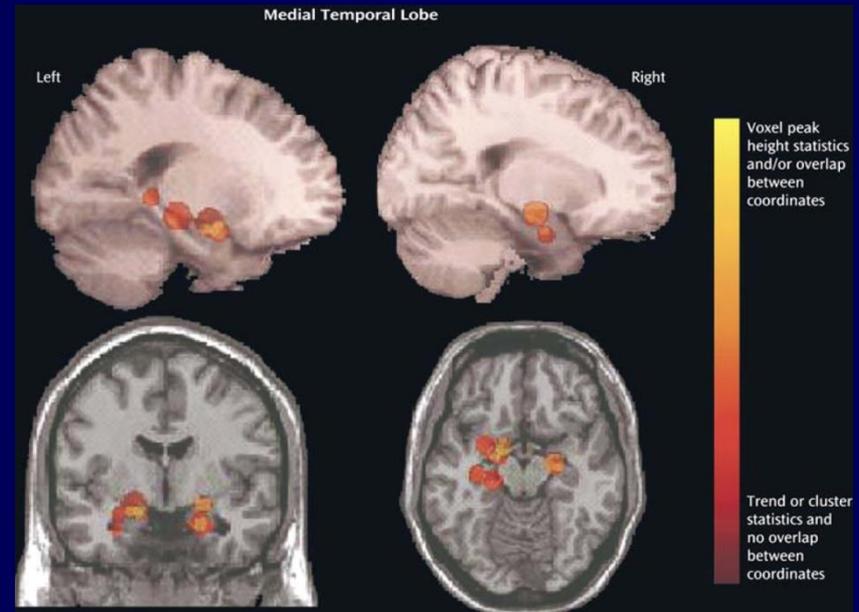
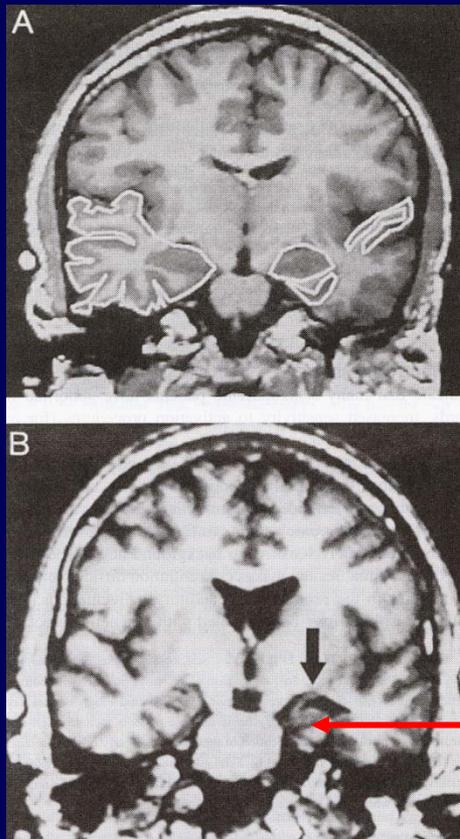
## Hippocampus:

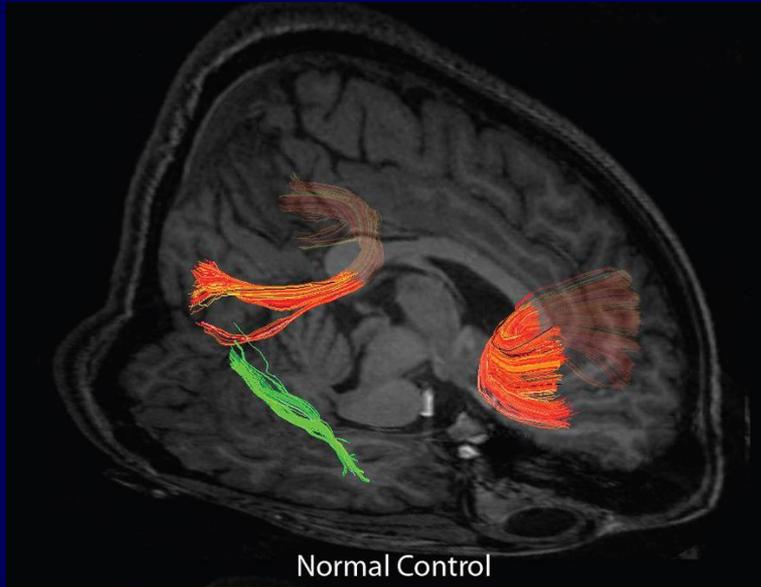
- Remembering facts and events (explicit memory)
- **Alzheimer`s disease**



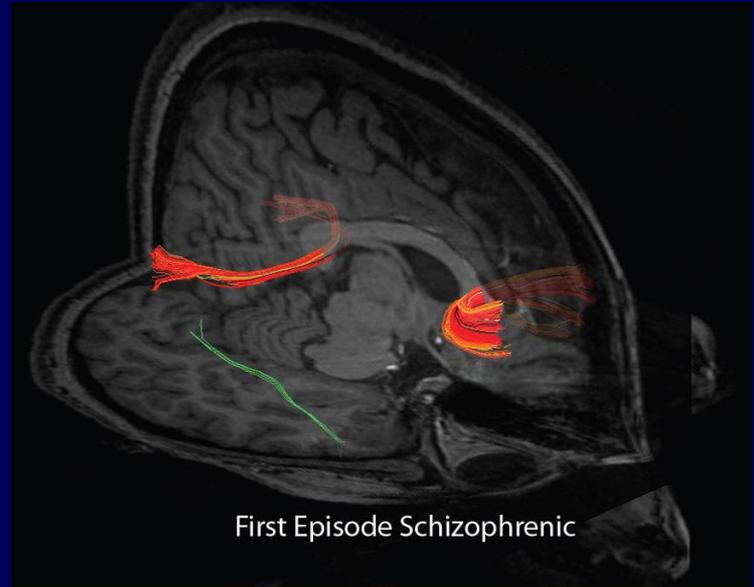


**Enlarged ventricles and smaller hippocampus in schizophrenia**

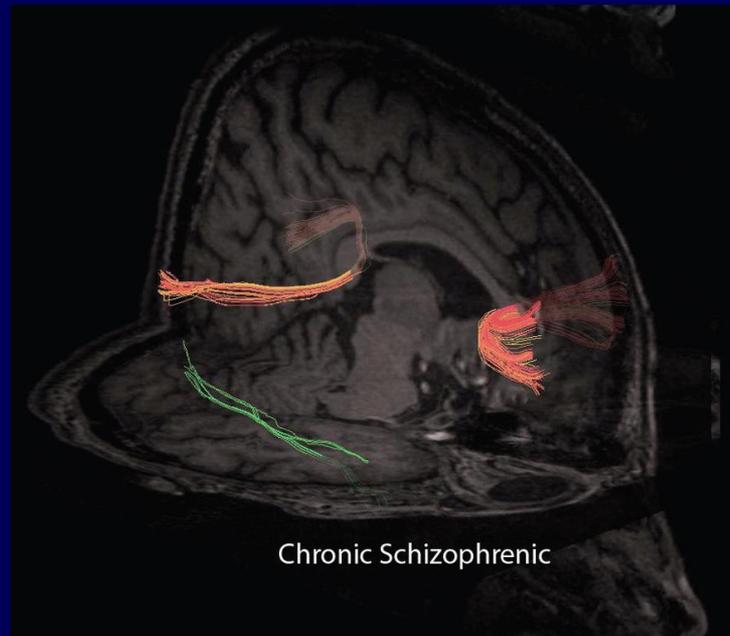




Normal Control



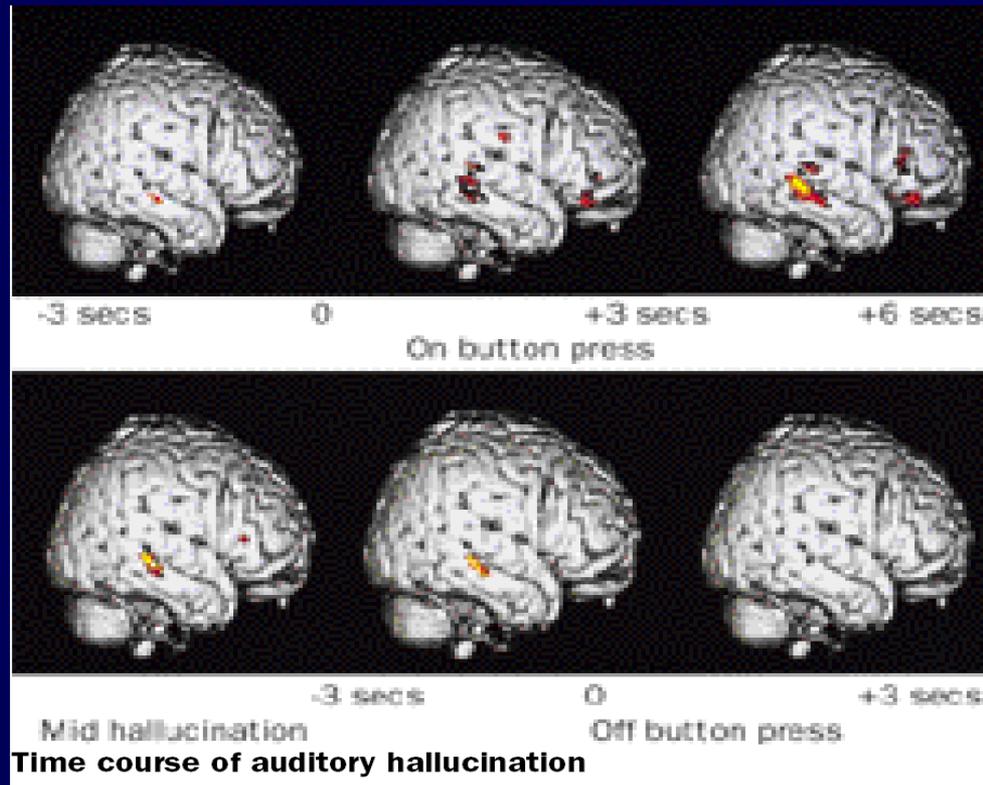
First Episode Schizophrenic



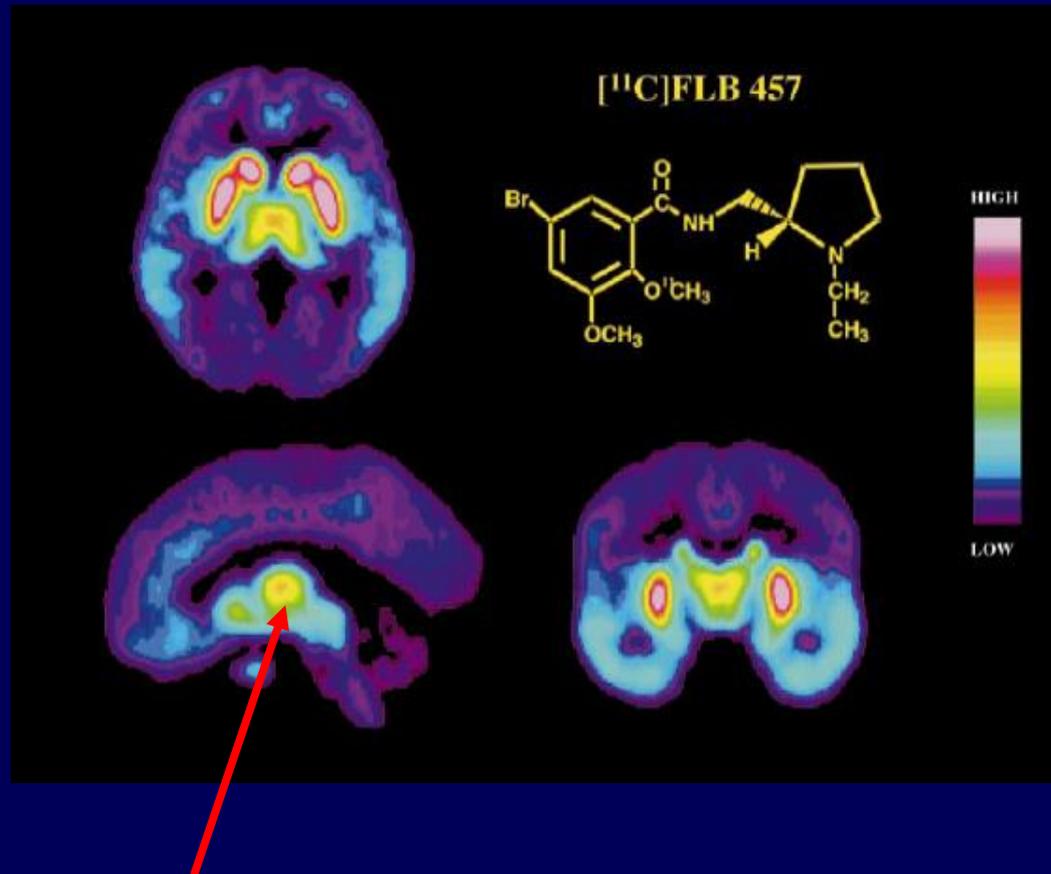
Chronic Schizophrenic

Friedman 2008

# Brain activation during auditory hallucinations



PET shows increased release of the neurotransmitter **DOPAMINE** in schizophrenia

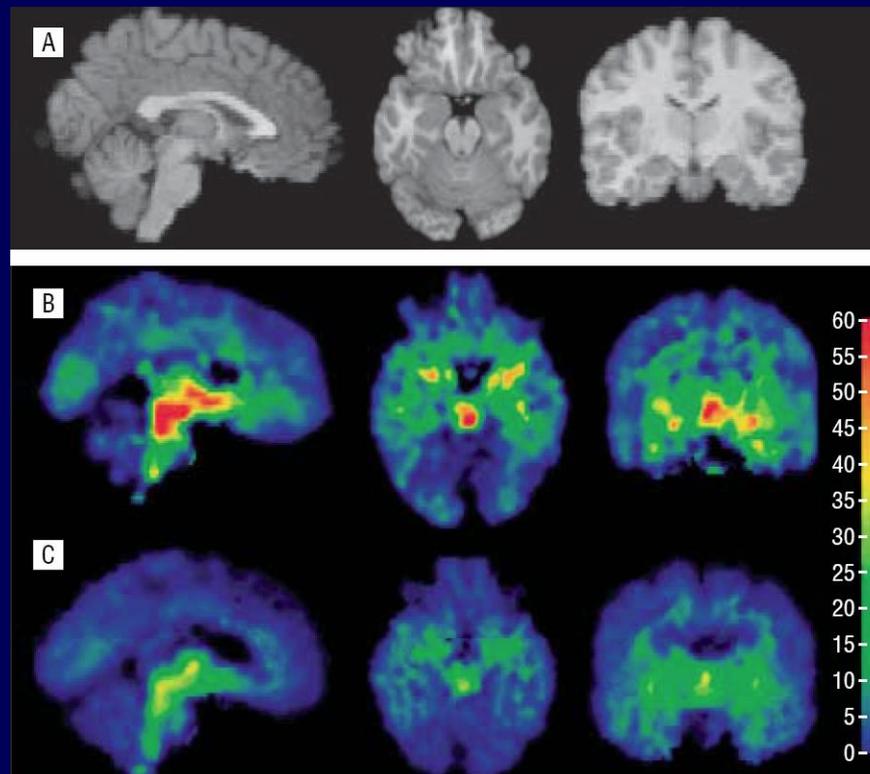


**Antipsychotic drugs**, such as haloperidol, block dopamine in the brain and reduce hallucinations and delusions

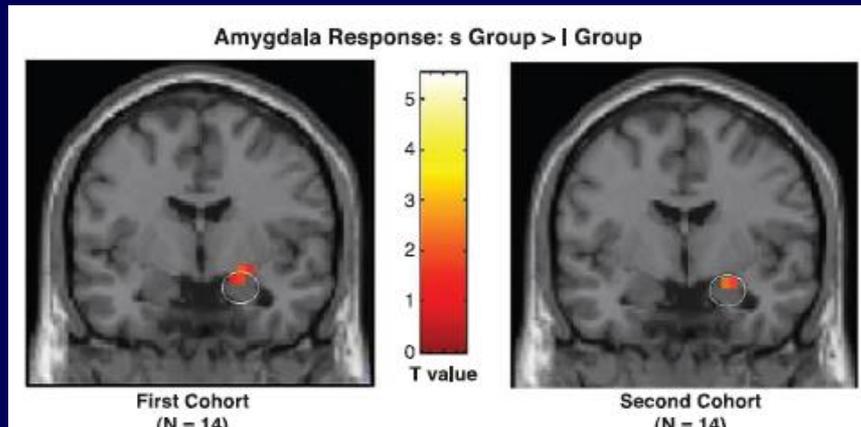
Depression = the level of **serotonin** is too low in your brain?

No, but depressed patients (C) have **fewer transporter** molecules pumping back serotonin from the synaptic cleft to the neuron

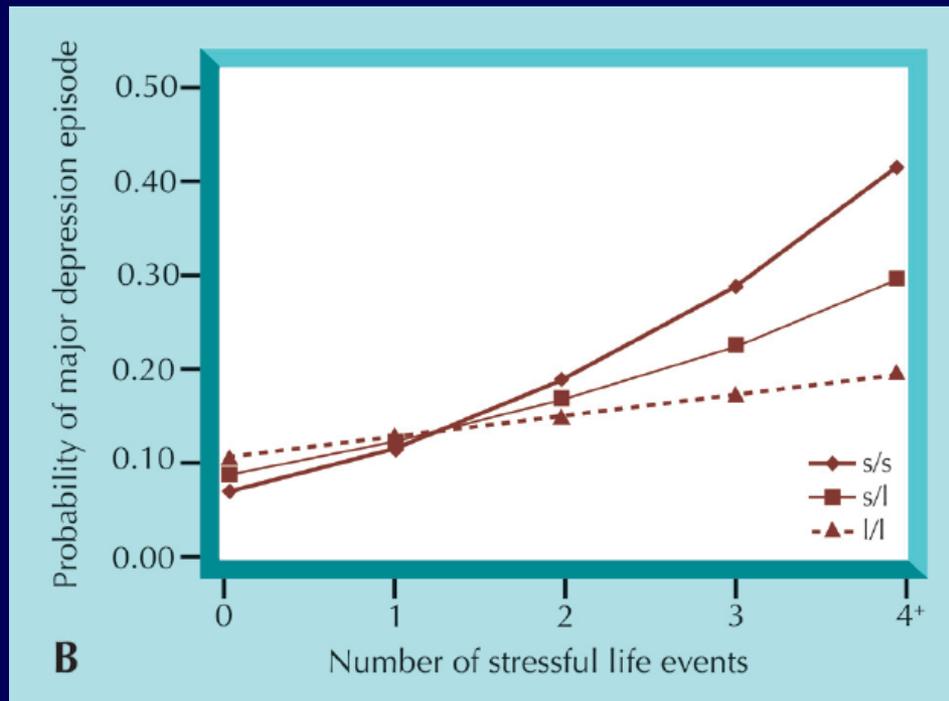
Antidepressants, such as **Prozac**, act on these molecules



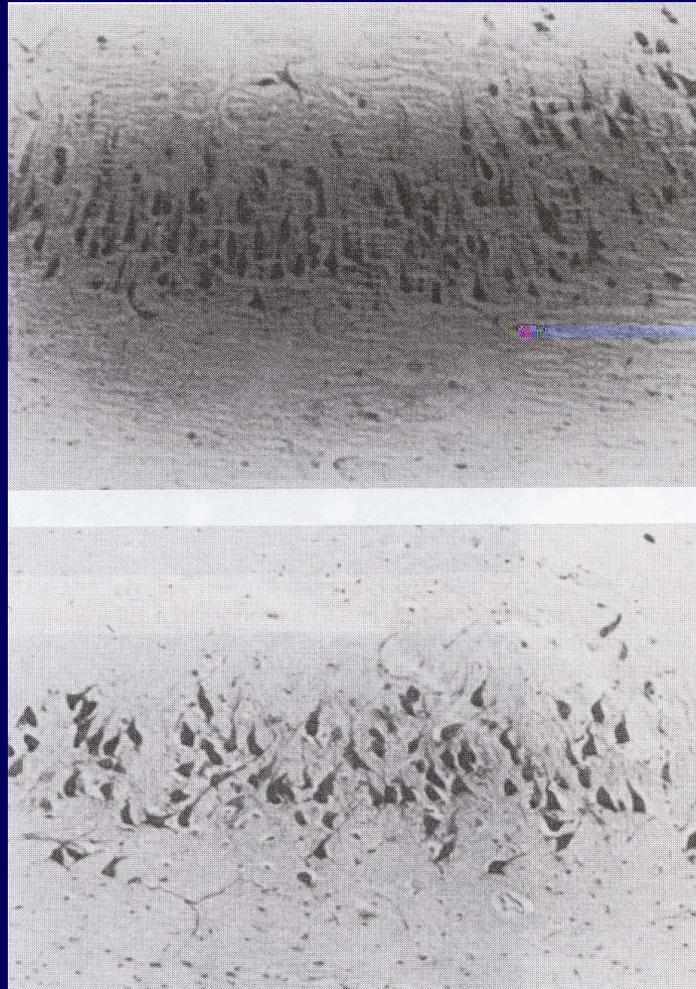
# The genetics of the serotonin transporter affects your vulnerability to stress



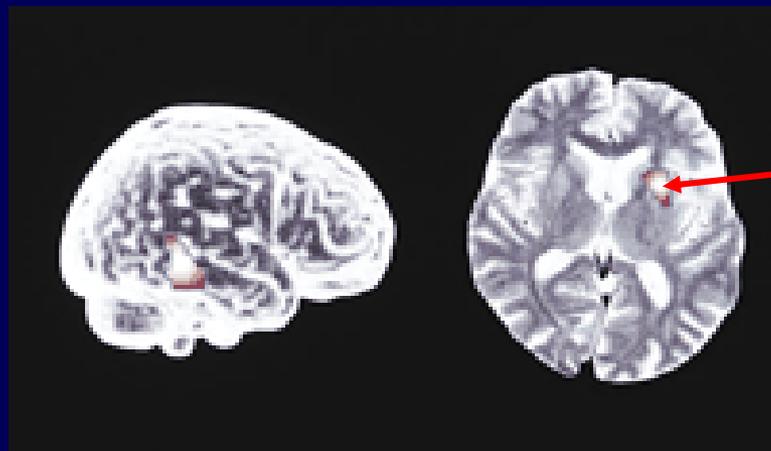
**Serotonin transporter**  
short (*s*) and long (*l*) versions



# Cells are abnormally localized and disorganized in the brain of schizophrenia patients



# The effect of antidepressants (venlafaxine) and interpersonal psychotherapy on brain activation (fMRI)



# Psychiatry in practice

# Clinical practice

- What is the definition of a psychiatric disorder?
- What kind of disorders do we treat?
- What methods do we use?
- How does the system work?
- What is the perspective for a mentally ill?

# Simple questions, difficult answers

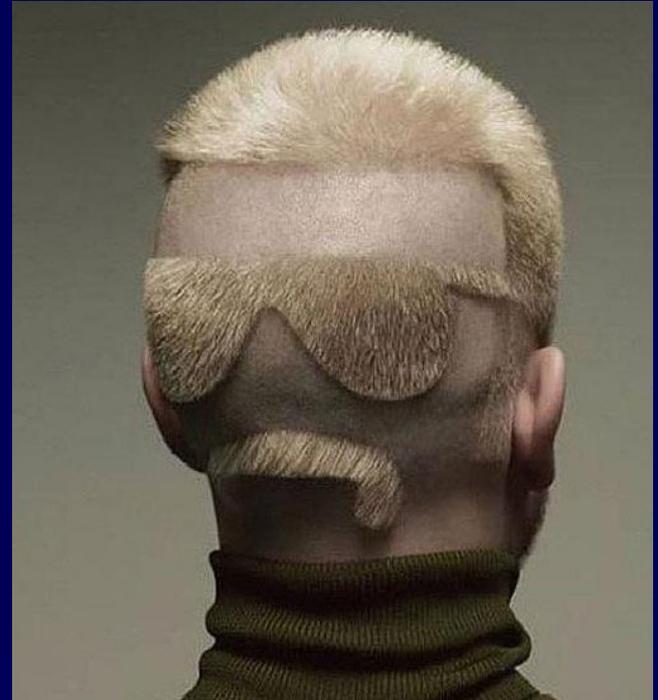
Have you ever

- felt depressed or anxious?
- had problems with attention and memory?
- felt that strange things happen to you?
- believed that ghosts and aliens exist?
- been frightened?
- had sleeping problems or nightmares?
- had problems with alcohol or drugs?

If so, do you have a psychiatric disorder?

Psychiatric disorder:

- fulfil official diagnostic criteria
- severe and prolonged symptoms
- functional impairment (academic, work, social life)



**DSM-5: Diagnostic and Statistical Manual of Mental Disorders (2013)**

# How to make a diagnosis in psychiatry?

- **Exploration** (+ physical examination)
- **Observation**
- Heteranamnesis
- Diagnostic questionnaires/interviews
- Rating scales
- Laboratory tests
- Imaging

# Mental disorders

- Psychotic disorders
- Mood disorders
- Anxiety disorders
- Substance use disorders
- Eating disorders
- Organic mental disorders
- Neurodevelopmental disorders
- Etc.

# Psychotic disorders

**Psychosis: loss of contact with reality**

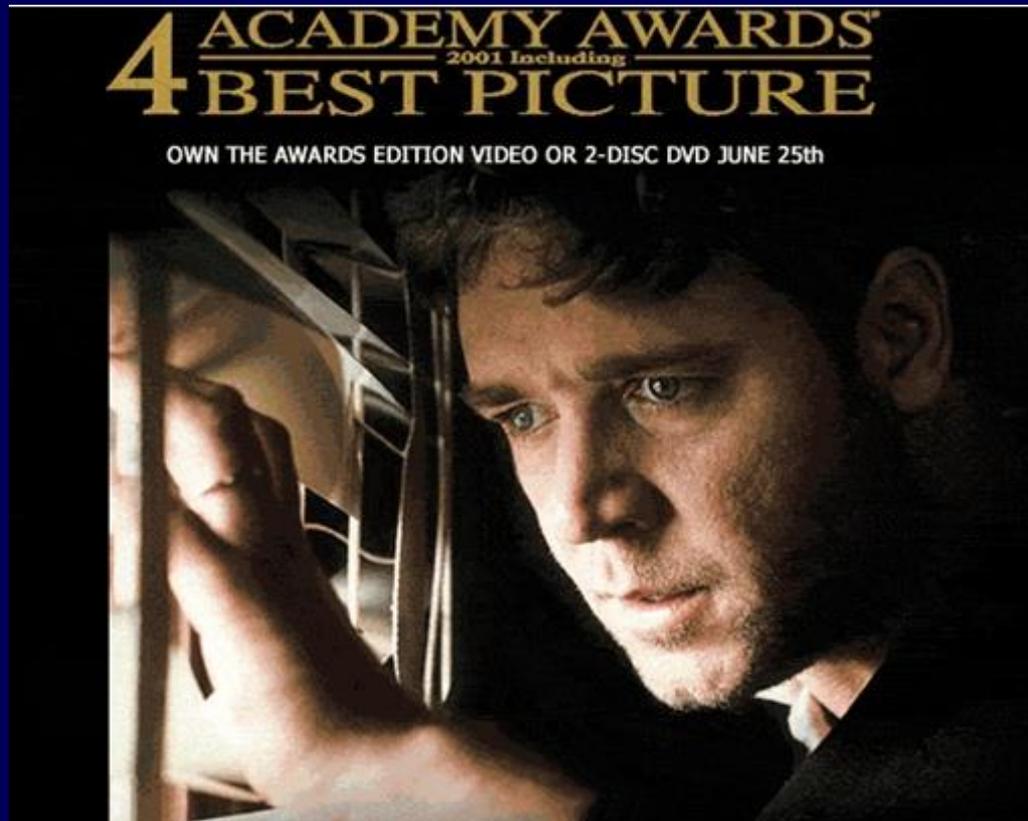
Delusion, hallucination, strange or bizarre behavior, emotional disturbance

- Schizophrenia ~1%
- Schizoaffective disorder
- Paranoia
- Psychosis due to other mental illness

A story of a famous mathematician, John Nash, who lived with

**SCHIZOPHRENIA:**

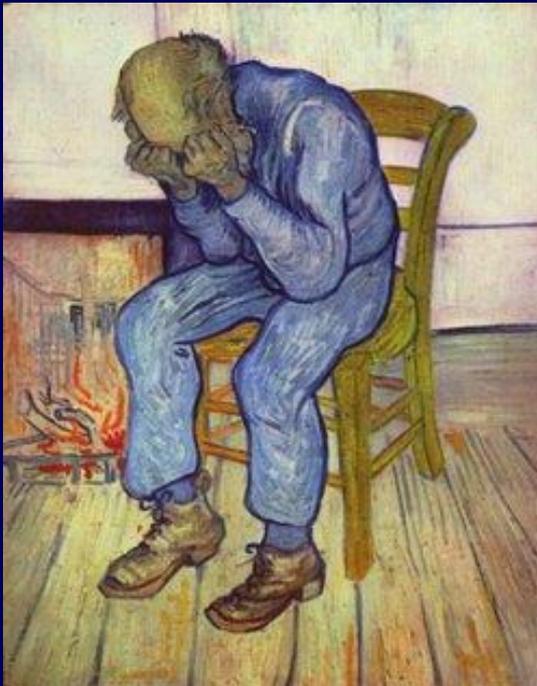
- **Hallucinations** (e.g. voices in your head giving you messages)
- **Delusions** (e.g. false beliefs of persecution or special power)



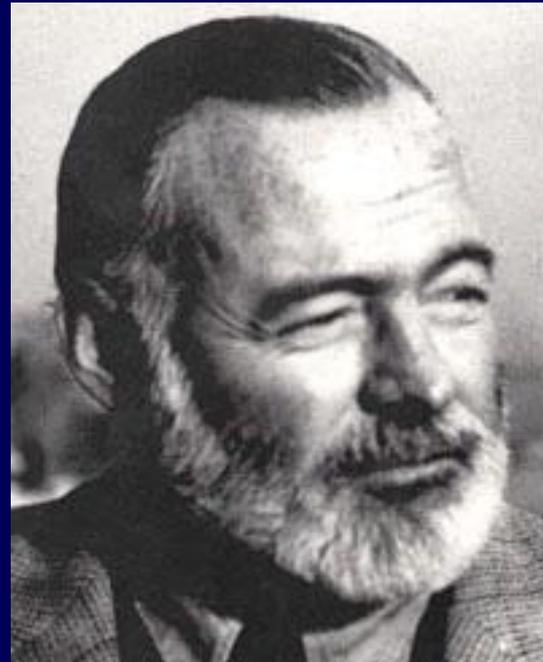
# Mood disorders

- Major depression (unipolar) ~3%
- Bipolar disorder ~1%
  - depression
  - mania
  - mixed
- Dysthymia
- Cyclothymia

**DEPRESSION:** abnormal sadness, loss of joy and motivation, decreased energy, desperation, and suicide



Van Gogh



Hemingway

# Anxiety disorders

- Panic disorder **~4-5%**
- Generalized anxiety
- Phobias
  - agoraphobia
  - **social phobia ~10%**
  - specific
- Obsessive-compulsive disorder **~2-3%**
- PTSD



# Substance use disorders

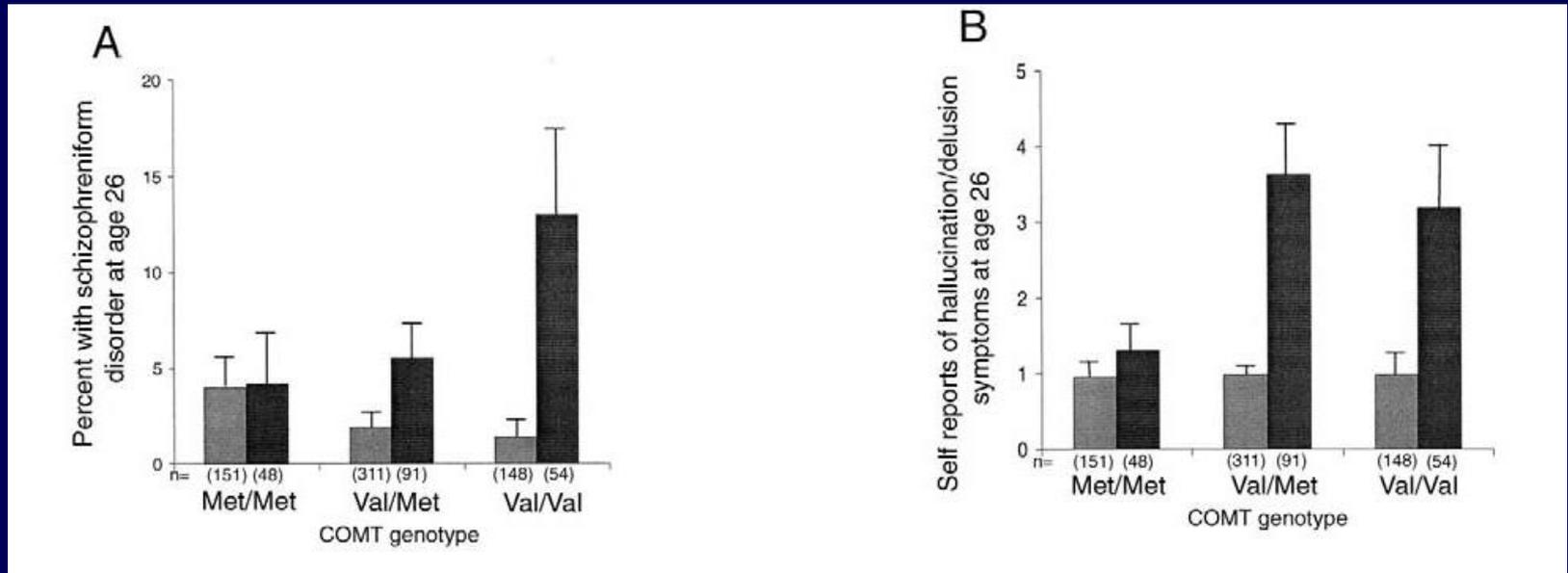
- Nicotine
- Alcohol
- Cannabis
- Amphetamine  
(speed, ecstasy)
- Cocaine
- Heroin
- Designer drugs



# Cannabis and schizophrenia

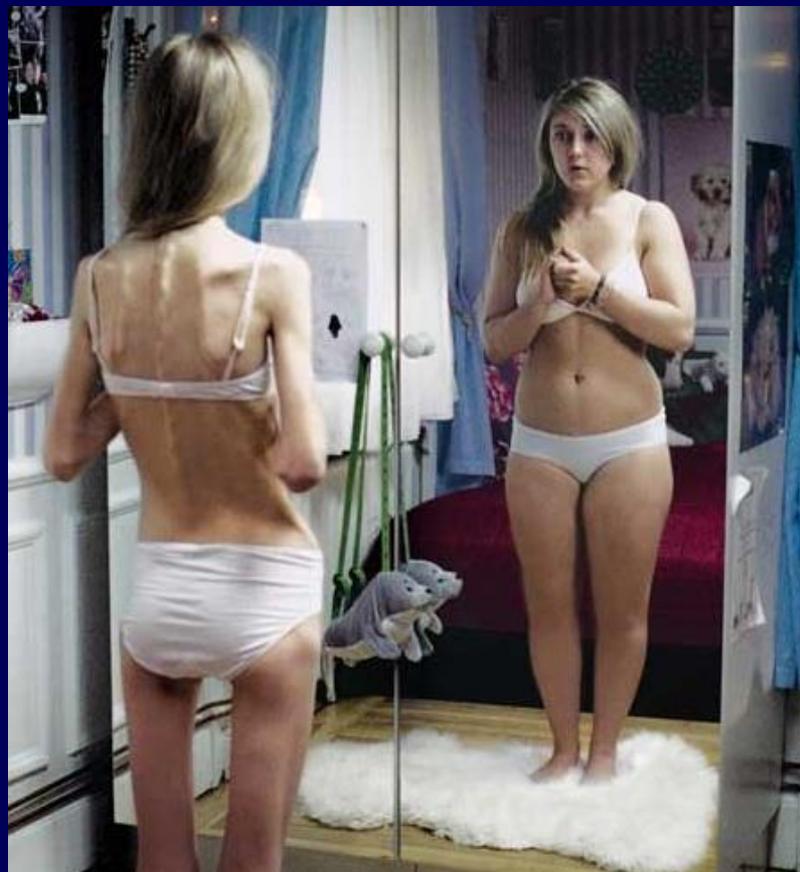
## Gene-environment interaction

Psychosis (SCH) risk for **COMT Val158** carrier cannabis users



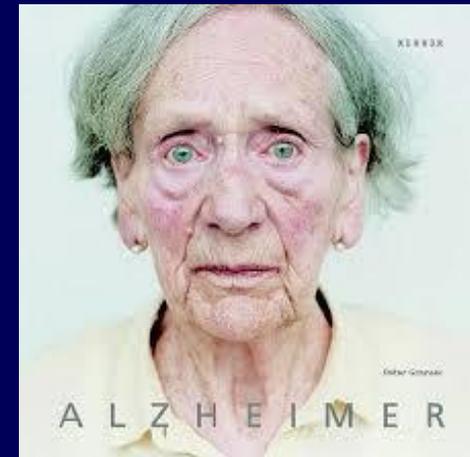
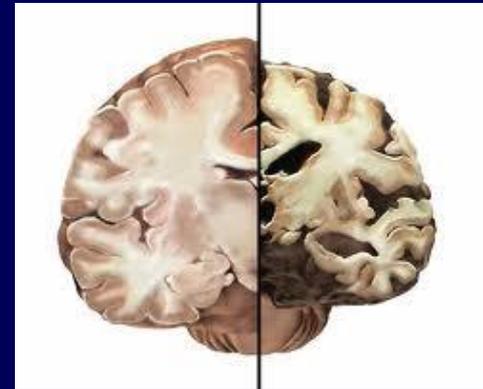
# Eating disorders

- **Anorexia**  
Weight loss > 15%  
Fear of becoming fat  
Disturbance in body experience
- **Bulimia**
- **Binge eating**
- **Night eating**
- **Muscle dysmorphia**



# Organic mental disorders

- Dementias
  - Alzheimer's disease
  - Vascular dementia
  - More than 100 types...
- Mental retardation
- Psychiatric disorders due to internal or neurological conditions



# Neurodevelopmental disorders

## Childhood disorders that continue into adulthood

- **Attention deficit hyperactivity disorder (ADHD)**
  - 60% of children with ADHD
  - Stimulants treatment
  - Decreases rate of criminality, accidents, mortality
- **Autism spectrum disorder (ASD)**
  - Treatment???
  - Social and life skill programs



# Suicide

- Suicide attempt
  - Risk factors: untreated depression, psychosis, SUD, social problems
  - 50% of schizophrenia and bipolar patients
- Completed suicide
  - 2-40/100.000 people/year worldwide
  - ~10% of schizophrenia patients
  - ~20% of bipolar patients

**PREVENTION WITH APPROPRIATE TREATMENT!**

# Mental health system

- **Outpatient departments**  
Community care, private practice

- **Hospitals**

Forms of admission:

- Voluntary
- Involuntary  
(in case of violent or  
self dangerous behavior)

- **Long-term programs** for patients with SUD



# Therapeutical approaches

- Pharmacotherapy
- Biological treatments
  - ECT (electroconvulsive therapy)
  - Psychosurgery (for OCD)
  - Light therapy
- Psychotherapy
- Social therapy



# Psychotherapy

**Interaction and communication between 2 (or more) persons**

## **Aims of psychotherapy**

- reduction of symptoms, increasing coping skills, better insight and personality development

## **Non-specific factors**

- understanding, acceptance, empathy, congruence

## **Specific factors**

- gaining insight into the unconscious, modifying abnormal thinking, correcting abnormal relationships

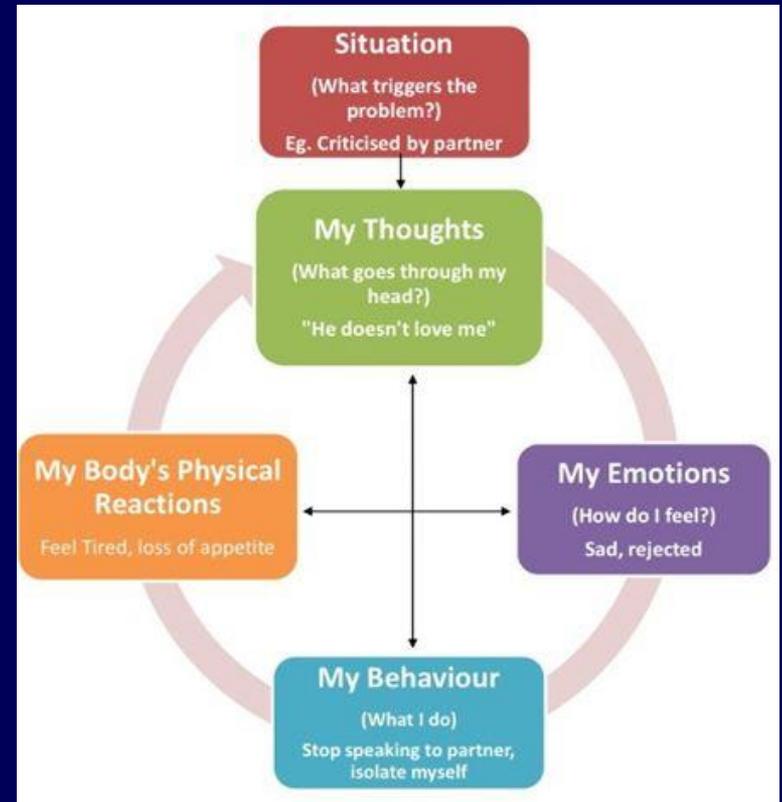
# Modern psychotherapy

## COGNITIVE BEHAVIOR THERAPY

- Focusing on abnormal thinking (e.g. extreme pessimism and hopelessness in depression)

## INTERPERSONAL PSYCHOTHERAPY

- Focusing on human relationships (e.g. dispute, role changes, grief, communication skills)



# Modern social therapy

Instead of large institutions to “store” the patients:

1. Case manager that helps the patient in everyday activity
2. Sheltered houses
3. Supported employment
4. Daytime “hospitals” and clubs
5. Social skill training

# Forensic psychiatry

## Meeting point of psychiatry and the law

### Assessment

- Supervision of involuntary admissions
- Court ordered psychiatric assessment of offenders (expert witnessing)

### Treatment

- Inpatient and outpatient treatment of offenders with mental disorders
- Psychiatric care in prison and police custody



#### COMMENT

### The Breivik case and “conditio psychiatricica”

JOSEF PARNAS

#### SPECIAL ARTICLE

### The Breivik case and what psychiatrists can learn from it

INGRID MELLE

# Concluding remarks I.

- The roots of psychiatry: religion, alchemy, philosophy, psychology, and neuroscience
- From black bile and demons to “mindreading” techniques of fMRI/PET and genes
- From torture and misery to humanity and empathy

# Concluding remarks II.

**Psychiatry** is (one of) the

- most colorful
- most difficult
- most challenging
- most exhausting
- most prospective discipline of medicine.

**Thank you for your attention!**