

Schizophrenia



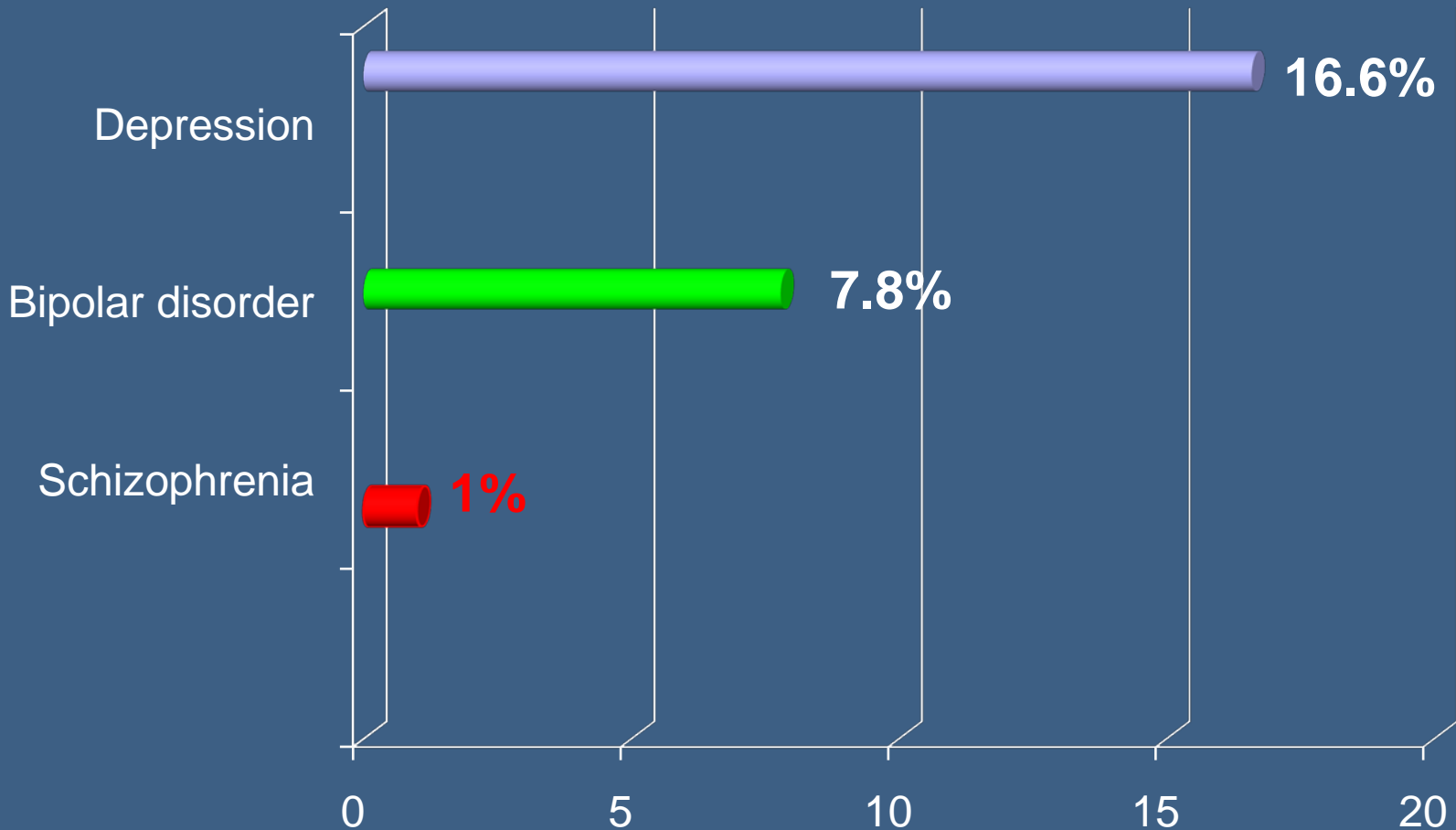
Abboud Antoine Assaf
Availability Amability Ability

What is schizophrenia?

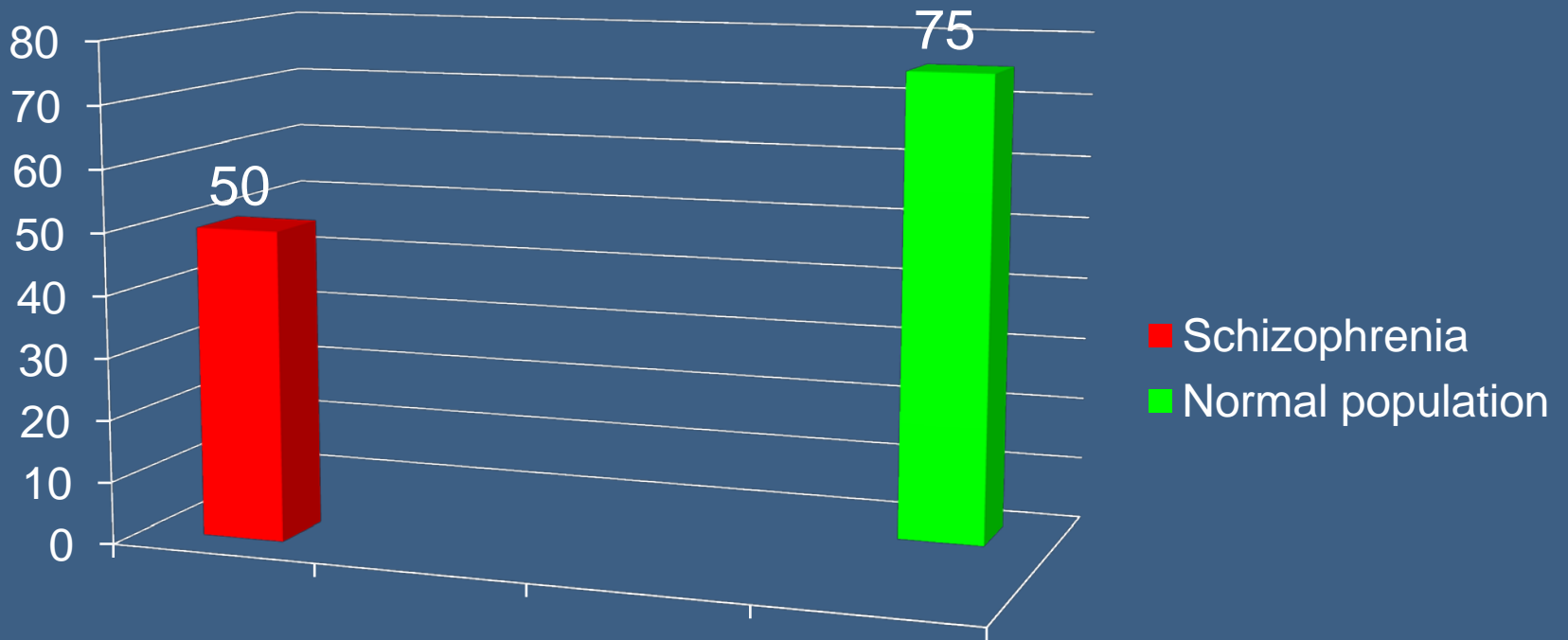
It is not going crazy...

- Schizophrenia is the most handicapping psychiatric disease.
- It is a biological disease by excellence (in contrast to what may be deduced from its symptoms as being a certain form of diabolic possession).
- The noncompliance of the schizophrenic patient who does not believe he is sick complicates the treatment furthermore.

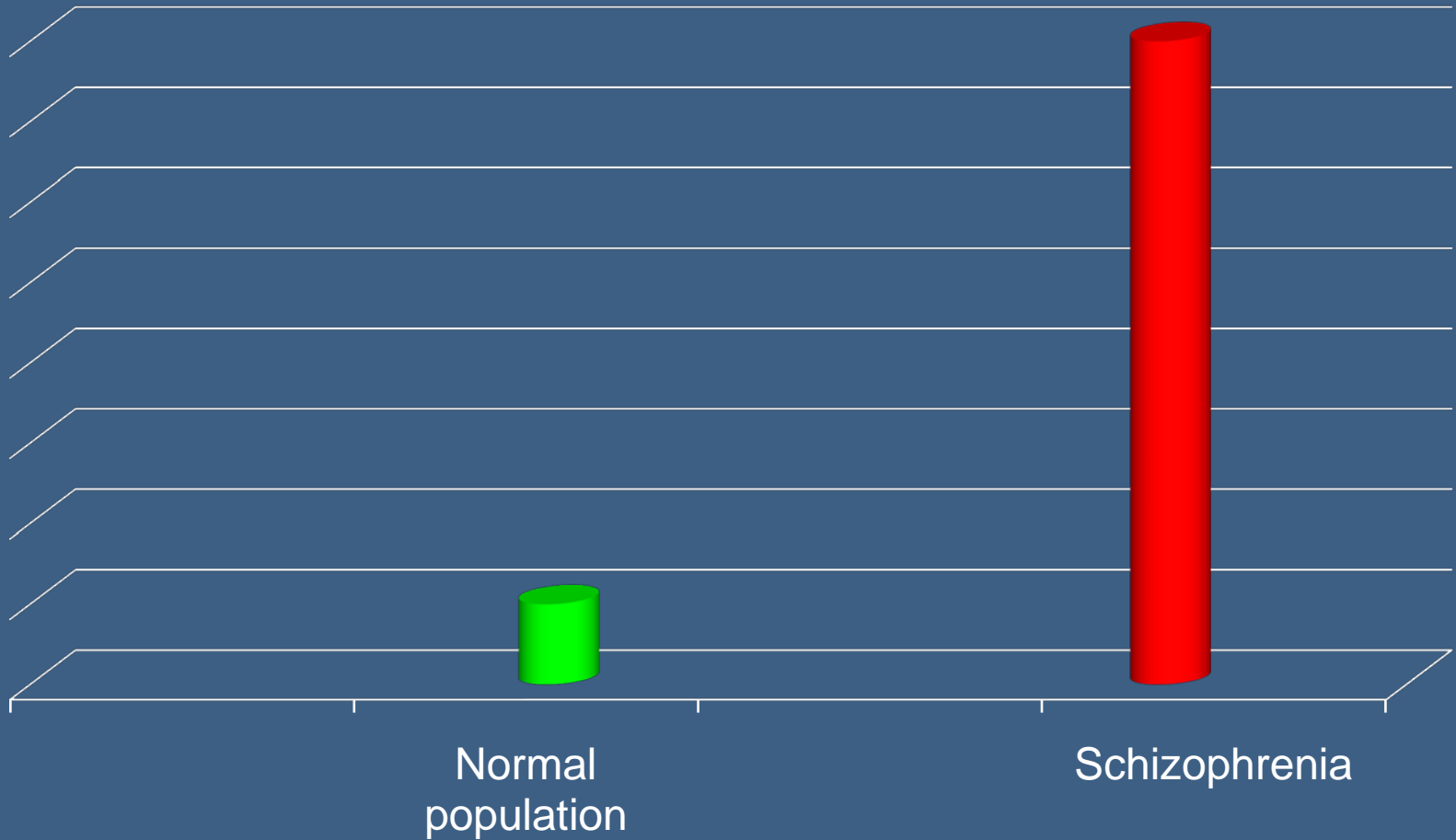
Lifetime prevalence: 1% of the population



Life expectancy: 25 years loss...



Mortality rate: 8 times more...



Why the increased mortality rate?

- 1- Due to the very high rate of suicide (**25-50%** of schizophrenic patients attempt suicide, and **10%** eventually succeed).
- 2- Due to premature cardiovascular disease caused by:
 - A- Genetic factors
 - B- Lifestyle choices (sedentarity, unhealthy diet, smoking)

Features of Schizophrenia

Positive Symptoms

Delusions
Hallucinations
Disorganized speech
Catatonia

Negative Symptoms

Affective flattening
Alogia
Avolition
Anhedonia
Social withdrawal

Social/occupational Dysfunction

Work
Interpersonal relationships
Self-care

Cognitive Deficits

Attention
Memory
Executive functions
(e.g., abstraction)

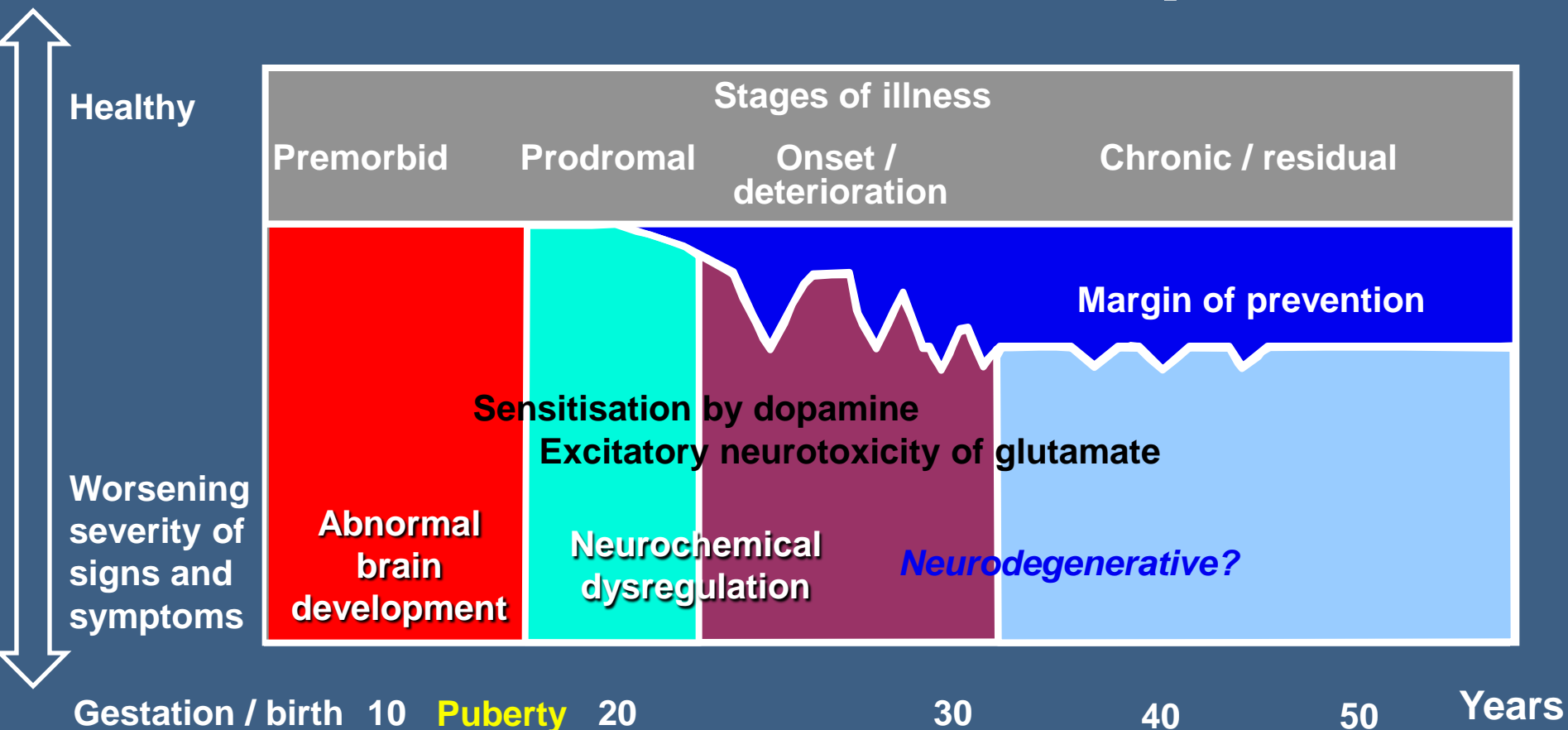
Comorbid Substance Abuse

Mood Symptoms

Depression
Anxiety
Hopelessness
Demoralization
Stigmatization
Suicidality



Schizophrenia: An abnormal brain development...

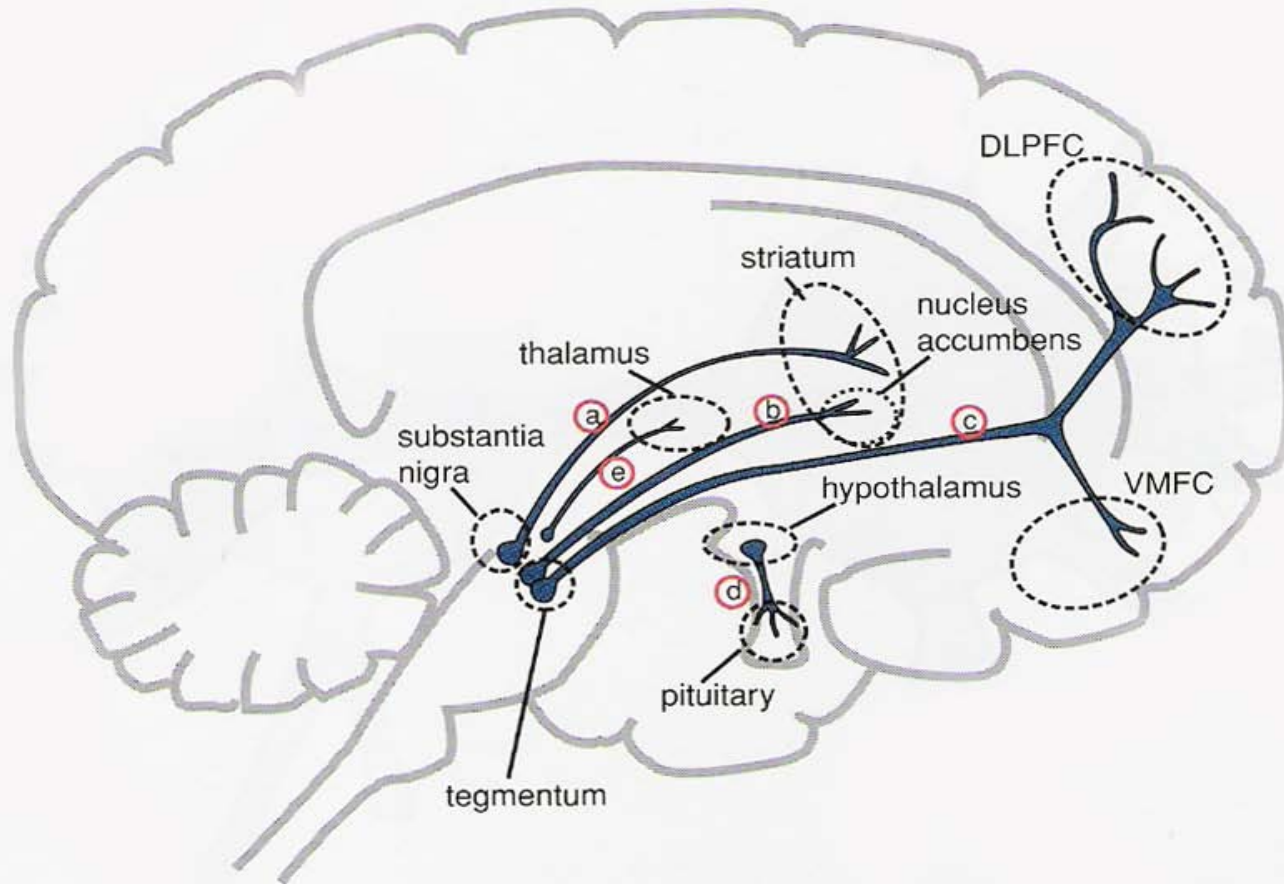


Schizophrenia: Dysfunctional brain dopamine

- **All the studies done in schizophrenia converge to the hypothesis of an abnormal brain dopamine activity**
- **This neurotransmitter may be hyperfunctional in certain brain regions and hypofunctional in others**

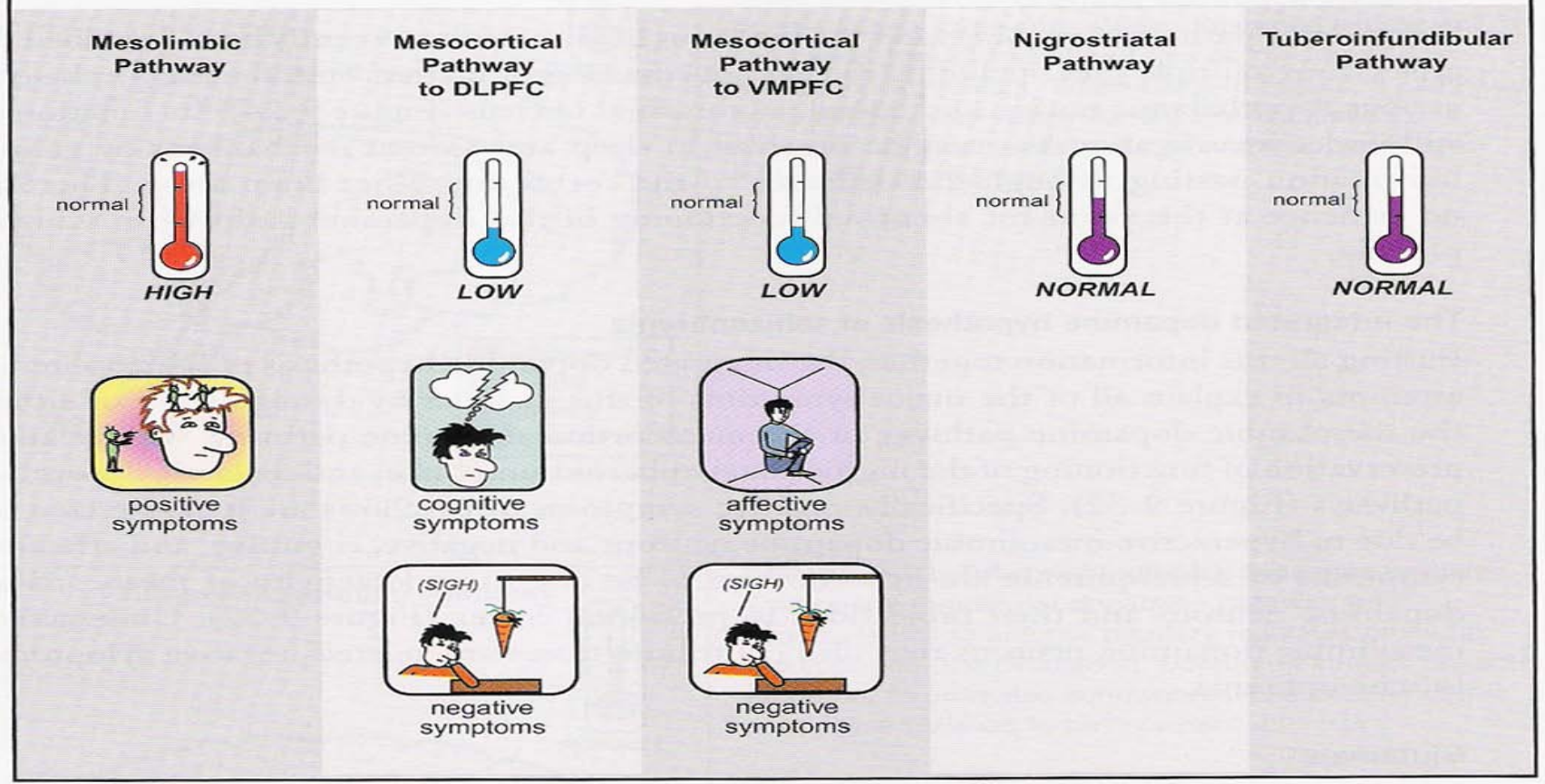
Dopamine – *The 5 pathways*

Dopamine Pathways and Key Brain Regions



Schizophrenia: Dopamine activity

The Integrated Dopamine Hypothesis of Schizophrenia



Schizophrenia: Glutamate, a new finding

- New data in schizophrenia reveal the presence of another abnormal brain neurotransmitter: **glutamate**
- Specifically, a hypofunction of one type of its brain receptors, the **NMDA** (N-Methyl-D-Aspartate) receptor, is thought to be responsible of causing the symptoms of schizophrenia
- How?

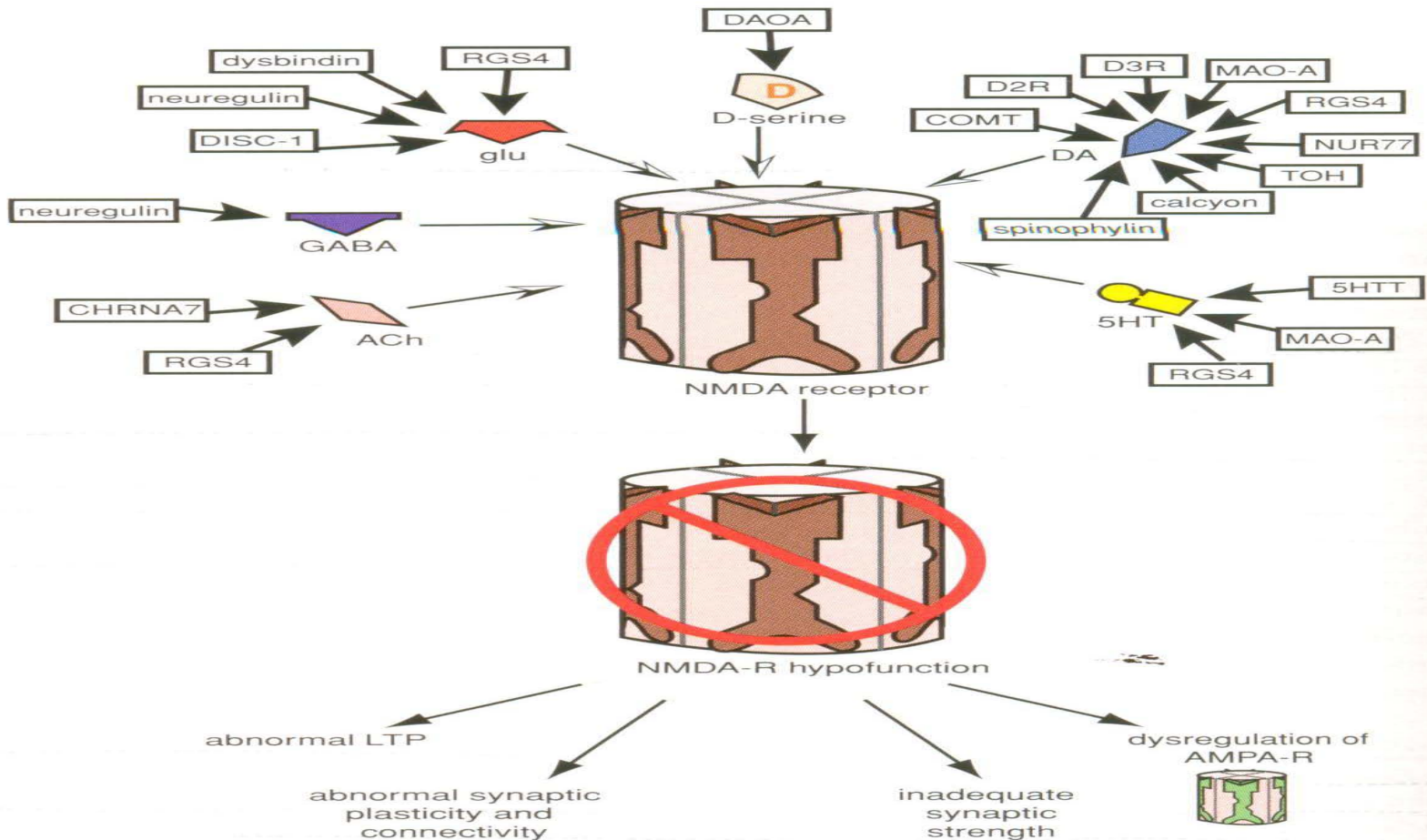
Schizophrenia:

Elimination of “weak” brain synapses

- NMD receptors mediate **LTP** (Long Term Potentiation) of brain synapses (connections between neurons) , a phenomenon that makes a synapse more efficient
- Genetically **hypofunctional NMDA** receptors cause “**weak**” **synapses** to be eliminated during the normal synaptic restructuring that persists through adolescence.
- It is possible that this phenomenon is responsible for the onset of the disease in the late teens to twenties: elimination of “**weak**” but critical synapses will unmask the anomalies of neurodevelopment silent so far.
- Constant synapse restructuring in adulthood will eliminate more “**weak**” synapses and is responsible for the progressively deteriorating aspect of the disease.

NMDA receptors: A key role in the brain

NMDA Receptor Hypofunction Hypothesis of Schizophrenia: Key Neurotransmitter Modulators and Multiple Susceptibility Genes Converge on NMDA Receptors



Schizophrenia: The positive symptoms

