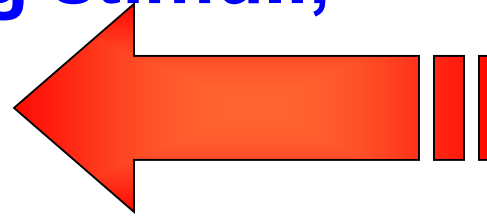


Drug addiction theories and brain structures involved

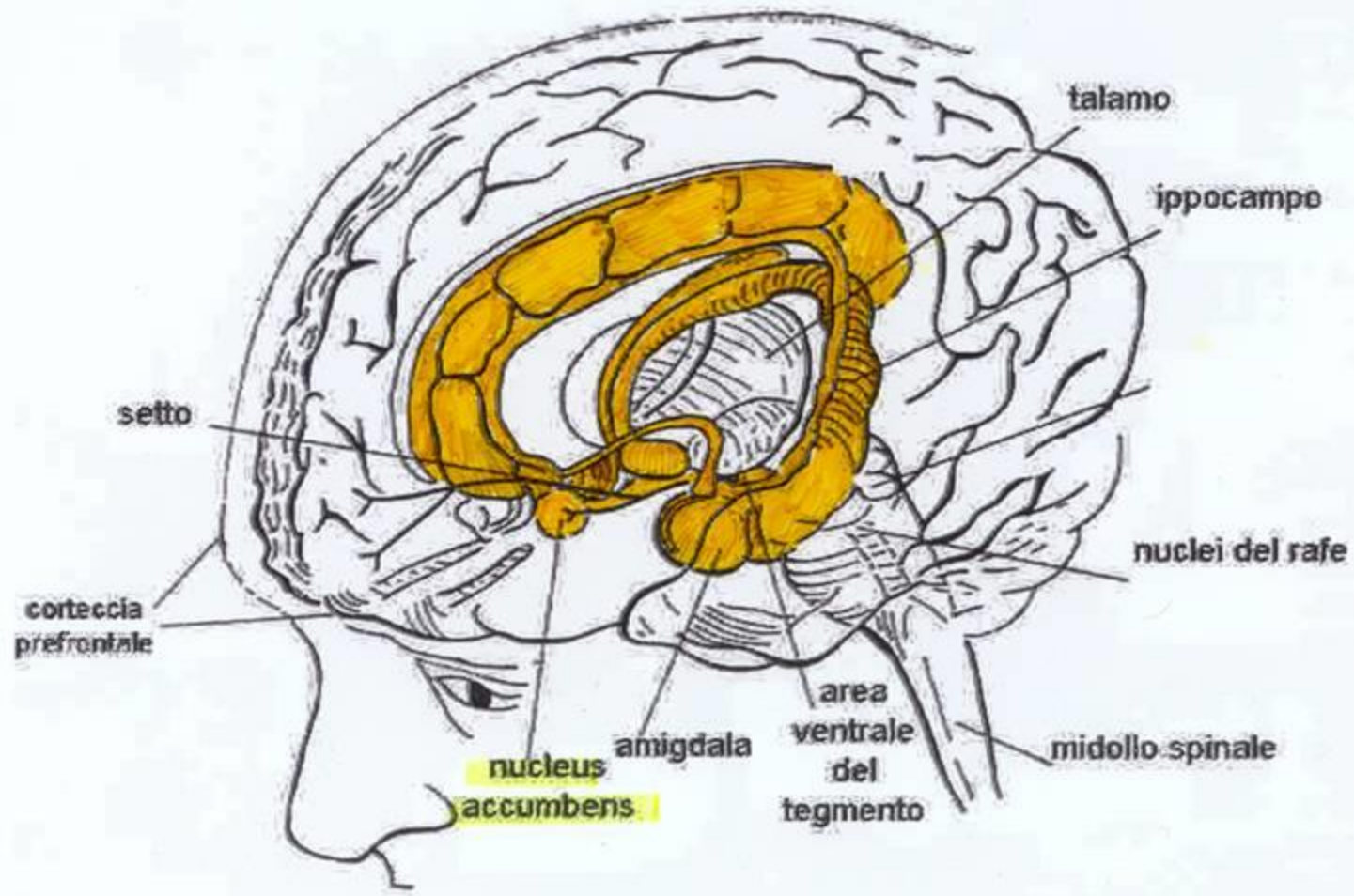
**... substances of abuse
have, in common with
natural rewarding stimuli,
property
to stimulate
neuronal transmission in
the brain and replacing
endogenous transmitters
in communication between
neurons ...**



**Morphine
Heroin**

**alcohol
nicotine
cocaine
amphetamine
ecstasy
THC**

Limbic System



... the limbic system is a set of brain structures - phylogenetically very ancient - therefore common to many animal species including humans ...

.. is involved in controlling emotions and affectivity, and in general in the expression of motivated behavior ...

... Differently from natural reward stimuli, abuse substances stimulate in an abnormal way and out of control the limbic system ...

... Substances of abuse use DO NOT DEPEND from activation of stimuli

... They are involved in controlling emotions and affectivity, and in general in the expression of motivated behavior

Substance of abuse directly reach the brain and directly activate the same mechanisms activated by natural rewards

The result is that substance of abuse escape from the mechanisms that control the action of natural rewards

Drugs of abuse

cause long-lasting (permanent ?)
changes in the brain

Addiction / Relapse

Experience

induces stable changes in the brain

Memory formation

Substances of abuse

Raise the mood and produce gratification

Facilitate associated learning

Are self-administered

common to humans and experimental animal



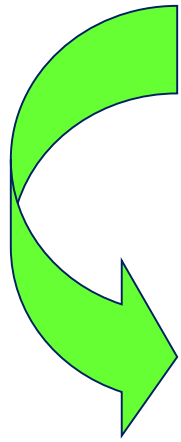
**Biological
distinctive
trait**



ALTERATION OF MOTIVATIONAL STATE

MOTIVATION

Process through which the organisms finalize their behavior to control the environment in relation to their own needs



DEPENDENCE

Disorder of Motivation

**Excessive
control on behavior
from substances
and stimuli
associated to them**

**Motivation
is addressed
in an abnormal
and compulsive way
towards the drug**

Physiological adptative changes

- 1. Tolerance**
- 2. Physical dependence**

Loss of control over drug use

- 1. Persistent desire and failure of stopping the drug use**
- 2. Utilization of the substance for longer periods and in dosages higher than programmed**
- 3. Continuation of use in spite of medical, social and familiar problems**

BEHAVIOR FINALIZED TO OBTAINING AND ASSUMING THE DRUG

- 1. Reduction of familiar, social and recreational activities**
- 2. High amount of time spent in relation to the substance**