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
... 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

Memory formation induces stable changes in the brain.

Experience
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 adaptive 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