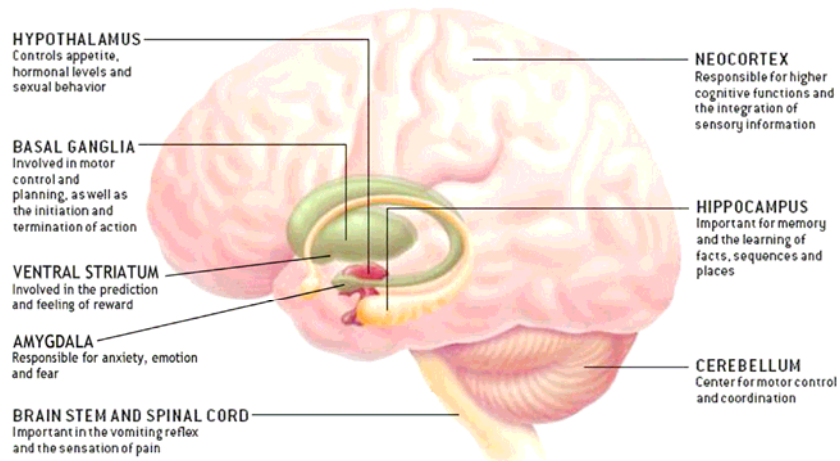


# PSYCHOPHARMACOLOGICAL PROPERTIES



Marijuana is a very powerful, mind and mood altering drug. A very small amount, i.e. 2-3 mg of THC, can produce a high. A single cigarette may contain as much as 20-30 mg or more. Research is also finding higher levels of THC today - approximating 9.6% (far above the 4% levels of the 70s) and as much as 32.7 percent. As an euphorohallucinogen, the effects are particularly sensitive to individual differences in personality and environment settings, and may vary widely. At moderate to high doses of THC mood varies considerably - anxiety and panic have been reported and depression may also be enhanced. Impairment of short-term memory, disturbances in thought patterns, lapses in attention, depersonalization, and sensory distraction also occur. Larger doses can bring on stronger distortions of time and space, illusions, mental confusion and panic reactions. Marijuana's effects begin immediately and last from 1-to-3 hours. If consumed in food or drink, effects begin more slowly but last longer. When smoked, its active ingredient, THC, travels throughout the body, including the brain, to produce its many effects. THC attaches to sites called cannabinoid receptors (abundant in parts of the brain that regulate movement, coordination, learning and memory, and higher cognitive functions such as judgment, and pleasure) on nerve cells in the brain, affecting the way those cells work. THC activates the reward system in the brain by stimulating brain cells to release the chemical dopamine. But besides euphoria, marijuana may also produce anxiety, fear, distrust or panic, and impair a person's ability to form memories, recall events, and shift attention from one thing to another. Users who have taken high doses of the drug may experience acute toxic psychosis with hallucinations, delusions, and depersonalization - a loss of the sense of personal identity.

THC owes many of its effects to its similarity to chemicals called the endogenous cannabinoids. THC overstimulates the cannabinoid receptors, disrupting the endogenous cannabinoids' normal control. Over time, use may degrade some cannabinoid receptors, possibly producing permanent adverse effects including addiction and risk for a withdrawal syndrome. In the brain it can affect the Hippocampus (learning and memory functions), Cerebral Cortical regions (higher cognitive functions), Nucleus Accumbens, and Basal Ganglia. It can also affect the Hypothalamus, Amygdala, Spinal cord, Brain stem, Central gray, and Nucleus of the solitary tract. Researcher Gabriella Gobbi found that daily marijuana use could permanently alter serotonin and norepinephrine levels in the brain, raising the risk of depression and anxiety long term. Finally, little is known about the many other chemicals in marijuana, or their possible deleterious effects.

**"In fact it is significant that many researchers and physicians who originally thought marijuana to be a harmless substance and who had a tolerant or lenient stance, have been fully compelled to revise their views and now find that marijuana is a dangerous drug."**

**- Robert J. Lindsey, President and CEO  
National Council on Alcoholism  
and Drug Dependencies (NCADD)**

RESOURCES: National Institute on Drug Abuse Research Report Series Marijuana Abuse, September 2010 • Daily Marijuana Use Could Cause Permanent Brain Damage, Researcher Says, Gabriella Gobbi, Neurobiology, December 2009 • New Report Finds Highest-Ever Levels of THC in U.S. Marijuana, Office of National Drug Control Policy (ONDCP), June 13, 2008.