

## New Dimension in Drug Addiction Therapy

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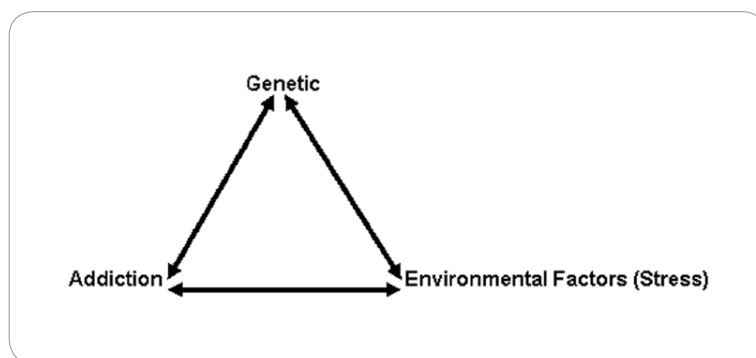
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Drug addiction has been considered as chronic, uncontrolled, and compulsive drug taking despite of its diverse side effects (Koob, 2009). The neural circuits and brain substrates underlying this phenomenon is well established in recent years (Koob and Le Moal, 2008). In this matter, the dopamine mesocorticolimbic system seems to play a central role (Beitner-Johnson, et al., 1992). However, despite of amazing progress in our knowledge on how abused drugs acts in the central nervous system, the outcome of the clinics for treatment of drug addiction are still low and hopeless (Koob, 2009). Studies on how drug of abuse acts on central nervous system have showed that 1) the brain stress system is participated in the action of the drugs and it may incorporated by the main effects of drugs by releasing of stress hormones including cortisol, 2) chronic activity of stress system can lead to irregular brain function, 3) drugs of abuse can redirect the brain function to the regular state in short term, which in fact encourage the

user to continue drug taking, 4) chronic drug use induce morphological as well as functional changes in the brain especially in mesocorticolimbic dopaminergic system, which are sustain in nature, and 5) genetic factors also are among important factors in initiation and extension of drug abuse (for rev see: Koob and Le Moal, 2008; Nestler, 1994).

These data can be summarize in a triangle with drug abuse in the first side, stress -as a main environmental factor- in the second side, and still genetic factors in the tired side (Fig. 1). The factors mentioned in the figure 1 can interact with each other in the way that the brain functions more irregular. This irregularity is the major problem in treatment of drug of abuse and is the main reason for failure in efforts which take place. We believe that for any drug treatment effort, the major question is how we can intervene with this triangle?



**NEURSCIENCE**

**Figure 1.** Diagram showing the interrelationship between drug addiction and genetic and environmental factors. Note that among the most important factors affecting the drug abuse voluntary, stress plays a central role.

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Today, several methods are available for treatment of drug addiction including rapid detoxification (RD), ultra-rapid detoxification (URD), methadone maintenance therapy (MMT) and drug tapering (Kreek, et al., 2008). In all of these methods, however, a sharp and sudden drug interruption happens, so, cellular and molecular changes which are happen after drug interruption can not be control in the brain and another irregular phenomenon -drug sensitization- occurs which lead to relapse to drug use (Self and nestler, 1995). Among of these methods, drug tapering e.g. reduction of drug amount in a period of time, shows better effectiveness than other methods for treatment of drug addiction (Kreek, et al., 2008). However, this method also has hopeless outcome in long time, which the researchers have no discussion on negative results and drug abuse treatment seems to be stone problem against human knowledge (Kreek, et al., 2008). The answer may lie under the fact that the changes in brain cells morphology and function which induce by abused drugs must be redirected toward the normal structures by mean of a tool in which can guide the changes in the brain along the time.

By reviewing the outcome results of several clinics around the world, encounters taken place in a non governmental organization (NGO) in Tehran, IRAN, namely congress 60, that introduce a method which may be the answer of our question. Their method consists of a drug tapering by opium instead of methadone and with longer step time (e.g. 14 steps with 21 days each). Tapering began with 80% of the initial amount of opium and daily drug use take place in the regular manner e.g. the brain learn to work regularly and also the cells seem to adopt themselves with regularity of the program. Of course, psychological and familial supports also help the abuser to maintain in the drug treatment program. By this drug tapering regimen, the method seem to work more effective than previous methods since non of the treated abusers did return to drug taking during several years (C60 outcome package: [www.congress60.org](http://www.congress60.org)). However, still several questions remain to be resolved such as: what is the exact function of opium when deliver with gradual decrease dose over the time? Which system(s) are activating after the above mentioned regime in the brain? What changes occurred in the endocrine systems during the treatment period?

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