

The Science of 12 Step Recovery

From *A Doctor's Opinion about Marijuana Addiction* produced by Marijuana Anonymous in 2015. The author is Marvin D. Seppala, MD, Chief Medical Officer, Hazelden Betty Ford Foundation.

Addiction, like many other diseases, has both environmental and genetic risk factors. ...If you have addiction in your family, especially the immediate family, you are remarkably more likely to develop this disease. It does not matter if the others in the family are addicted to alcohol or cocaine, the risk of addiction to any substance increases with any addiction in the family.

There is no single gene for addiction and we do not currently have genetic testing that identifies those at high risk. It appears that a few hundred genes may be involved, complicating the development of such a test. **Some people have strong genetic risk factors and others weak; this is where the environmental risk factors come into play.**...If one of your parents has addiction, you are at least six times as likely as those without addiction in the family to develop addiction. If you have weak genetic risk, it may require significant environmental insults to tip the balance so that you become addicted.

Environmental factors that increase risk of addiction include early-onset use of a drug, especially in the early teenage years. Research has shown that early use correlates with increased likelihood of addiction later in life. **Psychiatric disorders increase the risk of addiction.** Sexual, emotional and/or physical trauma increase the risk of addiction. **Stress itself is a risk factor for addiction and has been found to contribute to relapse.**...Throughout my 27-year career working in addiction medicine, I have seen dramatic changes in our understanding **of addiction; it is now defined as a chronic brain disease.** This was certainly not the case when the original Twelve Steps were written in 1939, but even then it was referred to as a disease....

Addiction research has developed since the 1950s and accelerated dramatically over the past 30 years. **This research reveals a complex illness. It is often referred to as a bio-psycho-social-spiritual disease because its manifestations undermine all of these aspects of life. We now have a good understanding of the underlying brain pathology that results in addiction.**...

Many parts of the brain are critical to addiction, **but the two main parts involved are the reward center and the frontal cortex.** The reward center of the brain is involved in recognizing and responding to rewarding activities and experiences. Basically, if we like something, this part of the brain helps us to remember that, and provides the ability to do it again. It is a subconscious area of the brain, characterized primarily by behavioral responses designed to keep us alive. **Survival itself, then, is the ultimate function of the reward center.** It is also where all drugs of abuse, ... play their primary role in addiction. The frontal cortex is where we recognize problems, plan out solutions and make decisions....

Regular, long-term use also results in activation of internal stress systems which try to keep brain function normal. These stress systems cause adverse feelings such as anxiety and dysphoria resulting in a fairly negative emotional state which is felt during withdrawal. This negative emotional state becomes much longer lasting and is relieved only by a return to ...(addiction), unless the addict stops using altogether and for a substantial period of time, allowing the entire system to return to normal function....

Some people will wonder **how a spiritual program can be effective for a chronic disease of the brain.** The reward center is involved in all rewarding activities. It is there that recognition of differences in rewarding and pleasurable activities are noted and stored in memory. Highly rewarding experiences are prioritized and our memory of them ensures they are repeated.

Brain scanning studies have revealed that the experience of love as well as spiritual practices are recognized as rewarding. After an...addict has stopped using, and brain function starts to return to normal, love and spirituality can be powerfully rewarding.

... meetings and the fellowship of other ...members provide the experience of loving kindness on a regular basis. In addition, the foundation of the (12 Step) program is spiritual. The personal care and loving attention expressed by others, and the spiritual practice embodied in the recommended Twelve Steps of the program, directly and positively affect the reward center, the part of the brain that has been primarily altered by addiction. This spiritual program of action provides the necessary healing to allow an addict to attain a new life in recovery from ...addiction: a life with hope.