

The Addictive Brain: All Roads Lead to Dopamine

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Abstract—This article will touch on theories, scientific research and conjecture about the evolutionary genetics of the brain function and the impact of genetic variants called polymorphisms on drug-seeking behavior. It will cover the neurological basis of pleasure-seeking and addiction, which affects multitudes in a global atmosphere where people are seeking “pleasure states.”

Keywords—brain reward cascade, dopamine, mesolimbic system, orbital prefrontal cortex-cingulate gyrus, relapse, reward deficiency syndrome (RDS)

When almost half of the U.S. population have indulged in illegal drug practices, when presidential candidates are forced to dodge the tricky question of their past history involving illegal drug use, and when most Americans have sloshed down a martini or two in their lifetime, there must be a reason, there must be a need—this must be a natural response for people to imbibe at such high rates. Even more compelling questions surround the millions who seek out high-risk novelty. Why do millions of us have this innate

drive in the face of putting themselves in harm’s way? Why are millions paying the price of their indiscretions in jails, hospitals, wheel chairs or cemeteries? What price must be paid for pleasure seeking or just plain getting “high”? Maybe the answer lies within the brain, and in particular the genome.

Once it was true that all roads led to Rome. Recently it has been said (with regard to understanding the brain) that all roads lead to dopamine. Thus, this simple truth is not

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