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Brain's Center Involved in Gambling Addiction Identified

Gambling's key brain area was traced in the subcortical region and the dopamine neurotransmitter was found to be involved in the process

Until now, most researchers thought that gambling mania is mainly caused by the high expectations of some people to win large amounts of money and also by their inability to realize the cost of their loss. But a recent study showed that gambling is closely linked to a brain center and this unhealthy passion can be associated with key neurological areas. Scientists at the California Institute of Technology in Pasadena carried out a study in which they asked volunteers to choose two cards from a deck which they cannot see. Then subjects were supposed to place a 1 dollar bill on the card they thought to be higher of the two they have previously opted out for. "They had to first place the bet without seeing the cards. Then, the expectation changes when they see the first card," explained team members.While this action took place, researchers scanned participants' brains with Magnetic Resonance Imaging (MRI). The experts' team aimed at detecting if a certain key area of the brain is stimulated when the volunteers take risks and also when they expect a reward."We wanted to know what happens in the brain when one is faced with a probable reward and risk," stated study co-author Kerstin Preuschoff, doctoral student at the Institute in Pasadena.The scientists found that gambling relates to the subcortical brain area and the risk versus reward actions of gamblers are activated by the neurotransmitter dopamine. Dopamine is also involved in learning and motivation.Researchers pointed out, in today's issue of Neuron Journal, that such pathological behaviors "ranging from addiction to gambling, as well as a variety of mental illnesses such as bipolar disorder and schizophrenia, are partially characterized by risk-taking. For example, a bipolar subject during a manic episode may invest in a risky business proposition either because they misperceive the risk to be lower than it actually is, or because they accurately perceive the risk to be high but may have impaired learning, attentional, working memory, or choice processes."Tracing key regions in the brain that are tightly connected with gambling and risk-reward decisions is extremely useful in further developing new treatment methods to cure this kind of behavioral disorders and addictions. "If we can understand the pathway, maybe we can help develop methods to fix it," Preuschoff concluded.