ADDICTION SCIENCE SERIES

Ethylone

Ethylone (3,4-methylenedioxy-*N*-ethylcathinone/MDEC/βk-MDEA) is a synthetic cathinone (SC) which was first noted in the United States in 2011. In June 2020 ethylone was designated a Schedule I substance under the Controlled Substances Act, placing it in the same category as MDMA/" ecstasy"/"molly" LSD, PCP and heroin.

SCs are related to cathinone, the psychoactive compound in khat, a shrub native to the horn of Africa and the Arabian Peninsula and a relative of the amphetamines. Khat is chewed in these in areas and has a moderately stimulating effect. The (SCs) first came to the attention of most Americans in 2010 when they were sold legally as "bath salts", while ethylone itself was first reported in the U.S. in 2011. The earlier SCs included mephedrone, methylone and MDPV. Those substances are primarily stimulants, but like MDMA have some hallucinogenic qualities. As central nervous system stimulants, the SCs generally increase pulse rate and breathing as well as increase blood pressure. They also decrease the user's appetite, although not as much as the

amphetamines. The use of SCs can also increase alertness and produce insomnia. However, they are used primarily because of their euphoric effect, and sometimes as mild hallucinogens. Their potential for psychiatric impairment (primarily the stereotypical stimulant psychosis) is moderate to high, with symptoms ranging from mild paranoia to hallucinations, delusions, and-it appears at times- aggression and violence. However, that few of the SCs have ever been tested humans, and most not even on sub-human animals e.g., primates or rodents). The greatest amount of information on their effects is coming from user reports, brief and often incomplete medical observations (i.e., the physician seldom knows precisely what the patient has taken or how much), and the scare scientific and medical literature that has been published Many other Schedule I substances have been administered by physicians in pure form and known dosages to carefully-screened human volunteers who were observed by trained scientists and/or their research associates. This is not true of most SCs. However, animal research has demonstrated that some of the SCs have a high addiction potential.

The precise effects of SCs vary depending on the specific substance, but ethylone is known to have MDMA-like effects but with less physical stimulation. It typically typically lasts 6 hours when ingested (administered orally). When ingested, the effects take 60-120 minutes to reach peak effect, but when ethylone is "snorted" the effects occur within ten minutes and are accompanied by a euphoric "rush" (rapid onset). Users describe heightened senses (sight, hearing and touch), a loss of inhibitions, some level of euphoria and sensory changes which could be characterized as visual illusions and that fall short of hallucinations. Following the experience (while "coming down"), many users mention difficulty sleeping and some describe anxiety, panic attacks and depression. Ethylone can also increase pulse rate and blood pressure as well as cause bruxism (teeth-grinding). As is the case with all synthetic cathinones, ethylone use may result in psychotic behavior, but seldom violence. Deaths have been reported but seldom fully documented.

