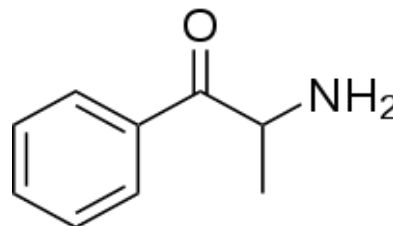


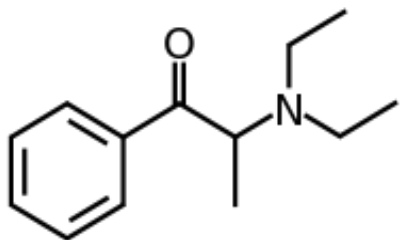
Weight loss and antidepressants

What are the connections? A brief science class

Substituted cathinones, which include some stimulants and entactogens, are derivatives of **cathinone**. They feature a phenethylamine core with an alkyl group attached to the alpha carbon, and a ketone group attached to the beta carbon, along with additional substitutions.

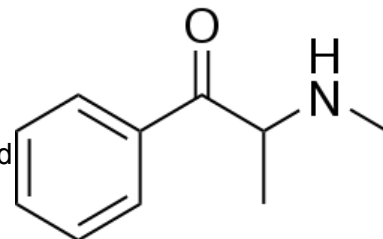


Cathinone occurs naturally in the plant khat whose leaves are chewed as a recreational drug... In the United States, substituted cathinones are the psychoactive ingredients in "bath salts" which as of July 2011 were banned by at least 28 states, but not by the federal government.

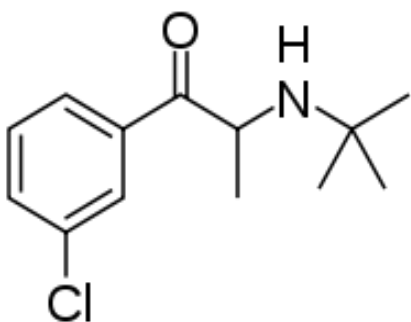


Diethylpropion is a stimulant drug of the phenethylamine, amphetamine, and cathinone chemical classes that is used as an appetite suppressant. Diethylpropion functions as a prodrug to ethylpropion.

Ethylpropion is a stimulant drug of the phenethylamine, amphetamine, and cathinone chemical classes. It is an active metabolite of the prodrug diethylpropion and is fully responsible for its effects. The predominant two modes of action for ethcathinone is as a moderately active releaser of noradrenaline; however it is only a relatively weak inhibitor of dopamine reuptake.



Bupropion is an atypical antidepressant and smoking cessation aid. It is a substituted cathinone (β -ketoamphetamine), as well as substituted amphetamine. The drug therefore is a mild psychostimulant. Its primary pharmacological action is thought to be norepinephrine-dopamine reuptake inhibition. It binds selectively to the dopamine transporter, but its behavioural effects have often been attributed to its inhibition of norepinephrine reuptake. It also acts as a nicotinic acetylcholine receptor antagonist.



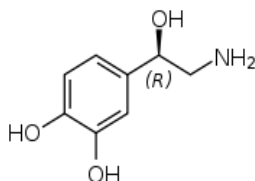
- *Medically, bupropion serves as a non-tricyclic antidepressant fundamentally different to most commonly prescribed antidepressants such as SSRIs.*
- Bupropion has shown some success in treating social anxiety disorder and anxiety combined with depression, but not panic disorder with agoraphobia.
- *Bupropion lowers seizure threshold, and its potential to cause seizures has been widely publicized. However, at the recommended dose the risk of seizures is comparable to that observed for other antidepressants.*
- In contrast to many other antidepressants, bupropion does not cause weight gain or sexual dysfunction; in most studies, groups placed on bupropion showed statistically significant increases in libido, and mild to moderate weight loss.
- *A recent meta-analysis of anti-obesity medications pooled the results of three double-blind, placebo-controlled trials of bupropion. It confirmed the efficacy of bupropion given at 400 mg per day for treating obesity. Over a period of 6 to 12 months, weight loss in the bupropion group (4.4 kg) was significantly greater than in the placebo group (1.7 kg).*

The same review found the differences in weight loss between bupropion and other established weight-loss medications, such as sibutramine, orlistat and diethylpropion, not to be statistically significant.

- Although attention-deficit hyperactivity disorder (ADHD) is not an approved indication, bupropion was found to be effective for adult ADHD.
- *According to several case studies and a pilot study, bupropion lowers the level of an inflammatory mediator TNF-alpha and may be useful in autoinflammatory conditions such as Crohn's disease and psoriasis.*
- Bupropion should not be prescribed to individuals with epilepsy or other conditions that lower the seizure threshold, such as alcohol or benzodiazepine withdrawal, anorexia nervosa, bulimia, or active brain tumors.
- *A small study indicated that bupropion (100 mg) may counteract the subjective effects of small doses of alcohol (16–32 mL, slightly less than 1–2 standard US drinks). The volunteers reported feeling more sober and clear-headed and less sedated.*

Bupropion is a dopamine and norepinephrine reuptake inhibitor and releaser.

- **Norepinephrine** is a catecholamine with multiple roles including as a hormone and a neurotransmitter.
- Along with epinephrine a.k.a. adrenaline, norepinephrine also underlies the fight-or-flight response.
- Norepinephrine is synthesized from dopamine. It is released from the adrenal medulla into the blood as a hormone, and is also a neurotransmitter in the central nervous system and sympathetic nervous system.
- The effects are alertness and arousal, and influences on the reward system.
- Adrenaline is synthesized the adrenal gland from norepinephrine.



- **Dopamine** is a catecholamine that plays a major role in reward-driven learning. Every type of reward that has been studied increases the level of dopamine transmission in the brain.
- In nature, we learn to repeat behaviors that lead to maximizing rewards. Dopamine is believed to provide a teaching signal to parts of the brain responsible for acquiring new behavior.
- Schizophrenia involves elevated levels of dopamine activity. Attention deficit hyperactivity disorder (ADHD) is believed to be associated with decreased dopamine activity.

