

July 2025

Cyclobenzaprine

(Trade Name: Flexeril[®], Amrix[®])

Introduction:

Cyclobenzaprine is a central nervous system (CNS) muscle relaxant intended for short-term use in the treatment of pain, tenderness and limitation of motion caused by muscle spasms. Cyclobenzaprine may enhance the effects of other CNS depressants including alcohol, barbiturates, benzodiazepines and narcotics. Anecdotal reports indicate that it is used non-medically to induce euphoria and relaxation.

Licit Uses:

Cyclobenzaprine hydrochloride is approved for use in the United States as a muscle relaxant. It is marketed under the trade names Flexeril[®], Amrix[®], and as generic formulations in 5, 7.5, and 10 mg tablets intended for short-term (2 to 3 week) oral administration. The usual starting dose is 5 mg, three times per day. The maximum recommended dose is 10 mg, three times daily.

According to IQVIA's National Prescription Audit[™], total prescriptions dispensed in the United States for all products containing cyclobenzaprine were approximately 23.9 million in 2010, 29.0 million in 2015, 26.1 million in 2020, and 27.0 million in 2024.

Chemistry:

Cyclobenzaprine hydrochloride is a white crystalline tricyclic amine salt that is freely soluble in water or alcohol. Cyclobenzaprine has a molecular weight of 275.39 g/mol with a molecular formula of $C_{20}H_{21}N$.



The most frequently encountered cyclobenzaprine. of cyclobenzaprine adverse effects include the anticholinergic effects, such as, drowsiness, dry mouth and dizziness. Other CNS effects include blurred vision, confusion, anxiety, agitation, psychosis, abnormal thinking, Cardiovascular effects include and hallucinations. increased heart rate and palpitations. The induction of these effects is dose-dependent. Nausea, headache and malaise may be experienced upon abrupt termination of prolonged use.

Illicit Uses:

Anecdotal reports found on the internet suggest that individuals are taking cyclobenzaprine alone or in combination with other illicit drugs to produce or enhance psychoactive effects. Individuals have reported taking cyclobenzaprine both orally and intra-nasally at doses ranging from 10 mg to 60 mg. Sedation, relaxation and increased heart rate were the most common effects reported. Euphoria was reported by a smaller number of individuals.

Illicit Distribution:

The Drug Enforcement Administration's National Forensic Laboratory Information System (NFLIS) Drug database collects scientifically verified data on drug items and cases submitted to and analyzed by participating federal, state, and local forensic drug laboratories. NFLIS-Drug received 466 reports of cyclobenzaprine in 2021, 465 in 2022, 382 in 2023, and 272 in 2024 (reports still pending). In total, there have been over 20,000 reports since 1997.

Control Status:

Cyclobenzaprine is not controlled under the Controlled Substances Act.

Pharmacology:

Cyclobenzaprine has been shown to reduce or abolish skeletal muscle hyperactivity. It is thought to act within the CNS at the brain rather than the spinal cord, although action at the spinal cord may contribute to some of its skeletal muscle relaxant action. Pharmacological studies in animals have shown a similarity between the effects of the structurally related tricyclic antidepressants and

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 571-362-4250, Telephone 571-362-3249, or Email: DPE@dea.gov.



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