

## Cyclobenzaprine (Flexeril)



PLAY PICMONIC

### Mechanism

#### Centrally-Acting Muscle Relaxer

[Muscle-guy with brain getting a massage](#)

Cyclobenzaprine is a medication that acts as a muscle relaxer through mechanisms that moderate the interaction between the central nervous system and neuromuscular synapse.

#### Act on Alpha and Gamma Motor Neurons

[Afro-grandma-motor-nerves](#)

Cyclobenzaprine is thought to work by acting on alpha and gamma motor neurons. Recall that alpha neurons are lower motor neurons that synapse at the motor end plate on extrafusal skeletal muscle fibers and help permit voluntary muscle contraction, while gamma motor neurons synapse on intrafusal fibers. While they do not contribute significantly to contraction, they aid in monitoring the tension in muscle fibers and providing a feedback loop that aids in maintaining tone and muscle activation in response to stretch.

#### Related to Tricyclic Antidepressants (TCAs)

[Tricycle-ant-emo](#)

Cyclobenzaprine is pharmacologically related to tricyclic antidepressants, or TCAs, and hence can exert many of the same unwanted side effects.

### Uses

#### Muscle Spasms

[Muscle-man Spaceship](#)

Cyclobenzaprine is commonly used in treating painful muscle spasms associated with various conditions. Of note, it is not useful in treating spasticity due to neurologic conditions such as cerebral palsy.

#### Back Pain

[Back Pain-bolt](#)

Cyclobenzaprine is often used in the treatment of back pain thought to be musculoskeletal in nature. It is best used following acute injury during pain may be caused by muscle spasms, and generally should not be used long-term as it will not provide permanent relief.

### Side Effects/Interactions

#### MAO Inhibitors

[MAO-inhibited with caution tape](#)

Patients taking monamine oxidase (MAO) inhibitors should not take cyclobenzaprine. Since cyclobenzaprine is related pharmacologically to tricyclic antidepressants (TCAs), one of its partial actions is to prevent reuptake of certain neurotransmitters, namely norepinephrine, serotonin, and epinephrine. Taking this in concert with a MAO inhibitor could therefore cause dangerous buildup of these amines at the synapse and even lead to serotonin syndrome.

## **Serotonin Syndrome**

[Silver-tonic Savage](#)

The most dangerous potential adverse reaction to cyclobenzaprine is serotonin syndrome. This is caused by the partial TCA-like action that cyclobenzaprine has at the neuron synapse, by preventing the re-uptake of the neurotransmitters serotonin, norepinephrine, and epinephrine. Serotonin syndrome is typically seen only in the context of polypharmacy (patients taking multiple medications that affect the release and processing of serotonin and other catecholamines) or overdose.

## **Drowsiness**

[Sleepy-guy](#)

Drowsiness is one of the most commonly reported side effects of cyclobenzaprine.

## **Arrhythmia**

[Broken Arrhythmia-drum](#)

A potentially dangerous side effect of cyclobenzaprine is arrhythmia, specifically tachycardia and/or QT prolongation. These are again mediated by the partial TCA-like activity that cyclobenzaprine exhibits.