

Why Your Cat's Catnip Habit Is a Good Thing

Unravel the layers behind your cat's obsession with catnip. From the euphoria-inducing highs to the calm-inducing lows, discover how these plants affect your cat's neurological system in a safe and non-addictive manner.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- A member of the mint family, catnip contains nepetalactone, a compound found in its essential oil that's thought to affect cats' behavior
- In many cats, exposure to catnip leads to hyper or playful behaviors, including rolling over, grooming, increased activity and vocalizations
- It's often been assumed that cats who don't get hyper from catnip aren't affected, but it turns out catnip also causes passive behavioral effects
- One study found 80% of cats had passive responses to catnip, including "sphinx-like position" and decreased vocalizations and activity
- Catnip may work via your cat's opioidergic system, with effects similar to opioid-like pain relievers and sedatives; the end result may be a more relaxed, happy kitty; rolling in catnip may also offer natural insect-repelling benefits

Many cat guardians keep catnip (*Nepeta cataria*) on hand as a special treat for the kitties. A member of the mint family, catnip contains nepetalactone, a compound found in its essential oil that's thought to affect cats' behavior. While catnip makes some cats hyper, it seems to have a calming effect in others.

This makes sense, since the *Nepeta* plant species from which it comes may have some sedative effects.¹ Interestingly, it seems all cats are affected by catnip, though in different ways. Your kitty's reactions may be due to nepetalactone binding to receptors in their olfactory system, leading to a neurological response.

In pet cats, the boost from catnip may last five to 15 minutes,² but even many big cats are affected. This includes lions and jaguars, which are extremely sensitive to catnip, with behavioral effects lasting up to 60 minutes.³ Once your kitty enjoys some catnip, they become temporarily "immune" to its effects for about one to two hours,⁴ after which they can enjoy it once again.

Catnip May Make Your Cat Calm or Playful

In about 60% of cats, exposure to catnip leads to hyper or playful behaviors, including rolling over, grooming, increased activity and vocalizations. It's often been assumed that cats who don't get hyper from catnip aren't affected. However, a study of 60 cats at an animal shelter revealed that catnip can trigger both active and passive behaviors, the latter of which may have been confused for a non-response.⁵

When the researchers exposed cats to dehydrated catnip and recorded their behaviors, about 20% displayed active behaviors like rolling over while 80% had passive responses, including “sphinx-like position” and decreased vocalizations and activity.

“These results suggest that all cats respond to catnip but they express it actively, passively or with a combination of both types of responses, which mainly depends on age and sex, and early gonadectomy to a much less extent,” according to the study.⁶ Cats that don’t display an active response to catnip often enjoy silvervine instead, so offer both to see how your cat responds.

Silvervine (*Actinidia polygama*) is a climbing plant that contains compounds such as isoiridomyrmecin and dihydronepetalactone, which may trigger a similar catnip-like response. Some cats respond more strongly to silvervine than catnip, and it’s estimated that up to 90% of kitties becoming playful when exposed to silvervine.⁷

Catnip May Influence the Opioid System, GABA

Catnip may work via your cat’s opioidergic system, with effects similar to opioid-like pain relievers and sedatives. The end result may be a more relaxed, happy kitty. In fact, when scientists used the drug naloxone to block the effects of opioids in cats, the effects of catnip also disappeared.

Catnip also contains compounds other than nepetalactone, which may be responsible for some of its apparent mood-altering effects. This includes isodihydronepetalactone and actinidine, which is also found in silvervine. Research published in the journal *Behavioural Processes* suggests “nepetalactones are essentially bicyclic monoterpenes,” which are capable of modulating the effects of gamma amino butyric acid (GABA), which quiets central nervous system activity.

Meanwhile, actinidine may result in increased levels of the monoamines dopamine and noradrenaline in the brain. “Accordingly,” the researchers noted, “GABA activity results in inhibition of neural activity, and may be the cause of passive responses, whereas enhanced levels of monoamines can result in increased neural activity, and may be the cause of active responses.”⁸

Despite the fact that catnip appears to make kitties “high,” it is an entirely harmless and non-addictive herb — unlike opioid drugs. It may even help in certain situations, for example, with battling cats. Kitties who don’t get along may see their nemesis in a new and friendlier light while under the influence of catnip — and the truce has been known to hold after the effects of the nepetalactone wear off.

In addition, catnip has pain-relieving properties that may be helpful for some kitties, similar to the effects of marijuana in some people.

Catnip Repels Pests

There may also be a more practical reason why cats love to roll around on catnip. This causes the plants to release insect-repelling iridoids, which transfer to the cat’s fur. Further, when cats chew or lick the plant’s leaves, it significantly increases iridoid emission.⁹ So, by chewing on catnip or silvervine leaves, then rubbing them on their fur, kitties could be getting natural protection from insects.¹⁰ As noted by PetMD:¹¹

“Across affected species — leopards, cougars, servals, lynxes, jaguars, and lions, among others — rubbing the face in catnip is one of the most common behaviors, further underscoring the theory that catnip susceptibility confers an evolutionary advantage by keeping away disease-causing insects.

In essence, cats are rewarded with pleasant, endorphin-induced sensations for protecting themselves against insects to improve their odds of survival in the wild.”

If your cat loves catnip, there’s therefore good reason to let her indulge. In addition to a euphoric response, your cat may gain practical pest protection, too. When choosing catnip, look for certified organic varieties to minimize pesticide residues. You should also rotate it with other toys and treats, as daily exposure may dull your cat’s experience.

While your cat cannot become addicted to catnip, some may build up a tolerance after frequent exposure. So let your kitty enjoy some of this special plant, then put it away for a few days or weeks before offering it again.

Sources and References

¹ [Evid Based Complement Alternat Med. 2008 Jun; 5\(2\): 181–186](#)

² [Smithsonian Magazine August 19, 2010](#)

^{3,5,6,8} [Behavioural Processes September 2017, Volume 142, Pages 110-115](#)

^{4,11} [PetMD January 3, 2022](#)

⁷ [Front Vet Sci. 2022; 9: 928943](#)

⁹ [iScience July 15, 2022, Volume 25, Issue 7, 104455](#)

¹⁰ [Science Advances January 20, 2021](#)
