

# Key Points

- Puppies and senior dogs tend to twitch in their sleep more than other dogs.
- Psychologists theorize that dogs dream about their daily experiences.
- It's best not to wake a dog, even from a nightmare.

Many people believe that dogs do dream. Most dog owners have noticed that at various times during their sleep, some dogs may quiver, make leg twitches, or may even growl or snap at some sleep-created phantom, giving the impression that they are dreaming about something.

At the structural level, the brains of dogs are similar to those of humans. Also, during sleep, the brain wave patterns of dogs are similar to that of humans and go through the same stages of electrical activity observed in humans, all of which are consistent with the idea that dogs are dreaming.

Actually, if dogs didn't dream this would be a much greater surprise given that recent evidence suggests that animals that are simpler and less intelligent than dogs seem to dream. Matthew Wilson and Kenway Louie of the Massachusetts Institute of Technology have evidence that the brains of sleeping rats are functioning in a way that irresistibly suggests dreaming.

Much of the dreaming that you do at night is associated with the activities that you engaged in that day. The same seems to be the case in rats. Thus if a rat ran a complex maze during the day he might be expected to dream about it at night. While a rat was awake and learning the maze, electrical recordings were taken from its hippocampus (an area of the brain associated with memory formation and storage).

Researchers found that some of these electrical patterns were specific and identifiable depending on what the rat was doing. Later, when the rats were asleep and their brain waves indicated that they had entered the stage where humans normally dream, these same patterns of brain waves appeared. In

fact, the patterns were so clear and specific that the researchers were able to tell where in the maze the rat would be if it were awake, and whether it would be moving or standing still. Wilson cautiously described the results, saying, "The animal is certainly recalling memories of those events as they occurred during the awake state, and it is doing so during dream sleep and that's just what people do when they dream."

Since a dog's brain is more complex and shows the same electrical sequences, it is reasonable to assume that dogs are dreaming, as well. There is also evidence that they dream about common dog activities. This kind of research takes advantage of the fact that there is a special structure in the brainstem (the pons) that keeps all of us from acting out our dreams.

When scientists removed or inactivated the part of the brain that suppresses acting out of dreams in dogs, they observed that they began to move around, despite the fact that electrical recordings of their brains indicated that the dogs were still fast asleep. The dogs only started to move when the brain entered that stage of sleep associated with dreaming. During the course of a dream episode, these dogs actually began to execute the actions that they were performing in their dreams.

Thus researchers found that a dreaming pointer may immediately start searching for a game and may even go on point, a sleeping Springer Spaniel may flush an imaginary bird in his dreams, while a dreaming Doberman pincher may pick a fight with a dream burglar.

It is really easy to determine when your dog is dreaming without resorting to brain surgery or electrical recordings. Just watch him from the time he starts to doze off. As the dog's sleep becomes deeper his breathing will become more regular. After a period of about 20 minutes for an average-sized dog, his first dream should start. You will recognize the change because his breathing will become shallow and irregular.

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There may be odd muscle twitches, and you can even see the dog's eyes moving behind its closed lids if you look closely enough. The eyes are moving because the dog is actually looking at the dream images as if they were real images of the world. These eye movements are most characteristic of dreaming sleep. When human beings are awakened during this rapid eye

movement or REM sleep phase, they virtually always report that they were dreaming.

I recently received a letter from Joseph Baker, which seems to confirm the idea of dogs having dreams about their everyday activities. I have taken the liberty of reproducing part of it here.

*"I have an anecdote that you may find interesting, however it requires some back story. About three years ago I heard a story on the radio about a cognitive scientist who was trying to understand sleep and dreams. He had a hypothesis describing how sensory memories replay themselves during early REM sleep.*

*The study he published had subjects play Tetris [a computer game where you try to line up falling blocks of various colors] and then report whether or not they saw the little Tetris bricks in their dreams. This stuck with me because the previous night I had very vivid dreams involving a hike I had been on earlier. I could feel the snow and smell the air as though it were real.*

*"This brings me to my dog. Goober is a basenji, and like many basenjis he hates water and being bathed. As soon as my wife finishes bathing him he bolts out of the bathroom door, finds me, and tries to hide behind me or under me. So one day Goober was forced to be cleaned and underwent his ritual of hiding behind me. Later that night he was sleep running.*

*He awoke with a start, and then bolted to my location to hide under my legs. This was very awkward as I was sitting on the toilet at the time. I believe that he was dreaming, and I believe that he was dreaming about having a bath. I believe this because he only engages in this behavior when a bath is involved."*

Well Joe, I believe that there are at least two psychologists at MIT who would agree with you.

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