

Sensitive feline whiskers have evolved over eons, enhancing cats' chance of survival.

HAIR SAY

# The Whisker Whisperer

Sensitive hairs on your cat's face and legs are essential for perception, balance and navigation. They also offer a window into your cat's mind. **BY JOELLE RENSTROM**



Tune in: The tauter whiskers are pulled, the more frightened your cat may be.

**I**t's hard to imagine cats without whiskers framing their faces. But whiskers didn't randomly show up on the face of the first feline. Instead, these movable hairs, technically called "vibrissae," which means to shake or vibrate, represent an important leap in mammalian evolution. Researchers believe that marsupials such as opossums that lived as long as 125 million years ago developed whiskers as sensory organs. Later, rodents and other mammals, including cats, adopted that useful feature. "The emergence of a new tactile sense based on moveable facial whiskers," concludes University of Sheffield cognitive scientist Tony Prescott, "was an important step along the evolutionary path to modern mammals."

But what are whiskers, exactly? And why are they so important?

Whiskers are technically hair, but they're longer, thicker, and far more sensitive than human hair or animal fur. Instead of growing on the surface of a cat's body, they're rooted so deeply into the cat's skin that they connect to its nervous system. Whiskers grow on a cat's muzzle, around its chin and jaw, and near its eyes, like long, arching eyebrows. Most cats have 12 whiskers on each side of their mouth, which they can move because they're connected to muscles. According to certified animal behavioral consultant Pam Johnson-Bennett, cats have four rows of muzzle whiskers, and "the upper two rows can move independently of the bottom two rows." Cats don't shed whiskers as much as they shed their fur, but whiskers do fall out and regrow.

According to D.M. Souza, author of *Look What Whiskers Can Do*, these vibrating sensors are "the first hairs that grow on an unborn kitten's body." When kittens are born, they can't see or hear, and they rely on the information gathered



The word “whisker” comes from 19th century Middle English, and means to sweep.

When cats overuse their whiskers in tight spaces, they can suffer from whisker fatigue.

by their whiskers until they can. Whiskers’ lengths are proportionate to a cat’s size, which means whiskers can tell a cat whether it will fit into a small space or through a narrow passageway (this is one reason you should never trim your cat’s whiskers!)

The tips of whiskers contain sensory receptors that give felines special abilities. Scientists estimate that each whisker has 100-200 nerve cells. When cats brush their whiskers against something, the contact moves the whiskers and triggers their motion sensors, which in turn provides information about the object’s size, position, movement, and structure. Whiskers are so sensitive that they can pick

up vibrations in the air, such as the motions of potential prey and approaching predators. Many biologists believe whiskers evolved because early mammals did most

otter). Cats’ keen eyesight lets them see small movements at a distance, but they can’t see things up close, so they need whiskers to help guide them, especially when they’re

**The Guinness world record for whisker length is held by a Maine Coon from Finland with 7.5 inch hairs.**

of their hunting in the dark, when larger predators were sleeping (the same goes for aquatic animals that have whiskers, such as seals and

zeroing in on prey.

Cats’ eyebrow whiskers help protect their eyes when they’re hunting, particularly in forested or

grassy areas. The receptors on the whiskers signal that something is close to the cat's eyes, which causes the cat to blink, guarding against scratches. If you pet your cat near its eyes, you'll likely trigger a similar response. Many cats do, however, enjoy being stroked gently along the whiskers near their muzzle, perhaps because of the high number of scent glands in that area; this means that even if you're petting the cat, it's still leaving its scent on you!

There's another set of whiskers on the back of cats' front legs. These help cats, especially feral cats, climb trees and other objects, and they may be the reason cats always seem to land on their feet; the whiskers may help cats figure out where to put their paws for maximum stability. Along with whiskers on the face, leg whiskers may help compensate for cats' inability to see things up close. When a cat captures a mouse or other prey, the whiskers on their

legs help them figure out how to best hold onto and kill the animal in a single bite.

Whiskers may help cats look cute, but they're not ornamental. A cat without whiskers would be significantly handicapped, and may become fearful and disoriented. Finally, if you think whiskers truly separate humans and felines, you'd be wrong. According to Prescott, humans' early ancestors had whiskers, too! 🐾

## FELINE SIGNS

# Reading Whiskers

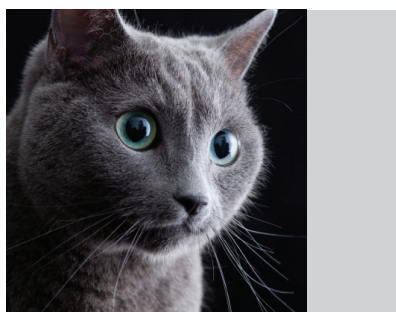
Whiskers provide a window into your cat's state of mind. The cats depicted here are talking to you, and here's what they have to say.



- Forward-pointing whiskers and puffy cheeks indicate interest or excitement. The whiskers act like antenna, gathering information about the environment. This might happen if a cat is exploring, playing, or watching "kitty television" (birds out the window).



- A cat points its whiskers even further forward (usually along with its ears) to indicate aggression. Cats may do this when hunting since whiskers are attuned to the smallest sounds and shifts in air currents.



- Whiskers pulled back signals your cat feels threatened, scared, or stressed. This position makes a cat look smaller and signals that the cat doesn't want to engage with you or fight with other cats.



- Neutral positioning, with whiskers loosely at the sides, neither pointed forward or pulled back, indicates a relaxed or content cat. Eyebrow whiskers often arch forward.



- When a cat flattens its muzzle and moves its whiskers forward, it might be in pain. When a cat is hurting, its body language, including eyes, ears, mouth, and body positioning, usually indicate discomfort.