“WHISKER” TRIMMING IN SHOW DOGS: a harmless cosmetic procedure or mutilation of a sensory system?

by Thomas E. McGill, Ph.D.
Hales Professor of Psychology
Williams College
Williamstown, MA
Editor's note: Dr. Thomas E. McGill is Hales Professor of Psychology at Williams College, Williamstown, MA. He is a member of the board of directors and corresponding secretary of the Newfoundland Club of America and past president of the Newfoundland Club of New England. He received his PhD from Princeton University for studies correlating hearing sensitivity and electro-physiological responses in cats. He has done post-doctoral work at the University of California at Berkeley and for two years at the University of Edinburgh, Scotland. Dr. McGill has nearly 70 publications, including four edited books, in the general area of animal behavior and is the author of the animal behavior article in the Encyclopedia Americana.

...The sinus hair (left) is a vibrissae; the Lanugo hair (right) is a normal body hair. Note the size of the sensory nerve entering the vibrissal root to the left, plus the second nerve entering the top right. Reprinted from Andres, K. H., and von During, M. "Morphology of Cutaneous Receptors" in Handbook of Sensory Physiology, Vol. 2, p. 24: Springer-Verlag, New York, 1973.
Introduction

It is a safe bet that almost every reader of this article has been to a dog show; probably more than they would care to count. That being the case, most of us have witnessed, or probably participated in, the following scenario.

The dog is placed on the grooming table and legitimate trimming of the coat as specified by the particular breed standard progresses. There are individual differences in behavior, of course, and some animals may be a bit ticklish between the toes, or may mildly object to having their nails clipped, but most offer little or no complaint as the usual snipping, combing, and brushing proceeds. But in the heart of many a groomer (and probably many a dog) dread accumulates as the final, postponed-until-last, event approaches. The animal's "whiskers" must be trimmed! And, since "whiskers" are retractable, fingers must be placed on the inner side of the dog's lip to push out that last quarter inch stub for removal. While some veteran show dogs have learned that they must grin and bear it, the majority of neophytes—and a significant proportion of experienced animals—complain and/or actively resist the operation.

Two questions arise. Why are these people doing this to their dogs? And why do many of the animals object to the procedure? The answer to the first question is straightforward. "Whisker" trimming is thought to give the animal's head a "cleaner" look and thus increase its chances of winning in the show ring.

I hope to provide an answer to the second question. But first let's get one fact clearly in mind. These hairs are not whiskeys in the common usage of that term. Their proper name is vibrissae, and they are quite different from whiskers.

Personally, I have worn my current beard for the last 18 years. But I do not now possess, nor have I ever possessed, vibrissae. Nor does any human being, not do most of our close primate relatives, have such organs. But they are found in every carnivore species (dogs, cats, raccoons, bears, etc.), and in several other mammalian orders.

Animal sensory processes

Zoologists estimate that there are about one million species of animals alive today. Perhaps a thousand times that number are extinct. Each of these species lives, or has lived, in a sensory world uniquely its own. As humans, it is sometimes difficult for us not to operate under the assumption that the world as we perceive it is pretty much the same as the world that other animals perceive, particularly those closest to us. But this is not the case at all. Research has shown that we can be terribly ignorant regarding the sensory capacities of animals—capacities that can sometimes far exceed those of our own sense organs. Common examples are the extension of the hearing range of many animals into what we term the "ultrasonic," and the remarkable olfactory acuity of hunting and tracking dogs. Also familiar is the capacity of bats, porpoises, and other species to locate food and find their way about by means of echoes of their own cries. Perhaps not so well known, is the fact that bees and other species can perceive colors that are beyond our sensory limits. While many animal species share senses with us, they differ in the range of sensitivity to physical stimulation.

A bit more surprising to our anthropocentric species is that certain animals possess senses that are completely absent in humans. An example is that of the "electric fishes." Most of these species are cave dwelling and have completely lost the visual sense. As a substitute for vision, they produce electric currents from the head region and then detect those currents with organs located along the body. Objects and/or prey in the immediate environment distort the returning currents and permit the animals to find their way about and to capture food in complete darkness.

An even more startling discovery has been made in recent years. Organisms ranging from green algae, to bacteria, to honey bees, to homing pigeons, can detect and respond to the earth's geomagnetic field. They use the information to orient themselves in their environments; that is, to migrate, or to navigate toward a food source or toward home.

Such surprising discoveries in the area of animal sensory processes occur with some regularity, but progress is slow since it is difficult for us to hypothesize and investigate sources of stimulation that we ourselves cannot perceive.

It is remotely possible that the purpose of vibrissae is to detect some as yet undiscovered stimulus, but it seems more probable that they function to extend the animals' tactile (touch) sensitivity. In her 1973 book, The Carnivores, R. F. Ewer wrote, "In the majority of carnivores the part of the body most responsive to tactile stimuli is the muzzle and the vibrissae are hairs specially modified to increase this sensitivity." (p. 136.)

The vibrissal system

Anatomically, vibrissae are constructed much differently from other body hair. They are thicker, stiffer, rooted in erectile tissue and placed so as to act as levers on the nerves serving them. Vibrissae are much more heavily innervated than other body hair; that is, more nerve fibers serve each vibrissae. The vibrissae in dogs are served by the trigeminal nerve, the largest of the 12 pairs of canine cranial nerves—larger than the optic nerve, auditory nerve, or olfactory nerve.

Considering the brain, it is recognized that the amount of sensory cerebral cortex devoted to a particular body area or sense modality is in direct proportion to the sensitivity and importance of that area or modality in the sensory world of the animal. In man, much cerebral cortex is devoted to reception of visual stimulation, while in the porpoise a disproportionate amount of cortex receives auditory input, and in the raccoon a large area receives input from the "hands."

In plotting the sensory areas of the cerebral cortex of the dog, it has been determined that the face clearly accounts for at least 50% of the primary cortical sensory projection area, and for at least a third of the secondary area. Within the facial areas themselves, the upper jaw occupies a disproportionately large amount of the cerebral cortex.

These anatomical facts combined with the very ubiquity of vibrissae in carnivores suggest important sensory functions. Theorists agree that nature is conservative and will not expend energy on the maintenance of useless organs or organ systems. Remember the cave-dwelling electric fishes mentioned above. When there was no longer a need for vision, the sensory apparatus disappeared. Conversely, it is interesting to note that whales, having forsaken the land for the sea, lost all body hair except the vibrissae!
Effects of amputation in other species

What are the physiological and behavioral effects of vibrissal removal? Perhaps because of the necessary nature of these experiments, definitive research on the functions of the organs in dogs is lacking, although some interesting speculations have been put forward. Considerably more is known about the functions of these organs in laboratory rodents and certain other species.

Let's first consider physiological effects in rodents. If vibrissal papillae are damaged in newborn mice, one of the six layers of the cerebral cortex exhibits abnormal development—and this brain damage is permanent! When the damage to the papillae occurs in older animals, the brain is less affected, but brain damage is still detectable. The brain is more sensitive to vibrissal damage that a particular biological model, rodents with the vibrissae removed on one side but not the other, has become very important in studies of normal brain development and biochemistry. For example, investigators amputated some of the vibrissae on adult rats. On the following day the animals were injected with a radioactive sugar and permitted to explore a strange environment for 15 minutes. Then they were killed and the radioactivity levels in various parts of the brain were determined. The scientists found reduced metabolic activity (presence of the radioactive sugar inside the cells) in those areas of the brain associated with the amputated vibrissae. In similarly treated animals, other investigators found changes in six different energy-related brain enzymes as a result of vibrissal amputation. In summary, abnormal metabolic activity occurs in those brain areas served by nerve cells from amputated vibrissae. Sensory input from vibrissae is essential for normal brain development in young animals and for normal brain metabolism and function in older animals.

Behavioral evidence for rodents has shown that amputation of vibrissae has effects on several types of activity. Exploratory activity in a new environment is adversely affected. The animals tend to crouch close to a wall and do very little exploring. Depth perception, as measured in an elevated maze, is greatly reduced. The capacity of an animal to defend himself by fighting is reduced. Animals with vibrissae removed are much more emotional, exhibiting increased urination and defecation in a strange environment. They have great difficulty in learning an elevated maze. They tend to fall off the apparatus and to make many more improper goal choices than intact animals. Equilibrium and discrimination of surfaces are impaired in animals without vibrissae. Both albino and wild rats with vibrissae removed were found to swim less proficiently and sometimes drowned very quickly.

In studies using domestic cats it has again been determined that vibrissal amputation results in a lowered general activity level. In his 1979 book *Cat Behavior*, Paul Leyhausen published pictures of a cat springing at prey. (I am grateful to Connie Miller for calling my attention to this reference.) During this behavior, the vibrissae protrude as far forward as possible. Leyhausen notes that the vibrissae obviously help to keep track of the prey's movements after it has been seized. "Small prey, such as mice, for example, are practically enveloped by them." Leyhausen's careful film records show that cats pause before eating their prey and move their nose and whiskers rapidly to-and-fro several times over the body, presumably detecting the direction of the hairs or feathers with outspread vibrissae. A cat that has been blindfolded can still locate a mouse on a table very quickly and, as soon as the vibrissae make contact, grasp the mouse with a precise nape bite within 1/10th of a second. Cats that are blindfolded, and with the vibrissae removed, cannot locate prey. If by chance the cat touches the mouse with its nose, it does bite, but it is incapable of finding the nape of the neck and bites whichever part of the body happens to present itself.

In studies of encounters between strange cats, Leyhausen reports that both animals try to sniff and feel with their vibrissae along the other's nape and flanks. This behavior persists until dominance is established. The dominant cat may then continue to explore the subordinate animal, but does not permit such exploration of its own body.

Anatomical and electrophysiological studies in cats have demonstrated that each vibrissa is served by four different kinds of sensory fibers. These enable the cat to perceive the degree, direction, speed, duration, and any rhythm of the deflection of a vibrissa from its normal position. In addition, a cat can accurately locate the point on the muzzle where the affected vibrissa is situated. Similar studies with seals have shown that the vibrissae are sensitive to vibrations from 50 to 1000 Hz. It is thought that seals use these organs to detect prey in dark waters.

The length, capacity for movement, and probably the sensitivity of vibrissae appear to be correlated with the ecology of the animals. Those that burrow into holes have vibrissae that are shorter than those of some of the hunting canines and felines. Among carnivores, the vibrissae of bears are considerably shorter than those of the hunting canines and felines.

Anecdotal evidence of vibrissal function

As a scientist, I am naturally suspicious of anecdotal evidence. I much prefer the comfort of highly-controlled experiments where certain variables are manipulated while others are held constant, and statistical analysis determines the degree of confidence that we can place in the results. On the other hand, many of the early behaviorists, including Charles Darwin, relied almost exclusively on anecdotes to support their conclusions. And, at the very least, stories about animals can serve as hypotheses for follow-up controlled experimentation. With these caveats in mind, certain observations on canine behavior indicating possible functions of vibrissae are to be noted.

In 1980, I published an article preliminary to this one in the *International Journal for the Study of Animal Problems*. The editor of that journal is Dr. Michael W. Fox, a well-known author in the area of canine behavior. Dr. Fox has spent considerable time observing wild canines, such as wolves and African wild dogs in their natural habitats. In discussing the paper that I had submitted to his journal, Dr. Fox told me that, from his observations, at least one possible function of vibrissae was to act as wind-detectors. In the very faintest of breezes, he observed the animals' remarkable ability to turn directly into the wind, sampling it for any olfactory stimuli it might contain. In animals that hunt by olfaction, at least until prey is sighted, the capacity to detect the faintest of air movements would obviously be extremely adaptive.

In addition, Dr. Fox would welcome tests of the hypothesis that vibrissae can serve to detect subtle variations in the...
particularly when we compare the potential importance
of these organs vs. the solely cosmetic reason for their
removal?

And is their removal all that important to judges in making
placements? I have questioned about two dozen judges
on the matter. Universally, they report that it makes no
difference to them (at least, consciously). Their attempts
are to judge the whole animal, and the presence or absence
of vibrissae is of small import. More than that, several
expressed the desire that the animal be presented in as
natural a state as possible. For example, Mrs. Constance
Miller, a judge of several Hound breeds, wrote that “if
these ‘feelers’ are, in fact, locator systems that might
provide an extra ‘sense’ for the dog, I personally wonder
if their removal might not, technically, be called a breach
of the AKC rule in Chapter 16, Section 9: ‘A dog which
has been changed in appearance by artificial means except
as specified in the Standard for its breed... will be dis-
qualified.’”

Well, if the owners really don’t like it, and the dogs hate
it, and the judges don’t care, why does the practice con-
tinue? The answer lies in the tremendous competitiveness
of the show ring, particularly as exemplified in that rather
peculiarly American phenomenon—the professional
handler. Handlers want to win, and owners want to win,
and almost anything that is perceived as giving their animal
an edge or equalizing the odds is considered desirable.

Now, while I don’t mean to place all the blame on handlers
(some of whom are good friends of mine and have given
me helpful hints in my own amateur stumbling), I do think
that some of them bear a degree of responsibility for the
continuation of this very questionable practice.

Here are a couple of examples. A year or so ago I spoke
on the topic before the standards committee of a large
national dog club. The standard had already been approved,
but the committee was working on an illustrated guide
to the standard. Attending a dinner following that meeting
were a professional handler and a show judge. They were
highly amused at the notion that an animal should be
presented with “whiskers” intact. As a matter of fact, the
handler reported he would never show such a dog! To
give the judge his due, he has since “put me up” three
times with animals with unamputated vibrissae.

In a second incident, a young couple, just getting started
in the show-world, were convinced by the arguments
against “whisker” trimming. They turned their well-
groomed dog over to their handler. He said, “What about
the whiskers?” They replied that they did not wish the
whiskers to be trimmed. His response was, “In that case,
take him in yourself. I’m not going to look like an amateur.”
The vibrissae were trimmed and the handler showed the
dog to a white ribbon. But, of course, the handler’s face
was saved. He had not shown a dog with vibrissae intact!

**Progress so far**

Do I “put my money where my mouth is?” Yes, I do. For
the last several years no dogs from the kennel operated
by my wife and me have had their whiskers trimmed. While
our success in the show ring could best be described as
“modest,” I honestly do not believe that our dogs’
“whiskers” had anything to do with their placements.
Two other eastern Newfoundland kennels are currently
showing dogs with vibrissae intact. They also report no
difference. I have also heard that several west coast Sport-
ing Group breeders have completely abolished the practice of vibrissal amputation in their show dogs. They have been subjected to some "humorous" remarks outside the ring, but report that they are doing their share of winning.

Let's step back for a moment and attempt to put things on an old-fashioned balance. On one pan we'll place the evidence indicating that vibrissae are sense organs of potential major significance to the dogs we profess to love, and on the other pan the excuse of cutting them—to provide the head with a "cleaner" look. To me, it is obvious in which direction the scale tilts. And there are others who agree. The recently adopted Vizsla standard reads: "Whiskers serve a functional purpose. Their removal is permitted but not preferred." The 1981 Golden Retriever standard reads: "Removal of whiskers is permitted but not preferred." When published, the new Guide to the Newfoundland standard will read, "While evidence for the dog is apparently lacking, research with other species indicates that the whiskers (vibrissae) are important sensory organs. Therefore 'whisker' trimming for the Newfoundland is optional and animals with these organs intact are not to be penalized."

These examples represent progress, but not major progress, toward a goal: the total abolition of vibrissal amputation in all breeds.

What can be done?

Frankly, it will be a major disappointment to me if these articles simply gather dust in your collection of DOG WORLD. (This article first appeared in DOG WORLD, December 1982.) Therefore, if you agree with those of us who oppose this practice, please act. I see such action as taking three main forms, any or all of which may subject you to some degree of chuckling and finger-pointing.

First, stop amputating the vibrissae of your own dogs and if your handler won't show them find one who will.

Second, the next time your breed standard comes up for review, insist that it explicitly prohibits "whisker" trimming. If a standard arrives for your vote without that provision, vote against it and explain why.

Third, urge that your board direct the AKC delegate of your breed club to propose and/or support proposals prohibiting vibrissal amputation in all breeds.

Yogi Berra once responded, when asked about a restaurant, "Nobody goes there anymore, it's too crowded." Following the same admirable logic, we could say about vibrissal amputation that, "if nobody did it, nobody would have to do it."

As I said, I'm not content to let the matter rest here. I volunteer to act as a contact point for the exchange of information and progress on the problem. Let me know what you have observed, or how you feel about the matter. I would particularly like to hear from people who think there is a strong case for continuing the practice!

I invite correspondence and I have secured from the publishers of DOG WORLD permission to reprint this material, in whole, in part, or by paraphrasing, in any not-for-profit dog newsletter or breed magazine. I have also given my permission to Hill's Pet Products, Inc. to reprint the material in this brochure.

Our domestic dog breeds are the finest creation of man and nature working together. Robert Audrey described the animal as "the sparkling dog." They look to us for companionship, assistance, and protection and they return the same in full measure. Never has there been such a relationship between animals. Because they love and trust us, they have often demonstrated their willingness to risk their very lives. Isn't it only appropriate that, because of our affection and respect for them, we bring to a screeching halt this barbaric procedure? In their love for us, they are willing to stand up and take it. Shouldn't we, in our love for them, be willing to stand up and stop it?

Dr. McGill, Department of Psychology, Bronfman Science Center, Williams College, Williamstown, MA 01267.