

## **The Hair of Wire-Haired Breeds**

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All mammals have hair, even whales. Among the different species, even among breeds and individuals of the same species, the pattern of hair growth can vary considerably. Wire-haired breeds are unique in several respects. When grooming wirehaired breeds, the hair is stripped or plucked for show dogs and pets have clipped coats. The difference between stripped and clipped wire coats is noticeable, with stripped coats coarser in texture and richer in color. An understanding of canine hair physiology sheds light on this difference.

### **Basic Biology of Hair**

Hair is produced by specialized epithelial cells called keratinocytes which reside at the base of a hair follicle and produce the hair. The pigmentation comes from melanocytes. The hair itself is comprised of an outermost layer, the cuticle, and a cortex which is packed with dead keratinized cells. Additionally, some hair may contain an inner region, the medulla, which has fewer keratinized cells.

There are three types of hair on a dog. The undercoat, composed of secondary hairs, has a soft texture (the shaft of hair is not as densely packed with dead keratinized cells) and is shorter than the other types of hair. Coarser and often longer, primary (guard) hairs are the outermost layer of protection (these hairs are densely packed with the keratinized cells). The last hair category is whiskers, highly sensitive tactile sensors found clustered on the face. With that sensitivity in mind, use care if you decide to remove these hairs while grooming your dog.

Dogs and other animals with fur coats have many hairs per follicle (unlike humans where there is one hair per follicle). The diameter of individual hairs has been shown to increase as the number of hairs per follicle decreases. Thus, stripping, a process which would reduce the number of hairs per follicle, allows the remaining hair to become coarser and more pigmented. In contrast, human hair gets thinner and thinner and can cease growing altogether when plucked repeatedly.

In dogs, hair grows in cycles. It grows to a genetically predetermined length and then it stops growing and dies. Shedding is the result of the weakening of

the hair shaft attachment to the follicle. All dogs shed, but the pattern and rate of shedding, like hair growth rates, varies from breed to breed. Some wire haired breeds shed hair in a relatively short time frame resulting in loss of tufts of hair or what is also called blowing a coat. Other factors like temperature, hormones (especially estrogen and thyroid), light cycles (longer days encourage shedding), nutrition, parasites, disease and certain drugs can influence shedding. Brushing the coat can also speed up the breakdown of the hair's attachment to the follicle. Brushing also stimulates circulation and regrowth and helps train the coat to lie flat.

To understand the differences we will divide the types of coats. Normal coats are coats like German Shepherds and Corgis. These coats are composed of guard hairs with a high proportion of undercoat hairs. Short-coated dogs come in two versions, coarse and fine. Coarse short-coats, like Rottweilers and some terriers, have strong growth of guard hairs and much less undercoat hair. The longer wire-coated breeds are a variation of this. Fine coated short-haired breeds, like Boxers and Dachshunds, have the largest number of hairs per unit area, have large numbers of well developed undercoat hairs, and guard hairs are reduced in size. Long-coated dogs also come in two versions, fine and woolly. Fine long-coated breeds like Cocker and Chows are similar to normal coats except the guard hair is not as developed and the weight of hair per unit area is greater. Woolly long-coated breeds like Poodles, Bedlington Terriers, and Kerry Blue Terriers have undercoat hair that makes up eighty percent of the total number of hairs and these undercoat hairs are relatively more developed and coarse compared to undercoat hairs in other breeds. These breeds give the impression of an overall softer appearance to their coats and tend to shed less than other breeds.

The role of the sebaceous gland should be mentioned. This gland associated with hair follicles produces an oily secretion that helps to keep the skin soft and pliable, helps retain moisture, and protects from bacterial infection. The oil film also coats the hair to give the coat the shiny appearance associated with good health. During illness and malnutrition, the hair coat often develops a dull, dry appearance associated with reduced sebaceous gland function.

## **Pet Grooming**

When dogs are shaved, all the hair is cut which makes the undercoat as visible as the outer guard hair. Typically the softer, duller undercoat significantly changes the appearance of the dog, particularly if the undercoat is a lighter color than the guard hair. This appearance can be partially

modified in some dogs by raking the undercoat out with a stripping comb. This can't be done immediately after clipping because the hair is too short and it can't be done if the hair is of an excessive length before it is clipped. However, if the owner rakes out undercoat regularly, between shave downs a better cosmetic result from the clippers will occur. If the coat is clipped it is important the clippers be clean and sharp and that the skin is cleaned as part of the grooming process.

## Care While Grooming with Stripping

There are as many strategies for care of dogs during the stripping process as there are groomers! Unfortunately, little information exists on what is correct and what is incorrect, so a lot of bad strategies exist.

One of the most important aspects of stripping is to understand how irritating the process is to the skin. When skin is irritated in this manner, cleanliness is very important to minimize soreness and prevent infection. The use of a medicated shampoo often before and always after stripping, to reduce inflammation and soreness, makes the dog more comfortable and drastically reduces the opportunity for infection. Figure two illustrates what happens when skin is not cared for during and after stripping. As the pictures illustrate, the skin is both inflamed and infected and the dog required veterinary care after being returned from the groomer. This should never be the outcome after stripping, even with dogs with sensitive skin. If the skin is not clean prior to stripping, bathing is appropriate. Groomers often report that hair is easier to grip and pull if it is not recently bathed. Although there is some truth to this idea, the skin must be clean. Further, after stripping, baths are helpful to reduce the opportunity for infection and make the dog more comfortable. Groomers also will state that the jacket should never be bathed or it won't lie flat. Toweling and blow drying in the direction of hair growth will train the hair to lay flat, as well as add luster to the coat appearance. This should routinely be done the jacket as it grows as well. There is a happy medium between never bathed and bathing too much. The answer to how frequent to bathe depends on circumstances, but it is essential that the skin stay clean! If the skin smells, if you see dirt on close inspection, if the skin is flaky or oily, or if you have just worked on the coat and irritated the skin, bathe your dog!

Some groomers routinely end up with irritated skin after grooming while others always seem to quickly remove the hair without significant irritation. There are a number of reasons for this difference. Some dogs have skin that is more sensitive than others. Some dogs have types of coats that are more difficult to pull which can add to the irritation. Some tricks to reduce irritation

include the following. It is important to pull the hair in the direction of growth, rather than against the grain. Steady and methodical pulling is more effective and comfortable than erratic, jerky motions. It is also less likely to result in accidental pinching and scuffing of the skin with stripping tools. Most importantly, keep the skin clean.

Once the initial pull down has occurred, the process of rolling the coat begins. After a period of time, the new jacket of guard hairs begins to emerge along with an abundant undercoat. The undercoat is typically raked with a stripping comb to remove this undesirable hair. It is important to keep the edge of the stripping comb parallel to the skin so that the hair is pulled without the skin being raked and irritated. Again, gentle and steady is more effective than hurried and rough. As the jacket emerges further, the longest guard hairs are selected and removed with the goal of getting a number of layers of guard hairs of differing lengths, so that the high quality jacket can be maintained for an extended period of time.

Typically, furnishings (hair on the legs, chest, and face) are maintained in a similar, but less aggressive manner. Usually the undercoat of furnishings is not raked, due to concern of breaking the longer, desirable guard hairs of the furnishings. The longest guard hairs in the furnishings are often dead hair that will need to be pulled to keep the furnishings rotating, just like the jacket. Furnishings are often bathed more frequently than the jacket and treated with a number of products to keep the hair softer to avoid breakage. These are often oil based products like Vitapointe, that protect the long hair of the furnishings, but often attract dirt and sand. The dirt and sand can result in breakage, hence the need for more frequent bathing.

As you work through the process of grooming with your show dog, and you wonder about whether to bathe, ask yourself a simple question. If MY scalp was dirty or irritated, and I went to my dermatologists, what would be his first and most important suggestion. The answer is, Shampoo your scalp with an appropriate shampoo frequently. The same is true for your dog. Keep the skin clean!