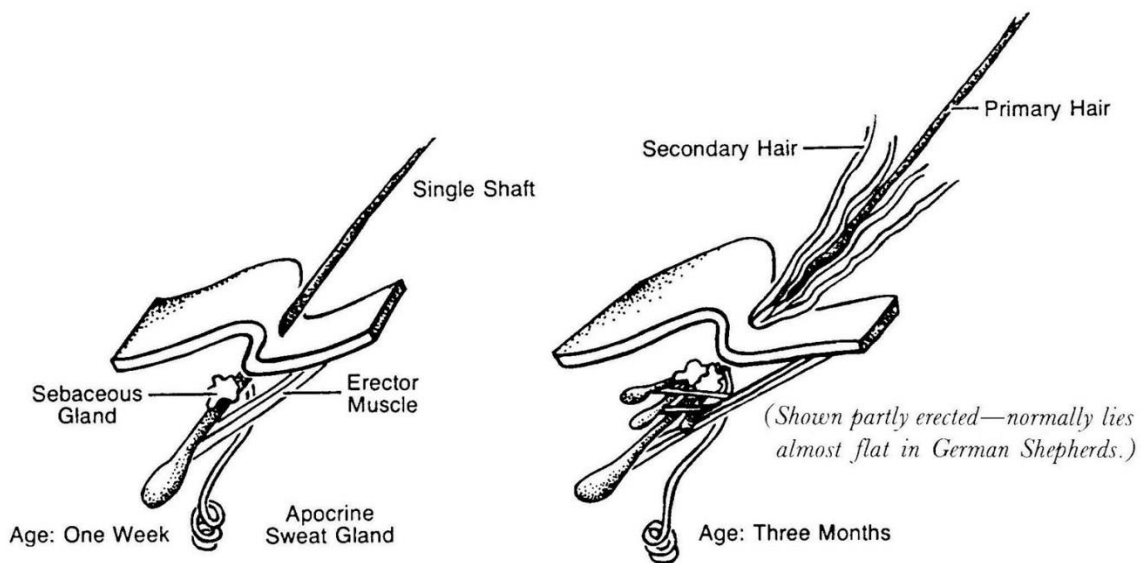


The Undercoat
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The fur, or hair of all canines is made up of the protein keratin and dead skin cells. It grows from follicles in the dermis, or inner layer of the skin. The follicles of humans have one hair each. The follicles of dogs, sometimes have several hairs growing out of one follicle. Most dogs have three types of fur: Undercoat, Guard Hair and Whiskers. The undercoat lies closest to the dog's skin and grows in clusters from a single follicle. The undercoat has a soft, downy appearance and works in conjunction with the guard hairs to protect the skin from superficial injuries, cold & wet weather and bug bites.

A dog's fur grows in seasonal cycles. When it reaches a genetically determined length, it stops growing and falls out, a process known as shedding. Shedding is determined by the duration of daily sunlight as well as environmental temperature. As days become longer and temperatures warmer, dogs shed their undercoat, allowing them to stay cooler in warm weather. As days grow shorter and temperatures cooler, the light undercoat is shed to make room for the thick winter undercoat. The dog's winter coat traps air warmed by the dog's body and keeps it next to the skin. Furthermore, muscles in the dog's skin can fluff up the coat, creating even more insulation.

The hair of a dog does not grow continuously, but in cycles, similar to our eyebrows. Anagen is the first phase, in which the hair is produced. The new hair grows alongside of the old hair, which is subsequently lost. Catagen is an intermediate stage in the cycle, and telogen is the resting phase in which the follicle is basically dormant. The hair follicles are not all in the same phase at the same time, which is why we do not see a lot of bald dogs!

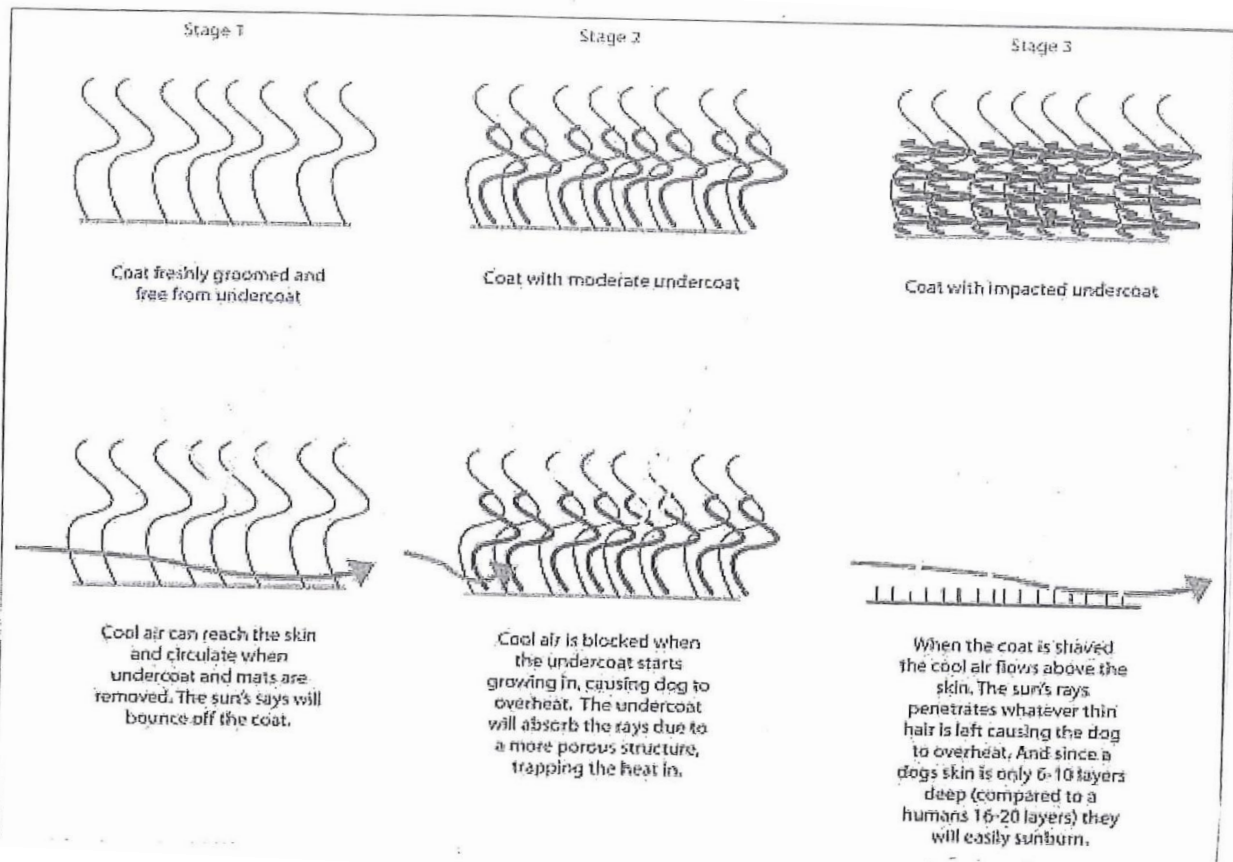


Hair Follicles. Accessory hairs develop as the puppy gets close to 3 months old, at which time there are two to five secondary hairs around each primary hair. At six months there are five to fifteen in each follicle bundle, further grouped in clusters of three in irregular rows, 100 to 300 bundles per square centimeter.

Breeds such as the Spitz, Herding, Working, Sporting Terriers and some Toy breeds are examples of double coated dogs with an undercoat. With a double coated dog, they need to be groomed by brushing throughout the year but most heavily done in the spring when a major shedding period occurs. Some breeds with double coats don't need an excessive amount of grooming whereas others do in order to

keep their coats tangle-free. The fluffier a coat tends to be, the higher maintenance they are, but with that said, some dogs with rougher coats boast dense, thick and softer undercoats which mean they need to be regularly groomed or their coats can become matted or even felted.

Shaving a dog with an undercoat, actually removes some of their natural ability to stay cool. Another reason is that when the hair does begin to grow back it tends to do strange things. For some, it may mean having patches that don't grow at all, or that don't grow both types of coat layers (top and under), Older dogs often have issues with proper regrowth and for others (which happens most often) the undercoat grows in faster than the topcoat (since the topcoat isn't meant to shed extensively it grows extremely slowly) so now that protective topcoat is matted into the undercoat.



All of this being said, there may be times where it is necessary to shave a double coated dog. In surgical/medical situations the coat must be shaved or if the undercoat has become so matted it cannot be combed out, shaving is the only solution. Once the coat begins to grow in, keeping them brushed and free of matting will prevent the need to shave them in the future.

Most people who are allergic to dogs are really reacting to the saliva and dander of the animal. Dander is made up of tiny skin hair particles. Every time a dog with fur sheds (especially a dog with undercoat) a bit of skin comes off with the shed fur. As the fur loosens and falls out, dander is formed and floats into the air. When it comes in contact with your eyes, nose or throat, your body reacts, and you end up with itchy, runny eyes and nose, and you may even have trouble breathing. A practitioner could very well have an allergic reaction with a dog who has an undercoat, seeing how the therapist would be stimulating the layers of skin and working their fingers through the dog's fur. As the practitioner runs their fingers through the dog's fur, they would be unintentionally lifting and separating the dander from the undercoat.



A "Hot Spot" or (Acute Moist Dermatitis), is an acutely inflamed and infected area of skin irritation created and made worse by a dog licking and biting itself. A hot Spot can manifest and spread rapidly in a matter of hours as secondary Staphylococcus infection causes the top layers of the skin to break down as pus becomes trapped in the hair. Hot Spots can be treated with corticosteroid medications and oral as well as topical antibiotic application, as well as clipping hair from and around the lesion. Underlying inciting causes include flea allergy dermatitis, ear disease or other allergic skin diseases. Dogs with thick undercoat are most subject to getting hot spots.

Clinical signs of Hypothyroidism is adequate levels of thyroid hormones and are necessary for proper hair growth. When hormone levels are low, hair growth tends to be thin over the lumbar area equally on both sides. That is called Bilaterally Symmetrical Alopecia, which is one of the hallmark signs of hypothyroidism. The back of the rear legs are also commonly affected. The pet's hair coat is often scruffy, flaky, and lack luster. The coat is commonly deficient in finer body hairs and undercoat. An important differentiating feature of thyroid deficiency is that this hair loss is not itchy as it would be from fleas, allergic or infectious skin disease. Hypothyroidism dogs commonly have excess black pigment in the skin of their groin, a condition termed acanthosis nigricans.

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