

Hair Analysis

Besides the color of hair, there are a lot of other characteristics of human hair that can be looked at. Some hair is flat when observed under a magnifying glass and some is round. Some hair is finer and some hair is courser. Round hair tends to be straighter than oblong hair. Flat hair tends to be kinky. The forensic scientist must also be able to tell the difference between animal fur and human hair, even if the piece of material the forensic scientist has to work with is very, very small. Cat hair is usually finer than human hair or dog hair. Dog hair can be of two different kinds. The outer coat is generally very course and often straight. The undercoat is often fine and can be very curly.

In human hair, the color of the hair can make a difference too. Generally speaking, dark hair is thicker than blond hair and red hair is the finest. But then hair that has been colored artificially can give false clues. Hair is composed of two basic layers. The inner layer contains the pigment(s). Melanin is the most common pigment in hair. The amount of melanin determines the color of the hair. The more pigment, the darker the hair. Some hair is white. It generally has bubbles in the inner layer.

Today when the investigator finds a piece of hair at the crime scene, he/she will send it to the lab for DNA analysis. There are two types of DNA analysis that can be done. We will be looking at one of them later. This method analysis the DNA that is in the nucleus of the cell. It directs most of the cell functions. Cells of higher order animals have another structure in them called mitochondria. The exact origin of mitochondria is unknown. Some think that some cells incorporated bacteria into them millions of years ago and changed the bacteria to benefit the cell. The new structures were replicated when the cell replicated and were passed on. Eventually they became a vital part of the cell. The main difference between nucleus DNA and mitochondria DNA is that half of the nucleus DNA came from each parent, but all of the mitochondria DNA comes from the mother. This makes tracing lineage easier through the mother. The hair must have living cells from the root attached to it if regular nucleus DNA tests are to be run, but if mitochondrial DNA is to be tested, there is no such requirement. Therefore any piece of hair can be tested. This is the most popular test that is done on hair today in a real crime scene.

We are going to be kept to the old fashion methods of looking at hair because of a lack of equipment. We will be looking at the hair under a microscope to determine if it is likely from a dog, cat, or human. We will also be looking at the basic shape, curliness, and size of the hair if it is from a human. We will be looking at color also, and whether or not the hair is dyed.