Scientific Communication Writing Assignment (94)

If you have ever watched the Confirmation Dog Shows on TV, then you might infer that these people are looking for very specific, desirable traits within those dogs. The truth is for centuries people have been breeding to create the perfect mixture of desirable looks and behavioral characteristics in dogs. They want consistency and uniformity but at what cost? Since people are looking for specific traits, it must inherently turn to the result of inbreeding. Consequently, it leads to an increase in gene inherited diseases and a lack of genetic biodiversity.

According to a study done to test the genetic analysis of dog breeds, the average inbreeding rate comes to about 25% across 227 dog breeds. So, around a quarter of dogs have a high risk of developing complex diseases that have been passed through several generations. Several scientists and breeders have adopted using pedigrees in order to slow this curve. However, experts are now discovering that pedigrees are misleading because the history does not go back far enough. Scientists are now suggesting that breeders need to adopt strategic breeding management. This is interesting because it looks, not only at the pedigree information, but also looking at DNA analysis and overall health screenings of these canines.

One of the biggest ways scientists are being proactive about this issue is by trying to educate breeders on making smart decisions when it comes to breeding. Trying to convince them that inbreeding for looks severely harms the animal’s health. By not continuing to create or maintain genetic diversity, it lowers the ability for animals to resist disease and be able to adapt to changing environments. Inherited diseases are easier and more likely to get passed down with inbreeding because specific gene mutations are consistently being expressed. Often when breeders find a male dog with many desirable traits, they will breed them several times in order to continue to breed those specific characteristics. These dogs retained for breeding are called stud dogs. With the help from pedigrees, that can warn breeders to limit the use of stud dogs to ensure diversity can still take place and limit the amount of inbreeding taking place. Keeping records of breeding and family lines will help provide the resources to watch for specific genes becoming inherited. Experts are also now newly providing DNA tests to screen for certain illnesses, that way breeders to smartly try to avoid several illnesses getting passed down.

The need to create ‘the perfect dog’ has led to a severe increase in the amount of inbreeding taking place. While researching inbreeding in an article in the ScienceDaily, veterinary geneticist Danika Bannasch, discovered a breed of dog that had a much lower rate of inbreeding, the Danish- Swedish farm dog. But why is this breed of dog different than the rest? Because they were being bred for function rather than bred for looks. This way of breeding allows for more detailed looks on the dog’s individual health, that way they are passing down positive, healthy characteristics.

The goal of the inbreeding issue is to restore genetic diversity and lower rates of inherited diseases. A crisis of over breeding of desirable breeds and traits have led to high majorities of inbreeding. In order to reverse the generational effects of canine inbreeding, scientists suggest consistent genetic testing, health screening, and family histories playing a bigger role in breeding moving forward. To be able to disrupt the inheritance of disease-causing genes, breeders need to make smarter decisions to ensure they are breeding for genetic diversity.

Why did I choose this topic?

I wanted to write about something I am interested in. I love animals (especially dogs), and I used to show my dog Mack in Dog Shows. So, growing up I have seen a lot of severe diseases common in many dog breeds. The aspect of inbreeding to create perfect looks astounds me, because it is so prevalent in the Dog Show world.

Primary Source link: https://www.sciencedaily.com/releases/2021/12/211202162148.htm

Citations:

University of California - Davis. "Most dog breeds highly inbred: Study suggests inbreeding contributes to increase in disease and health care costs." ScienceDaily. ScienceDaily, 2 December 2021. <www.sciencedaily.com/releases/2021/12/211202162148.htm>.

University of Edinburgh. "Dog DNA tests alone not enough for healthy pedigree, experts say." ScienceDaily. ScienceDaily, 4 March 2015. <www.sciencedaily.com/releases/2015/03/150304124137.htm>.