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Genetic disorders.

Genetics and genetic disorders.
By Scot E. Dowd Ph.D.

Genetic disorders.
The genetics of dogs has a major impact on disease.
Even diseases that are not inherited.

This discussion will relate more toward **those disorders or diseases that are passed from sire or dam to the puppies**.

A genetic disorder is defined **as an inherited abnormality encoded in the genome of the dog**.

Such disorders or defects in the genetics of the dog are the major causes of the **disease symptoms**.

Inherited disorders are very important and indeed, more prevalent in pure bred dogs because of the nature of the breeding practices.

The genome encodes disease.

Genes as noted **play a major role in the induction and prognosis of diseases**.

With modern genome projects, EST projects, and other functional genetics based science the role of genes **in disease is becoming elucidated.**

Congenital malformations are those issues or inherited problem which a puppy is born with.
Congenital **malformations are defects in the structure of tissues and can include things such as cleft palate, kinked tail, dysplasia, heart murmurs etc.**

A metabolic disorders is another type of genetic issue that can be inherited.

Metabolic disorders are typically those that affect can include pacreatitis, Histiocytic colitis, protein-losing enteropathy and other strange sounding diseases.

These are typically things that make the dog **less than healthy**.
Things that you cannot see or hear but that progressively deteriorate the health of the animal.

Finally there are **inherited issues that affect systems such as the immune system.**
These systemic diseases can remain dormant for many years and only act to shorten the lifespan of the dog.

An example is the increased cancer rates seen in closely bred dogs that are not particularly associated with aging or environment.

Infectious diseases are also more disastrous in dogs with inherited problems **with the immune system.**

The breeder and inherited disorders
Good breeding practices are the best way to reduce the chances of inherited disorders.
There are extensive discussions of various breeding practices on this site.
A breeder **who is not fluent in all aspects of canine disease and genetic principles is a highly UNETHICAL breeder**.
It does not matter how many health tests, conformation titles or performance titles you can put on your dogs.

Lack of experience and knowledge with the inherited problem of the dogs you are breeding.
Failure to follow the principles of inheritance for genetic diseases or complete failure to acknowledge "lack of knowledge" are the primary problems that are compounded by poorly educated breeders.

The knowledge of which diseases **are inherited and how they are inherited is one of the primary sets of tools a breeder needs to utilize**.

Without this fundamental knowledge a breeder is only watching dogs have sex! Anyone can do that!

How the disease is inherited (the mode of inheritance), how to identify the condition as early as possible, and ways to recognize carriers of the disease who, except in the case of autosomal dominant traits is what a breeder must come to the table with.

These are not things to learn as you go along.
The knowledge of what diseases are predisposed in the APBT.

The knowledge of how inbreeding, linebreeding, outcrossing, backcrossing, and other principles can be used to ensure healthy puppies **is vital**.

The ability to look at a particular bloodline and recognize that there is not digging out from the inherited disease pitfalls and having the courage to stop the madness **is the pinnacle of good stewardship**.

Blindly breeding dogs **without** the knowledge of genetics and the full understanding of inheritance of traits including genetic disorders is the calling card of 99% of breeders today (OF ANY BREED).
I would say it is higher in APBT breeders.