

Understanding hereditary disease.

Mutts DO have genetic diseases, though frequently at reduced risk. The occurrence of genetic disease is the result of indiscriminate breeding and an undereducated public. Purebreds start with a more limited gene-pool, and the rarer or unusual the breed the smaller genetic pool to start with. Popular breeds tend to be rapidly overbred by anyone with a dog under the "I want to make my money back", "just one litter" or "I'm breeding to get friends puppies of my good dog" mentalities or by breeders or puppy mills out for a fast buck without considering the occurrence of genetic disease which can occur as free, carrier or affected animals. It is not enough to look at parent dogs (many diseases don't manifest until the dog is 5 or 6 years old) or ask about their status for allergy, behavior, diabetes, Pugs with stenotic nares (narrow nostrils) and breathing problems, Shar-pei fever, entropion or OFA or PennHip, or other problems. You want info on grandparents, siblings of the parent dogs and all puppies they have had from prior breedings. Why? Because carriers when bred will produce some healthy, some sick and several carrier offspring.

Genetics: To explain what is going on we are going to simplify what happens. Genes come in pairs - one from each parent. Either of these genes can then be passed to the next generation. Lets say that we have a dog with a gene for hip dysplasia (this is actually a multi-gene problem). Hip dysplasia is a shallow and poorly formed hip joint that causes degeneration and severe arthritis at an early age. Affected dog may show signs of problems as early as 6 months of age, but most appear ok until 2 or 3 years old. Carrier or partial affected dogs may not show problems until they are 6-8 years old. The normal hip gene we will call X and the dysplasia gene is x. A

fully healthy dog would have the genes of XX and a dog with Dysplasia would have xx. If we breed these dogs we would get puppies with :

$$XX+xx = Xx, Xx, xX, xX. \quad (\text{or all carriers})$$

Breeding two carriers to each other gives us:

$$Xx+Xx = XX, Xx, xX \text{ and } xx. \quad (\text{one healthy, 2 carrier and one diseased})$$

Breeding a carrier and a healthy dog produces:

$$XX+Xx = XX, Xx, XX, \text{ and } Xx \quad (\text{two healthy and 2 carriers})$$

So you can see that a litter of puppies will be a mix of gene types, and that it is very hard to eliminate the problem because of the carrier condition. Without the ability to do a genetic screen the only way to determine the risk is to understand the genetics and to get a full history of the family - brothers and sisters of the parents, the grandparent

s and other litters produced by the parent dogs. Tests on the parent dogs like hip X-rays (and recorded as OFA certificates) help to screen for the problems and for carriers and help inform you of risk.

Obviously a breeder who doesn't have any such records is either ignorant or just not showing due diligence, and should be avoided. Research the breed(s) you are interested in and become aware of genetic disease in these breeds.

Some breeders "guarantee" their dogs. This is typically just a sales gimmick because genetic diseases don't show up for months or years - well after you have bonded to your pet. Just what is the guarantee? Cash back if there is a problem or that the breeder will take the dog back? Typically we see that the breeder has moved and can't be found or will tell you they will take the pet back and euthanize it. Ask before you buy about returned pets and get references! Quality breeders will always take one of their pups back - at any age.