

## Dog Breeding Myths

### Separating fact from fiction in the dog breeding world.

*D. Caroline Coile, Ph.D.*

Posted: Tue Jun 1 00:00:00 PDT 2004

Myth: The best breeding is between an uncle and niece (or aunt and nephew). No explanation has been offered as to why this formula is promoted. Sure, some people have gotten nice puppies from such breedings just as many have gotten poor puppies. Is it just any uncle and niece? No. As in any breeding, the quality of the individuals is a primary consideration. There are no ready-made formulas for dog breeding.

Myth: Tail lines, particularly bitch tail lines, are the secret to good breeding. Here's an example of a little knowledge being worse than none at all. A tail line refers to the line on the very bottom (dam to granddam to great-granddam) or very top (sire to grandsire to great-grandsire); the only lines in which the sex is always the same. The logic presented for tail line breeding is that the bitch has two X chromosomes, while the male has an X and a Y (True). Further, the tiny Y chromosome carries very little genetic information on it, whereas the larger X chromosome carries true genetic information (True). A male must get his X chromosome from his dam (True). A bitch must get one of her X chromosomes from her sire (True). After that, the logic falls apart. The myth asserts that the way to get a well-producing bitch is to make sure her sire had a nice dam. True, the best way to get good dogs or good producers is to have good ancestors. But the X chromosome has little to do with it. For one thing, it is but one of 39 chromosomes. While it may carry some traits of importance to conformation, it's no more likely to than any of the other 38 chromosomes that somehow get forgotten in this theory. For another, even if you knew which traits were carried on the X chromosome, the expression of those traits differs depending on whether it's in a male or bitch. In males, what you see is what you get; the traits carried on that single X chromosome are expressed. In bitches, it's not. At some point during development in each cell line, one or the other of the two X chromosomes is randomly inactivated, so that bitches are actually mosaics of cells derived from one or the other X chromosome.

The same reasoning applies to the myth that great sires carry great sire tail lines. The argument goes that because the Y chromosome is passed from father to son, genetic material from the Y chromosome will be concentrated in the fortunate male descendant. The problem is that virtually no traits except a few concerning male reproduction have been traced to the Y chromosome in any species, let alone dogs.

Myth: Inheritance is either/or, never a compromise. Again, this is where that little bit of knowledge thing gets people in trouble. True, many traits are inherited in a yes-no, dominant-recessive way. But many more are inherited in an additive way, such that progeny is often intermediate between the parental types.

When you hear about a breeding theory that seems too easy or too far-fetched, it probably is. Find a reputable source with scientific data before embracing such theories as your own.