

## **Genetic Testing: Essences and Consequences**

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Canine breeds are usually based on a limited, if not critically small number of original ancestors. One extreme breed example represents the Norwegian Lundehund. This precondition limits the genetic variability in present-day to start with. Additional breeding strategies, like e.g. using prominent sires, further reduce the so-called gene pool. In consequence ever existing mutations may accumulate and cause recessively transmitted diseases. On the other hand, breeders ask more and more also for genetic information concerning the inheritance of special exterior traits in the offspring of their pairings.

The scientific development of a novel DNA test for an inherited disease or trait may last for months to several years, especially also the test evaluation may be critical and relies on breeder's cooperation. Yet, we shall concentrate here rather on the consequences of applying the DNA tests for the entire breed. Foremost, we plan to reflect on the aftermaths of uncritically and strictly applying DNA test results in subsequent breeding strategies. This entire field of DNA test applications appears the more delicate with regard to inherited components of common diseases rather than ailments governed by the Mendelian inheritance rules. Can we really learn from the actually corresponding human situation where whole genome or at least exome sequencing allows more often than occasionally to define even completely novel disease entities?