

# Osteochondrodysplasia (Dwarfism)

**Affected breeds:** Miniature Poodle

Osteochondrodysplasia in the miniature poodle results in stunted growth and abnormal motion from an early age. This is accompanied by a range of extreme abnormal features including misshapen paws, enlarged joints, shortened and bent bones and undershot jaws.



Osteochondrodysplasia is caused by a recessive genetic mutation. This means that dogs which carry the mutation ("CARRIERS") are normal but will pass the mutation on to an average of 50% of their offspring. Puppies which inherit two copies of the mutation will develop Osteochondrodysplasia ("AFFECTED").

## **This test is particularly useful for breeders:**

- To identify carriers among their breeding stock so that they can avoid CARRIER X CARRIER mating combinations which would risk AFFECTED puppies.
- To conclusively confirm Osteochondrodysplasia in an affected dog

## **This test will be reported as:**

**CLEAR** : no evidence of the Osteochondrodysplasia mutation

**CARRIER** : carries one copy of the defect, which will be passed to 50% of offspring

**AFFECTED** : carries two copies of the defect, causing Osteochondrodysplasia

## **The genetic status of dogs can be used to predict breeding outcomes when different combinations are mated:**

CLEAR X CLEAR = 100% CLEAR

CARRIER X CLEAR = 50% CARRIER, 50% CLEAR

AFFECTED X CLEAR = 100% CARRIER

**CARRIER X CARRIER = 25% AFFECTED, 50% CARRIER, 25% CLEAR**

**AFFECTED X CARRIER = 50% AFFECTED, 50% CARRIER**

**AFFECTED X AFFECTED = 100% AFFECTED**

## **References**

Neff MW, Beck JS, Koeman JM, Boguslawski E, Kefene L, et al. (2012) Partial Deletion of the Sulfate Transporter SLC13A1 is Associated with an Osteochondrodysplasia in the Miniature Poodle Breed. PLoS ONE 7(12): e51917. doi:10.1371/journal.pone.0051917