

Over the past 15 years there has been an increasing awareness worldwide of a problem with the hoof structure in a subset of our beloved Connemara ponies.

Hoof Wall Separation Disease is an **autosomal recessive genetic disorder** of the hoof wall. All four feet will be affected. It should not be confused with White Line Disease (WLD)

The condition has been identified in all countries where Connemara ponies are bred, in both local and imported stock - not 'one' country nor one bloodline. Currently HWSD is still not recognised by the breed societies even though the cause has been identified beyond all doubt.

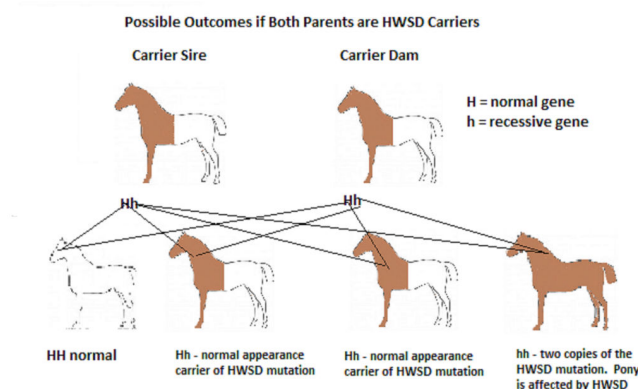


If a pony has inherited this condition, it will be born with it, and in severe cases damage can be seen in foals as young as 2-3 weeks of age. HWSD is not an acquired condition.

We are unsure why, but there is consensus that there are degrees of severity with this condition; some can be managed and some of these ponies need to be euthanised on humane grounds. Environment and nutrition may be contributing factors, but are not the **cause**.

The cause is a genetic mutation which causes the hoof wall to grow in a defective manner. Splits occur within the layers of the hoof wall and these layers break away when they come in contact with the ground.

The Patterns of Inheritance in HWSD follow basic Mendelian principles.



Carrier parents donate either a normal copy of the gene or a mutated version to each of their foals.

Thus every mating of a carrier parent has a 50% chance that the foal will be free of the mutation and a 50% chance it will be a carrier.

When two carrier parents are mated, the chance of producing a HWSD foal is 1:4.

When an affected HWSD parent produces a foal, 100% of the offspring will be of carrier status.

By genetic testing all breeding stock for the HWSD mutation, it will be possible to avoid matings which will have the potential to produce HWSD affected foals.

Dr. Robert Eustace of the Laminitis Trust (UK), originally described the condition as "coconut-matting hooves" as the borders of the hoof wall appear rough and frayed like the edges of coconut mats.



HWSD sadly, does not respond to treatment whether topical hoof treatments or feed supplements which are used to promote healthy hoof growth.



The hooves do not hold traditional shoes well, as the hoof wall fractures around the nail sites. The older type of adhesives used for 'glue on shoes' appear to exacerbate the breakdown of the hoof wall. The new generation adhesives appear to perform better in this regard.

How wide spread is HWSD in the population?

Pedigree research indicates that the problem was already present in at least two ponies which are recorded in Volume 1 of the CPBS Stud Book. There is unlikely to be a Connemara pony anywhere in the world which does not have at least one of these ancestors in the pedigree. Some bloodlines have a higher incidence of affected progeny than do others. One such example is the 'Irene' line of ponies.

"I now know that of my four breeding ponies, three were carriers. These ponies were not purchased from one breeder, but from all parts of the US with very different "recent" bloodlines. This indicates to me that it is not a rare problem but is becoming more widespread." Breeder A, USA.

"I think it is VERY common that the vets and farriers come to the conclusion that these cases are White Line Disease and that they don't try to make further research on it. At least here and in our neighbour countries. Although I find that odd and also frustrating." Sweden.

You are asking someone who the odds have been very high. I imported 5, two stallions and 3 mares (from Ireland and USA). 1stallion and 2 mares of the 5 were carriers and produced the hoof issue. Y imported 3 mares and 1 stallion and 100 % of them were carriers (from USA and UK). I think maybe we were very unlucky - at least I'm hoping so!!!! I think we've had 12 or 13 of these foals born in Canada over the last 9 or 10 years - none in the last 5 once we figured it out. We of course didn't double up on carriers and voila - no more problem." Breeder M, Canada.

"It took months, if not years, to admit to myself that the symptoms my imported in utero foal displayed matched those described as this genetic hoof condition. And even then I'd look for any little symptom that might not match with the description. Now 7 years old she has never needed her feet trimmed, she walks on her soles in summer as the hoof wall just flakes off. Both parent's feet are normal." NZ

The Connemara Pony Research Group initiated the work which has led to the discovery of the HWSD mutation. The research was funded in the main, by donations made by concerned people from around the world.

Additional funding was sourced from the Morris Foundation and Merial.

The genetic research was conducted by the Bannasch Laboratory (UC Davis). The scientists from Bannasch discovered the mutation and have developed the screening test.



The HWSD test is conducted using hair roots sampled from the mane or tail; the same collection method that is used for DNA profiling and colour testing by UC Davis Veterinary Genetics Laboratory. www.vgl.ucdavis.edu

More information on HWSD and the work of the Connemara Pony Research Group can be found at: <http://connemara-pony.blogspot.com>

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