



Cumann Lucht Capaillíní Chonamara
Connemara Pony Breeders Society

HWSD

HOOF WALL SEPARATION DISEASE

What is it?

What can be done about it?

HOOF WALL SEPARATION DISEASE or HWSD for short is a debilitating genetic condition found in a small percentage of Connemara ponies, affecting all four hooves and is incurable.



What do these two photos have in common? Both ponies have HWSD!

In an affected pony the outward clinical signs of HWSD -

- are not always visible, and the hooves may look perfect, although where it is visible,
- the hoof wall will be seen to be breaking away,
- there may be weight bearing problems,
- the pony may be difficult to shoe and
- there may be lameness.

It is **important** that the HWSD condition is eradicated from the herd, both from a marketing point of view and that of animal welfare. To achieve this the CPBS have already taken several steps:

- all foals since 2016 are tested for HWSD before registration, unless they are the progeny of CPBS recorded non-carrier parentage
- all stallions are tested for HWSD before/ at inspection unless they are the progeny of CPBS recorded non-carrier parentage;
- all mares brought out for inspection can be tested at inspection for HWSD unless they are the progeny of CPBS recorded non-carrier parentage;
- all new registrations are tested unless they are the progeny of CPBS recorded non-carrier parentage;
- once tested the result will be recorded in the pony's passport;
- if testing is not required due to the pony's already established carrier-free status it's CPBS passport will be stamped as being a non-carrier; and
- to have had the test will be an important factor at Sales.

However the breeder must play a very important part to achieve eradication of HWSD by responsible breeding.

Genetic testing of a pony will give one of three results:

- **Affected (HWSD/HWSD)**
- **Carrier (N/HWSD)**
- **Non-Carrier (N/N)**

An **Affected** x **Affected** cross should not be considered as this will result in an **Affected** offspring ie.

HWSD x HWSD

- 100% result **Affected**

A **Carrier** pony alone merely carries a single copy of the gene and will not display any HWSD related disability. However, a **Carrier** pony bred to another **Carrier** pony, will result in the following:

N/HWSD x N/HWSD

- 25% of matings: likely **Affected**
- 50% of matings: likely result **Carriers**
- 25% of matings: likely result **Non-Carriers**

To maintain diversity in the herd it is acceptable to breed a **Carrier** to a **Non-Carrier**

N/HWSD x N/N

This cross cannot result in an **Affected (HWSD/HWSD)** pony as genetically it is not possible. It cannot be predicted which other genes will be passed on, but regarding HWSD, within this mating there is either a:

- 50% chance of a **Non-Carrier pony** or a
- 50% chance of a **Carrier pony.**

ABOUT THE DISEASE

It is important to distinguish from this cross that there is then the option for the breeder to choose future breeding animals that are free of the condition, thus potentially further reducing the carrier percentage within future generations. The breeder can make a choice and this is where **responsible breeding** is important, the responsibility being for the good of the herd, to strive for a healthy HWSD free population.

The **Non-Carrier x Non-Carrier** cross also has its part to play:

N/N x N/N

- **100% result Non-Carrier**

As this cross excludes carriers it is entirely free of the HWSD gene and is therefore totally free from the genetic condition.

HOWEVER, IF THE N/N x N/N

CROSS IS USED EXCLUSIVELY BY BREEDERS IN THE COMING GENERATIONS IT WILL LIMIT THE GENE POOL IN AN ALREADY JEOPARDIZED SITUATION AND MAY CAUSE UNKNOWN AND UNWANTED TRAITS TO MANIFEST THEMSELVES - THERE IS STILL A PLACE FOR USING SUCH A CROSS BUT IT SHOULD NOT BE USED EXCLUSIVELY IF GENETIC DIVERSITY IN THE HERD IS TO BE MAINTAINED.

IF WE ALL PLAY OUR PART THE FUTURE OF THE HERD WILL BE ASSURED.

Hoof Wall Separation Disease is due to a genetic mutation caused by a single mutated gene, known as an autosomal recessive genetic disorder. If a pony has two copies of this mutated gene it makes that animal an **Affected (HWSD/HWSD)** animal, ie. all four hooves are affected. Defects occur in the horn of the dorsal hoof wall.

It is purely a genetic state and works in a similar way to the 'blue-eyed cream gene'. However, the HWSD mutation can cause severe debilitation. The condition may have no obvious visible signs, or may present itself as slightly affected, to very severely affected, and it is not yet understood why the visible signs can suddenly manifest themselves.

The environment plays no part in causing the condition, however environmental conditions may help in the management of the less severely affected pony. Management in such cases is critical, and trimming and attention to the hooves may be necessary as often as at three weekly intervals. All ponies must be treated as individual cases. In very severe cases which can't be managed euthanasia may be necessary.

There are **Affected** ponies leading useful lives, but the WELFARE OF THE PONY IS PARAMOUNT and this welfare comes at a price to the owner.

It is important to realise that whilst only a small percentage of the pony population is affected, breeders must know the status of the ponies they are using to breed, breed responsibly to eradicate HWSD and preserve the herd to the breed standard. It is our duty to the Connemara pony.

Having been confirmed as a genetic disorder by University of California Davis as recently as 2015, the study of HWSD is now on the syllabus of the Irish School of Farriery. Should a genetic test be required to confirm/rule out a diagnosis please contact the Connemara Pony Breeders' Society or visit our website at www.cpbs.ie to download the necessary form.

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