

Warmblood Whoas

By Mary Nuttall

Breeders: Beware of WFFS

When I bred one of my proven broodmares with stellar bloodlines to a top European stallion last year, never in my wildest dreams would I have been able to predict what would happen next.

My mare was due in March and I was fortunately present to witness the birth of a colt, who appeared normal. The mare retained the placenta, a first for her. Initially the foal appeared bright, alert, had good suck reflex and was very vocal. But something was wrong. The first thing I noticed was his lax front pasterns. Then while trying to stand up his skin started to tear on contact with the straw bedding. Our vet came and we milked the mare and tubed a pint of colostrum into him. But after two hours his legs were still like jelly almost bending the joints backwards. Both my veterinarian and I were baffled as to what was wrong so we rushed him to Texas A&M, famous for its veterinary facilities.

While some things were normal, like his respiration and temperature, some of A&M's notable findings were the following: "The colt had full thickness abrasions/lacerations on all four fetlocks, and his limbs were hypothermic. The coronary bands and mucous membranes were hyperemic and his sclera were severely injected bilaterally. The cartilage within the ears and the nose appeared underdeveloped." Then his skin started to fall off in their hands, they told me. These results led them to test for genetic defects and it turned out he had Warmblood Fragile Foal Syndrome, or WFFS. My colt was then euthanized—the only outcome for foals affected with this horrible disorder, as it is always fatal.

How did this happen, and where did it come from? I began to do some research.

WFFS evidently only happens in the Warmblood breeds, hence its name. "WFFS is an inherited autosomal disorder caused by a single mutation in lysyl hydroxylase 1 (LHI) gene," according to the web site of U.S. company Animal Genetics, which tests for this disorder and has offices around Europe. "WFFS is an autosomal recessive trait, meaning a foal can only be affected if the foal inherits the disease from both parents. Parents that are carriers do not have any symptoms associated with WFFS. However, they will pass on a copy of the defective gene to their offspring 50% of the time. If breeding two carriers the foal has a 25% chance of being affected and a 50% chance of being a carrier," according to the site.

It is very rare to see a live foal diagnosed with the syndrome; the theory is most are aborted with genetic defects or wrongly diagnosed—as mine was, initially—as being dys-

mature. Even more unlikely is that the dead foal will be DNA-tested for WFFS, as the owner is in sticker shock from the cost of trying to save him.

Arne Dekloet, president of the U.S. division of Animal Genetics, confirmed the number of tests they do in the U.S. for WFFS is very low compared to Europe. That would make sense given the population of Warmbloods is much higher in Europe and that's where of course the breeds originated. "Here [in the U.S.] the problem is awareness in the Warmblood community," he says. He also confirms that all tests they perform remain confidential.

As a responsible breeder, I collected hair samples of all my broodmares and sent them to Animal Genetics for testing. Fortunately, none of my mares carry this LHI gene other than the mother of my infected foal. Since the testing costs a mere \$55, I urge breeders to have their breeding stock tested for this inherited condition. I also urge stallion owners to do the responsible thing and test their stallions. I was thrilled to see Hilltop Farm's recent announcement of their preemptive move to test all their standing stallions for WFFS. Since, sadly, they discovered Sternlicht is a carrier, the farm has announced they are removing him from their stallion roster. Thank you, Hilltop, for setting an example and doing the ethical thing for breeders in North America.

Does WFFS open a can of worms with bloodlines and our breed registries? It most likely does. But if we can avoid more heartbreaking births like the one I just experienced, I believe it will all be worth it.

I have been contacted by people, and seen posts from others on Facebook, who point out that many of the genetic diseases found across the equine breeds involve connective tissue problems. DSLD, or Degenerative Suspensory Ligament Disease, a big concern right now, is also a disease of connective tissue. (Some have stated the gene PLOD1 involved in WFFS can cause arterial rupture in human adults with connective tissue disease Ehlers-Danlos syndrome.) Hopefully future advances in gene testing will help us to unravel these questions. But for now I would urge all breeders to test for WFFS—knowledge is power. **WT**

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