BY NOVEME, MOST HORSE OWNERS, BREEDERS AND EXHIBITORS know that HERDA is a problem in cutting-bred horses, but there’s another problem lurking.

Hereditary equine regional dermal asthenia has been a problem in cutting horse lines for a number of years. In the United States, carriers currently account for 14 percent of the top 100 lifetime cutting horse sires and 28 percent of the top 100 performing horses, according to HERDA researcher Robert C. Tryon, Ph.D., who was one of the inventors of the HERDA test.

As performing horses move into the breeding shed, the incidence of producing affected horses will rise precipitously with the probability of producing an affected horse becoming greater than 1 in 64 breedings unless the HERDA DNA status is reviewed and breeders do not breed carriers to carriers. DNA testing is imperative to prevent wide-scale production of affected horses among cutting horses.

A MOVING DISEASE

WHAT MANY PEOPLE DON’T REALIZE IS THAT HERDA IS ALSO prevalent in the pleasure horse and reining bloodlines of the American Quarter Horse.

Currently, HERDA is more problematic in pleasure horses than in reiners, with 13 percent of elite pleasure horses being a carrier of the disease compared to 11 percent of elite reiners. The current trend of using stallions from popular cutting lines as crossover sires in reining breeding programs is causing a significant increase in the incidence of HERDA in reiners. As a result, the incidence of HERDA in reiners will likely surpass the incidence of HERDA in pleasure horses within the next several years.

AGAINST THE ODDS

AS TODAY’S TOP PERFORMING CUTTERS MOVE TO THE BREEDING barn, many will likely become top 100 five-year sires, meaning that within about five years, 23-28 percent of the top 100 sires will carry HERDA. That’s more than one-fourth. Breeders will have greater than a 1-in-4 chance of having a carrier-to-carrier mating. In a carrier-carrier mating, one-fourth of the offspring will have HERDA.

Statistics predict an average growth of 2-3 percent a year in HERDA carriers among the cutting lines. Because HERDA is recessive, mating a HERDA carrier to a normal horse will produce clinically normal offspring (without HERDA symptoms), but half of those offspring will be HERDA carriers.

There’s a distinction to be made here between carrying the gene for the disease and exhibiting the devastating symptoms of HERDA. Because the disorder is recessive, a horse that

PANEL TEST

At the AQHA annual convention in March, a panel test was approved that will test horses for five genetic disorders: HYPP, HERDA, PSSM, GBED and MH.

For more on genetic disorders in American Quarter Horses, see “Genetic Test Roundup” in the January 2011 issue of the Journal. The bundled test will be an option for owners, and more details will be coming as the testing procedure continues to be developed.
“carries” the gene defect will have one normal gene copy and one defective gene copy. Such “carries” will not show skin lesions but will pass on the defective gene copy 50 percent of the time on average. As a result, the number of carriers and the odds of getting an affected horse are steadily increasing over time.

An additional problem is that some of these same lines of horses carry glycogen branching enzyme deficiency (aka “GBED”). Research shows that in 2006, 13 percent of the top 100 western pleasure horses were HERDA carriers, and 26 percent carried GBED.

The chances of a breeder getting lucky by not getting a HERDA-affected horse as well as getting lucky by not getting a GBED foal are becoming slim. When one considers that polysaccharide storage myopathy (PSSM) and hyperkalemic periodic paralysis (HYPP) occur in pleasure horses, it is clear that relying on luck to avoid these health issues is a losing proposition.

**What HERDA Looks Like**

**Defective Collagen is the Hallmark of HERDA.** A mutation in a gene involved in collagen production allows the outer layer of the skin and eye to separate from the layer beneath it, causing scars and allowing accumulation of serum or blood in seromas or hematomas (blood blisters).

In severe cases, the skin along the horse’s spine can slough away, especially as the horse is put in work and begins wearing a saddle.

It’s not always easy to identify early or mildly affected cases and some mildly affected horses that are carefully managed can show with the disease.

Our anecdotal experience suggests that stallions are more severely affected by HERDA symptoms than mares or geldings, although occasionally we see pregnant mares with severe symptoms.

HERDA symptoms are exacerbated by sunlight and elevated environmental temperatures. If a horse has been kept inside under fans, the disease might not be obvious, giving an unscrupulous seller a chance to pass the horse along by running it through the sale ring, frequently only longeing the horse instead of riding it.

Horses don’t all manifest symptoms at the same age either. If you’re considering buying a horse that’s under the age of 4 that hasn’t been actively ridden, that horse should be DNA-tested. Plenty of buyers have purchased horses and were unfortunately surprised when they put the horse in work and the skin wouldn’t hold up to the saddle.

**Protect Yourself**

We are not advocates of removing HERDA carriers from the breeding pool, rather, we feel that breeding the best horses is the best for the breed and the future of the Quarter Horse. Obviously, you should manage and breed Quarter Horses based on all the available information.

Some of the known carriers in the past have slipped off four-generation pedigrees. If you’re making a purchase decision, look at the extended pedigree of the horse, even if you think the horse is from pleasure or reining lines. If you’re going to spend money for a pre-purchase examination of the horse’s musculoskeletal system, spend five extra minutes and look at his skin.

Feel the skin. Pull up on the mane of the horse from behind the ears to the withers to see if the skin is a little stretchy. If you pull on several horses, you’ll be able to tell the difference between one that is normal and one that is stretchy.

In parts of the body that get more movement, the collagen stretches more. For example, horses often raise and lower their heads, which makes the mane of affected horses stretchy. Horses chew all the time, so frequently the skin over the cheek muscles is also looser.

Before you buy a horse, you can request a test for HERDA. Our position is this: Test before you breed; test before you buy. We look at so many aspects about horses before purchasing them. Why would we not capitalize on our knowledge and also look at the straight facts of genetics?