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# Using DNA to Predict a Horse's Athletic Potential

By Erica Larson, News Editor • Nov 10, 2014 • Article #34821



Photo: iStock

Running might be in a Thoroughbred's genes, but did you know those genes also contain information scientists are using to predict how far, how fast, and how well that horse will run? And DNA assessment of these traits is gaining momentum. So much so that a group of horse racing officials and scientists recently met in Paris, France, for a round-table conference to discuss policy and best

practices for this so-called DNA profiling and issued [a statement](#) on the topic.

DNA profiling is a relatively new practice designed to predict a horse's athletic potential by evaluating that individual's genetic markers.

"This is happening in the Thoroughbred world, but it's going to happen in the Standardbreds,

it's going to happen in the Quarter Horses, it's going to happen in the competition horses," said Des Leadon, MA, MVB, MSc, FRCVS, Dipl. ECEIM, an equine medicine specialist and consultant at the Irish Equine Centre in Naas and the chairman of the International Thoroughbred Breeders Federation and European Federation of Thoroughbred Breeders Associations Veterinary Committees. "So maybe the Thoroughbred industry is at the cutting edge on this."

"There needs to be much more industry awareness and policy and best practice development than there has been to date about DNA performance profiling because it's here," Leadon said. "It's becoming part of the infrastructure of the industry very quickly, and the industry needs to come to terms with it."

To that end, TheHorse.com asked Leadon a few questions about DNA profiling and why it's important to understand.

**The Horse: Where can owners or breeders have Thoroughbreds' DNA analyzed for athletic potential?**

**Leadon:** It's available as a commercial service through a number of suppliers. The prediction of performance has been a very elusive Holy Grail, but there's very good DNA science that lies behind it. But the thing is these suppliers are all different. They've all got different databases, and they all extrapolate differently based on their own research. We do not know to what extent their assessments agree or disagree with one another.

**The Horse: What do people hope to achieve with this technology?**

**Leadon:** DNA performance providers clients are hoping that this technology provides some further insight beyond that which they're aware of, in terms of their usual tools of pedigree, performance and conformation, and that the further insight will actually prove meaningful and useful. And there's varied evidence to suggest people have done that and used it successfully.

But quite where it fits in, though, in the bigger context of an industry, is debatable because this is not cheap technology—this is expensive. It's more likely to be for the higher end than it is for the lower. So it's a technique at the present time that would be available to those that have significant investment in the industry rather than those that have less invested.

**The Horse: Do you think we'll start to see DNA profiling crossing into other disciplines?**

**Leadon:** One of the providers is already looking at that. So yes, it's beginning and it's gathering momentum. And, of course, in the sport horse industry you've got lots more freedom of (reproductive) manipulation than you have in the Thoroughbred industry, where any type of manipulation will disqualify you from entry into the stud book. The providers are amassing their databases, and I'm sure they'd be willing to provide service to anyone who looked for it in the non-Thoroughbred sector at present time. And I suspect that in three or five years you might see a complete change from the present situation with more sport horse people employing the practice.

**The Horse: What's the most important thing to remember about using DNA to attempt to predict athletic potential?**

**Leadon:** It's not always right. There are horses that are low-rated that still come out and win elite races, and there would be horses that are predicted to be elite and turn out to be dismal failures. The statistics at either end say that it's quite good at ruling out some of the worst and it's reasonably good at identifying some of the better ones. But it's only part of the assessment—that's what everybody has to realize. There's no point in having elite performance-related DNA if the limb conformation means the individual is incapable of being trained. There's no point in having elite DNA if the temperament is such that the individual is not going to be able to compete within the environment it requires every day. It's not going to be of much help if the pedigree of the individual is likely to be unattractive to the industry despite the DNA profiling.

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**Seek the advice of a qualified veterinarian before proceeding with any diagnosis, treatment, or therapy.**

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