



VET NOTES

*Peterson & Smith
Equine Hospital
4747 SW 60th Avenue,
Ocala, FL 34474
(352) 237-6151
pseh@petersonsmith.com
m
www.petersonsmith.com*

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The Lameness Locator® – Making heads or tails of equine lameness Allison Howard, DVM



Ally was born and raised in Versailles, Kentucky, a small town on the outskirts of Lexington. Her father relocated to central Kentucky in the late 1980's, where he practiced equine veterinary medicine for over two decades. She began riding at an early age and eventually joined the Keeneland chapter of the United States Pony Club. During this time she fell in love with the sport of eventing, riding aside and fox hunting. Dr. Howard attended the University of Kentucky for her undergraduate degree and received her bachelor of science in Biology. She then moved to Auburn, AL in 2012 to become part of the 2016 class at Auburn University College of Veterinary Medicine. After graduating in May 2016 and she moved back to Lexington, KY to start an equine surgical internship at Rood & Riddle Equine Hospital. She joined Peterson & Smith in June 2017 for an Ambulatory Internship and she will be staying as an associate Veterinarian in July 2018.

Is there anything more frustrating than having a horse who just isn't quite right? One day you think he's lame in the right front, no, now maybe it's in the hind end. Or he moves fine but is suddenly struggling with swapping leads in one direction. Or maybe your old campaigner has unexpectedly gone sour. Well, new breakthroughs in veterinary technology just might be able to help you.



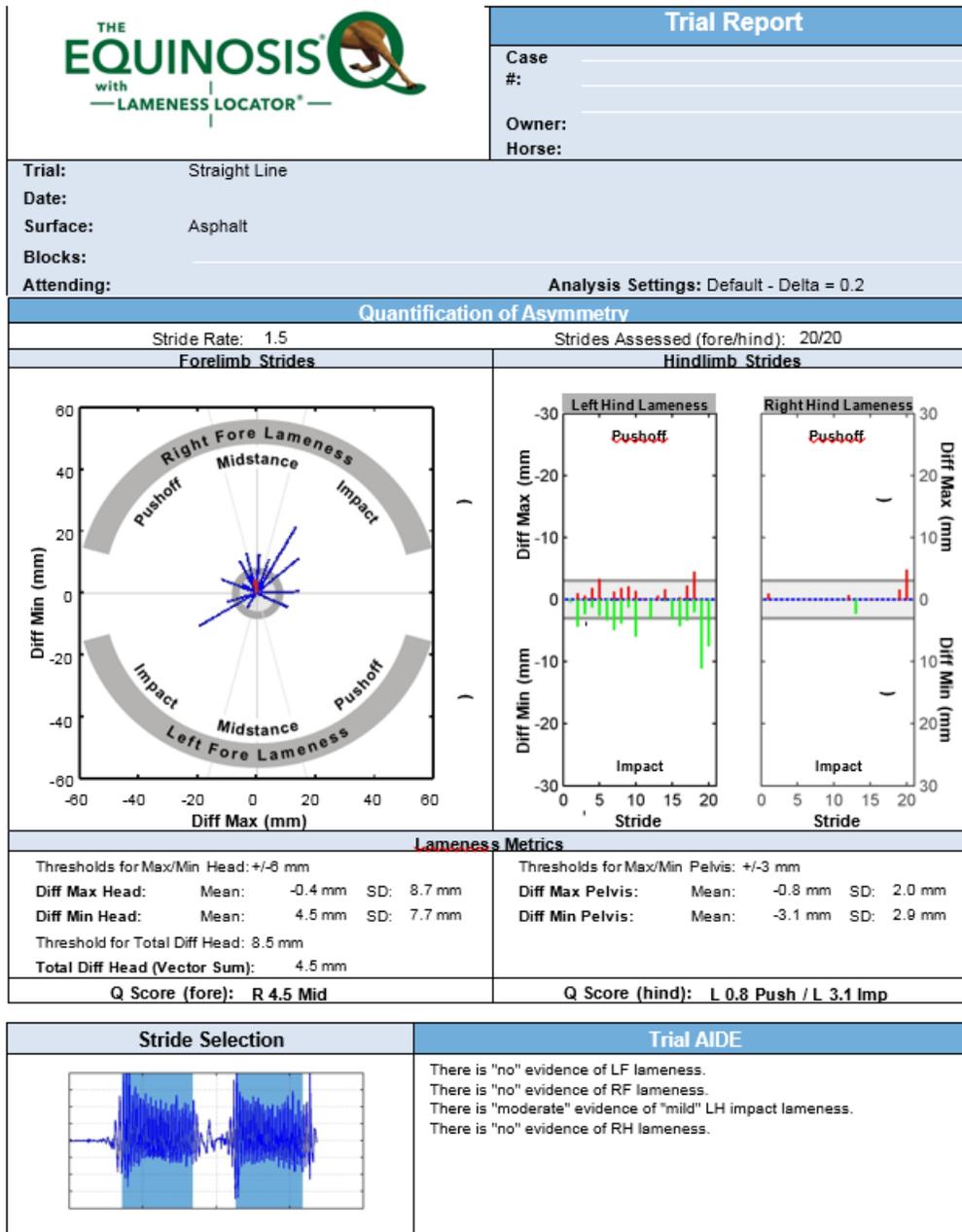
A routine lameness exam is performed with the addition of the lameness locator.

The Lameness Locator® has been the brain child of Dr. Kevin Keegan and been in development for over 20 years. What started as motion analysis involving treadmills and high-speed cameras at the University of Missouri has evolved into a real-time, handheld system that is now being used all over the world. The system is comprised of three inertial sensors that the horse wears and a wireless tablet. Two accelerometers are placed on the top of the poll and the pelvis and a gyroscope is attached to the right front pastern. What the system lacks in fashion sense (imagine head bumpers and pastern bandages) it makes up for with hard, fast, objective data.



Small accelerometers are attached to a head bonnet, and a sticky pad on the pelvis. A gyroscope is attached with a wrap to the right front pastern.

The accelerometers accurately track and identify vertical torso movement as small as 1 millimeter, while the gyroscope calculates the stride cycle, or more simply, when the horse's leg is on the ground or in the air. Data is



sampled nearly 10x faster than the human eye, allowing detection of extremely subtle, shifting limb lameness or complicated multi-limb lameness. The combined data then calculates amplitude of lameness, as well as which limb, and when in the stride the lameness is most pronounced, ie impact, mid-stance, or push off. The system can be used to evaluate flexions, lunging, under saddle, and to measure the effectiveness of blocks using diagnostic analgesia. And the best part? This portable system can be used in the field or the hospital setting.

While every lameness exam may not need the Lameness Locator®, it is an additional tool for the veterinarian, not a replacement. It is especially beneficial in cases involving inconsistent, subtle or multi-limb lameness, or in instances where objective data is needed – insurance exams, pre-purchases, quantifying rehabilitation progress, or as routine monitoring in the elite athlete.

Variables can be selected for jogging surface, flexions, lunging, or blocks. After data collection, several graphs are generated showing measurements of head and pelvis movement.

Peterson & Smith has been utilizing the Lameness Locator® both in the hospital and in the field for over two years. For more information, or if you are interested in using this system in your next lameness evaluation please contact us.

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