Nuclear Scintigraphy
This technology can detect subtle lameness.

By Scott Swerdlin, DVM

In recent years, major advances have been made to improve equine diagnostic imaging capabilities. Issues relating to subtle lameness or lack of performance can be challenging to diagnose using standard veterinary lameness examinations. Advanced scanning technologies, such as nuclear scintigraphy, can be very useful in identifying origins of subtle lameness or reasons behind poor performance. Nuclear scintigraphy, also known as a bone scan, is typically used to diagnose bone remodeling or injuries within the skeletal anatomy

Courtesy, Palm Beach Equine Clinic

A nuclear scintigraphy lab at Palm Beach Equine Clinic

of the horse. Bone scans can be extremely useful in diagnosing lameness origins and providing valuable information to aid in creating an effective treatment plan to get your athlete back to top performance level. The process of a nuclear scintigraphy scan begins with the horse being injected with a radioactive isotope, specifically Technetium 99, which attaches to the phosphorous proteins localized within the bone. The absorption of the isotope into the bones takes several hours. After the isotope has been absorbed, a specialized nuclear isotope gamma-ray camera is used to capture diagnostic images of the skeletal anatomy. Points of interest on the images, which appear to light up, are defined as areas of increased metabolic activity, indicating a site of injury or active bone remodeling. The amount of uptake within an area, can indicate the severity of the injury.

Nuclear scintigraphy scans isolate points of injury, which can be identified further with other diagnostic techniques. Bone scans are also very useful in defining multi-limb lameness origins. The new gamma-ray cameras are designed with advanced-technology software and a wide range of view. This reduces the time required to complete a scan. It also provides the ability to acquire high-quality images regardless of small patient movements, alleviating the necessity for re-scans. The cameras are capable of 360-degree imaging around the horse, including dorsal views (images looking down on the horse, such as full pelvis images). These advanced features aid in easy imaging of the cervical vertebrae (neck) and pelvic views, which are difficult to capture with standard radiographs.

For the highly competitive dressage horse, many cases of lameness are multifocal. There is usually more than one component contributing to a horse's lack of performance; therefore, the process of diagnosing the exact lameness can be complicated using standard veterinary medicine examinations. In my personal opinion, I find the process of diagnosing lameness within the dressage horse to be an interesting problem-solving challenge. In some disciplines, such as polo or jumpers, a diagnosis from a standard lameness examination can be apparent, but with dressage, the horses are not always noticeably lame. A veterinarian may be called for an examination because the horse has not maximized his performance or seems to be losing the crispness of his movements.

Scott Swerdlin, DVM, president of Palm Beach Equine Clinic, graduated from Auburn University School of Veterinary Medicine in 1976. He served on the Florida State Board of Veterinary Medicine from 1981–1987 and received the Gold Star Award. In 1999, he became a member of the Royal College of Veterinary Surgeons and is licensed to practice in Great Britain. Swerdlin serves on the board of Vinceremos Therapeutic Riding Center in Loxahatchee, Florida. His specialties are practice management and lameness in performance horses. Visit equineclinic.com.