

CLIENT INFORMATION SHEET

Gamma Scintigraphy

What is Gamma Scintigraphy?

- Gamma scintigraphy is also known as nuclear medicine or bone scanning. It involves the injection of a substance into the bloodstream that seeks out actively changing bone i.e. bone that is changing or is being destroyed or re-built.
- Attached to this substance is a short acting radioactive 'isotope' that emits gamma rays.
- These gamma rays can be detected using a specially designed 'gamma camera' which then conveys this information to a computer and creates a visual picture.

What are its uses and benefits over other imaging modalities?

Gamma scintigraphy offers several important advantages over other imaging modalities.

- It improves the diagnosis of stress fractures, thereby reducing the likelihood of progression to catastrophic fractures.
- Allows effective imaging of deep anatomical structures that are overlain by large volumes of soft tissue, such as the back and pelvis
- It can be used to monitor the healing process, supporting informed decision-making regarding the appropriate timing for a return to training or work.
- In horses not amenable to nerve blocking it can provide an overview of where to start - reducing stress for nervous or anxious patients.

What areas of the body be scanned, and why might my horse benefit from a Gamma scan?

Most parts of the equine skeleton can be imaged. Benefits include:



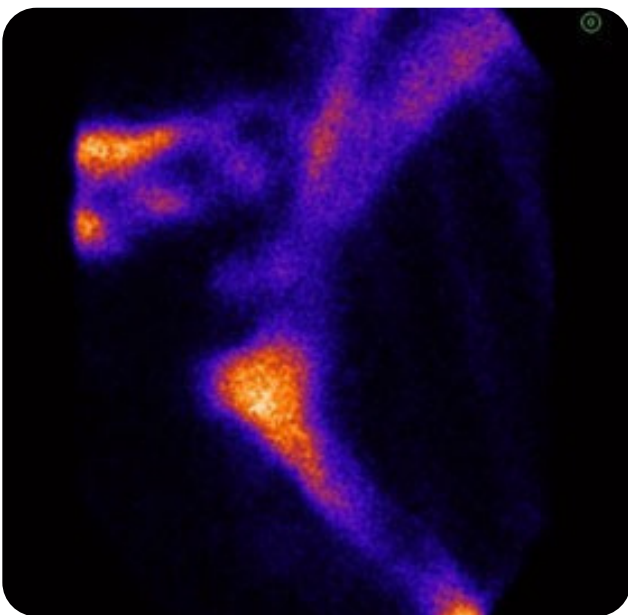
- Lameness that has not been abolished with conventional diagnostic anaesthetic techniques.
- Lameness that has not been localised to a particular anatomic region with no evidence of clear abnormalities evident on radiographs or ultrasound images.
- Acute onset, severe lameness in a horse without any localising signs, e.g. stress fractures in the racehorse
- Suspected pelvic injury, or back/neck pain.
- Horses that are not amenable to diagnostic nerve blocks (i.e. violently objects to needles placed in the limb).



What happens during the procedure?

Gamma scintigraphy is a carefully managed, staged procedure carried out over several days to ensure accurate imaging and safety for both the horse and staff. The process involves the following steps:

- You will be asked to drop your horse off the day before the procedure. A full clinical examination will be performed, and your horse will be weighed to allow accurate dosing of the radioactive marker (technetium-99 MDP).
- On the morning of the scan your horse will be lunged, if safe to do so, to improve blood flow to the skeleton and improve image quality.
- A jugular intravenous catheter is to allow safe administration of the radioactive marker and sedation.
- Following injection, your horse is housed in our radiation isolation stable block. This minimises radioactive exposure to personnel while still allowing your horse to be monitored and checked regularly.
- Approximately two hours after injection, your horse will be walked into the scintigraphy suite. Sedation is used to help your horse remain still for optimal image quality.
- Gamma rays emitted from the radioactive marker are collected by the gamma camera over a period of time, depending on the area being imaged (up to four minutes for certain regions). In most cases the right and left sides are scanned to allow comparison of sides when looking for areas of increased uptake and to quantify any differences.
- Once imaging is complete, your horse will return to the radiation isolation stable block and remain with us until radiation levels have fallen to the regulated safe level, usually 48 hours later.



How are the images viewed?

The images obtained during scintigraphy are assessed using sophisticated computer software. We can perform three different types of scans: a blood phase scan used to assess for aortic thrombosis, a soft tissue phase scan and the bone scan. The blood and soft tissue scans are completed immediately after injection, and the bone phase of the scan is started two hours after injection to allow time for the radioactive isotope to get to the bone. Results are typically available within 48 hours with a written report for your veterinary surgeon. It is important to understand this is a metabolic image of the horse, so further imaging, such as X-ray, ultrasound, CT and MRI often needed to allow a complete assessment.



Are there any side effects to a gamma scan?

Gamma scintigraphy is an expensive tool that requires the use of ionising radiation. This has important implications for the safety of patients and personnel, and the hospital has strict safety rules in place for horses undergoing this procedure.

There are no long-term health implications we are aware of that result from your horse being radioactive for a short period of time. Because your horse requires sedation for the acquisition of the bone scan images, mild colic signs may become evident. On average, this happens less than once a year in our caseload.

Are there any restrictions to other treatments that can take place whilst my horse is radioactive?

Yes. it is important to realise that whilst your horse is radioactive, any invasive emergency surgical treatment (including life-saving surgery) would pose a significant risk to our staff. Medical treatment can be provided but we cannot guarantee we will be able to perform invasive surgery such as colic surgery until radiation levels are reduced. Our vets are happy to talk through the implications of this with you prior to your horse becoming radioactive.

Does my horse have to stay at the hospital?

Due to safety issues involved with radiation, legal regulations state that your horse must stay with us until radiation levels have dropped to a safe level for public exposure.

How will my horse be cared for?

All horses will be fed and watered as normal whilst radioactive. They will remain on a deep litter bed until they are released from the radiation isolation stables. This is because the horse excretes the radioactive material from its body via the urinary and digestive tract, so your horse's faeces and urine are radioactive. We are only allowed to muck out the stables once the faeces and urine are no longer radioactive. Whilst we appreciate this is not ideal we move your horse to a clean stable as soon as possible and carry out a full veterinary examination once the horse comes out of radioactive isolation. Once released from radiation isolation, they are cared for as normal within the hospital. During radioactive isolation, our team of interns and nurses still check on your horse twice daily and ensure they are well.

Due to the radiation levels horses we will supply any rugs that you would like your horse to wear. They cannot wear their own rugs or bandages during this time.

Why choose the Leahurst Equine Hospital for this scan?

Leahurst Equine also has complimentary diagnostics and specialists in multiple disciplines available on site to aid diagnosis and treatment.

