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Science and the stables: Australian startups to improve equine health and vet practice

Cutting-edge technology being applied to the diagnosis, monitoring and treatment of injury and illness in horses, with potential for use in other animals.

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From the horse race that stops a nation, admiring the skill of a cutting horse in the arena or cheering the equestrian team at the Olympics - Australians love their horse sports.

It's also big business; the Australian thoroughbred racing industry alone is estimated to generate \$9.5 billion in economic activity.

Ensuring these elite horses are in prime condition while ensuring animal welfare is a key priority.

Check out these Australian start-ups applying science-backed tools to improve equine health and veterinary practice.

Blood test to give trainers insight into horse performance and recovery.

There's a lack of diagnostic tools that racehorse trainers can routinely use to monitor for muscle damage and see how well their horses recover from training and racing – that's where OxiDX comes in.

From a simple blood sample, OxiDx uses next generation diagnostics technology to measure oxidative stress, a biomarker that indicates muscle damage.

OxiDx operations manager Chris James believes it's a game-changer for training and racing.

"Each horse is an individual and it will have a different kind of recovery profile so a diagnostic tool like this gives the trainer the ability to identify horses which aren't recovering properly," he said.

"They could look to train those horses differently, give them more recovery time or optimise racing schedules for better performance while minimising the risk of injury."

The test is non-invasive, only a small blood sample from the horse is required and it's dried before being sent to the laboratory which makes transport easy.

The diagnostic technology was first developed for use in humans and is backed by more than a decade of peer-reviewed research.

Chris said the aim is to transform the test into a point-of-use device, similar to a glucometer used by diabetics.

He said the test could also be applied to other competition horses and even elite athletes.

"We're exploring opportunities in European and American professional sports, and we have some pretty convincing evidence in Australian football as well," Chris said.

OxiDx is looking for strategic partners and investors as it develops the tool for commercial launch. [Find out how you can be involved.](#)



Harnessing nanoparticles for precision delivery of veterinary drugs

Nanotechnology's been used for decades to target chemotherapy specifically at cancer cells – now it's also being used by Aussie start-up **NanoVet** to make veterinary drugs more effective.

Nanoparticles are engineered to encapsulate active ingredients (like antibiotics or an anti-inflammatory) and then release them specifically where they're needed in an animal's body.

Founder Leandro Posteraro describes traditional drug delivery as a 'shotgun' while NanoVet's patent-pending system is more targeted.

"For example, if a horse had a respiratory infection, we have the ability to send antibiotics only to the lungs and then control the infection there," he said. "You use much less active ingredient, and you don't kill beneficial bacteria in other parts of the body."

Leandro said depending on the animal and drug required it's been shown to reduce the amount of active ingredient needed by up to 40 per cent with the potential to eliminate residues in produce, soils and the environment.

NanoVet is seeking paid pilot programs with commercial animal health or pharmaceutical companies, along with industry partners to support trials across different animals. [Find out more.](#)

"Our platform runs very fast in that we're using machine learning, artificial intelligence and global databases to develop this technology," Leandro said.

"Compared to the long systems that pharmaceuticals run, this is very fast, and we have the ability to put a product in the market within six months."

Innovative x-ray technology for better diagnosis

You're probably familiar with a black and white x-ray image but this system from medical tech startup XR-Vet takes it to a whole new level.

It's based on phase contrast imaging and uses a filter that can be retrofitted to standard portable x-rays plus software analytics, to provide three different types of images with one scan, providing more information about bone structure and soft tissue.

- Conventional x-ray - good for detecting things like fractures, dislocations and joint problems.
- Enhanced Bone Scan – like a CT scan with more detail and microstructure to detect subtle abnormalities or micro-fractures.

- Soft Tissue Scan - like what you'd see with ultrasound or MRI.

XR-Vet business manager David Lester said it's a step-forward in x-ray technology that will make diagnosing health issues quicker, cheaper and more accessible.

"There aren't that many CT and MRI facilities that are available for horses which means they often need to be transported to specialist equine hospitals and sedated," he said.

"XR-Vet technology would allow your local vet with a portable x-ray to be able to get much more information on the horse's health status than what's been previously available."

Using the filter between the x-ray source and the animal also cuts the radiation dosage by half.

David said it could also be useful for monitoring changes over time, helping vets and trainers make more informed decisions.

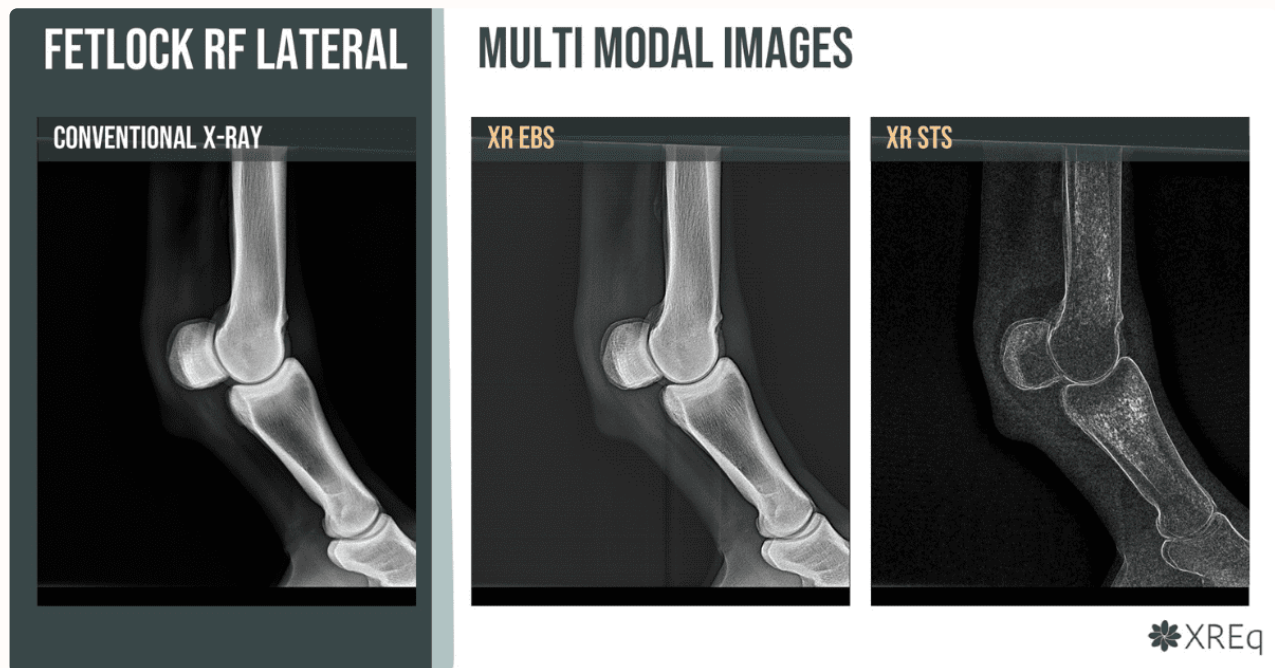
XR-Vet wants to work with equine veterinary and radiology groups in field trials to further test, refine and validate the prototype technology.

"It's about making this easily adaptable, to any vet, clinician, or radiologist so that they can easily integrate it within their standard practice," David said.

The business is also seeking strategic investors to support the next stage of product development. **Take a closer look.**

There's more cutting-edge technology, research, development and investment opportunities on the **grow^{AG}. platform.**

RELATED STORY: [X-ray evolution; the horse tech that's set to transform healthcare](#)



The 3 images from 1 shot from left to right; conventional X-Ray, enhanced bone scan (CT- like) and soft tissue scan (MRI- like).

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