

DIAGNOSTIC TECHNOLOGY – have we really made a difference? What does each bit of kit do?

There seems to be all manner of wondrous equipment available today to both help diagnose the problem and treat the condition but how much of it has or will stand the test of time?

X-Ray equipment has been available for many decades and still is invaluable in the equine world. Recent advances have come in the size and power of the xray equipment with my old set weighing over 27kg for a single part of a 2 piece set and the new single unit only weighing 7kg and yet being more powerful. The processing / development of xrays was even more variable with the films being developed in a dark room in trays before the automatic processors arrived 20-30years ago. Today Digital x rays have arrived with the image being stored on an 'Electronic Film' and processed into a computer and monitor. The image can be modified to an extent after being taken but still needs the correct exposure factors from the x ray machine in order to produce a usable image. Good for bones but limited for soft tissues and complements the new discipline of MRI (Magnetic Resonance Imaging)

Diagnostic ultrasound arrived on the scene in the late 70's and was initially limited to the Veterinary Universities and large equine practices before becoming widely available in the mid 80's. it definitely has stood the test of time and is still evolving at a quick pace. Image quality has improved both in reproductive work and with tendon scanning. We initially used a 5MHz probe before going to 7.5MHz which gives a better image. Today many practices are investing in 10MHz + probes for tendon use to show up finer detail whilst keeping the 5 or 7.5 probes for reproductive purposes. Abdominal probes of 2.5 / 3.5 MHz allow us to image structures that are deeper but in doing so we trade of image quality. Different modes allow for visualisation of the heart at specialist centres. Good for soft tissues especially tendons and ligaments but also can help in the diagnosis of bone fractures. Organs such as the kidney, liver and spleen along with heart and areas of lung can be imaged but the sound waves used cannot travel through air / gas so bowels with gas and normal lung cannot be imaged. Reproductive units are invaluable in the diagnosis of pregnancy and the management of the broodmare.

Another spin off from human work came with Electrocardiograms which although not an every day machine has allowed us to investigate, understand and manage some of the common and less common heart complaints such as Atrial Fibrillation and Aortic stenosis.

Fibreoptic Endoscopes have been adapted for equine use and along with the more recent video endoscopes have allowed specialists to see the upper airways to diagnose laryngeal dysfunction e.g. 'Roarers and Whistlers' , bleeders, soft palate problems etc and understand how best to treat them. New longer scopes (2.5 – 3.5 metres in length) let us see inside the stomach and monitor gastric ulceration.

Thermography – is a discipline that measures the temperature of different areas of the body to show a site of subtle inflammation. It needs a skilled experienced operator to achieve the best results. Still in it's infancy and time will tell it becomes more widely used.

Scintigraphy – Bone Scanning is another very specialised technique needing skilled staff. It is however here to stay and becoming more widely used. Its benefits are in showing early damage to bone. It works with a radioactive liquid injected intravenously. The radioactive marker settles into bone that is damaged and showing an increased turnover or 'Hot spot' This in turn is measured either with a hand held probe which logs an increased count or with a Gamma camera where the increased radioactivity is converted by a computer into an image.

Before I get carried away with all this technology I remember a few quotes.

Technology is an AID to diagnosis and not a diagnosis in itself.

My surgery professor was still working at the highest level and is over 80. He said first use your own senses of sight, hearing, smell and Touch!

And finally from a down to earth horsewoman- if its lame what's the point of all this gear – You'll only tell me to rest it!