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*This article written by Dr. Erik Belloy DVM MRCVS, a partner at The Horse Clinic, is reprinted with the kind permission of The Essex Rider monthly magazine.*

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## New hope for soundness in horses

*Major developments in equine orthopaedics have made the last few years an exciting time to be a horse vet with a special interest in musculo-skeletal problems. New hope for soundness is on the horizon for a number of conditions. While we find out more about clinical problems, our understanding of how to manage them has evolved as well. In this article, Erik Belloy, Partner at House & Jackson explains these new therapies how they can benefit lame horses.*

### NERVE BLOCKS

Through clinical research, we find out more and more about the exact area that is numbed with different nerve blocks. Many horses with foot problems will go better after having local anaesthetic solution injected into the coffin joint. Some years ago, this result would have made your vet assume the horse had a problem in the coffin joint. Today, we have learnt that nerves run very close to the coffin joint, which means that other structures also become numb. We now know that a positive coffin joint block indicates pain from the joint, from the hoof in the toe or from the navicular area. Interpreting the blocks with these findings in mind allows us to make a much more realistic estimation of what is causing lameness. If the nerve blocks and x-rays have still left doubt about the cause of lameness, vets now have a new imaging modality at their disposal, namely MRI scanning.

### MRI (Magnetic Resonance Imaging)

A few years ago, a presumptive diagnosis of Navicular Syndrome was the only conclusion we could make when horses presented with foot pain and negative X-rays. Recently, access to MRI scans, and particularly the ability to carry out this procedure without the need for a general anaesthetic has meant that vets have a much more accurate idea of what exactly is going on within the foot. Tendon and ligament conditions are indeed very common within the hoof. Better experience allows vets to suspect certain conditions and make presumptive diagnoses, even in patients

whose owners cannot afford the expense of MRI scanning.

### STEM CELL HARVEST AND IMPLANTATION

Certain places in the body have high concentrations of budding cells that have not yet made up their mind which part of the body they will go and reinforce. These budding cells can be transported in the body to nest in an organ. Local hormonal influences will then trigger these Stem Cells to differentiate and become the typical cells that particular tissue is in need of.

The problem with horse injuries in certain body parts is that there is very poor blood supply in some areas. This means Stem Cells cannot naturally get into these injured tissues to start repair. Tendons and ligaments are notorious for taking a considerable length of time to regenerate. In fact, scarred tissue will often be of limited quality to support future athletic function in our horses. Recently, a harvesting procedure to collect lots of budding cells out of bone marrow inside the chest bone has been refined. This bone marrow is sent up to a laboratory where the vital stem cells are purified out of the marrow. Some weeks after the lab has cultured the sample, your vet will receive purified stem cells to implant in the injured area. Certain injuries that used to carry a very grim prognosis have now been seen to heal better and speedier after stem cells have been introduced.

### IRAP

Irap® is a novel biological treatment which has been used recently as an aid in the management of lameness caused by inflammation and/or degeneration within joints. By harnessing the regenerative and anti-inflammatory properties of the horse's own blood cells, damaged musculoskeletal tissues are encouraged to heal.

The technique involves the retrieval of 50ml of the horse's own blood using a special collecting syringe under sterile conditions. This blood then undergoes special treatment in the laboratory prior to retrieval of protein-rich serum, which is then injected back into the inflamed area of the horse. This is a novel treatment for synovial structures (joints and tendon sheaths). Originally, the treatment was used for severe

osteoarthritis in joints that had failed to respond to any other treatment. Some notable successes seemed to follow, and the system has now been used more extensively. IRAP seems especially suited to the treatment of joint and tendon sheath problems that also have a soft tissue component. For example, inflammations of a collateral ligament of the coffin joint or navicular disease may benefit from this modality. Whilst not cheap, one blood collection yields 4-6 syringes of treatment that can be injected in the inflamed area over a period of time. This treatment is produced completely from your own horse's defense mechanisms, and is therefore exempt from any withdrawal times for medications, enabling the horse to continue competing. This also means that there are very few side-effects as long as the sample was collected, processed and administered in ultra-sterile circumstances.

### SHOCKWAVE

Shockwave therapy has been around for 10 years, but the equipment is becoming more sophisticated and the choice of injuries we use it on has been better selected. Shockwave treatment is a painkilling pressure wave, administered to tendons and ligaments, which can help with making your horse more pain-free and in turn speed up healing of certain tissues. After shockwave has been applied to tissue, new blood vessels grow into the area, anti-inflammatory and growth factor molecules are released and mobility increases. Bone healing after fractures can even be increased with shockwave application. Some ligaments, their attachments and back pain can respond very well to treatment with shockwave. Administering the shocks is well tolerated by horses, but many may require a drop of sedation in order to comply with treatment. After shockwave treatment, horses must be rested or receive carefully measured exercise. Because the treatment is painkilling, a clear risk of over-exertion is present if the horse is pushed to its limit.

### TILDREN

Tildren is the trade name for tiludronate which is part of a class of drugs that are used to inhibit bone resorption in periodontal disease and even bone cancer. In times of intense work or injury, excessive

bone remodeling can occur and this can lead to osteoarthritis or changes in the navicular bone. This excessive bone remodeling can also cause pain and lameness. Tildren helps to regulate the mis-match between bone resorption and bone deposit. The main reasons for the use of Tildren in horses are navicular disease, bone spavin, bone cysts, kissing spines and fractures. The treatment can be repeated at 1-2 months and thereafter every six months if necessary. Tildren can be used as the only treatment or in combination with other treatment methods.

### PRP (Platelet Rich Plasma) THERAPY

PRP therapy offers a promising solution to accelerate healing of tendon injuries and osteoarthritis. Like IRAP and Stem cell treatment, it uses the body's natural ability to heal itself.

Blood is made of RBC (Red Blood Cells), WBC (White Blood Cells), Plasma, and Platelets. When in their resting state, platelets look like sea sponges and when activated form branches. Platelets were initially known to be responsible for blood clotting. In the last 20 years we have learned that when activated in the body, platelets release healing proteins called growth factors. After increasing these platelets, we are able to dramatically enhance tissue recovery because they can provide a "scaffold" for other cells to re-build new tissue.

Rest, controlled exercise and cooling or bandaging, as well as the more traditional drugs are frequently the first line of attack in lameness cases. But, as you can see, in addition to the traditional medications available such as painkillers (such as bute), anti-inflammatory drugs (such as steroids) and molecules that help with cartilage re-generation or joint lubrication, there are many other options available to us for restoring soundness. It is probably worth mentioning the vast array of food additives and supplements that are meant to help with joint inflammation, or even prevent future problems. In my experience, their use has not caused spectacular results and the scientific evidence for the fantastic claims is unconvincing. As always, if you are worried about your horse in any way, contact your vet for professional advice and guidance.



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The Essex Rider,  
175 Waldegrave,  
Kingswood,  
Basildon, Essex SS16 5EL