

'Regenerative medicine for the world of animal health'

The Stem Cell

Stem cells have the unique capacity to renew themselves and give rise to specialised cell types. These cells are the body's own 'repair kit' and allow the body to naturally regenerate tissue that has been damaged. Unfortunately, in some tissue injuries, these naturally available stem cells cannot cope with the tissue damage that they face. Huge amounts of stem cell research has been carried out over the last decade. These advances mean that stem cells are now regularly being used to replace damaged tissues in a range of human diseases.

Embryonic stem cells have vast therapeutic potential but their use is fraught with scientific and ethical complications. However, autologous adult stem cells, which come from the patient itself, are much more straightforward. Adult mesenchymal stem cells are a particular type of cell that has the potential to develop into a range of tissue types. These cells are able to regenerate tendon or ligament cells where damage has been caused by injury or disease (regeneration rather than repair). They are found in a number of tissues including the bone marrow of adult horses and in the umbilical cord of foals.

VetCell's pioneering development is a technique for 'multiplying' mesenchymal stem cells from umbilical cord or adult bone marrow. This provides a large number of cells for tissue regeneration.

Tendon/Ligament Treatment

Treatment is usually very straightforward. When a veterinary surgeon believes that an injury is suitable for stem cell therapy he/she will initially take stem cells from the injured horse's bone marrow under sedation and local anaesthesia.

The sample is then transferred to one of VetCell's laboratories where the stem cells are separated and encouraged to multiply. Once sufficient stem cells are available (2-3 weeks) they are re-suspended in fluid from the bone marrow sample and returned to the veterinary surgeon. Approximately 5 million stem cells are used for each cubic centimetre of visible damage.

The veterinary surgeon implants the cells into the lesion using an ultrasound machine to guide the needle directly into the damaged area. After a few days of box rest the horse will enter a careful exercise regime designed to encourage new tissue formation.

The stem cell therapy is designed to provide a better quality end result rather than reducing the rehabilitation time and the programme aims to have the horse back into full competition within 12 months. The overall cost of the therapy fits within standard veterinary insurance policies.

VetCell BioScience

VetCell BioScience Limited is the leading provider of stem cell technology to the world of animal health. VetCell BioScience was founded to investigate and develop the veterinary use of stem cell technologies. The Company was formed in partnership with the Royal Veterinary College and the Institute for Orthopaedics and Musculoskeletal Science. Working with these leading research bodies VetCell has rapidly commercialised a technique for the multiplication of equine stem cells for use in the treatment of tendon and ligament damage. This service is now being used by authorised veterinary surgeons around the world to benefit thousands of injured horses.

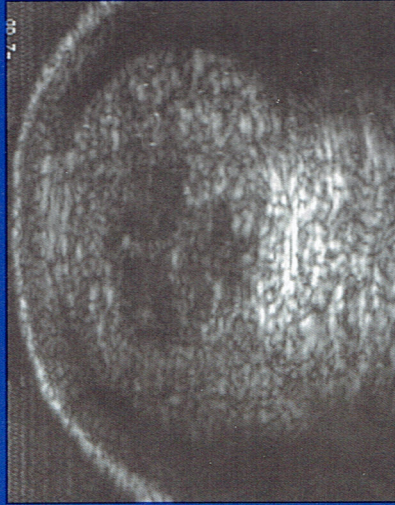
VetCell BioScience is involved in studies, at top veterinary research establishments worldwide, aimed at improving and expanding the range of species and conditions treated with stem cells.



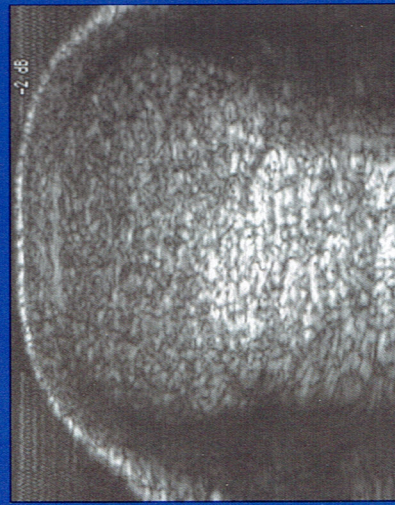
Tendon/Ligament Injury

Many competition horses suffer career threatening tendon or ligament injuries as a result of their sporting endeavours. Traditional therapies usually result in heavy scarring and, consequently, 'recovered' animals have both reduced tendon or ligament efficiency and a high risk of re-injury.

Stem cells, however, for the first time, offer the prospect of a return to a fully functional tendon or ligament rather than to one compromised by the presence of scar tissue.



Tendon before stem cell implantation



Tendon 3 months after implantation



VetCell

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STEM CELL THERAPY

for equine tendon
& ligament injuries