

Stem cells could heal equine tendon injuries

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Tendon injuries affect athletic horses at all levels. Researchers from the University of Connecticut are studying the use of stem cells in treating equine tendon injuries. Their findings were published Oct. 16 in the *Journal of Animal Science Papers* in Press.

Tendon injuries in horses tend to worsen over time as damage to the tendon creates lesions. Currently, horse owners treat tendon injuries by resting the horse and then carefully exercising the horse to control the growth of [scar tissue](#) in the tendon. Unfortunately, this treatment does not always work.

"These injuries result in lameness, which requires substantial recovery time and carry a high risk of re-injury," write authors S.A. Reed and E.R. Leahy.

Stem cells injections are already common [veterinary medicine](#), and scientists are curious how to make stem cell treatments more effective. In this paper, the authors looked at the use of three types of stem cells: bone marrow-derived [mesenchymal stem cells](#), adipose-derived stem cells and umbilical cord blood-derived stem cells.

These types of cells have the potential to strengthen a tendon after injury. Implants of bone marrow-derived mesenchymal stem cells (BMSC) can increase collagen production and organized [collagen fibers](#) in the tendon. Adipose-derived stem cells can express certain proteins important in healing.

However, stem cells are not a miracle cure. Implantation can be tricky, and stem cells do not always decrease [recovery time](#). Some BMSC transplantations have also led to the growth of unwanted bone in the tendon.

Umbilical cord blood-derived stem cells (UCB) may have the most potential for healing horse injuries in the future. These cells may be better able to grow into new types of cells and repair tendon damage. So far there have been no studies of UCB use in actual horse tendon injuries. But in vitro studies show that UCB could be capable of tendon regeneration.

The authors recommend future studies into implantation techniques and the role of stem cells in different parts of the tendon. With this knowledge, horse owners, veterinarians and animal scientists can help keep equine athletes healthy.

More information: This paper was based on a presentation at the 2012 Joint Annual Meeting. To read the paper in full, go to "Stem cell therapy in equine tendon injury."

Provided by American Society of Animal Science

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