# PLATE-STEM®

## Tendon and ligament repair

## using stem cell therapy

## in horses

## The Product

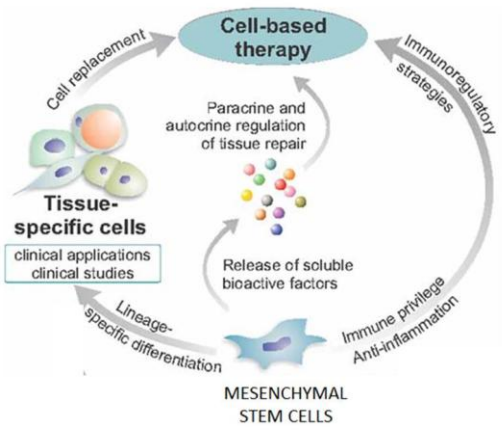
**Plate-Stem®** is a stem cell product derived from the horse's own adipose tissue for the treatment of equine suspensory ligaments and tendon injuries. Implants of stem cells into the lesions result in the formation of tissue organizationally similar to ligament structure. **Plate-Stem®** combines the benefits of growth factors with the regenerative effect of stem cells. Growth factors are added as they accelerate the healing and stimulate the regenerative capacity of the injured tissues.

## Tendon and ligament injuries in horses

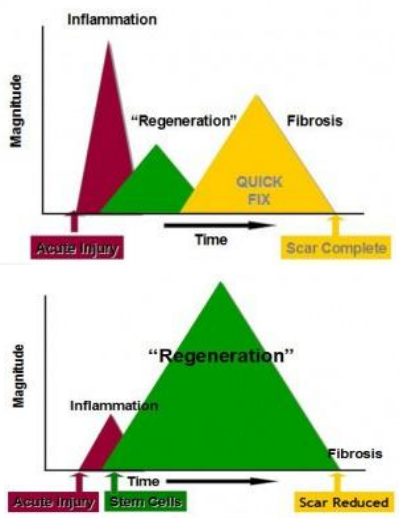
Racing statistics indicate these injuries are often a career-ending event in sport horses. Tendon and ligaments are composed of fiber-like connective tissue elements that are carefully aligned and grouped together to form large parallel fiber bundle groups.
Tendon and ligaments become injured by trauma or chronic over weigh bearing resulting in tearing/rupturing of the connective tissue elements. Natural healing of the tissues is often slow and of poor quality and results in formation of stiff, immobile and inferior scar tissue, long lay-offs and a predisposition to re-injury.

## Mode of action

Stem cell therapy for treatment of soft tissue injuries using equine adipose-derived mesenchymal stem cells has been clinically evaluated with success. They are adult multipotent stem cells that can differentiate into specialized cells and thereby are able to regenerate/form tissues such as cartilage, bone, tendon and muscle. They reduce fibrosis (scar) formation. These cells also exert trophic, immunosuppressive, anti-inflammatory and anti-apoptotic effects and activate the body's own stem/progenitor cells, modulating the local environment and thereby stimulating tissue regeneration.




**LEFT:** Mode of action of mesenchymal stem cells in tissue repair.
**RIGHT:** Natural healing is slow and results in inferior scar tissue.
Stem cell aid regeneration and minimize scar formation.

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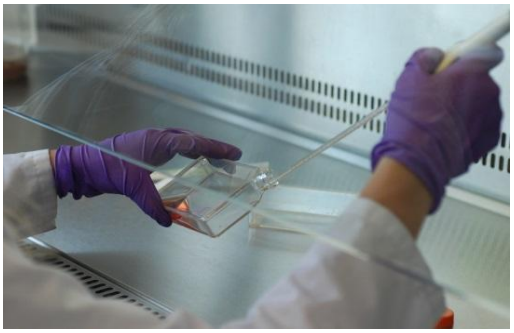


## How to use

1. Sampling

   - ✓ Fat-Stem provides a kit to collect the adipose tissue biopsy and blood. The fat tissue is collected (20-30g) at the tail basis under local anesthesia and aseptic sampling conditions. The kit is sent to Fat-Stem and processed within 24 hours. After 15-20 days stem cells have reached therapeutic cell number and are ready for harvest.

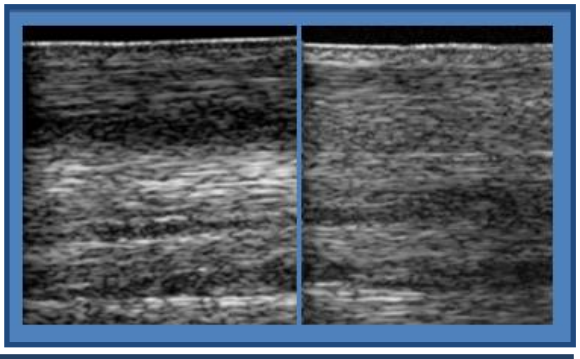
2. Injection

   - ✓ The stem cell isolate Plate-Stem® is sent to the veterinary clinic for injection the same day. The delivered product is provided as a one-time injectable suspension (2 ml).
   - ✓ The product is injected under local anesthesia (facultative) and guided by ultrasonography into the lesion. The lesion can be core or diffuse, acute or chronic.

3. After care rehabilitation
   - ✓ After injection, we routinely bandage the joint if possible for a few days. A revalidation period of at least 6 months with subsequent echography's is essential and will improve the healing quality. A rehabilitation program is available.

## Results

- ✓ Decreased inflammation and pain
- ✓ Growth factors stimulate healing
- ✓ Improved mobility (decreased lameness)
- ✓ Increases the rate of return to function
- ✓ Long term regeneration
- ✓ High success rate
- ✓ Up to 80 % less re-injuries



Result of a treatment before (left) and after 3 months (right).