

ABOUT WOUNDED LIGAMENTS AND TENDONS THERAPY

The issue of treatment of that injuries dating back to when there are horse racings. In the acute phase, when there is heat, swelling and tenderness to palpation, the horses since the earliest days had a rest for the work, the legs were cooled, and tried the various methods of fixation of the injured part of leg.



In the subacute and chronic phase leads to the creation of a scar at the site of injury, mainly because these structures contain a small number of blood vessels, so that the nutrition of the tissue and the possibility of complete healing is significantly lower. On the other hand, scar tissue is less quality,

more rigid, less elastic, so that often leads to re-injuring the same place, breaking down scars fiber.

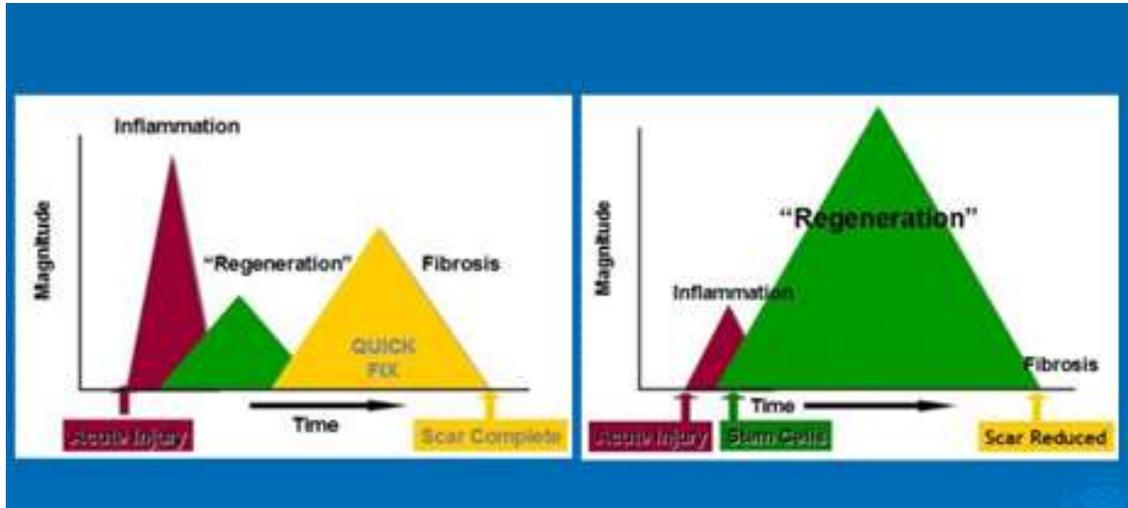
Previous concepts of treatment were based in artificial inducing of inflammation in the subacute or chronic phase, which has the task to eliminate or reduce the scar tissue, and replaces it with a normal fiber. This inflammation can be induced chemically, then thermally, (heat or liquid nitrogen), and finally mechanically (shock-wave). These treatments have brought little benefit, because the percentage of animals that have returned to the racetrack was less than 7%. In light of these facts, we may ask ourself whether a small number of animals returned to the race due to treatment, or in despit of his - that would be the horses back on the track without this treatment, only with respect to the basic principles of rehabilitation of these injuries, and with appropriate anti-inflammatory therapy.



When we are talking about anti-inflammatory therapy, various drugs are used both locally and systemically. Two main groups of drugs that are used as steroid anti-inflammatory drugs (corticosteroids), and nonsteroidal anti-inflammatory drugs (phenylbutazone, ketoprofen, meloxicam, Flunixin ...), and there is also dimethylsulfoxide (DMSO). Since trophic drugs, should mention products based on proteoglycans and hyaluronic acid, which are a normal component of injured tendons and ligaments.

Surgical methods involve cutting the tendon at the site of injury, to the accumulated liquid drained, and injury itself healed better and faster, with less scar tissue. Cutting the superior check ligament helps to reduce pressure on the tendon, and cut annular ligament can prevent deterioration of the state.

Alternative therapeutic methods, whose clinical efficacy is still not fully proven as: acupuncture, chiropractic, ultrasound therapy, laser therapy, electrical and electromagnetic therapy, iontophoresis, and magnet therapy.



A large step forward was made by introducing regenerative medicine in the treatment of tendons and ligaments, which should ensure that the damaged parts fill with healthy, normal tissue. It does happen but not completely, so that the resulting scars are less. The percentage of treated horses who returned to the race is 40-50%. In this group of drugs including growth factors IGF1 (insulin-like growth factor), TGF- β (transforming growth factor β), and BAPTEN (β -aminopropionitril fumarate), which should provide a parallel fiber. This includes PRP (platelets rich plasma) treatment, which is injected platelets directly on the site of injury. Platelets are rich in growth factors. The downside of this treatment is that there is no place for platelets...



Finally, treatment of injured tendons and ligaments with stem cells, eliminates the disadvantages of previous methods. Stem cells acts anti-

inflammatory by exuding substance IL1- α (interleukin receptor antagonist protein). It is known that interleukin is major mediator of inflammatory reactions. Stem cells also secrete growth factors, synthesize extracellular matrix proteins (COMP), collagen type 1 and type 6; by chemotaxis they attract other cells from the environment to the place of damage, helping to stop the decline and death of existing cells, and finally transformed into the cells of damaged tissue, filling the resulting defect, thus allowing the injuries heal without scarring. The percentage of horses that are returned to the race track, after treatment with stem cells, exceeds 85%. Based on the above data indicate that the treatment injuries of ligaments and tendons with stem cells, a superior method of treatment, which combines the good sides of some previous treatment, and leaves out of their bad aspects.