



■ by **Domenico Bergero, Cynthia Préfontaine**  
photos by Gigi Grasso, Javan

# HYPERTROPHIC SCARS

*Sadly, horses tend to injure themselves with great frequency, even when all precautions are taken to avoid these unfortunate incidents. This is due to their spirited temperament, the type of work they perform and the dangers often lurking in the environment in which they live. In many cases, the wounded horse is “sewn”, i.e. the wound is stitched so that it can heal more quickly. Where this is not possible, or when the environment in which the horses live is very dirty, even some simple injuries may get worse and never heal, in some cases preventing fruitful work; in other cases, the wound seems to heal normally, but turns into an ugly scar that disfigures the affected area. These are what we call hypertrophic scars. Let’s see what it is about.*



## Wounds

The wound is an open and recent laceration of tissue or even organs, usually caused by sharp or blunt objects that can create an injury, regardless whether the body of the animal or its parts move towards the object, or the object is launched or wielded against the animal.

Wounds are notoriously classified according to their severity, which varies depending on the size, body or the

structures involved (superficial, deep, penetrating, creating a cavity, through-and-through and tangent), according to the shape they assume, but also according to the object that caused it (accidental, surgical, malicious, bruised, torn, lacerated and contused, caused by a cut, a blunt object, a tear, a bite, poison or a gunshot) and the presence or not of infection (clean, contaminated, dirty or infected).

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### **Wound healing**

Wounds tend to heal spontaneously through a process called scarring. Human intervention is designed to guide and enhance this natural process, for example by bringing the edges of the wound closer together, preventing infection or by removing the tissues that has become irreparably damaged. The intensity of this process can vary greatly from case to case, so we can classify the repair process as follows:

healing by primary intention (when the healing is very quick, without contamination and infection: usually, it is the type of healing everyone aims for, such as surgical wounds healed by "primary intention");

healing by secondary intention;

healing by tertiary or delayed secondary intention;

mixed scarring;

healing under the crust.

The process can therefore have a different duration and lead to different outcomes. The final outcome, the "scar" will be generally barely visible in case of healing by "primary intention", then gradually more and more visible.

### **Keloid**

When the healing process goes beyond the desired result,

i.e. the damage is repaired, we talk of hypertrophic and keloid scars. The keloid scar is hypertrophic skin, which grows beyond the boundaries of the original wound that induced it. A keloid differs from hypertrophic scars by the fact that this never grows beyond these limits. The keloid is usually very unpleasant to look at, overgrown (i.e. more prominent than the level of skin around it), with a smooth and shiny surface often crossed by abnormal red-purple blood vessels. In the initial period or during periods of fast growth, the lesion tends to be reddish, purplish and tense, with few and small blood vessels sometimes visible under the skin. At later stages, the keloid is less dense and vascularized, but remains higher and thicker than normal tissue. While not representing a serious disease but mostly a cosmetic problem, a keloid can sometimes result in local functional limitation (e.g. if it affects a joint, it can impair movement in a more or less severe way caused by the hardened and decreased elasticity of the tissue), and is often extremely difficult to treat. It always tends to relapse (i.e. even if it is removed, it grows back) and more seriously after each treatment. Therefore, before considering surgical removal, it is necessary to assess other options, such as cortisone infiltrations or cryotherapy followed by local compression.



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## What to do with a wounded horse

The rider is often the first to rescue a wounded horse, and can act immediately to reduce the risks of infection.

A wounded horse must obviously be stopped, and you must try to stop the bleeding, for example by pressing on the part with clean cloths. Next, you should try to clean the wound to prevent bacterial infections. You can use drinking water, but you can also apply low-concentration hydrogen peroxide (2-3% concentration, which can be found at chemists') to help with the removal of debris and other material.

Once cleaned, the wound must be disinfected well with a specific product (e.g. Betadine). You should not overdo the treatments, because some aggressive disinfectants can be harmful to the vitality of the damaged tissue, delaying healing. For the same reasons, it is better not to use too many different products. After washing and disinfecting it, the wound must be protected with a light bandage. The horse should be brought back to the stable (for example if this happens during a walk) and calmly wait for the arrival of the veterinarian.



### *Preventing keloids*

*To prevent the formation of keloid scarring, it is always worth treating every wound with the utmost attention, always relying on the help of a good veterinarian. Before treating the wound, the veterinarian will clean the wound (the presence of inert material is a major hindrance to the healing process and forms the nucleus around which dangerous infections may develop). The hair around the margins of the wound must be shaved, washed with fluids that can remove foreign matter and dead tissue without disturbing too much the vitality of intact tissues. Antiseptics, which are used at a later stage, must also be able to slow down or, better, stop the growth of microorganisms*



*in the tissues, without being too aggressive. Excess dead tissues, or portions of tissue which will certainly die due to their position, may be removed by the mechanical action of water or through the application of specific substances or even through the action of scissors or a scalpel.*

*Once you have assessed the patient and carefully looked at the wound, you should take into account the intervention measures that will guarantee a good healing. First of all, it is necessary to consider restraining the horse, so that you can work safely, and the bleeding must be stopped or at least reduced.*

## When the tissue is not enough

If there is not enough tissue left to reconstruct the wounded area, there are advanced techniques of surgery known as “reconstruction” that can be applied when there is considerable loss of substance, for example in the legs, where skin grafts can be used to accelerate the healing process. However these procedures have significant technical limitations. The use of these

techniques in the horse is somewhat limited due to high costs and the difficulty of finding the material. But cost is often a secondary issue when it comes to our friends.

Today’s reconstructive surgery involves techniques such as silicone implants, tissue expansion, pedicled grafting of contiguous flaps, free vascularized skin grafts and implants of growth factors.

### *Smooth healing?*

*A novelty in the field of wound healing, largely developed in human medicine, is the use of “interactive” medications, which are responsible for protecting the wound, promoting the removal of excess fluids and toxic materials and allowing gas exchange. These medications – which obviously prevents the formation of hypertrophic and keloid scars – can be applied as patches or bandages. The patches are recommended in the inflammatory phase, when you have large amounts of fluid, debris and bacteria. Conversely, patches should not be used in the presence of granulation tissue, because they may damage this delicate tissue.*

*There are also alternative therapies that can be implemented in the treatment of wounds. They are proven and tested therapies, often seen as very effective in traditional medicine or just popular remedies, from which we can learn a lot. Among “alternative” substances that can be used to stimulate the healing of wounds we can mention honey, sugar, phytotherapy products (aloe vera), silver, activated carbon, sterilized fly larvae, electrical stimulation, medical laser stimulation and salicylic acid. Acupuncture can also be effective in stimulating the healing of wounds. □*