



## THE EQUINE HOSPITAL Colorado State University

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### **Moist Wound Healing in the Horse**

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Wounds come in all types and varieties. Horses can be injured with anything from a simple scratch to deeper cuts and lacerations that involve tendons, joints, major vessels and nerves as well as a host of other important structures. Due to this wide variance, it is of utmost importance that your horse receives a thorough physical examination to determine the extent of the injury as well as to determine the overall health and status. If a major blood vessel has been severed, it is easy for the horse to lose a substantial amount of blood.

Also, it is very important to realize the areas on your horse where lacerations could result in a career or life ending injury. These areas include...(give examples). Consequently, it is important to get veterinary care as soon as possible to rule out any significant injuries. Early intervention can make or break the outcome for your horse.

The veterinarian should clean the area carefully, in most cases clipping the hair around the wound. I use a sterile water-soluble, lubricating gel (such as K-Y jelly) to fill the wound prior to clipping in order to prevent contamination with hair. Once the surrounding hair has been clipped the lubricant can be removed with sterile saline or water if necessary.

There are many options for wound cleaning and it is very important not to cause further trauma when treating a wound. Everything veterinarians have to work with has the potential of causing increased trauma to the wound area, and all therapies must be evaluated to determine if the benefit will outweigh the trauma that occurs. In general, I do not recommend the use of antiseptics in wounds as they can kill the healthy cells we need for healing, and will not kill all of the bacteria in a wound. Saline is the least disruptive of all washing solutions and should be used frequently. Surfactant-based wound cleansers work by reducing the surface tension around the wound, allowing for the removal of fluid, cells and other substances that naturally seep from the wound area without the need to scrub the wound. This leaves healthy tissues to continue their good work of healing the wound.

A key concept that veterinarians are beginning to understand in wound healing is the idea that a wound that is kept moist will heal more quickly with fewer dressing changes when compared to a wound that is left exposed to the air and allowed to dry out. In most circumstances, the wound area discharges fluid called exudate, which contains substances that help the horse's body fight infection and support the growth of healthy tissue. When a wound is kept moist, this allows exudate to help support an environment that stimulates healing. Clinical studies have also shown that wounds kept in a moist environment have lower infection rates than wounds treated with agents that tend to dry the wound.

Veterinarians are also coming to understand that the wound will go through multiple stages of healing, and that different dressings will provide more benefit during the different stages. Consequently, it is important to evaluate the stage of wound healing and to use the appropriate dressing. The most commonly used dressings can be broken into four major categories: debridement dressings to rid infection, moistening dressings to moisten the wound, granulation and wound contraction dressings to encourage early stages of healing, and epithelialization dressings that encourage skin formation.

Debridement dressings are used to remove bacteria and dead tissue from the wound. These dressings can be traumatic to the wound area, and should only be used when there is infected or dead tissue in the wound. One good example of a debridement dressing is a hypertonic saline dressing. This dressing is a very concentrated salt solution that kills bacteria and removes diseased tissue. Once the wound has been cleared of dead and infected tissue, the debridement dressing should be discontinued in favor of a different type of dressing.

Moistening dressings are used in wounds that have dried out. These dressings supply moisture to the wound through a mixture of water and glycerin. They are very effective in providing moisture in dry wounds; however, they completely seal the wound and so should only be used in dry wounds. Once the wound has been moistened, they should be discontinued in favor of a different type of dressing.

Granulation and wound contraction dressings are used to encourage healing granulation tissue formation, and to stimulate the wound to close. A good example of this type of dressing is the calcium alginate dressings. These dressings are made from a derivative of seaweed and create a mild inflammatory response, sending infection fighting cells to the area that will encourage a healthy bed of granulation tissue. Once the wound has enough granulation tissue present, they should be discontinued in favor of an epithelialization dressing.

Epithelialization dressings are designed to help normal healthy skin tissues form over the wound. These dressings increase the surface temperature of the wound by 1-2 degrees which encourages the skin cells to migrate across the wound.

In many cases, the use of moist wound healing concepts will dramatically speed up the wound healing time, and provide a more cosmetic and functional end result for the horse. It takes a bit more effort, and evaluation of the wound, but the outcome is definitely worth it. Wounds over areas of motion should be supported with a cast or splint to improve healing.