



Horse Care

DMSO: A Multifaceted Medication

by HEATHER SMITH THOMAS

DMSO (dimethyl sulfoxide) is commonly used by veterinarians and horsemen for treating several types of equine ailments. DMSO is a colorless liquid (though it is also available in jell form) with an odor somewhat like rotten onions. Although it looks like tap water, DMSO is slightly syrupy and has an aftertaste like oysters or garlic; even if a person merely spills a drop on his hands, it can be immediately tasted. Sometimes just breathing the air in an area where DMSO has been used can produce this taste in your mouth.

The DMSO used medically is a by-product of the paper industry, but it also occurs in nature. All rainfall that originates from water evaporated from an ocean contains traces of DMSO. The tiny plankton growing near the surface of the ocean constantly give off dimethyl sulphide (DMS), which moves upward from the ocean through the atmosphere, and this is oxidized to DMSO. It collects in raindrops and comes back to earth in rain.

Substances produced by the breakdown of DMSO are present in most foods and beverages. MSM (methyl sulfonyl methane) is a derivative of DMSO, with one more atom of oxygen added to the sulfur, and this derivative is found in almost all foods, grain and hay. The richest source of MSM is in mammals' milk.

Discovery Of Medical Uses

DMSO was first identified in Russia in 1866, by Dr. Alexander Saytzeff who observed its strange taste and its ability to penetrate most surfaces. It was rediscovered in 1961, by Robert Herschler, a chemist working for a pulp and paper manufacturer, and also by Dr. Stanley Jacob, a surgeon at the University of Oregon medical school. They were both amazed at this liquid's ability to penetrate the body and carry other substances into the body with it.

Dr. Jacob began treating a number of human problems with DMSO, trying it on everything from burns to headaches, arthritis and whiplash. Then the FDA (Food and Drug Administration) prohibited all use of this product, since many people felt that adequate testing for human health and safety had not been done. Human patients who found relief from arthritis, skin diseases, infections and injuries by using DMSO began to buy it on the black market, and veterinarians within the FDA fought for obtaining legal use, because of its beneficial results. Finally, in 1970, the FDA approved its use for horses as a "topical application to reduce acute swelling due to trauma." In 1978, the FDA approved it for certain specific uses in humans.

The approval for use in horses came after extensive testing. In one trial, 60 horses all had their front legs fired. One leg of each horse was treated with DMS and the other treated with a simple salt water solution. The swelling went down much more quickly in the legs treated with DMSO. These tests, along with the standard toxicology studies to determine whether or not the drug was harmful in any way, convinced the FDA that DMSO was safe and effective for use in horses. Today, this drug is approved for various uses in horses, dogs and humans.

Common Uses Of DMSO

Extensive studies of the anti-inflammatory effects of DMSO have shown that when it is painted onto injured legs, the area becomes less painful, swelling is reduced and the affected leg returns to normal more quickly. The horse's lower legs are very susceptible to swelling and fluid reten-

How DMSO Works

One of the reasons DMSO is so effective for medical purposes is that it has the ability to go through body membranes and speed up the movement of other drugs through the tissues. It can act as a carrier for other drugs, taking them into the body tissues with it. DMSO rapidly penetrates the skin and can carry other substances into the horse's system. It thus enhances the action of many drugs, such as topical anesthetics, antibiotics or corticosteroids.

DMSO also works well to reduce inflammation, because of its ability to act as a scavenger, gathering up toxic free radicals (groups of atoms which go in and out of chemical combination without changing themselves). These toxic groups of atoms are released during the inflammatory process as the body attempts to deal with injuries or bacteria or other attacking pathogens. The free radicals kill off harmful cells but also destroy some of the horse's own healthy tissues, producing inflammation. By gathering up free radicals, DMSO reduces tissue damage and inflammation.



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tion, so DMSO is quite useful in treating equine leg injuries, and also in treating bursitis and synovitis (inflammatory conditions in tendons, ligaments and joints).

When applying DMSO to the horse's skin, however, veterinarians recommend it be mixed with a furacin ointment or solution to buffer it and keep it from burning the skin. Horses may protest the application of unbuffered DMSO because of the temporary sensation of prickling and burning. Prolonged use of straight DMSO may cause scaling and peeling of the skin. Since furacin products are now available only through compounding, it's easier just to use the DMSO gel, which doesn't burn the skin like straight DMSO liquid.

DMSO can be put directly into an open wound, however, in many cases, with good results. Not only does it reduce swelling and inflammation, but it is also bacteriostatic, inhibiting the growth or multiplication of bacteria. It is also a mild pain-killer because it can block nerve stimulation. DMSO will also dissolve collagen (the main supportive protein of skin) and thus reduce the size of the final scar in a healing wound.

DMSO is very beneficial in treating tendon injury such as bowed tendon; it stimulates healing in areas that were always difficult to reach with drugs. If treated early with DMSO, a newly bowed tendon will be less painful and swollen, minimizing tissue damage. The DMSO can be injected into several spots in the tendon. Continued treatment with DMSO as the bow heals will minimize the development of scar tissue, allowing a more complete recovery than if the leg is allowed to develop heavy scar tissue that inhibits the strength and flexibility of the tendon.

Because of its anti-inflammatory and diuretic actions (drawing excess fluid from the tissues) DMSO is also used intravenously in horses to treat brain or nerve damage, as well as pulmonary edema. It can reduce inflammation in the brain and spinal cord due to illness or injury. If a horse strikes its head or goes over backward, hitting its head, DMSO can be given intravenously to prevent the swelling that would otherwise cause severe or fatal brain damage. Medical doctors are now using DMSO in human head injuries, with good success. The DMSO must be given immediately after the injury, however, for best results.

It can also be beneficial for newborn foals who have been deprived of oxygen

during a difficult birth. If given soon enough after birth, the endangered foal may not suffer brain damage. "Dummy foals" treated with intravenous injections of DMSO (usually mixed with saline solution) often make spectacular recovery and return to normal.

DMSO can be helpful in treating heaves or other respiratory problems in horses by scavenging the toxic products of these conditions and reducing the inflammation that tends to swell the airway linings and block the passages. It is very beneficial in treating pneumonia because it helps "dry out" lung tissue; fluid buildup in the lungs is reduced, restoring lung capacity—enabling the horse to breathe easier. 🐾



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Official publication of the California Thoroughbred Breeders Association

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California Thoroughbred Ranch
Historic Nursery Enters its Fourth Decade of Operation



Needed in rolling hills adjacent to the horse-related community of Santa Theresa, you will find one of the oldest and most beautiful homages to the Thoroughbred in this state, California Thoroughbred Ranch.

Now in its fourth decade of operation, the ranch was built from the ground up by Jack and Susie Farmer who still own the beautiful facility and live right on the premises. Once an abandoned alfalfa field, the ranch is a striking portrayal of early California architecture, right down to the adobe and mission-style construction of the barns and office complex.

The main barn contains stalls for 40 horses in training and the foaling barn comes equipped with closed circuit television monitors that are linked up to the farm manager's office and residence 24 hours a day. Newborns are kept in stalls with their dams for the first 36 hours of life and monitored closely. After that, they are moved outdoors to grassy paddocks and pastures. The region's temperate climate allows for horses to live outdoors year-round, and the ranch's pastures range from two acres to almost 50 and follow the contours of the foothills.

To date, more than 200 stakes winners have been foaled and raised on the ranch's green fields. Others, like last year's Eclipse champion juvenile colt Valid Point, were brought to the ranch as yearlings for breaking and schooling. California Thoroughbred Ranch also has an excellent reputation as a training center. It offers five round pens, an indoor riding arena and a scenic uphill

gully that winds its way through the facility. There are also two treadmills and a swimming pool, where lay-ups can regain their conditioning without risk of further injury.

The ranch is home to two of California's finest stallions. Super Dad is the sire of 22 graded stakes winners and countless other stakes performers. His champion daughter Daddy's Little Gal captured last year's Cal Cup Juvenile Fillies and this year's grade I Santa Anita Oaks. Moneymaker was foaled at the ranch and now stands at stud here. This graded stakes winner of nearly \$400,000 has thrust himself into the national spotlight when his son Hayburner captured this year's Travers Stakes at Saratoga. Winner of the Wood Memorial and second in both the Kentucky Derby and Preakness Stakes, Hayburner now has earnings over \$1 million. The Cal-bred is now pointing for the Breeders' Cup Classic.

Farm manager Bob Trainer has more than 30 years of experience in this business and gives your horses the personal care and attention they deserve. Assistant manager and yearling trainer Steve Winner also has many years of veterinary experience, although the farm's main vet lives just down the road and is on call 24 hours a day, especially during the busy foaling season. Visitors are welcome and encouraged to come and tour the facilities. Also visit their impressive website at www.CalThoroughbredRanch.com.

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