

Degenerative Joint Disease Treated with Ester C® Calcium Ascorbate

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Degenerative joint disease is a crippling syndrome that may affect horses of any age and at all levels of athletic competition. The economic effects of degenerative joint disease in athletic horses can be considerable. The expensive investment in the horse itself and the years of careful training and conditioning can all be lost when a horse is affected by crippling joint problems. And that loss is amplified by the added cost of extensive veterinary treatment along with the emotional trauma of watching a well-loved companion suffer.

Degenerative joint disease in horses, such as *ringbone*, *hockspavin*, *osteochondrosis dissecans*, and other crippling conditions, is generally considered progressive and incurable. Most horses become steadily worse with time and continued work. Although some horses may remain useful for light riding, any serious athletic endeavor such as racing, jumping, reining, endurance, or dressage, is commonly ruled out. Veterinary therapy is often limited to pain suppression or joint surgery with the objective of destroying joint movement in order to alleviate pain. A large number of horses remain unsound despite traditionally accepted therapy.

Horse owners seeking relief for their animals and a return to useful performance often seek nontraditional remedies. Modalities such as acupuncture, cold laser, and magnetic field therapy have been tried, as well as use of nutritional supplements such as *glycosaminoglycans* (GAG) and *chondroitin sulfates*, *hyaluronic acid*, *methyl sulfonmethane* (MSM), and *dimethylglycine* (DMG). Race horse trainers have advocated feeding pure ascorbic acid. With all of these treatments, the percentage of horses improved to soundness is about the same as with traditional methods; that is, a large number of horses, particularly the more severely af-

ected, continue to deteriorate.

Vitamin C, or ascorbic acid, has been shown to play a role in a number of biochemical reactions in the metabolism of collagen, in the immune system, and as an anti-oxidant, binding free-radicals which are a factor in inflammation and pain. Although most animals other than primates are able to synthesize ascorbic acid in their bodies, the production of adequate levels may be affected by infection, trauma, or stress. For many years ascorbic acid has been advocated for the prevention or treatment of many conditions in humans, including those affecting joints, such as arthritis. Unfortunately, pure ascorbic acid is rapidly excreted from the body, often before it can be transported to the needy tissues and joints, and its acidity causes irritation to the gastrointestinal tract.

A patented form of Vitamin C has been developed by Inter-Cal Corporation [now *Zila Nutraceuticals*] of Prescott, Arizona, under the name **Ester-C®** calcium ascorbate. **Ester-C®** is a non-acidic product that is rapidly absorbed from the intestinal tract and excreted more slowly from the body than ascorbic acid. It also crossed cell membranes more efficiently than ascorbic acid which results in significantly higher intracellular levels. Metabolism of the calcium ascorbate produces ascorbic acid and several significant metabolites which also exhibit positive effects.

Observations in humans show that **Ester-C®** calcium ascorbate lessens symptoms of pain and stiffness. Similar observations were made in dogs in studies by Charles Dockter, D.V.M., Prescott, Arizona and Geir Erik Berge, a veterinarian in Oslo, Norway. Both veterinarians reported that about 75 % of the patients treated with **Ester-C®** showed clinical improvement. N. Lee Newman, D.V.M., while in practice in Bullhead City, AZ, became aware of Dr. Dockter's work in dogs. She achieved similar results in dogs in her practice, and saw the potential for **Ester-C®** in treatment of joint disorders in horses. The first horse she tried the product on was a Quarter horse mare retired from the show ring to the broodmare band because of arthritis in her shoulders and knees. When **Ester-C®**

was added to her feed, the mare became sound within a short period of time, continued sound, and was able to return to active riding and showing. Dr. Newman later used **Ester-C**[®] in several other horses either exhibiting signs of joint disorders, *myositis*, musculoskeletal trauma, or prophylactically in two-year-old racehorses. Most horses showed good to excellent responses to **Ester-C**[®].

Formal clinical trials with **Ester-C**[®] in horses selected for joint disorders, particularly degenerative joint disease, were undertaken in 1992 by Dr. Newman. Horses were selected which had lameness due to skeletal joint disorders, which could be confirmed radiographically as well as by veterinary examination. Horses with particularly severe conditions, and those which had failed to improve in condition over a prolonged period, despite other therapies or rest, were chosen, as well as less severely affected horses. Several horses were already on various therapies for their problems, including *phenylbutazone*, Adequan, MSM, and corrective trimming/shoeing.

Over the course of the trials, ranging from two months to ten months in total length, all of the subjects were taken off any other therapy except **Ester-C**[®]. The dose of **Ester-C**[®] ranged from 9.9 grams to 30.00 grams of ascorbic acid equivalent (20-60mg/kg). Of the ten horses observed, nine of them (90%) showed good to excellent response to **Ester-C**[®]. Only one horse failed to improve in degree of soundness and pain relief. Some horses, which had not been rideable unless heavily medicated with pain suppressing drugs, are currently sound enough to be ridden regularly. Of the ten horses, two are no longer on **Ester-C**[®] or any other medication, and are being used normally by their owners. Another two have made remarkable progress, considering the severity and duration of joint disease: one horse with marked degenerative bone spavin in both hocks is being ridden and another with a traumatic dislocation in the pattern joint and severe ringbone is once more pasture-sound. Both continue to improve with **Ester-C**[®]. The remaining horses in the study continue to be followed and indicate steady improvement. In addition to the clinical improvement in soundness, radiographic studies of some horses show an improved picture in joint structure, with reduction in inflammation, joint destruction, bone *lysis*, and *periosteal exostosis*. No adverse reactions or side effects were seen in any

horses. Subjects consumed the **Ester-C**[®] powder readily when mixed in their regular ration.

In conclusion, this study shows that administration of oral **Ester-C**[®] calcium ascorbate gives symptomatic relief of degenerative joint disorders in horses, allowing a return to functional status as riding horses in a high percentage of horses studied. Several horses had been unsound for prolonged periods (one to two years) or unresponsive to other forms of therapy, yet showed rapid relief from pain with **Ester-C**[®], some within just a few weeks. Thus, **Ester-C**[®] should prove to be a good alternative for treatment of degenerative joint disorders in horses, without apparent side effects or toxicities. Further investigations are in progress and subjects will be monitored for several months to further clarify the responses.

Contact N. Lee Newman, D.V.M., for further information on her clinical trials: P.O. Box 225, Middletown, VA 22645.

NOTE: Up to 9 tsp/day of **Ester-C**[®] were used in the trials. Field results have shown that horses on **Dynamite** or **Dynamite Plus** show improvement on only 3 tsp/day of **Ester-C**[®].

- This is the *only* form of Vit. C used in any **DYNAMITE**[®] formulation and is a major component of the **Free & Easy & Hiscorbodyne** formulas for horses, dogs and people.
- More absorbable and does not create irritation to gut—too much will simply result in a slightly looser stool
- It is a great inflammatory and free radical scavenger; good for anything from joint pain to bleeding gums
- Increase amounts when under stress ■