

***R.M. Clemmons, DVM, PhD***

***Associate Professor of Neurology & Neurosurgery***

***Department of Small Animal Clinical Sciences***

### **Introduction:**

Although intervertebral disc (IVD) disease in chondrodystrophic breeds (like Dachshunds) is a surgical disease. See [Paralysis of the Rear Legs](#) . There are a number of things which might help delay the degeneration of the IVD and minimize the effects of herniation of the IVD if it happens. Vitamin E is a potent anti-oxidant which, when given before spinal cord injury, can prevent or markedly reduce the effects of spinal cord trauma. Spinal cord signs from IVD disease are due to two factors: 1) the presence of space-occupying compression from the herniated IVD material and 2) internal damage of the spinal cord due to vascular damage and subsequent expansion of that damage from ischemia (diminished blood flow) and tissue destruction secondary to lipid peroxidation and oxidant free-radical production. The latter effect is where vitamin E acts. Unfortunately, effective levels of vitamin E require several days to achieve; so, while vitamin E given before an injury is effective, it is ineffective when given during or shortly after the trauma.

The IVD represents one of the "joints" for connection of vertebrae. While the metamorphosis which takes place in the nucleus pulposus is genetically programmed, the degeneration occurs secondary to the decrease in IVD elasticity. This transmits greater shock to the IVD causing progressive damage. It may not be possible to completely stop this process of damage, but reducing inflammation caused by this damage and providing nutrient support to the cartilaginous structures in the IVD has the potential to delay the onset of IVD disease. Recent studies have shown that there is regeneration of disc material. As such, IVD disease is because degeneration wins out over the natural regenerative (healing) process. Increasing the changes of regeneration (healing) may be the only choice other than surgery. This will not happen overnight and must be part of the of the patients life-long treatment.

Don't forget that while a number of dogs will recover from IVD disease with cage rest for a minimum of 30 days or 3 weeks beyond the time it takes them to return to normal function without the aid of medication, early surgery gives the best chance for them to regain neurologic function. This is particularly true if they are paralyzed. If they have sudden or rapid onset of paralysis with decreased or absent pain sensation caudal to the lesion, then emergency surgical intervention is critical to optimize their chances of recovery. This will include giving IV

anti-oxidant, corticosteroids (Solu Medral or Solu Delta Cortef). On the other hand, once the initial problem is treated, the patient still must heal. The principles of integrative medicine apply, demanding that all modalities which are available be employed in returning the dog to health. As such, besides conventional medicines and surgery, attention must be given to physical therapies (including physical therapy, acupuncture and message therapy) and dietary and nutritional support. Even though dietary supplementation may help prevent IVD disease development, it is also important in speeding the recovery of the patient once IVD herniation has occurred.

The following recommendations will be broken into preventative measures and also into treatment once IVD disease has developed.

### **The "Wiener Dog" Diet:**

#### **Prevention:**

The dietary and nutritional requirements for chondrodystrophic dogs are those of all dogs. In that regard, they need adequate amounts of soy bean products (such as tofu) which are high in lecithin (important in myelination of nerves), bioflavonoids (containing anti-oxidant properties) and phytoestrogens (which help maintain healthy bone and joint development). They should receive regular supplementation with dry garlic and dry ginger to provide anti-inflammatory actions and may assist in preventing joint (including IVD) degeneration. Vitamin B complex helps support nerve function and repair which will aid in balancing the nervous system. Anti-oxidant therapy (Vitamins E & C, selenium and carrots) will help stabilize blood vessels and reduce oxidative damage within the IVD from degeneration. Other anti-oxidants like ginkgo and grape seed extracts may also be useful and will improve microcirculation in the IVD and spinal cord. As the patient ages, ginkgo will help maintain cerebral circulation in the later stages of life. Green tea contains bioflavonoids which are protective to certain kinds of cancer and lower blood cholesterol levels. It also provides an energy boost from its theophylline content. The ginsengs (Siberian and American) provide adaptogenic functions acting as body tonics in aging patients. American ginseng also has anti-cancer and immunostimulating properties. Dong quai offers a tonic for female dogs much like American ginseng does for males. In addition, dong quai has phytoestrogens which may help maintain bladder function in older female dogs and may help support healthy bone structure in aging dogs.

While there is anecdotal data to suggest that obesity plays a role in IVD disease, the real

problem is being born with the genetic potential to developed IVD degeneration. It may be the "jumping-off-the-couch" which precedes IVD herniation; yet rupture of the disc occurs in many patients even without predisposing factors. In general, dogs live healthier lives if they maintain a lower body weight. Giving healthy food and planning regular aerobic exercise can help maintain optimal body weight. During periods of less activity, reduce food intake to compensate. Weekly weight monitoring can help adjust body weight before it becomes a factor. Your veterinarian can help determine your dog's ideal body weight.

### Treatment:

Should IVD disease occur in dogs not on the "prevention" diet, starting it will be helpful in speeding the patient's recovery. Certain additional supplements may also help them recover and prevent complications from the paresis or paralysis. These measures do not take the place of conventional therapy including anti-oxidant steroids (such as Solu Medrol or Solu Delta Cortef), surgical decompression of the spinal cord, IVD fenestration or strict cage rest. Switching to fresh, raw garlic will provide antibacterial and antifungal protection against infection. Switching to fresh ginger will protect against stomach upset and calm the gastrointestinal tract. Adding a natural product called deglycyrrhizinated licorice (DGL) to protect the lining of the stomach and duodenum. Licorice has excellent soothing and healing properties in cases of ulcer, but whole licorice contains a fraction (glycyrrhizin) that can raise blood pressure. This is removed to make DGL extract. The dose is two tablets of DGL extract chewed slowly before meals or between meals, or one half teaspoon of the powder swallowed at the same times. You can use this remedy as long as symptoms are present. It will also help protect against the gastrointestinal irritation caused by corticosteroids. A useful native plant that is an immune-system booster is purple coneflower ( *Echinacea purpurea* and related species). The root of this ornamental plant is held in high esteem by herbalists, naturopathic doctors, and many lay-people because of its antibiotic and immune-enhancing properties. You can buy echinacea products in any health food store as tinctures, capsules, tablets, and extracts of fresh or dried roots. Although few medical doctors in America are familiar with echinacea, much research on it has been done in Germany, and the plant is in widespread use as a home remedy in Europe and America. Follow the directions for adult dosing and continue until recovery is complete. A Chinese herbal remedy with similar properties comes from the root of a plant in the pea family, *Astragalus membranaceus*

. This plant is a relative of our locoweed, which is toxic to livestock. The Chinese species is nontoxic, the source of a very popular medicine called huang qi that you can buy in any drugstore in China for use against colds, flues, and other respiratory infections. Recent studies in the West confirm its antiviral and immune-boosting effects, and preparations are now available in most health food stores here. Follow the directions for adult dosing. Coenzyme Q also called Co-Q-10, is a natural substance that assists in oxidative metabolism. It may improve the utilization of oxygen at the cellular level, and patients with heart, muscle and nerve problems may find it worth trying in doses of 30-100 milligrams a day. Some human beings report that it

increases their aerobic endurance. Coenzyme Q may help stabilize blood sugar in people who have diabetes, and to slow heart disease. It also maintains the health of gums and other tissues. There is evidence that coenzyme Q can prolong survival in women with breast cancer, too. Coenzyme Q is harmless, but not cheap. It is probably not worth supplementing your dog with Coenzyme Q, if it is healthy. However, patients who suffer from nervous system problems, such as IVD disease, should receive 30-100 mg Coenzyme Q daily until they have recovered. Finally, if the patient is uncomfortable from muscle spasms, passion flower (which is the herbal equivalent of diazepam) may be useful in relieving the pain and calming the dog. Try once capsule three times a day.

### **Additional Measures for Treatment of IVD Disease:**

#### **Acupuncture:**

While acupuncture cannot prevent IVD disease and should be used with the same caution as relieving pain by conventional measures in acute IVD herniation, acupuncture provides many beneficial effects in treating chronic IVD disease or following surgical correction during the healing process. Acupuncture is widely accepted as a method to provide analgesia without the side-effects of drugs. It can also help treat gastrointestinal and urinary tract dysfunction following IVD herniation. It stabilizes the adrenal gland function and may increase endogenous corticosteroid secretion without the side-effects of exogenous steroid medication. Electrical acupuncture will stimulate reflex activity, improving muscle strength and allowing more rapid return of function. Post-operatively, needle acupuncture is useful to reduce muscle spasms with drug intervention. Generally, acupuncture is given over several treatments. If it does not provide benefits within 3-5 treatments, then further therapy may not be warranted. Acupuncture should be performed only by a veterinarian who is trained and certified in its use; your veterinarian should be able to refer you to a qualified veterinary acupuncturist in your area.

#### **Chiropractic Care:**

Veterinary Chiropractic is a rapidly emerging field in treating equine patients and is expanding in its role in treating small animals. It should be performed by a licensed Veterinary Chiropractor. In general, veterinary chiropractic involves the manual adjustments of the vertebrae to correct chiropractic, vertebral subluxations. It is felt that these subluxations result in a series of events beginning with vertebral misalignment and sequentially progressing to neuropathy, kinesiotherapy (changes in normal vertebral movement), neurologic or biomechanical dysfunction, and tissue

degeneration. Correcting these subluxations may reverse this process and stimulate healing.

The application of chiropractic manipulations to dogs with chondrodystrophy early in life may help prevent the development of IVD disease by maintaining vertebral flexibility. On the other hand, it is likely that the dietary changes and supplements discussed above will be synergistic with this effort. Since chiropractic is limited to manual spinal column adjustments, you will need a veterinarian who can integrate these methods.

Once IVD disease has already occurred, chiropractic manipulations should not be performed during the acute phases, but be limited to the assistance of recovery following surgery or once the patient has sufficiently healed so that manipulations will be less likely to cause further IVD herniation. This may be only after "strict rest" has been enforced for 3 weeks after the patient is normal. I do not advise chiropractic manipulation for at least 14 days following an acute IVD herniation.

### **Physical & Massage Therapy:**

While physical therapy and massage therapy probably will not prevent IVD disease, they are very useful in helping patients recover from spinal cord injury. In fact, these methods may be as important as any other factor in ensuring maximal recovery. Using the methods, as part of play while the dog is healthy, may help make them more acceptable to the patient when they are needed. One of the reasons why IVD disease is best treated with surgery is that physical therapy can be begun immediately after surgery. In cases where surgery is not performed, physical therapy and massage therapy must be limited to the least aggressive methods.

Massage therapy improves muscle and joint flexibility, increases blood supply (improving nutrient delivery and waste removal), and helps prevent or breakdown scar tissue formation. It also helps relax muscle spasms and aids in patient comfort levels. Massage therapy for animals should be performed by a massage therapist trained in animal behavior and anatomy, under the supervision of your veterinarian. Many of the basic principles can be learned by the owner under proper instruction.

Physical therapy is often initiated by your veterinarian, who will instruct the owner in how to continue the therapy at home. There are several physical techniques which are beneficial in

returning patients to function. Initially, passive movement of all joints of legs which are paralyzed needs to be performed. Each joint should be gently brought through its full range of motion for at least 5 minutes per day. This will stimulate blood circulation and help maintain muscle and joint flexibility; so that, when neurologic function returns, the muscle and joints will be capable of response. The importance of passive movements continues until voluntary movements begin to return; at which point, they are no longer necessary. One way to accomplish these passive movements is to bring the entire leg through circular extension and flexion movements, similar to "riding a bicycle" exercise. Shortly after the start of passive movement therapy, standing exercises are important to build muscle strength. The paralyzed limbs should be positioned naturally and the weight of the animal used against muscle resistance. Initially, this resistance will be minimal; but, with increasing time and exercise, the resistance will allow the animal to stand for brief periods. The standing should be continued, increasing resistance by pressing down upon the animal's back, until the muscles tire. Muscles must fatigue to gain strength. Standing exercises should be continued until strong walking movements are present. Within 3 days of surgical correction, hydrotherapy can be begun. Using warm water, hydrotherapy helps loosen muscles and increase circulation. Hydrotherapy also can be combined with passive movements during the early stages increasing the benefits of each. By removing gravity, voluntary movements may be easier for the patient to initiate. Hydrotherapy is beneficial until voluntary movements have begun and standing exercises have increased muscle strength significantly. If the patient is treated without surgery, physical therapy should be limited to passive movements and standing exercises until the herniation has healed (minimum of 10-14 days).

### **Healing Touch:**

Healing touch is based upon the capacity of human beings to pass "life-force" from themselves into others willing to accept this gift. Although many forms of healing touch are taught in the West, they represent teachings of the same physical process. Many studies have indicated that human contact can help lower blood pressure, reduce stress and improve the state of well-being of the recipient. Human contact has also been shown to increase the immune resistance of others. These principles can be used to help animal patients heal, as well. While it is not easy to demonstrate measurable results in all cases, certainly healing touch does no harm. When done as taught by practitioners of healing touch, it does not cost the "giver" personal energy, since the "giver" acts as a conduit of "universal" life-force which is freely available from a limitless supply of life-force within the cosmos. The "recipient" is free to accept and use this life-force energy. Most Eastern philosophies of healing are based upon the concept that living beings are based upon energy which flows in the body. When the energy level is low or there is a blockage of energy flow, disease develops. Healing touch, by providing life-force energy above or below this blockage, can re-establish the natural flow of energy, allowing healing to take place.

While healing touch has a spiritual aspect, it is not a religious practice nor does it require any particular belief by the giver or recipient. What is required is a recognition by the giver that this process can occur and for the giver to practice the technique to establish pathways for energy flow from them to the recipient. Distant healing touch can also be beneficial to patients. In this form of healing touch, the giver establishes a "psychic" connection with the recipient and mentally visualizes offering the life-force to the patient. Many double blind studies have shown that prayers directed at patients in human intensive care units reduce the complication rates of those patients and their ultimate length of stay in the intensive care unit. Distant healing touch and prayer seem to work through similar mechanisms, in their benefits to patients. On the other hand, belief in any specific religion is unnecessary to practice healing touch. Any person can learn and practice healing touch. In fact, most people perform healing touch without knowledge of doing so. For information about the practice of healing touch see [Dr. Weil's web pages](#) and search for "healing touch". For a discussion of healing touch, see <http://neuro.vetmed.ufl.edu/neuro/courses/vem5208/centering.html>

Healing touch may be helpful to maintain normal health in dogs who might develop IVD disease. It also will assist in speeding and maximizing recovery once IVD herniation has occurred. Since this can be done without risk of injury, it will do no harm; yet healing touch may increase the chances of full recovery. It also helps develop the human-animal bond. The outcome of healing touch is non-judgmental. It is a gift which is shared between the patient and healer.