

PAIN RELIEF Manipulative therapies are being used to treat pets suffering from musculoskeletal pain.

INTEGRATIVE MEDICINE

Manipulative Therapies for Hip and Back Hypomobility in Dogs

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Does the following scenario sound familiar? A client brings in their young to middle-aged canine athlete and claims that the dog moves stiffly, has a roached topline, has changed its gait, or is not as fast as it used to be. An examination shows no signs of lameness, but does reveal a little pain on palpation of the thoracolumbar junction or on hip extension. Radiographs show no significant abnormalities, so the dog goes home with a prescription of rest and nonsteroidal anti-inflammatory drugs (NSAIDs).

At follow-up, the client reports that the NSAIDs helped a little, but they really don't want to keep the dog on them forever, especially without a diagnosis. Additional diagnostic imaging modalities provide no definitive diagnosis, leaving the client with two options: keep the dog on NSAIDs or retire it. Hitting this dead end is frustrating for veterinarians, but even more so for the client.

Later, the client hears anecdotes from friends about dogs that underwent chiropractic/spinal manipulation, which greatly improved the dogs' mobility and enabled them to jump again, resolved the intermittent lameness, or returned them to competition. The client seeks out this therapy for their dog and is happy with the results. And they wonder: *Why didn't my veterinarian recommend this?*

Many veterinarians are uncomfortable with referring patients for chiropractic/spinal manipulation. The perception is that there is very little evidence-based medicine on manipulative therapies, and the risk of herniating discs or hurting the dog is too high. However, with educated referrals to trustworthy practitioners (**BOX 1**), primary care veterinarians can not only expand their ability to help their patients feel and perform better, but also help maintain positive, trusting relationships with clients.

HISTORY OF CHIROPRACTIC/ SPINAL MANIPULATION THERAPY

The term *chiropractic* comes from the Greek words *cheir* ("hand") and *praktos* ("done"), thus translating to "done by hand." It was first used in 1895 when D.D. Palmer performed the first chiropractic adjustment on a janitor, "curing his deafness."¹ Before this, however, various forms of spinal manipulation had been used for hundreds or even thousands of years. Hippocrates (460–357 BC) stated, "Get knowledge of the spine, for this is the requisite for many diseases." Claudius Galen (130–200 AD), the "prince of physicians," cured a Roman scholar (Eudemus) of a paralyzed hand by "adjusting" his neck. Traditional Chinese Medicine uses a form of spinal manipulation and manual therapy called *Tui-na*.



In 1905, D.D. Palmer was arrested for practicing medicine without a license, as were many other chiropractors over the following decades.² In 1963, the American Medical Association (AMA) developed a “committee of quackery” designed to “contain and eliminate” the chiropractic profession, and until 1980 they considered it unethical for physicians to associate with “unscientific practitioners.”³ In 1987, the AMA was found to have unlawfully conspired to “contain and eliminate the chiropractic profession.”⁴ Since then, spinal manipulation has been gaining recognition and an effort has been made to provide more evidence-based medicine in manipulative therapies. However, the evidence is still lacking and the number of certified animal chiropractors remains limited, so many clients who desire manipulative therapies turn to practitioners, who may not have had appropriate training, for help.

PRINCIPLES OF THERAPY

Chiropractic/spinal manipulation is based on the theory that joint restrictions cause biomechanical and/or neurologic alterations. In chiropractic, the impediment of neurologic input due to a restriction in normal joint motion is referred to as the “subluxation” or “vertebral subluxation complex,” based on the original theory that physical displacement of a bone was causing direct pressure on a spinal nerve. However, current research has shown that simple bone displacement is not always detected, and that inflammation and edema, as well as a decreased range of motion in a joint, may also cause a change in nerve conduction. This limitation in motion decreases stimulation of mechanoreceptors, thus affecting afferent communication of the joint with the spinal cord; furthermore, increasing stimulation of joint mechanoreceptors by joint mobilization may inhibit the transmission of nociceptors.⁵ Another theory suggests that rotation of cervical vertebrae may cause a twist in the dura mater, resulting in stretching of the dentate ligaments and thereby pulling on the spinal cord.^{6,7} Resolving inflammation and edema, relieving tension or pressure on nerves and fascia, and decreasing nociceptor stimulation by improving joint range of motion are the principles of how chiropractic/spinal manipulation is believed to help with pain and function.⁸

CURRENT RESEARCH

There is clearly a lack of high-quality prospective, randomized, placebo-controlled clinical trials on

BOX 1 Professional Chiropractic Associations and Training Programs

The American Veterinary Chiropractic Association (AVCA) and the International Veterinary Chiropractic Association (IVCA) are professional organizations that require members to pass a certification examination and perform continuing education. Veterinarians do not have to belong to one of these organizations to practice animal chiropractic or spinal manipulation; however, most states require that chiropractors practicing animal chiropractic belong to one of these organizations. Depending on the state, they may need to practice under the direct supervision of a veterinarian.

There are currently 6 training programs in animal chiropractic or veterinary spinal manipulation in the United States:

- Animal Chiropractic Education Source (ACES; Meridian, TX)
- Healing Oasis (Sturtevant, WI)
- Health Pioneers Institute (Naperville, IL)
- Integrative Veterinary Medicine Institute–Veterinary Medical Manipulation (IVMI-VMM; Reddick, FL)
- Options for Animals (Wellsville, KS)
- Parker University (Dallas, TX)

manipulative therapies in veterinary and human research. However, several recent reviews and meta-analyses on the various uses of spinal manipulation in people show moderate evidence for the indications of its use.⁹⁻¹³ Primary literature in the human field has shown that a single cervical manipulation is capable of producing immediate and short-term benefits for mechanical neck pain; that high-velocity, low-amplitude (HVLA) manipulative therapy significantly decreases neck pain, arm pain, and neck disability index scores; and that applying a mechanically assisted instrument to the level of C5 improved shoulder strength for internal rotation.¹⁴⁻¹⁷

In veterinary research, there is minimal data on the use of chiropractic/spinal manipulation, with most of the research focusing on equine than canine patients. Equine studies have shown that spinal manipulative therapy increases amplitudes of dorsoventral displacement of the thoracolumbar vertebral column, which increases passive spinal flexibility in actively ridden horses, increases spinal mechanical nociceptive

Several certification programs exist for veterinarians and chiropractors to become trained in animal chiropractic or veterinary spinal manipulation.

thresholds, and produces a less extended back and better symmetry in pelvic motion.¹⁸⁻²¹

To the author's knowledge, only 2 recent publications on canine manipulative therapies exist in primary literature.^{22,23} One study evaluated "manual therapy" and not necessarily manipulative therapy in combination with acupuncture for the treatment of musculoskeletal pain; however, this study did not define what type of

manual therapy was used: spinal manipulation, joint mobilization, or massage/soft tissue mobilization.²¹ The other paper retrospectively evaluated chiropractic abnormalities in dogs with urinary incontinence/retention, and found that most of the chiropractic lesions associated with urinary incontinence and retention, identified by this single observer, were between L3 and L5.²² Anecdotal reviews of chiropractic therapy for veterinary patients similar to this paper have also been published.^{24,25} These reviews have been met with criticism based on the minimal amount of evidence from primary literature; however, such articles should drive interest in conducting further high-quality research.

LIMITATIONS AND CONTRAINDICATIONS

It should be stressed that pursuit of a diagnosis through advanced imaging and other warranted testing should be strongly recommended before chiropractic/spinal manipulation is performed. Every effort should be made to rule out diseases such as neoplasia and trauma, including fractures, luxations, and ligament tears. Severe neurologic dysfunction is not likely to be improved by chiropractic/spinal manipulation, as parenchymal changes to the spinal cord cannot be alleviated by correcting alignment/hypomobility issues.

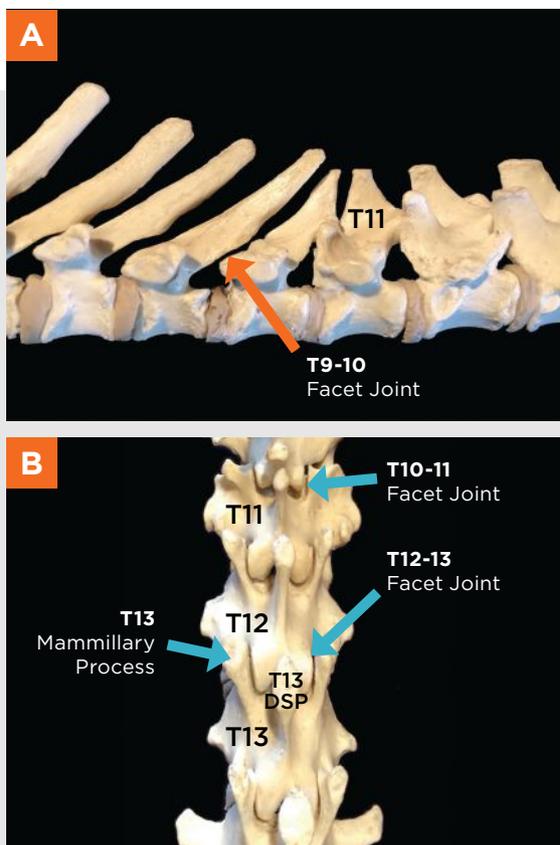


FIGURE 1. (A) Dorso-ventral (T1-T10) and (B) latero-medial (T10-L7) facet joints of the thoracic spine. DSP=dorsal spinous processes

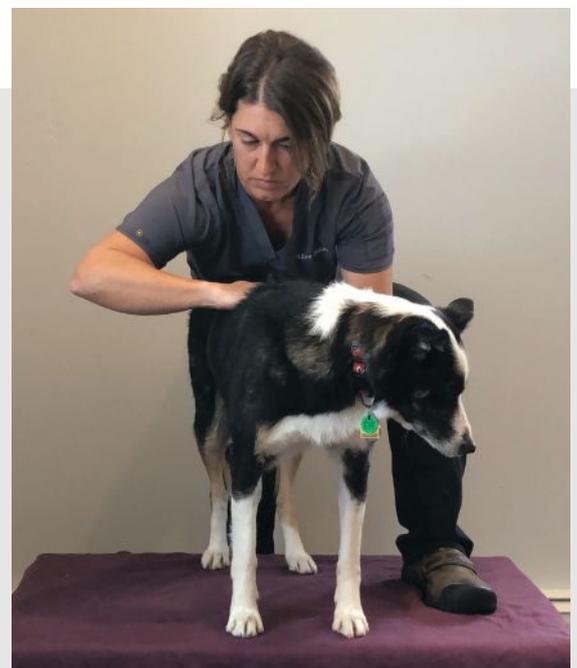


FIGURE 2. Patient and hand thrust positioning for manipulation of laterally restricted motion of facet joints T1-T10.



It may take several treatments to correct alignment/hypomobility of joints, and alignment issues may not be resolvable in patients with conformational abnormalities. Similarly, hypomobility is not expected to resolve in cases of osteoarthritis and spondylosis; however, these patients may gain some relief by diminishing the activity of nociceptors. In patients with conformational challenges or patients that perform chronic repetitive activities, hypomobility and alignment issues are likely to recur. Recurrence may also develop if associated soft tissues are not addressed through stretching, relieving trigger points, and performing strengthening activities.

CHIROPRACTIC/SPINAL MANIPULATION FOR HIP AND BACK HYPOMOBILITY: BASIC MOBILIZATIONS

When performed by a qualified practitioner, the specific adjustments for restricted thoracolumbar facet joints and sacroiliac joints described below can provide pain relief as well as improve spinal mobility in dogs. Improving “stiffness” or hypomobility of the spine (or any restricted joint) can theoretically prevent hypermobility of a nearby joint, which can result in injury (e.g., cranial cruciate ligament rupture, medial

shoulder instability, intervertebral disc disease, and chronic ventral longitudinal ligament damage leading to spondylosis).

Thoracolumbar

Anatomy

From T1 to T10, the dorsal spinous processes (DSPs) face caudally; at T11, the DSP is straight vertical (anticlinal); and from T12 to L7, the DSP angle slightly cranially. The facet joints from T1 to T10 are in the dorso-ventral plane; from T10 to L7, they are in the sagittal plane (**FIGURE 1**).

Adjustment

Adjustments are made to the facet joints by performing an HVLA thrust on the restricted segment, at a direction and angle dictated by the location and number of restricted joints.

Joints from T1 to T10: If the vertebra is rotated or one side is restricted but not the other, the HVLA thrust is straight lateral to medial toward the restriction (**FIGURE 2**). If both facet joints are restricted, it is dorsal to ventral at about a 45° angle caudal to cranial (or along the plane of the DSP) toward the restriction.



FIGURE 3. Patient and hand thrust positioning for manipulation of bilaterally restricted facet joints of T11-L7.

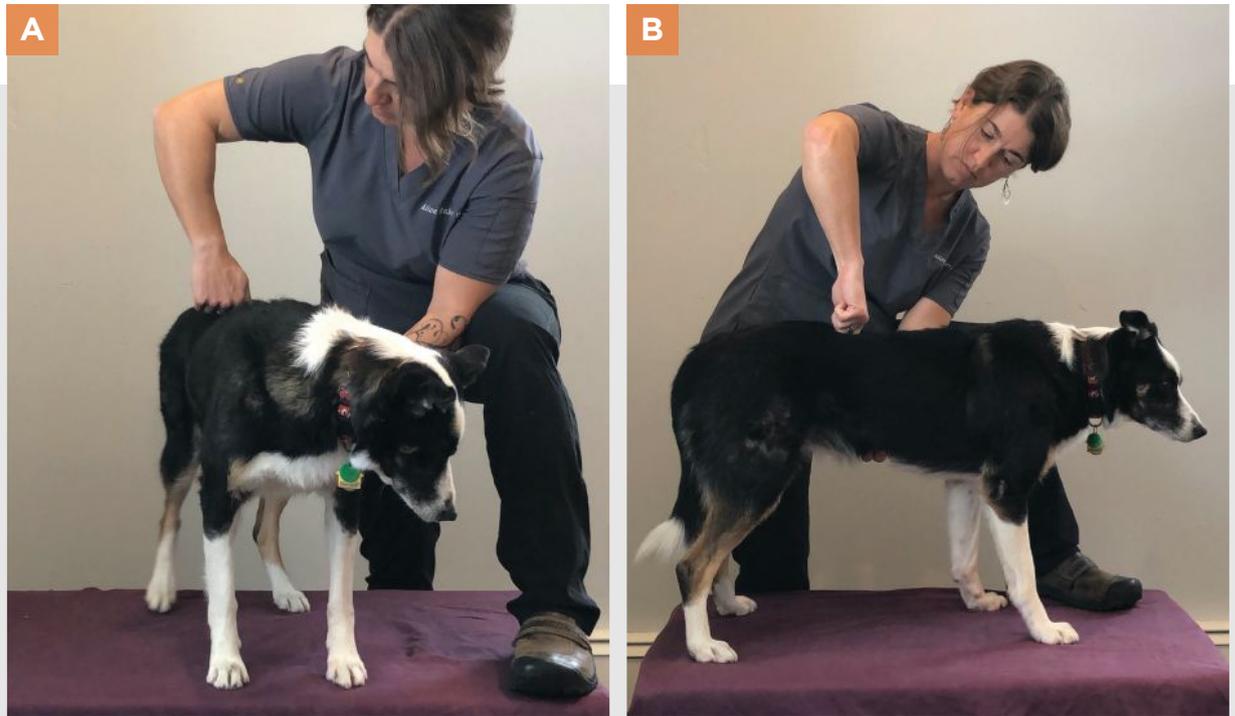


FIGURE 4. Patient and thrust positioning for manipulation of unilaterally restricted facet joints of T11–L7.

Joints from T11 to L7: If both facet joints are restricted, the HVLA thrust is straight dorsal to ventral (**FIGURE 3**). If the vertebra is rotated, or one facet joint is stuck while the other is not, the thrust is at a 10° lateral to medial angle toward the restriction (**FIGURE 4**).

Sacroiliac Anatomy

In dogs, the sacroiliac joints are angled about 20° medial to lateral on the sagittal plane (**FIGURE 5**). The sacroiliac joints can be restricted in several ways, with the most common being the ilium stuck dorsally (posterior/inferiorly [PI]) or ventrally (anterior/superiorly [AS]).

Adjustment

Adjustments are made to correct an AS or ventrally restricted ilium by performing an HVLA ventral to dorsal with a 20° lateral to medial angle. When correcting a PI or dorsally restricted ilium, an HVLA is performed dorsal to ventral with a 20° medial to lateral angle (**FIGURE 6**).

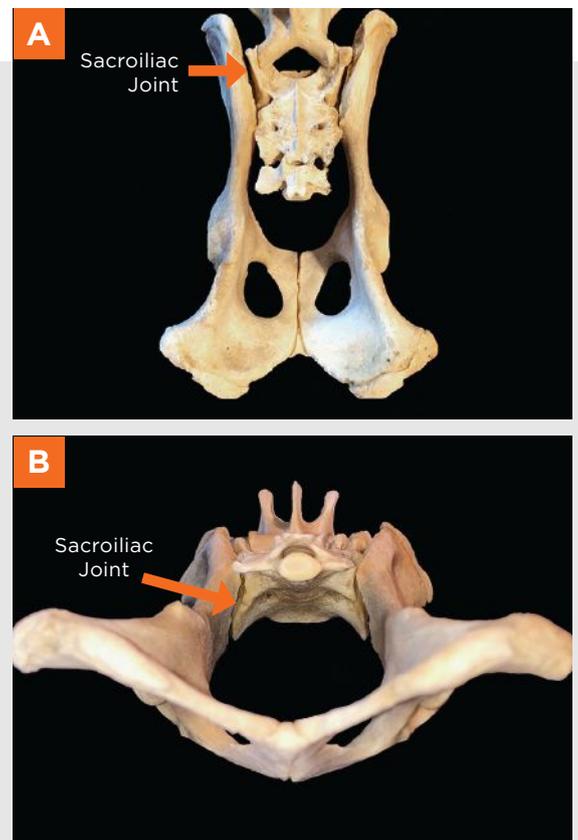


FIGURE 5. 20° angle of the sacroiliac joint.

IMPLEMENTING MANIPULATIVE THERAPIES IN GENERAL PRACTICE

Becoming personally certified or having a certified associate is the ideal way to add chiropractic/spinal manipulation services to a veterinary practice, as the training gives practitioners a better understanding of the specific conditions that can best be helped by chiropractic/spinal manipulation. Several certification programs exist for veterinarians and chiropractors to become trained in animal chiropractic or veterinary spinal manipulation (**BOX 1**).

If personal certification is not feasible, developing a referral relationship with a local qualified practitioner is a good option. If the practitioner is a chiropractor and not a veterinarian, state law may require direct supervision by a veterinarian, so direct referral may be necessary. Alternatively, he or she could come into the practice on a regular basis (e.g., once a week) to see patients at the facility.

Once the practice is ready to offer chiropractic therapy/spinal manipulation services, promoting it to clients is not difficult. Practices that already offer physical therapy/rehabilitation services or acupuncture may find that they already have a built-in, interested client base.



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And, as in the opening scenario, satisfied clients tend to recommend their friends, so the service becomes self-promoting. At the least, it benefits veterinarians to be aware of the possibilities of manipulative therapies to have informed conversations with clients. **TVP**



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FIGURE 6. Patient and hand thrust positioning for manipulation of restricted sacroiliac joint.