

Acupuncture for Neck and Back Pain

Between 65% and 80% of humans experience back or neck pain at some point in their lives; the elderly complain of back pain more often than any other musculoskeletal ailment.¹ Whether or not small animals experience spinal pain with similar frequency is unknown. Perhaps the majority of animals afflicted with back or neck pain recovers spontaneously within six weeks, as do humans.² However, for those who do not recover, the pain frequently remains untreated, under treated, or treated inappropriately.^{3 4 5} Clients may misinterpret alterations in their animals' behavior as "slowing down", "getting old and grouchy", or "being just plain stubborn".

Determining the proper course of action for spinal pain requires in-depth knowledge of veterinary anatomy and pathology.⁶ Some clients are tempted to pursue treatment from non-veterinarian chiropractors or physical therapists in lieu of proper diagnostics. Doing so may cause irreparable harm to the animal due to delayed diagnosis and improper treatment, especially when back pain arises from neoplastic or infectious causes.⁷ Nevertheless, clients may prefer a nonpharmacologic approach for their animal's condition, given the potential adverse effects of conventional approaches. Nonsteroidal anti-inflammatory drugs (NSAIDs) increase the risk of gastrointestinal bleeding and renal damage, especially in older animals. Narcotic analgesics cause constipation; straining to eliminate worsens the pain. Sustained inactivity from cage rest leads to deconditioning and may worsen spinal instability, if it exists.

A commonly overlooked source of musculoskeletal pain is the musculature itself and its enveloping fascia. In fact, myofascial pain syndrome can sometimes mimic radicular pain or internal organ disease.⁸ The key to identifying this type of pain involves palpating for taut bands and trigger points encased within the myofascial fabric. Once identified, myofascial pain can readily respond to

¹ Meng CF, Wang D, Ngeow J, Lao L, Peterson M, and Paget S. Acupuncture for chronic low back pain in older patients: a randomized, controlled trial. *Rheumatology*. 2003;42:1508-1517.

² Wang RR and Tronnier V. Effect of acupuncture on pain management in patients before and after lumbar disc protrusion surgery – a randomized control study. *American Journal of Chinese Medicine*. 2000;28(1):25-33.

³ Webb AA. Potential sources of neck and back pain in clinical conditions of dogs and cats: a review. *The Veterinary Journal*. 2003;165(3):193-213.

⁴ Facco E and Ceccherelli F. Myofascial pain mimicking radicular syndromes. *Acta Neurochir*. 2005;92:147-150.

⁵ Webb AA. Potential sources of neck and back pain in clinical conditions of dogs and cats: a review. *The Veterinary Journal*. 2003;165(3):193-213.

⁶ Webb AA. Potential sources of neck and back pain in clinical conditions of dogs and cats: a review. *The Veterinary Journal*. 2003;165(3):193-213.

⁷ Ross MD and Bayer E. Cancer as a cause of low back pain in a patient seen in a direct access physical therapy setting. *Journal of Orthopaedic and Sports Physical Therapy*. 2005;35:651-658.

⁸ Facco E and Ceccherelli F. Myofascial pain mimicking radicular syndromes. *Acta Neurochir*. 2005;92:147-150.

physical medicine approaches such as acupuncture, even after medication has failed.^{9 10}

Controlled trials and systematic reviews in human research provide increasingly stronger evidence that acupuncture effectively treats chronic spinal pain.^{11 12 13}

^{14 15 16 17 18 19} Several uncontrolled studies have reported that acupuncture improves spinal pain of various causes in dogs and horses.^{20 21 22 23 24 25 26}

According to Adrian R. White, MD, the author of several systematic reviews on acupuncture, "Acupuncture treatment should be considered for anyone who has nonspecific mechanical back pain that has persisted for 6 weeks or more despite

⁹ Gerwin RD. A review of myofascial pain and fibromyalgia – factors that promote their persistence. *Acupuncture in Medicine*. 2005;23(3):121-134.

¹⁰ Lundeberg T, Hurtig T, Lundeberg S, and Thomas M. Long-term results of acupuncture in chronic head and neck pain. *The Pain Clinic*. 1988;2(1):15-31.

¹¹ Ernst E and White AR. Acupuncture for back pain. *Arch Int Med*. 1998;158:2235-2241.

¹² Irnich D, Behrens J, Gleditsch JM, Stör W, Schreiber MA, Schöps P, Vickers AJ, and Beyer A. Immediate effects of dry needling and acupuncture at distant points in chronic neck pain: results of a randomized, double-blind, sham-controlled crossover trial. *Pain*. 2002;99:83-89.

¹³ Ghoname EA, Craig WF, White PF, Ahmed HE, Hamza MA, Henderson BN, Gajraj NM, Huber PJ, and Gatchel RJ. Percutaneous electrical nerve stimulation for low back pain. A randomized crossover study. *JAMA*. 1999;281(9):818-823.

¹⁴ Carlsson CPO and Sjölund BH. Acupuncture for chronic low back pain: a randomized placebo-controlled study with long-term follow-up. *The Clinical Journal of Pain*. 2001;17:296-305.

¹⁵ White P, Lewith G, Prescott P, and Conway J. Acupuncture versus placebo for the treatment of chronic mechanical neck pain. *Ann Intern Med*. 2004;141:911-919.

¹⁶ Irnich D, Behrens N, Molzen H, König A, Gleditsch J, Krauss M, Natalis M, Senn E, Beyer A, and Schöps P. Randomised trial of acupuncture compared with conventional massage and "sham" laser acupuncture for treatment of chronic neck pain. *BMJ*. 2001;322:1574-1578.

¹⁷ Blossfeldt P. Acupuncture for chronic neck pain – a cohort study in an NHS pain clinic. *Acupuncture in Medicine*. 2004;22(3):146-151.

¹⁸ Molsberger AF, Mau J, Pawalec DB, and Winkler J. Does acupuncture improve the orthopedic management of chronic low back pain – a randomized, blinded, controlled trial with 3 months follow up. *Pain*. 2002;99:579-587.

¹⁹ Leibing E, Leonhardt U, Köster G, Goerlitz A, Rosenfeldt J-A, Hilgers R, and Ramadori G. Acupuncture treatment of chronic low-back pain – a randomized, blinded, placebo-controlled trial with 9-month follow-up. *Pain*. 2002;96:189-196.

²⁰ Han HJ, Jeong SW, Kim JY, Jeong MB, and Kim JS. The effect of conservative therapy on thoracolumbar intervertebral disc disease on 15 dogs. *Journal of Veterinary Clinics*. 2003;20(10):52-58.

²¹ Graw U. Acupuncture as the standard therapy for discopathy with ataxia of the hind legs. *Ganzheitliche Tiermedizin*. 2003;17(1):9-13.

²² Kim MS, Kim SY, Seo KM, and Nam TC. Acupuncture treatment for acute torticollis (wry neck) in a dog. *Journal of Veterinary Clinics*. 2004;21(4):395-397.

²³ Jeong SM and Park SW. Application of traditional acupuncture on canine intervertebral disc disease. *Journal of Veterinary Clinics*. 2004;21(1):49-51.

²⁴ Janssens LAA. Trigger points in 48 dogs with myofascial pain syndromes. *Veterinary Surgery*. 1991;20(4):274-278.

²⁵ Kim M-S, Xie H, Seo K-M, and Nam T-C. The effect of electro-acupuncture treatment for chronic back pain in horses. *Journal of Veterinary Clinics*. 2005;22(2):144-147.

²⁶ Klide AM and Martin BB. Methods of stimulating acupuncture points for treatment of chronic back pain in horses. *JAVMA*. 1989;195(10):1375-1379.

standard treatment.”^{27 28} In humans, ten sessions of needle body acupuncture produced stable, long-term effects lasting at least six months according to a recently published prospective cohort study.²⁹ A 2005 paper systematically reviewing acupuncture for chronic low back pain echoed the findings of earlier work, concluding that adding acupuncture plus conventional treatment produced better analgesia and functional improvement than conventional treatments alone.^{30 31} However, not all acupuncture treatments are equal. Deeper acupuncture stimulation in humans with lumbar myofascial pain provides greater pain reduction than does superficial needling, although it causes more post-treatment soreness.^{32 33 34} Neuroanatomically focused acupuncture addresses spine-related pain by treating the nerves mediating pain from spinal structures.³⁵³⁶ Stimulation of paravertebral somatic afferent fibers at acupuncture points along the spine suppresses activity in spinal nociceptive neurons.³⁷

Acupuncture also works by affecting various aspects of the central nervous system. Acupuncture attenuates inflammation in part by activating the hypothalamic-pituitary-adrenal axis.³⁸ Opioid peptides in the spinal cord and brain participate in endogenous pain control pathways.³⁹ The reduction in central nervous system excitation helps dampen pain transmission and sympathetic tone. Acupuncture improves muscle blood flow which benefits

²⁷ White AR. Interview. *Modern Medicine*. 1999;67:46.

²⁸ Manheimer E, White A, Berman B, Forsys K, and Ernst E. Meta-analysis: acupuncture for low back pain. *Ann Intern Med*. 2005;142:651-663.

²⁹ Kukuk P, Lungenhausen M, Molsberger A, and Endres HG. Long-term improvement in pain coping for cLBP and gonarthrosis patients following body needle acupuncture: a prospective cohort study. *European Journal of Medical Research*. 2005;10:263-272.

³⁰ Furlan AD, Van Tulder M, Cherkin D, Tsukayama H, Lao L, Koes B, and Berman B. Acupuncture and dry-needling for low back pain: an updated systematic review within the framework of the Cochrane Collaboration. *Spine*. 2005;30:944-963.

³¹ Longworth W and McCarthy PW. A review of research on acupuncture for the treatment of lumbar disk protrusions and associated neurological symptomatology. *Journal of Alternative and Complementary Medicine*. 1997;3(1):55-76.

³² Ceccherelli F, Rigoni MT, Gagliardi G, and Ruzzante L. Comparison of superficial and deep acupuncture in the treatment of lumbar myofascial pain: a double-blind randomized controlled study. *Clin J Pain*. 2002;18(3):149-153.

³³ Itoh K, Katsumi Y, and Kitakoji H. Trigger point acupuncture treatment of chronic low back pain in elderly patients – a blinded RCT. *Acupuncture in Medicine*. 2004;22(4):170-177.

³⁴ Baldry P. Superficial versus deep dry needling. *Acupuncture in Medicine*. 2002;20(2-3):78-81.

³⁵ Wong JY. *A Manual of Neuro-Anatomical Acupuncture. Volume I: Musculo-Skeletal Disorders*. Toronto: The Toronto Pain and Stress Clinic Inc., 1999.

³⁶ Gunn CC, Milbrandt WE, Little AS, Mason KE. Dry needling of muscle motor points for chronic low-back pain: a randomized trial with long-term follow-up. *Spine*. 1980; 5(3):279-291.

³⁷ Gillette RG, Kramis RC, and Roberts WJ. Suppression of activity in spinal nociceptive 'low back' neurons by paravertebral somatic stimuli in the cat. *Neuroscience Letters*. 1998;241:45-48.

³⁸ Zhang R-X, Lao L, Wang X, Fan A, Wang L, Ren K, and Berman B. Electroacupuncture attenuates inflammation in a rat model. *Journal of Alternative and Complementary Medicine*. 2005;11(1):135-142.

³⁹ Han J-S. Acupuncture and endorphins. *Neuroscience Letters*. 2004;361:258-261.

patients with chronic pain.⁴⁰ Sustained stimulation from manual acupuncture reduces muscle tension by reducing alpha motoneuron excitability.^{41 42}

Table 1 lists various structures pertaining to the spine which can generate back or neck pain in small animals. Inflammation, compression, developmental anomalies, or degeneration of these tissues can lead to spinal pain. The table includes mention of particular acupuncture point groupings that may most directly influence pain transmission in the affected nerves.

Table 1, Potential Sources of Neck and Back Pain in Dogs and Cats. Adapted from Webb⁴³ and Wong⁴⁴

Structural Source of Back Pain	Related Neural Elements	Acupuncture Points Influencing Nerves Related to the Pain Source
Intervertebral disc	The periphery of intervertebral discs in dogs contains nociceptors and mechanoreceptors; the sinuvertebral nerve supplies sensory innervation.	Huatojiaji points, "Facet joint points" ⁴⁵
Facet joint capsule	The joint capsule is richly innervated by proprioceptors and nociceptors.	Huatojiaji points, "Facet joint points" ⁴⁶
Dorsal root ganglion (DRG)	Mechanically sensitive nociceptors (i.e., mechano-nociceptors) in the nervi nervorum of the epineuria surrounding the DRG may contribute to pain if compression or tension affects the DRG.	Points along the inner Bladder channel
Spinal ligaments:	These ligaments contain free nerve endings	Points along the

⁴⁰ Sandberg M, Larsson B, Lindberg L-G, and Gerdle B. Different patterns of blood flow response in the trapezius muscle following needle stimulation (acupuncture) between healthy subjects and patients with fibromyalgia and work-related trapezius myalgia. *European Journal of Pain*. 2005;9:497-510.

⁴¹ Chan AK, Vujnovich A, and Bradnam-Roberts L. The effect of acupuncture on alpha-motoneuron excitability. *Acupunct Electrother Res*. 2004;29(1-2):53-72.

⁴² Yu YH, Wang HC, and Wang ZJ. The effect of acupuncture on spinal motor neuron excitability in stroke patients. *Zhonghua Yi Xue Za Zhi*. 1995;56(4):258-263.

⁴³ Webb AA. Potential sources of neck and back pain in clinical conditions of dogs and cats: a review. *The Veterinary Journal*. 2003;165(3):193-213.

⁴⁴ Wong JY. *A Manual of Neuro-Anatomical Acupuncture. Volume I: Musculo-Skeletal Disorders*. Toronto: The Toronto Pain and Stress Clinic Inc., 1999.

⁴⁵ Wong JY. *A Manual of Neuro-Anatomical Acupuncture. Volume I: Musculo-Skeletal Disorders*. Toronto: The Toronto Pain and Stress Clinic Inc., 1999.

⁴⁶ Wong JY. *A Manual of Neuro-Anatomical Acupuncture. Volume I: Musculo-Skeletal Disorders*. Toronto: The Toronto Pain and Stress Clinic Inc., 1999.

<p>1) Dorsal longitudinal ligament 2) Supraspinal ligaments 3) Interspinous ligaments</p>	<p>that have been implicated as potential contributors to back pain.</p>	<p>Governor Vessel channel</p>
<p>Vertebral periosteum</p>	<p>The periosteum contains an extensive plexus of nerve fibers that exhibits the lowest pain threshold of any of the deep tissues.</p>	<p>Huatojjaji points or points along the Governor Vessel channel</p>
<p>Meninges</p>	<p>The dura is sensitive to mechanical and noxious stimulation; meningeal irritation may contribute to back and neck pain in dogs and cats.</p>	<p>Points along the Bladder channel</p>
<p>Muscles attaching or referring to the back or neck</p>	<p>Myofascial pain is characterized by palpable, taut bands occurring lengthwise along muscles that contain exquisitely tender regions. Myofascial pain is often mistaken for radicular pain and may be accompanied by visceral pain syndromes including bowel irritability and cystitis.^{47 48}</p>	<p>Local, direct needling into the taut band or trigger point</p>
<p>Thoracolumbar fascia</p>	<p>Cutaneous branches from dorsal rami of lumbar spinal nerves innervate the thoracolumbar fascia. Nerves supplying the thoracolumbar fascia in humans with chronic mechanical back pain may undergo degeneration secondary to ischemia or inflammation.⁴⁹</p>	<p>Points along the Governor Vessel, Bladder, or Gallbladder channels, depending on the area affected by pain, as determined by palpation</p>

⁴⁷ Facco E and Ceccherelli F. Myofascial pain mimicking radicular syndromes. *Acta Neurochir Suppl.* 2005;92;147-150.

⁴⁸ Gerwin RD. A review of myofascial pain and fibromyalgia – factors that promote their persistence. *Acupuncture in Medicine.* 2005;23(3):121-134.

⁴⁹ Bednar DA, Orr FW, and Simon GT. Observations on the pathomorphology of the thoracolumbar fascia in chronic mechanical back pain. *Spine.* 1995;20(10):1161-1164.