



National Imaging Associates, Inc.	
Clinical guidelines EXPERIMENTAL, UNPROVEN, OR INVESTIGATIONAL SERVICES	Original Date: November 2, 2015 Page 1 of 16
Physical Medicine – Clinical Decision Making	Last Review Date: June 2017
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Responsible Department: Clinical Operations	Implementation Date: January 2019 <u>2020</u>

Policy Statement

This policy will be used to provide a listing of procedures considered experimental, investigational by any physical medicine practitioner. Services listed in the policy are not eligible for reimbursement.

~~Initial Clinical Reviewers (ICRs) and Physician Clinical Reviewers (PCRs) must be able to apply criteria based on individual needs and based on an assessment of the local delivery system.~~

Purpose

To provide a listing of procedures considered experimental, investigational, or unproven services by any physical medicine practitioner, including chiropractors, physical therapists, occupational therapists, and speech language pathologists.

Scope

~~Clinical Management, Coding, Customer Service, Claims and Contracting.~~

Coverage

Coverage is subject to the terms of an enrollee’s benefit plan. To the extent there is any inconsistency between this medical policy and the terms of an enrollee’s benefit plan, the terms of the enrollee’s benefit plan documents will always control. Investigational services are not covered under enrollee’s health plan.

Definition

A service is considered experimental/investigation if any of the following criteria is met:

- ~~1-~~ The services, procedures or supplies requiring Federal or other Governmental body approval, such as drugs and devices, do not have unrestricted market approval from the Food and Drug Administration (FDA) or final approval from any other governmental regulatory body for use in treatment of a specified condition. Any approval that is granted as an interim step in the regulatory process is not a substitute for final or unrestricted market approval.
- ~~2-~~ There is insufficient or inconclusive medical and scientific evidence to evaluate the therapeutic value of the service, procedure, or supply.
- ~~3-~~ There is inconclusive medical and scientific evidence in peer-reviewed medical literature that the service, procedure, or supply has a beneficial effect on health outcomes.

- 4-The service, procedure, or supply under consideration is not as beneficial as any established alternatives.
- 5-There is insufficient information or inconclusive scientific evidence that, when used in a non-investigational setting, the service, procedure, or supply has a beneficial effect on health outcomes or is as beneficial as any established alternatives.

Experimental and investigational services include the use of a service, procedure, or supply that is not recognized as standard clinical care for the condition, disease, illness, or injury being treated. A service, procedure, or supply includes, but is not limited to the diagnostic service, treatment, facility, equipment, or device. This organization will determine whether a service, procedure, or supply is considered experimental and investigational.

The following is a partial listing of experimental and investigational services:

- Advanced BioStructural Correction (ABC)
- Alphabiotics
- Applied Kinesiology or any of its derivations ([Kelso JM 2018](#))
- Applied Spinal Biomechanical Engineering
- BioEnergetic Synchronization Technique (B.E.S.T) ([Chiropractic Services AHM 2016](#))
- Chiropractic Biophysics (CBP, Clinical Biomechanics of Posture, CBP Mirror Image Technique)
- Coccygeal Meningeal Stress Fixation
- Cold Laser Therapy
- Computerized muscle testing or analysis
- Craniosacral Therapy (CST) ([Brough N et al 2015](#))
- Directional Non-force Technique
- Hako-Med electrotherapy (horizontal electrotherapy)
- Hippotherapy ([Hilgers et al 2018](#))
- Impulse adjusting instrument
- Intersegmental traction and Autotraction
- Kinesio taping (Elastic Therapeutic Taping)
- Live Cell Analysis or hair analysis ([Kintz P et al 2015](#),)([Nketia T et al 2017](#))
- Manipulation under Anesthesia (MUA) ([DiGiorgi D et al 2018](#),)([Kraal T, et al 2017](#)) ([Kohlbeck FJ, halderman S 2002](#))
- Moire Contourographic Analysis ([Spector 1979](#))
- Nambudripad's Allergy Elimination Technique (NAET)/ other Allergy Testing ([Nambudripad 2002](#))
- National Upper Cervical Chiropractic Association (NUCCA technique) ([Woodfield III HC-2015](#)) / Grostic technique
- Network Chiropractic, NeuroEmotional Technique (NET)
- Neurocalometer, Nervoscope, Nerve Conduction Velocity, Surface EMG ([Audag N et al 2016](#)), Paraspinal Electromyography ([Meyer JJ-1994](#)), Spinoscopy or other nerve conduction testing for non-specific neck and back pain ([Albeck 2000](#)). ([Levinson DR 2014](#))
- Neural Organizational Technique, Contact Reflex Analysis (CRA) ([Jensen AM 2015](#)), Whole System Scan
- Nimmo Receptor-Tonus method

- Pettibon, including, but not limited to wobble chair/board treatment and posture pump ([Morningstar M 2002](#), [Morningstar 2004](#), ~~([Morningstar M 2006](#),)~~ ([Morningstar M, Strauchman MN 2007](#)) (~~Morningstar MW, Strauchman MN, Gilmour G 2004~~)
- Preventive Care, Maintenance Care, Corrective Care
- Pro-Adjuster
- Sacro Occipital Technique, Neurocranial Restructuring (NCR) ([Davis GE, Murphy MP, Weymuller EA 2003](#)), Cranial Manipulation
- Sound Assisted Soft Tissue mobilization
- Spinal Diagnostic Ultrasound ([Heidari P 2015](#))
- Chiropractic services directed at controlling progression and/or reducing scoliosis, including but not limited to the SpineCor brace ([Rozek K et al 2016](#)) and CLEAR scoliosis treatment
- Repeat imaging to determine the progress of conservative treatment
- Thermography ([Neves EB et al 2015](#)) ([Neurology 1990](#))
- Upledger Technique
- Vascular Studies, including, but not limited to, Doppler ultrasound analysis and plethysmography
- VAX-D ([Oh HJ et al 2017](#)) (~~Kotb HA et al 2018~~), Lordex, LTX3000, DRX-9000, DRS (Decompression Reduction Stabilization System), or other back traction devices charged at a higher rate than mechanical traction (97012)
- Whole Body Vibration (WBV), Vibration Plate, Vibration Therapy
- Any lab work for which the office is not CLIA Certified or falls outside of the scope of practice, including, but not limited to: drug testing, therapeutic drug assays, and organ or disease oriented panels
- Treatment for brachioradial pruritis
- [Dry Needling \(Liu et al 2018\)](#)
- [Cupping \(Niu JF et al 2018\)](#)

Professional societies have published position statements concluding that diagnostic spinal ultrasound is investigational for non-operative spinal and paraspinal conditions in adults. The 2014 policy statement of the American Institute of Ultrasound in Medicine indicates: “There is insufficient evidence in the peer-reviewed medical literature establishing the value of non-operative spinal/paraspinal ultrasound in adults (for study of intervertebral discs, facet joint and capsules, central nerves and fascial edema, and other subtle paraspinal abnormalities) for screening, diagnostic evaluation, including pain or radiculopathy syndromes, and for monitoring of therapy has no proven clinical utility.”

There is insufficient peer-reviewed published scientific evidence that computerized muscle testing leads to better patient outcomes. There is insufficient evidence to support any specific therapeutic effect of craniosacral therapy. While there is emerging evidence for the effectiveness of whole body vibration in treating some medical conditions, the evidence for whole body vibration as a treatment for [low back pain \(LBP\)](#) remains equivocal.

A 2015 systematic review found that that low level laser therapy is an effective method for relieving pain in non-specific chronic low back pain patients. However, no significant treatment effect was identified for disability scores or spinal range of motion outcomes. Yelden and colleagues concluded that there is no fundamental difference between LLLT and placebo LLLT when they are supplementing an exercise program for rehabilitation of patients with shoulder impingement syndrome (Yelden, 2009). Ay and colleagues found no differences between laser and placebo laser treatments on pain severity and

functional capacity in patients with acute and chronic low back pain caused by lumbar disc herniation (Ay₇ 2010). The Blue Cross and Blue Shield Association Technology Evaluation Center (2010) concluded that LLLT for either carpal tunnel syndrome or for chronic neck pain does not meet the Blue Cross and Blue Shield Association Technology Evaluation Center (TEC) criteria. Furthermore, the Work Loss Data Institute's clinical practice guideline on "Carpal tunnel syndrome" (2011) does not recommend LLLT as a therapeutic option. The effectiveness of LLLT in reducing acute and chronic neck pain was examined in 2013. The authors concluded that this systematic review provided inconclusive evidence because of significant between-study heterogeneity and potential risk of bias. They stated that the benefit seen in the use of LLLT, although statistically significant, does not constitute the threshold of minimally important clinical difference (Kadhim-Saleh₇ 2013). The best available current evidence does not support the effectiveness of low level laser therapy as a therapy for patients with knee osteoarthritis (Huang₇ 2015).

There is insufficient evidence to support the clinical value of the Pettibon System. Posture Pump is deemed experimental and investigational because the effectiveness of this device has not been proven by adequate scientific studies, published in peer-reviewed scientific journals. There is insufficient evidence to support the clinical value of the Therapeutic (Wobble) Chair/Board.

The appropriateness and effectiveness of chiropractic manipulation as a preventive or maintenance therapy has not been established by clinical research and is not covered.

Thermography has not been shown to provide sufficient reliable characterizing information about neurologic dysfunction or deficit to accept it as a proven evaluative procedure for the clinical diagnosis or characterization of: neck or back pain; musculoskeletal pain; entrapment neuropathy; headache; or transient cerebral ischemia and stroke.

High-density surface electromyography (HD-sEMG), surface scanning EMG, paraspinal surface EMG, or macro EMG are considered experimental and investigational as a diagnostic test for evaluating low back pain or other thoracolumbar segmental abnormalities, such as soft tissue injury, intervertebral disc disease, nerve root irritation and scoliosis, and for all other indications because the reliability and validity of these tests have not been established. Surface EMG devices are also experimental and investigational for diagnosis and/or monitoring of nocturnal bruxism and all other indications because the reliability and validity of these tests have not been demonstrated. The Neurophysiologic Pain Profile (NPP) and the spine matrix scan (lumbar matrix scan) are considered experimental and investigational because the reliability and validity of these tests has not been established.

There is insufficient evidence to conclude that nerve conduction studies are beneficial for health outcomes in patients with non-specific neck or back pain. Non-invasive automatic or portable nerve conduction monitoring systems that test only distal motor latencies and conduction velocities are unproven and not medically necessary for the purpose of electrodiagnostic testing.

Plethysmography is used to diagnose deep vein thrombosis and arterial occlusive disease. Plethysmography is used as the sole diagnostic modality for these conditions or as an initial evaluation to determine the need for venography or arteriography. Body Plethysmography evaluates total lung capacity and residual volume. Since treatment of cardiovascular and lung conditions falls outside of the scope of chiropractic, patients should be referred for testing if these conditions are suspected.

Procedure

1. Guidelines

- a. If such services are to be provided, the practitioner will inform the member, in writing, that such services will be the member's responsibility. None of these services are to be performed in lieu of an appropriate examination or without consideration of an appropriate referral.
- b. There is limited scientific evidence that the use of experimental, investigational and unproven services provides an improved or more accurate diagnosis, nor do they result in an improved clinical outcome.
- c. Scientific literature will continue to be reviewed and any significant changes in published literature will be taken into consideration for modification of this policy.

2. Exclusions/Limitations (not limited to)

Refer to enrollee's Certificate of Coverage or Summary Plan Description.

3. Removal of a service from the Experimental and Investigations Policy

At least annually, a review of the current literature will be evaluated to determine if there is additional research in support of any of the services listed under this policy.

This evaluation will include the following criteria:

- Safety – Is the potential benefit superior to the potential harm?
- Health Outcomes – Is there evidence the service will provide, at minimum, equal outcomes and at best, superior outcomes to currently available services?
- Patient Management – Will the service improve clinical decision making?
- Clinical Performance – Is the reliability as well as predictive value of the service equal or superior to the current "gold standard" for such services?
- Cost-effectiveness – Is the service equal to or lower cost than currently utilized services for similar diagnosis and treatment?

All criteria will be based on peer-reviewed scientific literature and internationally and nationally accepted and published guidelines. Peer-reviewed scientific studies must be published in or accepted for publication by medical journals meeting national requirements for scientific publication (<http://www.icmje.org>). The medical literature must meet the National Institutes of Health Library of Medicine for indexing (<http://www.nlm.nih.gov>). Medical journals that publish most of their scientific manuscripts by the editorial staff of a journal will not be considered for review. If the majority of funding for research is published by the device manufacturer or organization sponsoring a technique the results will not be considered for review.

If the service appears to be safe and cost-effective, this organization will present these results to our health plan partners for consideration of coverage and/or payment. Final authority for such coverage determinations rests with the health plan.

POLICY HISTORY:

Review Date: [7/17/2019](#)

Review Summary:

- [-Older references updated or omitted as appropriate.](#)

REFERENCES

Aetna. *Clinical Policy Bulletin No. 363: Cold laser therapy*. Hartford, CT: *Aetna Inc.*; May 30, 2017. Retrieved January 18, 2018.

Aetna. *Clinical Policy Bulletin No. 569: Lumbar traction devices*. Hartford, CT: *Aetna Inc.*; August 8, 2017. Retrieved January 18, 2018.

Aetna. *Clinical Policy Bulletin No. 204: Manipulation under anesthesia*. Hartford, CT: *Aetna Inc.*; May 18, 2017. Retrieved January 18, 2018.

Aetna. *Clinical Policy Bulletin No. 29: Thermography*. Hartford, CT: *Aetna Inc.*; March 3, 2017. Retrieved January 18, 2018.

Aetna. *Clinical Policy Bulletin No. 180: Vertebral axial decompression therapy*. Hartford, CT: *Aetna Inc.*; May 18, 2017. Retrieved January 18, 2018.

Aetna. *Clinical Policy Bulletin No. 0628: Spinal ultrasound*. Hartford, CT: *Aetna Inc.*; August 26, 2017. Retrieved January 18, 2018.

Albeck MJ, Taher G, Lauritzen M, et al. Diagnostic value of electrophysiological tests in patients with sciatica. *Acta Neurol Scand*. April 2000; 101(4):249-254.

~~[American Academy of Neurology. Review of the literature on spinal ultrasound for the evaluation of back pain and radicular disorders. *Neurology*. 1998; 51:343-344.](#)~~

American Chiropractic College of Radiology (ACCR). Policy statement: Diagnostic ultrasound of the adult spine. *American Chiropractic College of Radiology (ACCR)*. 1996. Retrieved January 18, 2018.

American College of Radiology (ACR). ACR Bulletin: Ultrasound - not effective in diagnosing spinal injuries. *American College of Radiology (ACR)*. February, 1996. Retrieved January 18, 2018.

American Institute of Ultrasound in Medicine (AIUM). Official Statement: Nonoperative spinal/paraspinal ultrasound in adults. *American Institute of Ultrasound in Medicine (AIUM)*. Available at <http://www.aium.org/officialStatements/18>. Published April 6, 2009. Updated April 2, 2014. Retrieved April 9, 2018.

American Institute of Ultrasound in Medicine (AIUM). Official Statement: Diagnostic spinal ultrasound. *American Institute of Ultrasound in Medicine (AIUM)*. October, 1995. Retrieved January 18, 2018.

American Institute of Ultrasound in Medicine (AIUM). Official Statement: Non-operative spinal/paraspinal ultrasound in adults. *American Institute of Ultrasound in Medicine (AIUM)*. April 2, 2014. Retrieved January 18, 2018.

American Institute for Ultrasound in Medicine (AIUM). Official Statement: Training guidelines for physicians, chiropractors and other licensed medical providers who evaluated and interpret diagnostic musculoskeletal ultrasound examination. *American Institute for Ultrasound in Medicine (AIUM)*.

Published November 4, 2017. Available at <http://www.aium.org/officialStatements/51>. ~~Published November 4, 2017.~~ Retrieved April 9, 2018.

~~Anrig CA. Spinal examination and specific spinal and pelvic adjustments. In Anrig CA, Plaughter G, eds. *Pediatric Chiropractic*. Baltimore, MD: Williams and Wilkins; 1998;323-423.~~

~~Audag N, Goubau C, Toussaint M, Reychler-Get al. Screening and evaluation tools of dysphagia in children with neuromuscular diseases: a systematic review. *Dev Med Child Neurol*. 2017;59(6):591-596 Dec 2016.~~

~~Aspegren DD, Wright RE, Hemler DE. Manipulation under epidural anesthesia with corticosteroid injection: two case reports. *J Manip Physiol Ther*. 1997; 20(9):618-621.~~

~~Barker WF, Gambale AG, Jackson BL. Reliability of the upper cervical x-ray marking system: A replication study. *Chiropr*. 1988; 1:10-13.~~

~~Barrett S. Commercial hair analysis: science or scam? *JAMA*. 1974; 229:1908-1909.~~

~~Barry MS, Brandt JR, Christensen KD, et al. Facts and fallacies of diagnostic ultrasound of the adult spine. *Dynamic Chiropr*. 1996; 14(9):30.~~

~~Basford JR, Sheffield CG, Harmsen WS. Laser therapy: a randomized, controlled trial of the effects of low level intensity Nd:YAG laser irradiation on musculoskeletal back pain. *Arch Phys Med Rehabil*. 1999; 80(6):647-652.~~

~~Ben-David R, Raboy M. Manipulation under anesthesia combined with epidural steroid injection. *J Manip Physiol Ther*. 1994; 17(9):605-609.~~

~~Bendix T, Biering-Sorensen F. Posture of the trunk when sitting on forward inclining seats. *Scand J Rehabil Med*. 1983; 15:1531-1535.~~

~~Bertoti, DB. Effect of therapeutic horseback riding on posture in children with cerebral palsy. *Phys Ther*. 1988; 68:1505-1512.~~

~~Black KM, McClure P, Polansky M. The influence of different sitting positions on cervical and lumbar posture. *Spine*. 1996; 21:65-70.~~

~~Blomberg S, Svardsudd K, Tibblin G. A randomized study of manual therapy with steroid injections in low-back pain. Telephone interview follow-up of pain, disability, recovery and drug consumption. *Eur Spine J*. 1994; 3(5):246-254.~~

~~Blomberg S, Tibblin G. A controlled, multicentre trial of manual therapy with steroid injections in low-back pain: Functional variables, side effects and complications during four months follow-up. *Clin Rehabil*. 1993; 7(1):49-62.~~

[Brough N, Lindenmeyer A, Thistlethwaite J, Lewith G, Stewart-Brown S. et al. Perspectives on the effects and mechanisms of craniosacral therapy: A qualitative study of users' views. *European Journal of Integrative Medicine*. 2015;7\(2\), 172-183. *European Journal of Integrative medicine* April 2015.](#)

[Bryner P, Cowin R. Hearing loss, otalgia and neck pain: A case report on long-term chiropractic care that helped to improve quality of life. *Chiropr J Aust*. 2002; 32:119-130.](#)

[Centers for Medicare and Medicaid Services \(CMS\). *Sensory Nerve Conduction Threshold Testing; Notice*, 68 Federal Register 143, July 25, 2003.](#)

[Active Health Management. *Chiropractic services. AHM Active Health Management. ACA 2016. Activehealth.com* Available at <https://www.activehealth.com/content/2018/10/Chiropractic-Services-AHM-1.pdf> Retrieved August 4, 2019.](#)

[Cigna. Medical Coverage Policy: Spinal Ultrasound No. 0246. *Cigna*. Available at \[https://cignaforhcp.cigna.com/public/content/pdf/coveragePolicies/medical/mm_0246_coveragepositioncriteria_spine_ultrasound.pdf\]\(https://cignaforhcp.cigna.com/public/content/pdf/coveragePolicies/medical/mm_0246_coveragepositioncriteria_spine_ultrasound.pdf\). Retrieved January 18, 2018.](#)

[Cigna. Medical Coverage Policy: Mechanical Devices for the Treatment of Back Pain No. 0140. *Cigna*. Available at \[https://cignaforhcp.cigna.com/public/content/pdf/coveragePolicies/medical/mm_0140_coveragepositioncriteria_noninvasive_treatment_of_back_pain.pdf\]\(https://cignaforhcp.cigna.com/public/content/pdf/coveragePolicies/medical/mm_0140_coveragepositioncriteria_noninvasive_treatment_of_back_pain.pdf\). Retrieved January 18, 2018.](#)

[Clarke, J A, Widyahening IS, van Tulder MW, et al. Traction for low-back pain with or without sciatica. *Cochrane Database Syst Rev*. 2007;\(2\): CD003010.](#)

[Colloca CJ, Keller TS. Electromyographic reflex responses to mechanical force manually assisted spinal manipulative therapy. *Spine*. 2001; 26\(10\):1117-1124.](#)

[Cotchett MP, Munteanu SE, Landorf KB. Effectiveness of trigger point dry needling for plantar heel pain: A randomized controlled trial. *Ph-ys Ther*. 2014;94\(8\):1083-94 \[Published online ahead of print April 3, 2014\]. *Phys Ther*. August 2014. <http://ptjournalapta.org/content/early/2014/06/11/ptj.20130255>.](#)

[Davis GE, Murphy MP, Yueh B, et al. A complication from neurocranial restructuring: nasal septum fracture. *Arch Otolaryn Head Neck Surg*. 2003; 129:472-474.](#)

[Debusse D, Chandler C, Gibb C. An exploration of German and British physiotherapists' views on the effects of hippotherapy and their measurement. *Physiother Theory Pract*. 2005; 21\(4\):219-242.](#)

[De Koning CH, Van den Heuvel SP, Staal JB, et al. Clinimetric evaluation of methods to measure muscle functioning in patients with non-specific neck pain: A systematic review. *BMC Musculoskelet Disord*. 2008; 9:142.](#)

[DiGiorgi D, Cerf JL, Bowerman DS. Outcomes, indicators, and a risk classification system for spinal manipulation under anesthesia: a narrative review and proposal. *Chiropractic & Manual Therapies*. 2018; Vol 26\(-\), article 9 \(2018\).](#)

Ernst E. Craniosacral therapy: a systematic review of the clinical evidence. *Focus on Altern Comp Ther.* 2012; 17(4):197-201.

~~Furlan AD, van Tulder M, Cherkin D, et al. Acupuncture and dry-needling for low back pain: an updated systematic review with the framework of the Cochrane Collaboration. *Spine.* 2005; 30:944-963.~~

Gammon SR, Mehlman CT, Chan W, et al. A comparison of thoracolumbosacral orthoses and SpineCor treatment of adolescent idiopathic scoliosis patients using the Scoliosis Research Society standardized criteria. *J Pediatr Orthop.* September 2010; 30(6):531-538.

~~Gose EE, Naguszewski WK. Vertebral axial decompression therapy for pain associated with herniated or degenerated discs or facet syndrome. *J Neuro Res.* 1998; 20:186-190.~~

~~Green C, Martin CW, Bassett K, et al. A systematic review of craniosacral therapy: biological plausibility, assessment reliability and clinical effectiveness. *Complement Ther Med.* 1999; 7(4):201-207.~~

~~Greenman PE. Manipulation with patient under anesthesia. *J Am Osteopath Assoc.* 1992; 92:1159-1170.~~

~~Gruther W, Wick F, Paul B, et al. Diagnostic accuracy and reliability of muscle strength and endurance measurements in patients with chronic low back pain. *J Rehabil Med.* 2009; 41(8):613-619.~~

~~Gur A, Karakoc M, Cevik R, et al. Efficacy of low power laser therapy and exercise on pain and functions in chronic low back pain. *Lasers Surg Med.* 2003; 32(3):233-238.~~

Gutman, G, Benoit M, Joncas J, et al. The effectiveness of the SpineCor brace for the conservative treatment of adolescent idiopathic scoliosis. Comparison with the Boston brace. *Spine J.* May 2016; 16(5):626-631. doi: <https://doi.org/10.1016/j.spinee.2016.01.020>.

Haldeman S, Chapman-Smith D, Petersen DM Jr. Guidelines for Chiropractic Quality Assurance and Practice Parameters. In: *Proceedings of the Mercy Center Consensus Conference.* Gaithersburg, MD: Aspen Publishers, Inc.; 1993.

~~Harrison DE, Harrison DD, Troyanovich SJ. The sacroiliac joint: A review of anatomy and biomechanics with clinical implications. *J Manip Physiol Ther.* 1997; 20:607-617.~~

~~Hartman SE, Norton JM. Interexaminer reliability and cranial osteopathy. *Scientific Review of Alternative Medicine.* 2002; 6(1):23-34.~~

~~Hawk C, Rupert R, Colonvega M, et al. Comparison of bioenergetic synchronization technique and customary chiropractic care for older adults with chronic musculoskeletal pain. *J Manip Physiol Ther.* 2005; 29(7):540-549.~~

Hazell TJ, Olver TD, Hamilton CD, et al. Addition of synchronous whole-body vibration to body mass resistive exercise causes little or no effects on muscle damage and/or inflammation. *J Strength Cond Res.* 2014;28(1):53-60.
J Strength Cond Res. April 23, 2013.

[Heidari P, Farahbakhsh F, Rostami M, Noormohammadpour P, Kordi Ret al. The Role of Ultrasound in Diagnosis of the Causes of Low Back Pain: A Review of the Literature. *Asian J Sports Med.* 2015;6\(1\):e23803. Asian J Sports Med 2015 March, 6.](#)

~~Herzog J. Use of cervical spine manipulation under anesthesia for management of cervical disk herniation, cervical radiculopathy, and associated cervicogenic headache syndrome. *J Manip Physiol Ther.* 1999; 22(3):166-170.~~

[Hilgers M, Nielsen H. The Efficacy of Hippotherapy for Physical Rehabilitation: A Systematic Review. \(2018\). Occupational Therapy Capstones. 387. <https://commons/und/edu/ot-grad/387>](#)

Hochman JI. Pierce and Pettibon combine their systems. *Todays Chiropr.* 1991; 20:84.

Ireland TV, Pettibon BR, Morningstar MW, et al. Reflex control of the spine and posture: a review of the literature from a chiropractic perspective. *Chiropr & Osteopat.* 2005; 13:34.

[Jäkel A, von Hauenschild P. A systematic review to evaluate the clinical benefits of craniosacral therapy. *Complement Ther Med.* December 2012; 20\(6\):456-465.](#)

[Jensen, Anne M. Estimating the prevalence of use of kinesiology-style manual muscle testing: A survey of educators. *Advances in Integrative Medicine.* 2015; 2\(2\): 96-102.-](#)

~~Kenny JJ, Clemens R, Forsythe KD. Applied kinesiology unreliable for assessing nutrient status. *J Am Dietetic Assoc.* 1988; 88:698-704.~~

[Kelso JM. Unproven diagnostic tests for adverse reactions to foods. *The journal of allergy and clinical immunology: in practice.* March-April 2018.](#)

Kietrys DM, Kerstin KM, Azzaretto E, et al. Effectiveness of dry needling for upper-quarter myofascial pain: A systematic review and meta-analysis. *J Orthop Sports Phys Ther.* 2013; 43:620-634.

[Kintz P, Russell E, Baber M, Pichini S. Clinical applications of hair analysis. In: *Hair analysis in clinical and forensic toxicology.* 2015: 141-159.-](#)

~~Kivmaki J, Pohjolainen T, Malmaivaara A, et al. Manipulation under anesthesia with home exercises versus home exercises alone in the treatment of frozen shoulder. A randomized controlled trial with 125 patients. *J Shoulder Elbow Surg.* 2007; 16(6):722-726.~~

~~Klevay LM, Bistrain BR, Fleming CR et al. Hair analysis in clinical and experimental medicine. *Am J Clin Nutrition.* 1987; 46:233-236.~~

~~Kohlbeck FJ, Haldeman S. Medication-assisted spinal manipulation. *Spine.* 2002; 2(4):288-302.~~

[Kraal T, The B, Boer R, van den Borne MP, Koenraadt K, Goossens P, Eygendaal Det al. Manipulation under anesthesia versus physiotherapy treatment in stage two of a frozen shoulder: a study protocol for a randomized controlled trial. *BMC Musculoskeletal Disorders.* 2017;18: 412.18.2017-](#)

Klougart N, Leboeuf Yde C, Rasmussen LR. Safety in chiropractic practice. Part II: Treatment to the upper neck and the rate of cerebrovascular incidents. *J Manip Physiol Ther.* 1996; 19(9):563-569.

Labarre-Vila A. Surface electromyography procedure. *Rev Med Liege.* 2004; 59:176-83.

Kotb HA, Effat DA, Awad MR, Derbala SH. CT guided transforaminal epidural steroid injection and vertebral axial decompression in management of acute lumbar disc herniation. *The Egyptian Rheumatologist.* Jan 2018.

Lam FM, Lau RW, Chung RC, et al. The effect of whole body vibration on balance, mobility and falls in older adults: a systematic review and meta-analysis. *Maturitas.* July 2012; 72(3):206-213.

Levinson DF. Questionable Billing for Medicare Electrodiagnostic Tests. *Department of Health and Human Services, Offices of the Inspector General.* April 2014. Available at <https://oig.hhs.gov/oei/reports/oei-04-12-00420.pdf> Accessed July 30, 2019

Lindberg J, Carlsson J. The effects of whole-body vibration training on gait and walking ability - a systematic review comparing two quality indexes. [~~Published online ahead of print January 3, 2012~~]. *Physiother Theory Pract.* ~~October~~ 2012; 28(7):485-498. doi: 10.3109/09593985.2011.641670.

Liu L, Huang QM, Liu QG, Thitham N, Li LH, Ma YT, Zhao JM et al. Evidence for Dry Needling in the Management of Myofascial Trigger Points Associated with Low Back Pain: A Systematic Review and Meta-Analysis. *Arch Phys Med Rehabil.* 2015;96(5):944-55. ~~Archives of Physical Medicine and Rehabilitation.~~ January 2018.

Ljunggren AE, Weber H, Larsen S. Autotractor versus manual traction in patients with prolapsed lumbar intervertebral discs. *Scand J Rehabil Med.* 1984; 16(3):117-124.

Lowell JA. Live cell analysis. *Nutrition Forum.* 1986; 3:81-85.

Merx JL, Thijssen HO. Accuracy of ultrasonic evaluation of lumbar intervertebral discs by an anterior approach. *Neuroradiology.* 1989; 31:386-390.

Meyer JJ. The validity of thoracolumbar paraspinal scanning EMG as a diagnostic test: an examination of the current literature. *J Manip Physiol Ther.* 1994; 17(8):539-551.

Mohseni Bandpei, Rahmani N, Majdoleslam B, et al. Reliability of surface electromyography in the assessment of paraspinal muscle fatigue: an updated systematic review. *J Man Physiol Ther.* ~~September~~ 2014; 37(7):510-521.

Monteforte P, Baratto L, Molfetta L, et al. Low-power laser in osteoarthritis of the cervical spine. *Int J Tissue React.* 2003; 25(4):131-136.

Morningstar MW. Cervical curve restoration and forward head posture reduction for the treatment of mechanical thoracic pain using the Pettibon corrective and rehabilitative procedures. *J Chiropr Med.* 2002; 1:113-115.

Morningstar MW. Improvement of lower extremity electrodiagnostic findings following a trial of spinal manipulation and motion-based therapy. *Chiropr Osteopat.* 2006; 14:6.

Morningstar MW. Integrative treatment using chiropractic and conventional techniques for adolescent idiopathic scoliosis: outcomes in four patients. *J Vert Sublux Res.* 2007; 9:1-7.

Morningstar MW, Joy T. Scoliosis treatment using spinal manipulation and the Pettibon weighting system tm: a summary of 3 atypical presentations [case report]. *Chiropr Osteopat.* 2006; 14:1-18.

Morningstar MW, Strauchman MN. Adolescent idiopathic scoliosis treatment using the Pettibon corrective procedures: a case report [letter]. *J Chiropr Med.* 2007; 6:83-84.

Morningstar MW, Strauchman MN, Gilmour G. Adolescent idiopathic scoliosis treatment using Pettibon corrective procedures: A case report. *J Chiropr Med.* 2004; 3:96-103.

Nambudripad DS. *Say Goodbye to Illness.* Buena Park, CA. Delta Publishing Co. ~~1993~~2002. (~~3rd~~ ~~and most recent~~ edition)

Negrini S, Minozzi S, Bettany-Saltikov J, et al. Braces for idiopathic scoliosis in adolescents. *Spine.* 2010; 35(13):1285-1293.

Neves EB, Vilaça-Alves J, Rosa C, et al. Thermography in neurologic practice. *Neurol J.* 2015; 9:24–27.

[Niu JF, Zhao XF, Hu HT, Wang JJ, Liu YL, Lu DH et al. Should acupuncture, biofeedback, massage, Qi gong, relaxation therapy, device-guided breathing, yoga and tai-chi be used to reduce blood pressure?: Recommendations based on high-quality systematic reviews. *Complement Ther Med.* 2019;42:322-331. 2018.](#)

[Nketia T, Sailem H, Rohde G, Machiraju R, Rittscher J et al. Analysis of live cell images: Methods, tools and opportunities. *Methods.* 2017;115:65-79. Feb 2017.](#)

Nofsinger C, Konin JG. Diagnostic ultrasound in sports medicine. Current concepts and advances. *Sports Med Arthrosc Rev.* 2009; 17:25-30.

[Oh HJ, Jeon CB, Jeong MG, Choi S et al. The Effects of Spinal Decompression Therapy on Pain and Disability in Patients with Chronic Low Back Pain. *J Kor Phys Ther.* 2017; 29\(6\): 299-302.](#)

Parreira PC, Costa LC, Hespanhol LC Jr, et al. Current evidence does not support the use of kinesio taping in clinical practice: a systematic review. *J Physiother.* 2014; 60(1):31–39.

Perraton L, Machotka Z, Kumar S. Whole-body vibration to treat low back pain: fact or fad? *Physiother Can.* Winter 2011; 63(1):88-93.

Pettibon B. Educating the insurance companies. *Today's Chiropr.* 1989; 18:74-75.

Pettibon BR. An introduction to spinal biomechanics. *Today's Chiropr.* 1993; 22:22-26.

[Rozek K, Potaczek T, Zarzycka M, Lipik E, Jasiewicz B et al. Effectiveness of treatment of idiopathic scoliosis by SpineCor Dynamic Bracing with Special Physiotherapy Programme in SpineCor System. *Spine J.* 2016;16\(5\):626-31. 2016.](#)

Plaugher G. Skin temperature assessment for neuromusculoskeletal abnormalities of the spinal column. *J Manip Physiol Ther.* 1992; 15(6):365-381.

Pullman SL, Goodin DS, Marquinez AI, et al. Clinical utility of surface EMG: report of the therapeutics and technology assessment subcommittee of the American Academy of Neurology. *Neurology.* 2000; 55:171-77.

Ramos G, Martin W. Effects of vertebral axial decompression on intradiscal pressure. *J Neurosurg.* 1994; 81:35-353.

Schuster TL, Dobson M, Jauregui M, et al. Wellness lifestyles II: modeling the dynamic of wellness, health lifestyle practices and network spinal analysis. *J Altern Comp Med.* 2004; 10(2):357-367.

Seferlis T, Nemeth G, Carlsson AM, et al. Conservative treatment in patients sick listed for acute low-back pain: A prospective randomised study with 12 months' follow up. *Eur Spine J.* 1998; 7(6):461-470.

Seidel S, Kreutzer R, Smith D, et al. Assessment of commercial laboratories performing hair mineral analysis. *JAMA.* 2001; 285:67-72.

Silkwood-Scherer D, Killian C, Long TM, et al. Hippotherapy-an intervention to habilitate balance deficits in children with movement disorders. *Phys Ther.* 2012; 92(5):707-717.

Sitja RM, Rigau CD, Fort VA, et al. Whole-body vibration training for patients with neurodegenerative disease. *Cochrane Database Syst Rev.* February 15, 2012; (2): CD009097. doi: 10.1002/14651858.CD009097.

Snider L, Korner Bitensky N, Kammann C, et al. Horseback riding as therapy for children with cerebral palsy: Is there evidence of its effectiveness? *Phys Occup Ther Pediatr.* 2007; 27(2):5-23.

Spector B. *Manual of Procedures for Moire Contourography.* Old Brookville, NY: New York Chiropractic College; 1979.

Staeble HJ, Koch MJ, Pioch T. Double-blind study on materials testing with applied kinesiology. *J Dent Res.* 2005; 84(11):1066-1069.

Sterba JA. Does horseback riding therapy or therapist-directed hippotherapy rehabilitate children with cerebral palsy? *Dev Med Child Neurol.* 2007; 49(1):68-73.

Tesio L, Merlo A. Autotrraction versus passive traction: an open controlled study in lumbar disc herniation. *Arch Phys Med Rehabil.* 1993; 74(8):871-876.

Tilaro F. An overview of vertebral axial compression. *Can J Clin Med.* 1998; 5:1-7.

Tough EA, White AR. Effectiveness of acupuncture/dry needling for myofascial trigger point pain. *Phys Ther Rev.* 2011; 2:147-154.

Troyanovich SJ. Motion palpation it's time to accept the evidence. *J Manip Physiol Ther.* 1998; 21:568-571.

Tullberg T, Svanborg E, Isaccsson J, et al. A preoperative and postoperative study of the accuracy and value of electrodiagnosis in patients with lumbosacral disc herniation. *Spine.* 1993; 18(7):837-842.

UnitedHealthcare (UHC). *UHC Medical Policy: Spinal Ultrasonography No. 2018TO462N.* Available at: <https://www.uhcprovider.com/content/provider/en/viewer.html?file=https%3A%2F%2Fwww.uhcprovider.com%2Fcontent%2Fdam%2Fprovider%2Fdocs%2Fpublic%2Fpolicies%2Fcomm-medical-drug%2Fspinal-ultrasonography.pdf>. Retrieved April 9, 2018.

Van den Noort S, Caplan L, Dyck P, et al. Assessment: Thermography in neurologic practice. *Neurology.* 1990; 40:523-525.

VAX-D: No evidence from controlled trials to support claims of efficacy. *The Back Letter.* Lippincott Williams & Wilkins; 1998; 13(9):97-105.

Versendaal DA. *Contact Reflex Analysis and Designed Clinical Nutrition: A Healing Art.* Jenison, MI: Hoezee Marketing. 1993.

Wegner I, Widyahening IS, et al. Traction for low back pain with or without sciatica. *Cochrane Database Syst Rev.* August 19, 2013; (8): CD003010. doi: 10.1002/14651858.CD003010.pub5.

Weiss HR. SpineCor vs. natural history—explanation of the results obtained using a simple biomechanical model. *Stud Health Technol Inform.* 2008; 140:133-136.

Wong MS, Cheng JC, Lam TP, et al. The effect of rigid versus flexible spinal orthosis on the clinical efficacy and acceptance of the patients with adolescent idiopathic scoliosis. *Spine.* 2008; 33(12):1360-1365.

Woodfield III HC, York C, Rochester RP, Baet alles S, Beebe M, Salminen B, Scholten JN. Craniocervical chiropractic procedures- a precis of upper cervical chiropractic. *J Can Chiropr Assoc.* 2015; 59(2): 173-192. J-Can Chiropr Assoc. 2015 Jun.

Williams S, Whatman C, Hume PA, et al. Kinesio taping in treatment and prevention of sports injuries: A meta-analysis of the evidence for its effectiveness. *Sports Med.* 2012; 42(2):153-64.

Zazarian LN, Zegel HG, Gilbert KR, et al. Paraspinal ultrasonography: lack of accuracy in evaluating patients with cervical or lumbar back pain. *J Ultrasound Med.* 1998; 17:117-122.

Reviewed / Approved by  Patrick Browning, VP, Medical Director

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