PUBLICATIONS ON COX® TECHNIC and CHIROPRACTIC CARE OUTCOMES
by Cox and Colleagues
as of 6/29/2022
(This list is not inclusive of all articles ever published. It is a close attempt.)

Categorized by

The most current list is also available at* http://www.coxtechnic.com/doctors/list-of-articles*.

Peer Reviewed Journals

1. Cox JM: Pedicogenic stenosis: its manipulative implications. Journal of Manipulative and Physiological Therapeutics (March 1979)

2. Cox JM, Fromelt KA, Shreiner S: Chiropractic statistical survey of 100 consecutive low back pain patients. Journal of Manipulative and Physiological Therapeutics 6(3): 117-128 (September 1983)
   One hundred consecutive patients with low back and/or lower extremity pain had the clinical data, including history, diagnosis, treatment and results of conservative manipulative therapy, collected and tabulated on an IBM 370/138 computer at Indiana-Purdue University in Fort Wayne, Indiana, utilizing the Statistical Package for the Social Sciences (SPSS) based on a standardized examination form. Various congenital, developmental and ergonomic factors in low back pain patients were collected and correlated for combinations of factors leading to back pain. Treatment methods and response to treatment as to time and patient visit numbers were determined. The frequency of congenital anomalies was found and those affecting or not effecting low back pain onset determined. Overall, 50% relief of low back and leg pain was obtained in 15.95 days and 10.8 visits average; maximum relief was found in 41.2 days, or 16.1 treatments.

3. Cox JM, Shreiner S: Chiropractic manipulation in low back pain and sciatica: statistical data on the diagnosis, treatment, and response of 576 consecutive cases. Journal of Manipulative and Physiological Therapeutics 7(1): 1-11 (March 1984)
   A chiropractic multi-center observational pilot study to compile statistics on the examination procedures, diagnosis, types of treatment rendered, results of treatment, number of day of care, and number of treatment required to arrive at a 50% and a maximum clinical improvement was collected on 576 patients with low back and/or leg pain. The purpose was to determine the congenital and developmental changes in patients with low back and/or leg pain, the combinations of such anomalies, the accuracy of orthodox diagnostic tests in assessing low back pain, ergonomic factors affecting onset, and, ultimately,

the specific difficulty factors encountered in treating the various conditions seen in the average chiropractor's office. For all conditions treated, the average number of day to attain maximum improvement was 43 and the number of visits was 19. It was concluded that this study provided useful data for assessment of routine chiropractic office based diagnosis and treatment of related conditions; however, further controlled studies are necessary for validation of specific parameters.

4. Cox JM: Lumbosacral disc protrusion: a case report. Journal of Manipulative and Physiological Therapeutics 8(4): 261-266 (December 1985)
A negative myelogram but a positive CT for an L5 disc protrusion is presented. Five months of medical care preceded chiropractic care; the insurance company involvement in a case where treatment mode is changed from usual orthodox medical procedures of epidural steroid injection and physical therapy to chiropractic distraction manipulation is detailed. Finally, the clinical outcome of the case is provided. At the end of 6 weeks of care the patient returned to his full work duties as a truck driver. His range of motion of the thoracolumbar spine were full and normal and hi straight leg raises were positive right at 70 degrees and left at 60 degrees. He had taut hamstring muscle that required constant stretching so as to not mimic a positive straight leg raise sign. This case shows that time off work and cost were both reduced by chiropractic care.

5. Aspegren DC, Cox JM, Trier KK: Short leg correction: a clinical trial of radiographic vs. non-radiographic procedures. Journal of Manipulative and Physiological Therapeutics 10(5): 232-237 (October 1987)

6. Cox JM: Lumbar intervertebral disc herniation treatment by rotational manipulation. Journal of Manipulative and Physiological Therapeutics 13(1): 36-40, 1990

7. Cox JM, Aspegren DD: A hypothesis introducing a new calculation for discal reduction: emphasis on stenotic factors and manipulative treatment. J of Manipulative And Physiological Therapeutics 1987; 10(6):287-294
A literature review of the incidence and effects of manipulation on intervertebral disc protrusion is given. A case presented has a 14% reduction of the disc bulge following manipulative care with complete relief of sciatic and low back pain. A system to evaluate the size of disc herniation in computed tomography scans performed before and after manipulative treatment of disc protrusions is offered. Stenosis, with the critical compounded factors of vertebral canal size, dural sac cross-sectional area and soft tissue stenosis in protrusion of the ligamentum flavum and disc, as well as degenerative facet joint changes, is discussed to illustrate the complexity surrounding nerve root compression etiology. Understanding this integration of causative factors can help to explain low back symptoms and outline effective treatment plans.

8. Cox JM, Trier KK: Exercise and Smoking habits in patients with and without low back and leg pain. Journal of Manipulative and Physiological Therapeutics 10(5)239-45
The exercise and smoking habits of low back or leg pain sufferers vs persons not having low back or leg pain are compared. The type, frequency and length of exercise is determined from a study of 576 low back or leg pain sufferers compared to 50 persons who state they are symptomatic. The same was done for smoking habits. Thirty-three percent of low back or leg pain sufferers smoked as compared to 14% of those without pain. Forth-seven percent of low back or leg pain sufferers as compared to 86% of non-sufferers exercised regularly.
The level of physical activity and general exercise has been found to improve strength, mobility and endurance; this might prevent future back injury. This study is to determine difference in the exercise

habits of persons with low back and/or leg pain vs. those who do not have pain, with the intention being to see if pain sufferers exercise less.

9. Cox JM, Aspegren DC: Degenerative spondylolisthesis of C7 and L4 in same patient. Journal of Manipulative and Physiological Therapeutics 1988;11(3):195-205
The incidence of a C7 spondylolisthesis has never been reported, and this paper shows the presence of C7 and L4 degenerative spondylolisthesis in a a 66-yr-old female; no report of this combined problem has been reported. The clinical findings of the patient are given as well as treatment protocol.
In clinical practice, the finding of degenerative spondylolisthesis should be understood as being best handled conservatively, as it rarely causes neurological deficit nor requires surgery.

10. Cox JM: Letter to the editor in answer to a paper published in Physical Therapy (February 1988, 68(2): 199-207) entitled *Physical Therapy Care For Low Back Pain*. Physical Therapy 68(10):1591-1592 (October '88)

11. Cox JM, Trier K: Chiropractic adjustment results correlated with spondylolisthesis instability. Journal of Manipulative and Physiological Therapeutics 1991;6:67-72
Ten true spondylolisthesis patients, nine with the lesion at L5 and one at L3, were tested by vertical suspension radiography compared to neutral lateral weight-bearing x-ray to determine translational segmental instability. Cases were classed as unstable (high instability) if over 3 mm of translation of the spondylolisthetic segment occurred and as stable (low instability) if less than 3 mm of motion was seen. Chiropractic distraction adjustment was applied in each case, and the response to care was evaluated by subjective rating of pain relief. Results found that all five patients with stable spondylolisthesis cases obtained 75% or greater relief from chiropractic adjustment of the type used by the author, whereas one with the unstable variety experienced over 75% relief while the other four had less than 50% relief of pain. As defined in this paper, stable true spondylolisthesis seems to respond better than the unstable variety.

12. Cox JM, Aspegren DC, Trier K: Facet tropisms comparison of plain film and computed tomography examinations. Journal of Manipulative and Physiological Therapeutics 1991;14(6):355-360 (July-August 1991)
This study compares the findings of plain film x-ray and computed CT examination in the diagnosis of facet orientation and the presence of tropism. Twenty consecutive patients having lumbar disc disease with sciatica were studied using plain x-ray as well as CT scanning. A chiropractic radiologist read the films to determine if facet facings were sagittally, semi-sagittally, or coronally oriented on both CT and plain x-ray study. CT was accepted as the most accurate method to determine the true facet orientation, and plain x-ray interpretation of facet orientation was compared to the CT reading. There was a statistically significant relationship in diagnosing tropism between plain film x-ray and CT readings, with a predictive accuracy that ranged form 58-84% across the three segmental levels. However, the exact concordance of plain film x-ray and CT readings for right and left facet facings was very low. This raises the question of how the profession defines diagnostic accuracy.

13. Cox JM, Feller, J: Chiropractic treatment of low back pain: a multi-center descriptive analysis of presentation and outcome in 424 consecutive cases. Journal of Neuromusculoskeletal Systems 1994; 2(4):178-190
Demographic, clinical and radiographic findings were collected for 424 consecutive low back and/or leg pain patients receiving chiropractic treatment at seven participating centers. A standardized, 293-

variable history and examination form was collected for each patient and they were classified into one or more of 15 clinical categories. Outcome measures included the response by days and treatments to attain maximum relief. For the entire patient populations, the average number of days to maximal improvement was 27, with a mean of 11 treatments having been administered over this time. Eight percent of this group of patients reported good to excellent relief of pain.
Among individual categories, patients with an L5 transitional segment had the best response (95% good to excellent outcome, while L4-L5 nuclear prolapse/free fragment patients had the worst response rates (57% good to excellent). Patients with nuclear protrusion required a longer treatment period and more visits than those with spondylolisthesis, facet syndrome, or spondyloarthrosis.
These results are discussed in terms of other reports of nonsurgical care as well as the natural history of low back pain. These data may be expected to aid in the design of future randomized controlled studies into the efficacy of chiropractic manipulation.

14. Cox JM, Hazen LJ, Mungovan M: Distraction manipulation reduction of an L5-S1 disc herniation. Journal of Manipulative and Physiological Therapeutics 1993; 16(5):342-346
A computed tomography (CT)-confirmed L5-S1 disk protrusion is reported to be reduced following chiropractic adjustment, as seen on repeat CT scanning. Distraction type chiropractic manipulation, electrical stimulation, exercises, nutrition advice and low back wellness school class were administered with complete relief of sciatic pain and nearly complete relief of low back pain. Chiropractic distraction manipulation is an effective treatment of lumbar disk herniation, if the chiropractor is observant during its administration for patient tolerance to manipulation under distraction and any signs of neurological deficit demanding other types of care.

15. Cox JM: Patient benefits of attending a chiropractic low back wellness clinic. Journal of Manipulative and Physiological Therapeutics 1994;17(1):25-28
A very positive acceptance of low-back wellness training is evidenced by 95% of the patients feeling it was worth their time to attend and feeling they learned something to prevent reinjury in daily living; 100% felt it worth the doctor's time to present the class.

16. Hazen LJ, Cox, JM: Lumbar intraspinal extradural synovial cyst: a case study. J of Neuromusculoskeletal System 1993; 1(4):167-169
Lumbar intraspinal extradural synovial cyst is among the more rare, yet well-documented compressive neuropathies that present with low back and/or leg pain. The current base of knowledge in the medical literature concerning this interesting condition is presented, and the chiropractic protocol and treatment use in this one case of a lumbar synovial cyst.
Lumbar intraspinal extradural synovial cysts are of a facetal degenerative etiology and may be referred to by a variety of names - hypertrophic synovitis, cysts of the ligamentum flavum, synovial cysts, ganglion cysts. Tissue studies demonstrate that these cysts contain a variety of components, including reactive fibrous connective tissue, dense fibrous connective tissue, hyperplastic synovial membrane, and fine calcifications.
Such a cyst must be thought of in the differential diagnosis of an individual presenting clinically with LBP and leg pain, particularly in the over 50 category. Clinical examination, corollary diagnostic imaging - CT and MRI - make the diagnosis.
The definitive treatment of intraspinal cysts in the current literature is surgical laminectomy. However, the authors recommend the possibility of a conservative, noninvasive approach to the care of the cysts via chiropractic distraction manipulation in conjunction with the appropriate physical therapy modalities

17. Cox JM, Kreissman SG, Hazen LJ: Eosinophilic granuloma of the thoracic and lumbar spine. Journal of the Neuromusculoskeletal System 1995; 3(4):197-202
Chiropractic physicians see patient with spinal pain of pathologic origin. Worsening of back pain after manipulation in a 16-year-old girl alerted the treating chiropractic physician to further diagnostic workup to include magnetic resonance imaging of the spine. Eosinophilic granuloma was diagnosed and the proper referral for care was made. The case stresses the importance of recognizing contraindicatory signs to spinal manipulation and the need for proper interdisciplinary care of such patients. Proper diagnostic and treatment protocols for eosinophilic granuloma are presented.

18. Cox, JM, Feller JA, Cox JA: Distraction Chiropractic Adjusting: Clinical Application, Treatment Algorithms, and Clinical Outcomes of 1000 Cases Studied. Topics in Clinical Chiropractic 1996; (3)3:45-59, 79-81
An overview of Cox® distraction manipulation protocols is presented including diagnosis and treatment decision making in low back pain and sciatica cases and proper utilization of flexion distraction in treating lumbar spine and lower extremity pain. In addition, the outcome of 1,000 cases involving low back and/or leg pain treated with chiropractic adjusting (92% utilizing flexion distraction) is presented.
A qualitative clinical and literature review provides the basis of the overview of diagnostic and treatment protocols. A descriptive case series design was used to collect outcome information on 1,000 patients with low back and/or leg pain; patients were pooled from two separate studies. Patients were treated by 30 different chiropractors, and a minimum of 20 cases was supplied by each physician.
A descriptive review of cases showed that less than 4% of patients with low back or leg pain were candidates for surgery. Less than 9% of patients reached the chronic stage of care. The mean number of days to maximum improvement under care was 29, and the average number of treatments to maximum improvement was 12.
The results of this study provide some evidence for the use of chiropractic management, particularly flexion distraction manipulation, in the treatment of back pain problems due to a variety of mechanical causes.

19. Cox JM: Letter to the Editor: A review of biomechanics of the central nervous system. Part 1: Spinal canal deformations caused by changes in posture. Journal of Manipulative & Physiological Therapeutics, 2001;23(3):211-217.

20. Cox, James M: Letter to the Editor: Biomechanics of the central nervous system: Spinal canal deformations and changes in posture. Journal of Manipulative & Physiological Therapeutics , Volume 24 , Issue 3 , 221 - 227

21. Cox JM, Alter M: Schwanoma: Challenging Diagnosis. J of Manipulative and Physiological Therapeutics 2001; 24(8):526-528
When undiagnosed abdominal pain is present, spinal tumor should be considered one possible diagnosis

22. Cox JM, Cox II, JM: Chiropractic Treatment of Lumbar Spine Synovial Cysts: A Report of Two Cases. Journal of Manipulative and Physiological Therapeutics 2005; 28(2):143-147
Chiropractic distraction manipulation and physiological therapeutic care relieved 2 patients with low back and radicular pain attributed to MRI-confirmed synovial cysts of the lumbar spine. This treatment may be an initial conservative treatment option for synovial cysts with careful patient monitoring for progressive neurologic deficit which would necessitate surgery. Distraction manipulation may be a safe and effective conservative treatment of synovial cyst causing radicular pain; further data collection of clinical

outcomes is warranted.

23. Cox JM, Bakkum B: Possible tendon and bursae generators of retrotrochanteric gluteal and thigh pain: the Gemelli/Obturator Internus Complex. J of Manipulative and Physiological Therapeutics 2005; 28(7):534-538
In patients with persistent gluteal and sciatica-like pain, especially when centered in the retrotrochanteric region, the gemelli-obturator internus muscle complex and associated bursae should be considered as a possible source of the pain.

24. Cox JM: Distraction manipulation: a review of the literature. J of Manipulative and Physiological Therapeutics 2006; 29(1): 89-90
http://www.journals.elsevierhealth.com/periodicals/ymmt/article/PIIS016147540500326X/fulltext
The movement of the nucleus pulposus is unpredictable in the degenerated disk. As chiropractors, we treat degenerated disks and need to be aware of their behavior. The intervertebral disk is probably the most common source of chronic low back pain.8 Tolerance testing before applying manipulation to the patient's spine is prudent because of the unpredictable nature of the disk.

25. Gudavalli R, Cambron JA, McGregor M et al: A randomized clinical trial and subgroup analysis to compare flexion–distraction with active exercise for chronic low back pain. European Spine Journal 2006; 15: 1070-1082
Patients with radiculopathy did significantly better with FD. There were no significant differences between groups on the Roland Morris and SF-36 outcome measures. Overall, flexion–distraction provided more pain relief than active exercise; however, these results varied based on stratification of patients with and without radiculopathy and with and without recurrent symptoms. The subgroup analysis provides a possible explanation for contrasting results among randomized clinical trials of chronic low back pain treatments and these results also provide guidance for future work in the treatment of chronic low back pain. Many clinical trials on chiropractic management of low back pain have neglected to include specific forms of care. This study compared two well-defined treatment protocols. The objective was to compare the outcome of flexion–distraction (FD) procedures performed by chiropractors with an active trunk exercise protocol (ATEP) performed by physical therapists. A randomized clinical trial study design was used. Subjects, 18 years of age and older, with a primary complaint of low back pain (>3 months) were recruited. A 100 mm visual analogue scale (VAS) for perceived pain, the Roland Morris (RM) Questionnaire for low back function, and the SF-36 for overall health status served as primary outcome measures. Subjects were randomly allocated to receive either FD or ATEP. The FD intervention consisted of the application of flexion and traction applied to specific regions in the low back, with the aid of a specially designed manipulation table. The ATEP intervention included stabilizing and flexibility exercises, the use of modalities, and cardiovascular training. A total of 235 subjects met the inclusion/exclusion criteria and signed the informed consent. Of these, 123 were randomly allocated to FD and 112 to the ATEP. Study patients perceived significantly less pain and better function after intervention, regardless of which group they were allocated to ($P<0.01$). Subjects randomly allocated to the flexion–distraction group had significantly greater relief from pain than those allocated to the exercise program ($P=0.01$). Subgroup analysis indicated that subjects categorized as chronic, with moderate to severe symptoms, improved most with the flexion–distraction protocol. Subjects categorized with recurrent pain and moderate to severe symptoms improved most with the exercise program. Patients with radiculopathy did significantly better with FD. There were no significant differences between groups on the Roland Morris and SF-36 outcome measures. Overall, flexion–

distraction provided more pain relief than active exercise; however, these results varied based on stratification of patients with and without radiculopathy and with and without recurrent symptoms.

26. Cambron GA, Gudavalli MR, McGregor M et al: Amount of health care and self-care following a randomized clinical trial comparing flexion-distraction with exercise program for chronic low back pain. Osteopathy and Chiropractic 2006; 14:19
During a one-year followup, participants previously randomized to physical therapy attended significantly more healthcare visits than those participants who received chiropractic care.

27. Cambron GA, Gudavalli MR, Hedecker D et al: One-Year Follow-Up of a Randomized Clinical Trial Comparing Flexion Distraction with an Exercise Program for Chronic Low-Back Pain. J of Alternative and Complementary Medicine 2006; 12(7): 659-668
In this first trial on flexion distraction care, flexion distraction was found to be more effective in reducing pain for 1 year when compared to a form of physical therapy.

28. Beyerman KL, Palmerino MB, Zohn LE, Kane GM, Foster KA. Efficacy of treating low back pain and dysfunction secondary to osteoarthritis: chiropractic care compared with moist heat alone. J Manipulative Physiol Ther. 2006 Feb;29(2):107-14.
To evaluate the efficacy of chiropractic spinal manipulation, manual flexion/distraction, and hot pack application for the treatment of low back pain from osteoarthritis (OA) compared with moist heat alone, two hundred fifty-two patients with low back pain secondary to OA were randomly assigned to either the treatment group (moist hot pack plus chiropractic care) or the moist heat group subjects, which attended 20 treatment sessions over several weeks. Session I ratings indicated that the two groups were equivalent on all pain and flexion scores. The treatment group reported greater and more rapid pain reduction and greater and more rapid ROM improvement than the moist heat group. The treatment group also had greater improvements than the moist heat group in daily living activities in 4 of the 9 areas measured.
CONCLUSION: Chiropractic care combined with heat is more effective than heat alone for treating OA-based lower back pain. Pain reduction occurs more rapidly and to a greater degree, and ROM increases more rapidly and to a greater degree.

29. Cox JM et al: Grand Rounds Discussion: Patient with acute low back pain. Chiropractic Technique 1999; 11(1):1-17
A Grand Rounds discussion of a patient suffering from severe low back pain with pain radiating into the left thigh. The patient occasionally gets "stuck" in a position where he is leaning forward and to the right, and he must slowly work out his back in order to straighten up again. Dr. Cox discusses the examination of the patient, the possible pain generators for the patient's pain, and the Cox Distraction Adjusting procedures recommended for the case.
Algorithms of decision making and treatment protocol are presented for Cox® Distraction diagnosis and care of an acute low back pain patient. As well, discussion of potential sources of the pain is presented. Many references cited.

30. Kruse RA, Schliesser J, DeBono VF: Klippel-Feil Syndrome with radiculopathy. Chiropractic management utilizing flexion-distraction technique: A case report. J of the Neuromusculoskeletal System 2000;8(4):124-31
A 34-year-old female presented to a chiropractic office with severe, unremitting, cervical, shoulder, and arm pain of several months' duration. Past medical history, clinical evaluation, and plain-film radiographs

revealed findings consistent with Klippel-Feil syndrome. The radiographs revealed a C2/3 block vertebrae, atlas assimilation, and premature degenerative changes consistent with the syndrome. Treatment consisted of cervical flexion-distraction manipulation and adjunctive therapies. This patient felt relief after the first treatment and experienced a complete resolution of her symptoms after eight treatments performed over a period of 2 months. Klippel-Feil syndrome is an anatomical entity that results in premature cervical degenerative changes, which may cause radiculopathy. Flexion-distraction manipulation performed to the cervical spine is a relatively new clinical procedure, which shows great promise for the treatment of cervical radiculopathy.

31. Kruse RA, Gregerson D: Cervical Spinal stenosis resulting in radiculopathy treated with flexion-distraction manipulation: A case study. J of the Neuromusculoskeletal System 2002;10(4):141-7
A 60 year old male presented with complaints of pain and limited motion in his neck, with pain and weakness in his left shoulder and arm. These symptoms began after a fall approximately 4 months prior. His previous allopathic care included medication and physical/occupational therapy, which provided no significant relief. Cervical plain film radiographs demonstrated degenerative changes and the magnetic resonance imaging revealed multilevel central stenosis. The patient was treated with flexion-distraction manipulation, which provided significant relief of his subjective and objective findings. Cervical stenosis with resultant radicular and neurological complaints may be difficult to manage with both conventional allopathic and chiropractic treatment. Flexion distraction manipulative therapy may be an effective treatment option for these often-difficult cases.

32. Schliesser JS, Kruse RA, Fleming Fallon L: Cervical radiculopathy treated with chiropractic flexion distraction manipulation: a retrospective study in a private practice setting: Journal Of Manipulative And Physiological Therapeutics 2003; 26(9):592-596
Background: Although flexion distraction performed to the lumbar spine is commonly utilized and documented as effective, flexion distraction manipulation performed to the cervical spine has not been adequately studied.
Subjective: To objectively quantify data from the Visual Analogue Scale (VAS) to support the clinical judgment exercised for the use of flexion distraction manipulation to treat cervical radiculopathy.
Design and setting: A retrospective analysis of the files of 39 patients from a private chiropractic clinic that met diagnostic criteria for inclusion. All patients were diagnosed with cervical radiculopathy and treated by a single practitioner with flexion distraction manipulation and some form of adjunctive physical medicine modality.
Main outcome measures: The VAS was used to objectively quantify pain. Of the 39 files reviewed, 22 contained an initial and posttreatment VAS score and were therefore utilized in this study.
Conclusion: The results of this study show promise for chiropractic and manual therapy techniques such as flexion distraction, as well as demonstrating that other, larger research studies must be performed for cervical radiculopathy.

33. Kruse RA, Imbarlina F, DeBono VF: Treatment of cervical radiculopathy with flexion distraction. J Manipulative Physiological Therapeutics 2001;24(3):206-209
Objective: To discuss the nonsurgical treatment of a cervical disk herniation with flexion distraction manipulation. Clinical Features: A case study of cervical disk syndrome with radicular symptoms is presented. Magnetic resonance imaging revealed a large C5-C6 disk herniation. Degenerative changes at the affected level were demonstrated on cervical spine plain film radiographs.
Intervention and Outcome: The patient received treatment in the form of flexion distraction manipulation and adjunctive therapies. A complete resolution of the patient's subjective complaints was

achieved. Conclusion: Flexion distraction has been a technique associated with musculoskeletal conditions of the lumbar spine. Flexion distraction applied to the cervical spine might be an effective therapy in the treatment of cervical disk herniations. Although further controlled studies are needed, treatment of cervical disk syndromes with flexion distraction might be a viable form of conservative care.

34. Neault CC: Conservative management of an L4-L5 left nuclear disc prolapse with a sequestrated segment. J of Manipulative and Physiological Therapeutics 1992;15(5):318-321

    A case repot is discussed in which a clinically diagnosed case of an L4-L5 nuclear disk prolapse with a sequestrated fragment was certified by computerized axial tomography and magnetic resonance imaging at the initiation of the treatment period. It was treated with flexion-distraction manipulation, hot and cold fomentation, positive galvanism, a lumbosacral support, nutritional supplementation, and abstinence from sitting and exercises. Four weeks after initiation of treatment, the patient was asymptomatic. Eight weeks after initiation of treatment, and 6 weeks after the original scan, magnetic resonance imaging certified a reduction in the size of the prolapse within the vertebral canal. An 11 month follow-up examination indicated the patient had no exacerbations of her condition and all objective findings were negative.

35. Hawk C, Long C, Azad A: Chiropractic care for women with chronic pelvic pain: a prospective single-group intervention study. JMPT 1997;20(2):73-9
    Eighteen chronic pelvic patients helped with flexion distraction adjusting

36. Browning JE: The mechanically induced pelvic pain and organic dysfunction syndrome: an often overlooked cause of bladder, bowel, gynecologic, and sexual dysfunction. J of the Neuromusculoskeletal System 1996;4(2):52-66
    Pelvic Pain and Organic Dysfunction Syndrome Helped with Flexion Distraction

37. Cox JM, Trier K: Chiropractic adjustment results correlated with spondylolisthesis instability. J of Manual Medicine 1991;6:67-72
    Stable Spondylolisthesis 75% Relieved of Pain with Cox® Distraction

38. Hawk C, Azad A, Phongphua C, Long CR: Preliminary study of the effects of a placebo chiropractic treatment with sham adjustments. J of Manipulative And Physiological Therapeutics 1999;22(7):436-43
    13 of 18 Low Back Patients Felt Greater Positive Effect of Flexion Distraction over Placebo

39. Snow G: Chiropractic management of a patient with lumbar spinal stenosis. Journal Of Manipulative And Physiological Therapeutics 2001; 24(4): 300-304
    To discuss the case of a patient with severe, multilevel central canal stenosis who was managed conservatively with flexion-distraction manipulation; to introduce a cautious approach to the application of treatment, which can reduce the risk of adverse effects and might make an apprehensive doctor more comfortable treating this condition; and to propose a theoretic mechanism for relief of symptoms through use of chiropractic manipulation. Clinical Features: A 78-year-old man had low back pain and severe bilateral leg pains. Objective findings were minimal, yet magnetic resonance imaging demonstrated severe degenerative lumbar stenosis at L3-L4 and L4-L5 and to a lesser degree at L2-L3. Intervention and Outcome: Flexion-distraction manipulation of the lumbar spine was performed. Incremental increases in traction forces were applied as the patient responded positively to care. He experienced a decrease in the frequency and intensity of his leg symptoms and a resolution of his low

back pain. These improvements were maintained at a 5-month follow-up visit. Conclusion: Successful management of symptoms either caused by or complicated by lumbar spinal stenosis is presented. Manipulation of the spine shows promise for relief of symptoms through improving spinal biomechanics. Further study in the form of a randomized clinical trial is warranted.

40. Bergmann TF, Jongeward BV: Manipulative therapy in lower back pain with leg pain and neurological deficit. J Of Manipulative and Physiological Therapeutics 1998; 21(4):288-294
Chiropractors need a nonsurgical, conservative approach to treat low back pain with sciatica as an alternative to and before beginning the more aggressive, and potentially hazardous, surgical treatment. There is some support for the idea that lumbar disc herniation with neurological deficit and radicular pain does not contraindicate the judicious used of manipulation. Although significant questions remain for the evaluation and treatment of lumbar radiculopathy (sciatica) with disc herniations) there is ample evidence to suggest that a course of conservative care, including spinal manipulation, should be completed before surgical consult is considered.
Ice was applied to a patient's lower back for 5 minutes, followed by flexion-distraction mobilization done by placing a hand contact over the L4 spinous process and using the pelvic section of the table to distract the lumbar spine between the L4-L5 segment. This procedure was repeated three times with each distractive process held for 20 seconds. The patient was told to lie on her back at home with her knees bent in a "90/90" position whenever possible. She was instructed to get up only for bathroom use.
One week after this appointment, she reported that her lower back pain was almost gone and that the leg pain no longer bothered her. Treatment again consisted of lumbar flexion distraction and long axis distraction of the lower extremity. At this point, side posture rotary manipulation was added to her treatment plan.

41. Hubka MJ, Taylor JAM, Schultz GD, Traina AD: Lumbar intervertebral disc herniation: chiropractic management using flexion, extension, and rotational manipulative therapy. Chiropractic Technique 1991; 3(1):5-12
The chiropractic management of a patient with a large herniation of the L5-S1 intervertebral disc is described. Manipulative therapy administered twice a day, over a 16-day period, consisted of flexion distraction mobilization, rotational manipulations, and extension mobilizations. Stretching, strengthening, and coordination exercises were performed in conjunctions with the manipulative therapy. Dramatic subjective and objective improvement followed chiropractic management. The criteria used to determine the type and direction of manipulative therapy, and the rationale for applying three different forms of manipulative therapy are discussed.

42. Taylor DN. Spinal synovial cysts and intersegmental instability: a chiropractic case. J Manipulative Physiol Ther. 2007 Feb;30(2):152-7.
This article presents a case in which synovial cysts appeared to cause compromise of the neural foramina and thecal sac with presenting neurological signs. A 67-year-old female patient with a history of lumbar synovial cysts and synovectomy presented with recurrence of bilateral low back, leg pain, and apparent neurological compromise along with a recurrence of lumbar synovial cyst as evidenced on magnetic resonance images. Flexion distraction therapy, performance of Williams low back exercises and interferential therapy resulted in 50% relief. Frequency of care was progressively diminished as she improved. The patient experienced recurrence of severe episodes; multifidi strengthening exercises were provided to address a concomitant spondylolisthesis and instability, resulting in a cessation of these episodes and improvement in functional activities. Distraction therapy seemed to alleviate the constant pain without surgical intervention. In this case, the synovial cyst may have been an incidental finding

versus a primary cause of the low back and leg pain. For similar patients, in the absence of correlative progressive neurological signs, surgical intervention may not be necessary.

43. Hawk C, Long CR: Use of a pilot to refine the design of a study to develop a manual placebo treatment. JNMS 2000;8(2):39-48
Thirty-two patients with subacute or chronic low back pain were randomly assigned to group A (flexion-distraction technique and trigger point therapy), group B (sham adjustment and effleurage massage), group C (flexion-distraction and effleurage), or group D (sham adjustment and trigger point therapy) for 6 weeks of treatment. The Roland Morris Questionnaire (RMQ) and the Pain Disability Index (PDI) were the outcome instruments of primary interest. RMQ median score changes were similar across groups. PDI median score changes at week 3 were greatest in group A, less in groups C and D, and least in group B. At week 6, group B still showed less change than the others.

44. Crawford MC: Chiropractic management of acute low back pain. Alternative Th H 1999; 5(1):112
A 36-year-old mother of 2, previously healthy and athletic, presented with low back pain, sharp shooting pain down the side of her left leg, and a numb feeling in her toes. She stated that she was unable to toe raise or straighten her left leg at the knee.
The CT scan indicated a central left disk herniation at the L5 to S1 level, which was abutting the ventral portion of the thecal sac and the left S1 nerve sheath.
Treatment involved 9 therapy sessions over a 3 week period. Each session consisted of 4 modalities. Interferential electrotherapy with moist heat lasting 15 minutes was used to control pain. The interferential was set at a low frequency, 1 to 15 Hz, with approximately 20 mA intensity (for patient tolerance) to produce endorphin release and relieve hypertonicity.
Manipulation of the lumbar spine and sacroiliac joints was done with the patient in side posture. This manipulative technic was well tolerated and not painful during or after the procedure. Finally, flexion traction of the specific vertebral segments was accomplished using a Lloyd flexion distraction table, in which a manual traction force was applied to the L5 spinous process in a cephalad direction while the table was flexed, producing additional traction force at the specific vertebral segment. The patient improved with each session. After the 9th session, the patient felt she had improved enough to discontinue treatment.

45. Hultgren GM, Jeffers JS: Shamanism, a religious paradigm: its intrusion into the practice of chiropractic. Journal Of Manipulative And Physiological Therapeutics 1994; 17(6):404-410

46. Beira B, Peers A: A study of the effects of chiropractic therapy on the diameter of the spinal canal in patients with low back pain and radiculopathy. J Of The Neuromusculoskeletal System 1998; 6(3):114-126
An unblinded clinical trial was constructed to measure the objective and subjective patient response to chiropractic management of low back pain with associated lower limb radiculopathy. Thirty patients fulfilling the inclusion and exclusion criteria were included in the trial. No control groups were used. Two management groups containing 15 subjects each were created. One group received rotatory side posture adjustment to the lumbar spine. The other subject group received flexion distraction techniques on a McManis traction table. Objective and subjective criteria for the measurement of patient discomfort showed statistically significant improvements for both treatment procedures. Neither procedure displayed statistically more favorable results for the management of the patient's symptomatology. Pathology involving the intervertebral discs was noted at the third, fourth, and fifth lumbar intervertebral disc levels. Lesions were most commonly noted at the fifth intervertebral disc levels. Thirty-eight

intervertebral disc lesions displayed pathological changes prior to initiation of either management program. An increase in the percentage occupancy of the spinal canal by the intervertebral disc was recorded in 10 cases. **Twenty levels showed decreased percentage occupancy**. Critical values for percentage occupancy of the spinal canal at the fourth intervertebral disc were statistically evaluated to 0.008. At the fifth intervertebral disc, the percentage occupancy was calculated to 0.763 (t = 13; 0.05 to 1.1771). The mean percentage **for the adjustment group** pretreatment showed the intervertebral disc to occupy 30.98% of the spinal canal. Post-treatment examination revealed an occupancy of 26.29%. The mean percentage **for the flexion-distraction** group pretreatment showed the intervertebral disc to occupy 33.51% of the spinal canal. Post-treatment examination revealed occupancy of 29.28%. No statistically significant changes were noted in the percentage occupancy in the spinal canal by the intervertebral disc at any of the spinal levels examined. Reduction of the objective and subjective clinical presentation, without significant changes in the intervertebral disc to spinal canal ratio, leads to the conclusion that neither the presence nor the size of the intervertebral disc following lumbar spine radiological examination should be used as pathological indicators. Chiropractic examination of lumbar spine pain with radiculopathy has displayed positive qualities regarding its effectiveness and safety.

47. BenEliyahu DJ: Magnetic resonance imaging and clinical follow-up: study of 27 patients receiving chiropractic care for cervical and lumbar disc herniations. Journal Of Manipulative And Physiological Therapeutics 1996; 19(9):597-606
80% of cervical and lumbar spine disc herniations helped by flexion distraction adjustment. 63% showed MRI reduction in size

48. Morris CE: Chiropractic rehabilitation of a patient with S1 radiculopathy associated with a large lumbar disk herniation. Journal Of Manipulative And Physiological Therapeutics 1999; 22(1):38-44
Objective: To describe the nonsurgical treatment of acute S1 radiculopathy from a large (12 × 12 × 13 mm) L5-S1 disk herniation. Clinical Features: A 31-year-old man presented with severe lower back pain and pain, paresthesia, and plantar flexion weakness of the left leg. His symptoms began 5 days before the initial visit and progressed despite nonsteroidal anti-inflammatory drugs and analgesic medication. An absent left Achilles reflex, left S1 dermatome hypesthesia, and left gastrocnemius/soleus weakness was noted. Magnetic resonance imaging demonstrated a large L5-S1 disk herniation. Intervention and Outcome: Initial treatment of this patient included McKenzie protocol press-ups to reduce and centralize symptoms, nonloading exercise for cardiovascular fitness, and lower leg isotonic exercises to prevent atrophy. Counseling was provided to reduce abnormal illness behavior risk. Later, flexion distraction and side-posture manipulation were provided to improve joint function. Sensory motor training, trunk stabilization exercises, and trigger point therapy were also used. He returned to modified work 27 days after symptom onset. A follow-up, comparative magnetic resonance imaging (MRI) study was unchanged. He was discharged as asymptomatic (zero rating on both the Oswestry and numerical pain scales) after 50 days and 20 visits, although the left S1 reflex remained absent. Reassessment 169 days later revealed neither significant symptoms nor lifestyle restrictions. Conclusion: This case demonstrates the potential benefit of a chiropractic rehabilitation strategy by use of multimodal therapy for lumbar radiculopathy associated with disk herniation.

49. Bulbulian R, Dishman JD, Burke J: Neuroreflex modulation of the lumbar spine in flexion distraction. New York Chiropractic College, Seneca Falls, New York 13148. Presented at 5th World Federation of Chiropractic in Auckland, New Zealand. May 15-23, 1999
Introduction: Flexion distraction has gained increased credibility as a therapeutic modality for treatment of low back pain. Although important work in the area has elucidated the intradiscal pressure profiles

during flexion distraction, the accompanying neural responses have yet to be described. The purpose of this pilot study was to access neural reflex responses to motion with three degrees of freedom applied to the lumbar spine and to evaluate H-reflex responses of the soleus.
Methods. Subjects (n=4) were measured for Hmax reflexes determined from stimulus responses recruitment curves measured in neutral prone position, flexion, left and right lateral flexion, and axial rotation on a Cox adjusting table. The mean of 10 evoked Hmax waves expressed as a percentage of maximal M-wave was the criterion measure. Spinal range of motion was quantified by Metrecom digitization.
Results. The data showed considerable variation in some movement ranges notwithstanding identical table positioning for all subjects (i.e. Flexion 3-12°). Mean Hmax/Mmax ratios were 65.5+-15, 65.5+-17, 62.8+-12, 59.6+-17 and 65.9+-19 for neutral, flexion, R. Lateral, L. Lateral flexion and R and L axial rotation respectively. The salient findings in the data were the non-existent H-reflex changes in lateral flexion and the significant suppression of neuromuscular activation in flexion (65+-16 vs 60+-15%; $p<0.05$) and ipsilateral rotation (65+-16 vs 59+-17%; $p<0.05$). Slight perturbations in numerous afferent receptors are known to significantly alter the H-reflex. The absence of measurable changes in lateral flexion may indicate that both slow and fast adapting receptors could be involved in lumbar motion. These preliminary findings suggest the need for further dynamic motion studies of the flexion distraction neurophysiology

50. Bulbulian R, Burke J, Dishman JD : Spinal reflex excitability changes after lumbar spine passive flexion mobilization. Journal of Manipulative and Physiological Therapeutics 2002; (Vol. 25, Issue 8, Pages 526-532

Background: Flexion distraction has gained increased credibility as a therapeutic modality for treatment of low back pain. Although important work in the area has elucidated the intradiskal pressure profiles during flexion distraction, the accompanying neural responses have yet to be described. Objective: The purpose of this pilot study was to assess neural reflex responses to motion with 3 degrees of freedom applied to the lumbar spine and to evaluate H-reflex responses of the soleus. Methods: Subjects (n = 12) were measured for H-maximum reflexes determined from stimulus response recruitment curves measured in neutral prone position. The mean of 10 evoked H-waves (at H-maximum stimulus intensity) were measured in neutral position, flexion, left and right lateral flexion, and axial rotation of the trunk on an adjusting table. H-reflexes were expressed as a percentage of maximal M-wave for the criterion measure. Spinal range of motion was quantified by digitization. Results: The data showed variation in some movement ranges, notwithstanding identical table positioning for all subjects. Mean H-reflex amplitude was decreased (15.2 ± 5.8 mV to 13.8 ± 5.8 mV), and the H/M ratio was also decreased in flexion compared with neutral (55.0% ± 19.1% to 50.3% ± 19.4%; $P < .05$). Conclusions: Trunk flexion is accompanied by inhibition of the motor neuron pool. Slight perturbations in numerous afferent receptors are known to significantly alter the H-reflex. The absence of measurable changes in lateral flexion and trunk rotation may indicate that both slow- and fast-adapting receptors could be involved in lumbar motion. These preliminary findings suggest the need for further dynamic motion studies of the flexion distraction neurophysiologic condition.

51. Bergmann T: Manual force, mechanically assisted articular chiropractic techniques using long and/or short lever contacts. Journal of Manipulative and Physiological Therapeutics 1993; 16(1):33-37
Cox® Technic only one with referreed articles

52. DuPriest CM: Nonoperative management of lumbar spinal stenosis. Journal of Manipulative and Physiological Therapeutics 1993;16(6):411-4
To describe the successful treatment of a patient with lumbar spinal stenosis utilizing nonoperative procedures. A 76-yr-old male with a chief complaint of low back pain and left lower extremity pain demonstrated the following per history and physical examination: 1. A right antalgic shift. 2. Restricted lumbar range of motion with provocation of left lower extremity pain during extension. 3. Generalized lumbar spondylosis as revealed on plain film X rays. 4. MRI confirmed lumbar stenosis. A diagnosis of lumbar spinal stenosis secondary to spondylosis was made. Twelve treatments of flexion-distraction manipulation, deep tissue massage, ultrasound, therapeutic exercise, heel lift, and modification of activities of daily living. He was discharged from care asymptomatic in 3 wk. Objective improvement was also noted. Conservative treatment designed to increase lumbar flexion, thus increasing lumbar spinal canal volume, has a positive influence on the diminution of neural ischemia and its resultant neural dysfunction. Additional research is needed to elucidate these concepts.

53. Mootz RD, Waldorf T: Chiropractic care parameters for common industrial low back conditions. Chiropractic Technique 1993; 5(3):119-125

54. Guadagnino MR: Flexion-distraction manipulation of a patient with a proven disc herniation. J Of The Neuromusculoskeletal System 1997; 5(2):70-73
Lumbar radicular symptoms can be caused by lumbar intervertebral disc herniations. If a disc injury is positively established through diagnostic imaging, surgery is a commonly recommended approach. Flexion/distraction manipulation is a therapeutic alternative that may offer relief for subjective complaints and elimination of objective signs. Success with this technique might spare the patient an operative procedure. This is a case report of one such incidence.
Flexion/distraction manipulation is a treatment developed by James M. Cox. It is often used for lumbar disc injuries (herniation, bulges, etc.), and for other low back and lower extremity radicular conditions. The technique involves the use of a specialized table which allows for passive distraction, flexion, lateral bending, and rotation. These different planes of motion, along with the use of appropriate adjunctive therapy and exercises, allow for reduction of symptoms attributable to lumbar disc syndromes. Contraindications and indications for flexion/distraction manipulation have been identified and enumerated.
Flexion/distraction manipulation is a treatment that should be investigated as a part of the algorithm for presurgical therapies of lumbar intervertebral disc injuries. This alternative in conservative care may be of benefit to a large number of patients. The surgical option for treating intervertebral disc herniations might be reduced with propagation of flexion/distraction manipulation.

55. Cooperstein R, Perle SM, Gatterman MI, Lantz C, Schneider MJ: Chiropractic technique procedures for specific low back conditions: Characterizing the literature. Journal Of Manipulative And Physiological Therapeutics 2001;24(6):407-11
It is necessary to determine which specific types of manipulation and non-manipulative types of chiropractic adjustive care are most effective for particular types of low back pain across both tissue-specific and functional classifications.
To characterize the quantity and quality of literature gathered for an Expert Panel that was convened to rate various specific chiropractic adjustive procedures for the treatment of common types of low back pain, drawing on the clinical expertise of the panel members and the relevant literature.
A systematic review was conducted of treatment-specific, condition-specific trials, studies, and case reports of chiropractic care for low back pain.

The 3 most studied adjustive procedures are side-posture high-velocity, low-amplitude; distraction (mostly flexion distraction); and mobilization, respectively. The clinical condition most commonly addressed by the included studies is low back pain.

56. Hawk C, Phongphua C, Bleecker J, Swank L, Lopez D, Rubley T: Preliminary study of the reliability of assessment procedures for indications for chiropractic adjustments of the lumbar spine. Journal of Manipulative and Physiological Therapeutics 1999; Vol. 22, Issue 6, Pages 382-389
Objective: To assess the intraexaminer and interexaminer reliability of clinicians trained in flexion-distraction technique to determine the need for chiropractic adjustment of each segment of the lumbar spine. Design: This was an intraexaminer and interexaminer reliability study of commonly used chiropractic assessment procedures, including static and motion palpation and visual observation. Setting: Chiropractic college; by four licensed chiropractors trained in flexion-distraction technique, two with more than 20 years' experience and two with 3 or fewer years' experience. Subjects: Subjects were 18 volunteers; 16 were symptom free, and 2 had low back pain at the time the study was conducted. Main Outcome Measure: The kappa statistic was computed for all comparisons and interpreted in categories ranging from “poor” (<0.00) to “almost perfect” (>0.80). Results: Intraexaminer reliability was greater than interexaminer reliability. For intraexaminer reliability there was considerable variation by segment and among the four examiners, but intraexaminer reliability appeared generally higher than interexaminer reliability. Overall, more subluxations were identified on the second examination than on the first. For interexaminer reliability, kappa scores were generally in the “poor” to “slight” categories. Discussion: The results of this study, similar to those of other studies, indicate that even chiropractors trained in the same technique seem to show little consensus on the indications for the necessity to adjust specific segments of the spine. A more standardized assessment approach might be helpful in improving the reliability of diagnostic assessments.

57. Dougherty P, Bajwa S, Burke J, Dishman JD: Spinal Manipulation Postepidural Injection for Lumbar and Cervical Radiculopathy: A Retrospective Case Series. Journal of Manipulative and Physiological Therapeutics 2004; Vol. 27, Issue 7, Pages 449-456
Objective: To describe the safety and potential therapeutic benefit of spinal manipulation postepidural injection in the nonsurgical treatment of patients with cervical and lumbar radiculopathy.
Methods: The study design was a retrospective review of outcomes of 20 cervical and 60 lumbar radiculopathy patients who underwent spinal manipulation postepidural injection in a hospital setting. Patients received either fluoroscopically guided or computed tomography (CT)–guided epidural injection of a combination of lidocaine and Depo-Medrol. The manual therapy consisted of an immediate postepidural application of flexion distraction mobilization and then high-velocity, low-amplitude spinal manipulation to the affected spinal regions. Outcome criteria were empirically defined as significant improvement, temporary improvement, or no change. The minimum follow-up time for all patients was 1 year.
Results: There were no complications associated with spinal manipulation, whereas 3 complications associated with the epidural injection procedure were noted. Of lumbar spine patients, 36.67% (n = 22) noted significant improvement, 41.67% (n = 25) experienced temporary improvement, and 21.67% (n = 13) reported no change. Of the patients undergoing spinal manipulation after cervical epidural injection, 50% (n = 10) noted significant improvement, 30% (n = 6) experienced temporary improvement, whereas 20% (n = 4) exhibited no change.
Conclusions: These data suggest that spinal manipulation postepidural injection is a safe nonsurgical procedure to use in the treatment of the patient with radiculopathy of spinal origin. This is also the first report of the use of spinal manipulation postepidural injection in the cervical spine.

58. Hawk C, Azad A, Phongphua C, Long CR: Preliminary study of the effects of a placebo chiropractic treatment with sham adjustments. Journal of Manipulative and Physiological Therapeutics 1999; Vol. 22, Issue 7, Pages 436-443
Objective: To identify aspects of the delivery of placebo chiropractic treatments by using sham adjustments that may cause a treatment effect and that may affect the success of blinding. Design and Setting: Two-period crossover design in a chiropractic college research clinic. Subjects: Eighteen volunteer staff, students, and faculty of the chiropractic college who reported low-back pain within the last 6 months. Interventions: Flexion-distraction technique was used to perform chiropractic adjustments, and a hand-held instrument (Activator adjusting instrument) with the pressure gauge set on the 0 was used to perform sham adjustments. The treatment period was 2 weeks, with a total of 4 visits. Main Outcome Measures: The Visual Analog Scale (VAS) for pain and Global Well-Being Scale (GWBS). Results: Although VAS and GWBS scores improved with both treatments, a somewhat greater improvement occurred in most cases with the active treatment. Eight of 14 patients interviewed believed that the placebo had a treatment effect. Conclusion: This study provided preliminary information that was useful in planning the protocol for a placebo chiropractic treatment in the randomized clinical trial for which it was designed.

59. Kruse R, Gudavalli S, Cambron J: Chiropractic treatment of a pregnant patient with lumbar radiculopathy. Journal of Chiropractic Medicine 2007; 6(4):153-158
Objective The purpose of this report is to describe chiropractic treatment of lower back and unilateral leg pain in a pregnant patient. Clinical Features A 26-year-old woman in her second trimester of pregnancy had severe pain in her lower back that radiated to her hips bilaterally and to her right leg. She reported tingling down her right lower leg to the dorsum of her foot. Although no diagnostic imaging was performed, her differential diagnoses included lumbalgia with associated radiculopathy. Intervention and Outcome Treatment consisted of manual traction in the side-lying position using a specialized chiropractic table and treatment technique (Cox flexion-distraction decompression) modified for pregnancy. Relief was noted after the first treatment, and complete resolution of her subjective and objective findings occurred after 8 visits. Conclusion: When modified, this chiropractic technique appears to be an effective method for treating lower back pain with radiation to the leg in a pregnant patient who cannot lie prone.

60. Gudavalli S, Kruse R: Foraminal stenosis with radiculopathy from a cervical disc herniation in a 33-year-old man treated with flexion-distraction decompression manipulation. Journal of Manipulative and Physiological Therapeutics 2008; 31(5):376-380
Objective: The purpose of this report was to describe the use of Cox flexion distraction decompression manipulation on a patient with radiculopathy from a C6/C7 disc herniation. Clinical Features A 33-year-old man complained of severe neck pain and spasms, pain radiating down his left arm and upper back, and associated numbness in his fingers. Cervical spine plain film radiographs showed mild C6/C7 osseous degenerative changes. Cervical magnetic resonance imaging revealed a moderate-sized left posterolateral disc herniation at C6/C7 causing severe foraminal stenosis. Intervention and Outcome Treatment consisted of Cox flexion distraction decompression manipulation and adjunctive physiotherapy modalities. The patient was treated a total of 15 times over a period of 10 weeks. Subjective findings using a pain scale and objective examination findings supported a good clinical outcome. At 2-year follow-up, subjective and objective findings remained stable. Conclusion This study reports Cox flexion distraction decompression manipulation and physiotherapy modalities showed good subjective and objective clinical outcomes for this patient.

61. Cox J, Bakkum B: Possible Generators of Retrotrochanteric Gluteal and Thigh Pain: The Gemelli–Obturator Internus Complex. Journal Of Manipulative And Physiological Therapeutics 2005; 28(7):534-538
OBJECTIVE: To investigate and correlate the anatomy of the gluteal region with the clinical findings of retrotrochanteric and posterior thigh pain, as seen in clinical chiropractic practice, and describe potential treatment options.
METHODS: A descriptive gross anatomic study is correlated to a case presentation of a patient with deep persistent aching pain in the retrotrochanteric region of the left hip and upper posterolateral thigh.
RESULTS: The structures that are located in the same location as the retrotrochanteric pain described by the patient are the gemelli-obturator internus muscle complex and associated bursae.
CONCLUSIONS: In patients with persistent gluteal and sciatica-like pain, especially when centered in the retrotrochanteric region, the gemelli-obturator internus muscle complex and associated bursae should be considered as a possible source of the pain.

62. Gay R, Bronfort G, Evans RE et al: Distraction Manipulation of the Spine - a review of the literature. Journal of Manipulative and Physiological Therapeutics 2005; 28(4): 266-73.
OBJECTIVE: The purpose of this study is to review the literature concerning distraction manipulation of the lumbar spine, particularly regarding physiological effects, clinical efficacy, and safety. DATA SOURCES: A search of the English language literature was conducted using the MEDLINE, Embase, CINAHL, Chiropractic Research Archives Collection, and Manual, Alternative, and Natural Therapies Information System databases. A secondary hand search of bibliographies was completed to identify older or non-indexed literature. DATA SELECTION AND EXTRACTION: Articles were identified, which described the characteristics of distraction manipulation beyond a simple description or the results of treatment with distraction manipulation. Data were extracted on the basis of relevance to the stated objective. DATA SYNTHESIS AND RESULTS: Thirty articles were identified. Three were uncontrolled or pilot studies, 3 were basic science studies, and 6 were case series. Most were case reports. Lumbar distraction manipulation is a nonthrust mechanically assisted manual medicine technique with characteristics of manipulation, mobilization, and traction. It is used for a variety of lumbar conditions and chronic pelvic pain. The primary rationale for its use is on the basis of the biomechanical effects of axial spinal distraction. Little data are available describing the in vivo effect of distraction when used in combination with flexion or other motions. CONCLUSIONS: Despite widespread use, the efficacy of distraction manipulation is not well established. Further research is needed to establish the efficacy and safety of distraction manipulation and to explore biomechanical, neurological, and biochemical events that may be altered by this treatment.

63. Cox JM: editorial response to Gay et al Journal Of Manipulative And Physiological Therapeutics 28(4) in Journal Of Manipulative And Physiological Therapeutics 2006; 29(1):89-90

Gay et al1 discussed nucleus pulposus movement during flexion and extension of the lumbar spine, citing Fennell et al2 as stating that the nucleus moves anterior on extension and posterior on flexion. Full study of the Fennell paper, however, shows a different finding. Fennell studied nuclear motion on magnetic resonance imaging of 3 patients—1 normal 18-year-old patient with no history of low back pain and two 25- and 46-year-old patients with low back pain history.

The 18-year-old patient with no back pain did show anterior nuclear movement on extension and posterior motion on flexion; however, the 2 patients with a history of low back pain showed the L4-L5

disk to move anteriorly during flexion. The nucleus spread within the L4-L5 disk during flexion instead of migrating posteriorly. Fennel explained the 2 unexpected results in the painful spines as possible disk degeneration etiology.

Gay et al1 also discussed the study of Beattie et al3 about 20 healthy young women with lumbar spine magnetic resonance imaging in extension, and Gay et al stated that they found that the posterior margin of the nucleus in the normal lower lumbar disk tends to move anteriorly with extension and posteriorly with flexion, and there was no anterior nucleus movement. Again, that is not a complete explanation of Beattie's finding. He found that in normal disks without degeneration, the posterior disk margin increased between the posterior margin of the nucleus pulposus and the posterior portion of the vertebral bodies of the normal disks of healthy young females during extension motion. However, 8 of the 20 subjects had at least one degenerative disk in the lower lumbar spine. The nucleus of the degenerative disks did not move the same as normal disks. Degenerative disks deform differently from nondegenerative disks. Other similar studies have shown that the nucleus pulposus moves posterior or does not move with extension movement.4, 5, 6, 7 Reading the article of Gay et al., one is led to believe that the nucleus pulposus always moves anterior on extension and posterior on flexion, when in fact that is not the case. Gay et al accurately cite literature showing that stenosis is induced into the vertebral and the osseoligamentous canals by extension, which causes posterior annulus protrusion, ligamentum flavum buckling, facet imbrication, and narrowing of the posterior disk space.

Hopefully, I have augmented the findings as given in the important paper of Gay et al. The movement of the nucleus pulposus is unpredictable in the degenerated disk. As chiropractors, we treat degenerated disks and need to be aware of their behavior. The intervertebral disk is probably the most common source of chronic low back pain.8 Tolerance testing before applying manipulation to the patient's spine is prudent because of the unpredictable nature of the disk. For safety, I teach that the maximum angle of flexion used is 6° when long y-axis decompression is applied to the motion segment. At that degree, our research has shown that the ligament stresses are well within normal limits so that damage will not occur to the stability of the segments. This small 6° flexion angle used may diminish the value of this discussion, but nevertheless, we must maintain correct biomechanical concepts for future study.

References

1. Gay RE, Bronfort G, Evans RL. Distraction manipulation of the lumbar spine: a review of the literature. J Manipulative Physiol Ther. 2005;28:266–273.
2. Fennell AJ, Jones AP, Hukins DWL. Migration of the nucleus pulposus within the intervertebral disc during flexion and extension of the spine. Spine. 1996;21:2753–2757.
3. Beattie PF, Brooks WM, Rothstein JM, Sibbitt WL, Roberts RA, MacLean T, et al. Effect of lordosis on the position of the nucleus pulposus in supine subjects: a study using magnetic resonance imaging. Spine. 1994;19:2096–2102.
4. Vanharanta H, Ohnmeiss D, Stith W, Rashbaum R, Hochschuler S, Guyer R. et al. Effect of repeated trunk extension and flexion movements as seen by CT/discography orthopedic transactions. Journal of Bone and Joint Surgery 10 Shattuck Street, Boston, Massachusetts, 12115/Volume XIII, Number 1,1987, pg 28. Poster Exhibit, North American Spine Society, Banff, Canada, June, 1987.
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7. Schultz AB, Warwick DN, Berkson MH, Nachemson AL. Mechanical properties of human lumbar spine segments. Part 1. Response in flexion, extension, lateral bending and torsion. J Biomech Eng. 1979;101:46–52.
8. Kuslich SD, Ulstrom CL, Michael CJ. The tissue origin of low back pain and sciatica. Orthop Clin North Am. 1991;22:181–187.

64. McGregor M, Cambron JA, Jedlicka J, Gudavalli MR. Clinical trial variability: quality control in a randomized clinical trial. Contemp Clin Trials. 2009 Jan;30(1):20-3. Epub 2008 Aug 31
INTRODUCTION: A major issue in clinical trials in manual medicine is treatment variability. The challenge is to insure that the bounded treatment options are both representative of field practitioner behavior and consistent among research clinicians. This investigation assesses the treatment comparability of field practitioners and research clinicians, for a flexion-distraction treatment procedure, as quality control for a randomized clinical trial.
METHODS: Using a series of vignettes, we studied the level of agreement of treatment protocols between field clinicians, research clinicians and a reference clinician regarding treatment location, range of motion during treatment, and number of repetitions used within the flexion-distraction protocol.
RESULTS: Results indicated that reliability around decision making for anticipated location of spinal treatment was highest regardless of clinician group. For the research clinicians this level of agreement was ICC=0.88. Decision-making for treatment direction was second highest, at kappa=0.64 for the research clinicians. Reliability around the number of repetitions is poor ranging from ICC=0.18 to 0.34 depending on clinician type.
DISCUSSION: Understanding the disparity in treatment protocols is of value in the construction and maintenance of quality control in an actual randomized clinical trial setting. More work was recommended in the preparation of clinical trials and the understanding of clinical decision-making because these disparate factors may dramatically impact the generalizability of clinical trial results.

65. Hondras MA, Long CR, Cao Y, Rowell RM, Meeker WC. A randomized controlled trial comparing 2 types of spinal manipulation and minimal conservative medical care for adults 55 years and older with subacute or chronic low back pain. J Manipulative and Physiol Ther 2009; 32:330-43
Objective: Chiropractic care is used by many older patients for low back pain (LBP), but there are no published results of randomized trials examining spinal manipulation (SM) for older adults. The purpose of this study was to compare the effects of 2 biomechanically distinct forms of SM and minimal conservative medical care (MCMC) for participants at least 55 years old with subacute or chronic nonradicular LBP.
Methods: Randomized controlled trial. The primary outcome variable was low back-related disability assessed with the 24-item Roland Morris Disability questionnaire at 3, 6, 12, and 24 weeks. Participants were randomly allocated to 6 weeks of care including 12 visits of either high-velocity, low-amplitude (HVLA)-SM, low-velocity, variable-amplitude (LVVA)-SM, or 3 visits of MCMC.
Results: Two hundred forty participants (105 women and 135 men) ages 63.1 ± 6.7 years without significant comorbidities. Adjusted mean Roland Morris Disability change scores (95% confidence intervals) from baseline to the end of active care were 2.9 (2.2, 3.6) and 2.7 (2.0, 3.3) in the LVVA-SM and HVLA-SM groups, respectively, and 1.6 (0.5, 2.8) in the MCMC group. There were no significant differences between LVVA-SM and HVLA-SM at any of the end points. The LVVA-SM group had significant improvements in mean functional status ranging from 1.3 to 2.2 points over the MCMC group. There were no serious adverse events associated with any of the interventions.

Conclusions: Biomechanically distinct forms of SM did not lead to different outcomes in older LBP patients and both SM procedures were associated with small yet clinically important changes in functional status by the end of treatment for this relatively healthy older population. Participants who received either form of SM had improvements on average in functional status ranging from 1 to 2.2 over those who received MCMC. From an evidence-based care perspective, patient preference and clinical experience should drive how clinicians and patients make the SM procedure decision for this patient population.

66. Editorial Response by Cox JM: A randomized controlled trial comparing 2 types of spinal manipulation and minimal conservative medical care for adults 55 years and older with subacute or chronic low back pain. J of Manipulative and Physiol Therap 2009; 32(7):601

Hondras et al1 reported on comparison of low-velocity, low-amplitude spinal manipulation (Cox flexion distraction) to high-velocity, low-amplitude adjusting (side-lying lumbar roll adjustment) to minimal conservative medical care for adults older than 55 years with subacute or chronic nonradicular low back pain. The reported result was both forms of manipulation yielded equal clinical relief with low-velocity, low-amplitude adjusting (eg, Cox technique) having significant improvement in mean functional status over medical care.

However, patients were excluded from the study "if they had low back pain associated with frank radiculopathy or neurological signs such as altered lower extremity reflex, dermatosensory deficit, progressive unilateral muscle weakness or motor loss, symptoms of cauda equina compression, or computed tomography or magnetic resonance imaging evidence of anatomical pathology (eg, abnormal disk, lateral or central stenosis)." It seems nearly impossible to find patients without disk degeneration. Disk diseases of degeneration, herniation, and spinal stenosis causing low back and lower extremity pain are the most painful and challenging cases seen in chiropractic practice. Failed back surgical syndrome patients are also included with these patients, and this is an ever-increasing patient load.2 These cases are growing in numbers in chiropractic offices because of the "baby boomer" influx of older Americans who develop spinal stenosis as a part of the degenerative aging process. They are the 5% of the cases of back pain that absorb 75% of the cost in back care in the United States today.3

It is not a question of using only one adjustment form or the other but rather how they complement one another to gain the best clinical outcome for the patient. Nearly 60% of chiropractors use flexion distraction in their practices, using it on 23.5% of their patients—those patients for whom the doctor feels it to be most indicated to give the best clinical outcome.4 Patients with severe low back and radiculopathy were excluded from this study.

In the real world of clinical chiropractic, it is the excluded patients from this study that represent the greatest challenge, and flexion distraction becomes the most important spinal adjustment. Gudavalli authored the article showing superiority of flexion distraction decompression adjusting over medical care (physical therapy) in treating low back and radicular pain patients.5 Had the article of Hondras included the severe low back and radicular patient with spinal stenosis and disk herniation disease, the outcomes could have better revealed the place and need for flexion distraction spinal manipulation and side posture adjusting as determined by clinical relief and improved patient tolerance.

Selection of patient conditions for such studies needs input from field practitioners as to the type of patients presenting the greatest clinical challenge. In this author's opinion, the exclusions in this study would not have been selected had such been done. It is the field practitioner who depends on this type of study for clinical guidance in patient care. The excluded conditions from this study make its conclusions limited in value via exclusion of the most difficult problems seen in clinical practice.

67. Stuber K, Sajko S, Kristmanson K. Chiropractic treatment of lumbar spinal stenosis: a review of the literature. J Chiropr Med. 2009 Jun;8(2):77-85. doi: 10.1016/j.jcm.2009.02.001.
The objective of this article was to review the literature on the use of chiropractic for the treatment of lumbar spinal stenosis. Six articles on a total of 70 patients met the inclusion criteria for the review. These articles included 4 case studies, a case series, and an observational cohort study. Treatments included spinal manipulation and, most often, flexion-distraction manipulation. Numerous other interventions including exercise, activity of daily living modifications, and various passive care modalities were selectively used in the included studies. There is a paucity of evidence available with respect to chiropractic treatment of spinal stenosis. The limited evidence that is available points toward chiropractic care being potentially beneficial in the treatment of patients with lumbar spinal stenosis, but further clinical investigations are necessary.

68. Lillie GR. Resolution of low back and radicular pain in a 40-year-old male United States Navy Petty Officer after collaborative medical and chiropractic care. J Chiropr Med. 2010 Mar;9(1):17-21. doi: 10.1016/j.jcm.2009.12.006.
The aim of this study is to describe the interdisciplinary care, including chiropractic services, in a military health care facility of an active duty member of the United States Navy with low back pain, leg pain, and foot numbness. A 40-year-old patient developed low back pain, leg pain, and foot numbness after moving furniture. The patient described his symptoms as pain in the right low back, pain shooting into the right lateral thigh and lower leg, and numbness into the right lateral foot. Magnetic resonance imaging confirmed disk extrusion at L4/L5 occupying the lateral recess and abutting the exiting right L5 nerve root. Providers, including primary care, chiropractic, and orthopedics, in an established multidisciplinary health care system contributed to the case management. The patient received 11 chiropractic treatments (spinal manipulation, flexion-distraction, abdominal rehab exercises) over 72 days. Subjective complaints resolved, and the patient was released back to full duty. Integrative care, using medical and chiropractic services, was successful in the conservative management of a patient with low back pain and radicular symptoms secondary to disk extrusion.

69. Kruse R, Cambron J: Chiropractic Management of Postsurgical Lumbar Spine Pain: A Retrospective Study of 32 Cases. J of Manipulative and Physiological Therapeutics 2011; 34(6):408-412
Post-surgical continued pain patients, aka FBSS or Failed Back Surgical Syndrome, seek relief, any relief. Chiropractic offers it. In this retrospective study of 32 patients treated with chiropractic Cox Technic flexion distraction, the patients reported improvement:
    4.1 out of 10 points overall
    5.7 out of 10 points in patients who underwent combined surgeries (lumbar discectomy, fusion and/or laminectomy)
Best of all, no adverse side effects from the chiropractic Cox Technic treatment were reported!

70. Murphy, DR; Hurwitz, EL; Gregory, AA; Clary, R. A non-surgical approach to the management of lumbar spinal stenosis: A prospective observational cohort study. BMC Musculoskeletal Disorders 2006; 7:NIL_1-NIL_8
New study of Cox® Distraction Manipulation in the treatment of lumbar spine stenosis lumbar spinal stenosis patients improved by 76% and disability improved in 73%

71. Kruse R, Cambron J: Cox decompression chiropractic manipulation of a patient with postsurgical lumbar fusion: a case report. J of Chiro Med 2011; 10(4):255-260
13 visits to attain 0 out of 10 pain score and 2% Oswestry. At 2 year follow-up, still resolved.

72. Manison A: Chiropractic management using Cox cervical flexion-distraction technique for a disk herniation with left foraminal narrowing in a 64-year-old man. J of Chiro Med 2011; 10(4):316-321
Relief of neck pain and arm pain in 10 visits in 4 weeks which continues at 8 months. C6/7 left posteromedial disk

73. Rowell RM, Rylander SJ. Low-Back Pain, Leg Pain, and Chronic Idiopathic Testicular Pain Treated with Chiropractic Care. J Altern Complement Med. 2012 Apr 10. [Epub ahead of print] 18(4): 420-422
Testicular Pain (and Low Back Pain and Leg Pain) Relieved with Cox Technic
36 year old man with 5 years of lower back pain, right leg pain, testicular pain
19 treatments with Cox Technic (flexion distraction) in 8 weeks
Testicular pain – improved at 1 visit; gone in 3 weeks; still gone at 6 month follow up
Low back pain – decreased at 4 weeks
Leg pain – gone at 4 weeks

74. Cox JM: Chiropractic management of a patient with lumbar spine pain due to a synovial cyst: a case report. J of Chiropractic Medicine 2012; 11(1):7-15
75 year old man with low back pain and right anterior thigh and left posterior leg pain of 3 years' duration is relieved with Cox Technic (flexion distraction).
4 visits – no right or left leg pain
3 months of 16 visits – low back and buttock pain are minimal with no leg pain
80% relief

75. Fersum, KV; Dankaerts, W; O'Sullivan, PB; Maes, J; Skouen, JS; Bjordal, JM; Kvale, A. Integration of subclassification strategies in randomised controlled clinical trials evaluating manual therapy treatment and exercise therapy for non-specific chronic low back pain: a systematic review. British Journal Of Sports Medicine 201;44 (14):1054-1062
Physical therapists take flexion distraction to new defined protocols for subclassifications of non-specific chronic low back pain.

76. Ma, SY; Je, HD; Kim, HD. A Multimodal Treatment Approach using Spinal Decompression via SpineMED, Flexion-Distraction Mobilization of the Cervical Spine, and Cervical Stabilization Exercises for the Treatment of Cervical Radiculopathy. Journal Of Physical Therapy Science 2011;23 (1):1-6
Patients received treatment in 85 minute sessions, 6 days per week for the first two weeks, and 4 days per week for two additional weeks. Treatment protocol consisted of spinal decompression via SpineMED and flexion-distraction mobilization of the cervical spine as well as cervical stabilization exercises. Physical therapy modalities including superficial heat, ultrasound, and interferential current were also delivered prior to administration of SpineMED. Differences between patients' pre-intervention and discharge outcome measures, pain on a visual analogue scale (VAS) and neck disability index (NDI), were examined using a paired t-test. [Results] Mean measures of patients' VAS and NDI demonstrated significant improvement after being treated with 20 sessions of combined treatment. [Conclusion] Findings of the present study provide significant evidence to support the efficacy of a multimodal treatment approach using spinal decompression via SpineMED and spinal mobilization as well as cervical stabilization exercises. A multimodal approach might be an asset in the management of cervical spine disorders.

77. Hope, M: The effect of flexion distraction therapy on the lumbar spine on the electromyographic effect of the erector spinae muscles in lumbar facet dysfunction patients. University of Johannesburg Chiropractic Clinic. Published 6-30-11
(https://ujdigispace.uj.ac.za/bitstream/handle/10210/3765/Hope.pdf?sequence=1)
In light of these findings it can be concluded that flexion distraction therapy demonstrated favourable treatment results in terms of the pain experienced by the subjects, the resting rate and contraction ability of the Erector Spinae muscles.

78. Dunn AS, Baylis S, Ryan D. Chiropractic management of mechanical low back pain secondary to multiple-level lumbar spondylolysis with spondylolisthesis in a United States Marine Corps veteran: a case report. J Chiropr Med. 2009;8(3):125-30.
A course of conservative management consisting of 10 treatments including lumbar flexion/distraction and activity modification was provided over an 8-week period. Despite the long-standing nature of the complaint and underlying multiple-level lumbar spondylolysis with spondylolisthesis, there was a 25% reduction in low back pain severity on the numeric rating scale and a 22% reduction in perceived disability related to low back pain on the Revised Oswestry Disability Questionnaire.

79. Ndetan, H, Rupert R, Bae S, Singh, K: Prevalence of musculoskeletal injuries sustained by students while attending a chiropractic college. Journal of Manipulative and Physiological Therapeutics 2009;32(2):140-48
Cox flexion distraction showed almost no adverse side effects in its clinical application of manipulation to doctor and 1 in 54 of patients being manipulated.
Distributions of injuries associated with adjusting techniques and specifically training-related activities at Parker College of Chiropractic, 2006 (student perception of injury sources)

Adjusting Technique			
Diversified	280 cases	61 to doctor (22%)	74 injuries to patient (26%)
Thompson	142 cases	3 (2%)	25 (18%)
Gonstead	135 cases	31 (23%)	39 (29%)
Cox F/D	54 cases	0 (0%)	1 (2%)

80. Cox JM: Failed back surgical syndrome - L1-L2 and L5-S1 disc herniations following L4-S1 spinal fusion: a case report. JACO; September 2009. (Proceedings of ACCO Conference in San Antonio)

81. Greenwood D: Improvement in chronic low back pain in an aviation crash survivor with adjacent segment disease following flexion distraction therapy: a case study. J of Chiropractic Medicine 2012; 11(4):300-305
A chronic low back pain patient with a 3-year history of chronic non-specific low back pain due to a lumbar disc herniation after an accident that left him with fractures and cauda equina syndrome that required fusion surgery, vertebrectomy and cage reconstruction. His adjacent segment disease is relieved with Cox Flexion Distraction protocols over 4 weeks, attaining 0/10 on the numerical pain scale. At 3 months, he works 8 to 9 hours a day. At 9 months, he reports continued complete reduction of symptoms.

82. Gudavalli R, Potluri T, Caranandang G, Havey R, Vornov L, Cox J, Rowell R , Kruse R, Joachim G, Patwardhan A, Henderson, Goertz: Intradiscal Pressure Changes during Manual Cervical Distraction: A Cadaveric Study. Evidence-Based Complementary and Alternative Medicine Volume 2013 (2013), Article ID 954134, 10 pages http://dx.doi.org/10.1155/2013/954134

In this cadaveric study we observed **decreases in IDP in the lower cervical spine during a chiropractic MCD procedure in prone position**. Based on the maximum number of specimens DC1 has done, moving flexion and traction seem to reduce more IDP, followed by neutral traction, fixed flexion and tractions, and generalized traction. Although the doctors of chiropractic in this study demonstrated good intraclinician reliability, the magnitude of traction forces varied. Larger powered studies should be undertaken to determine if these decreases in IDP are significant depending on the doctor, contact location, and the different traction procedures. Also, the clinical significance of these differences is unknown.

83. Coulis CM, Lisi AJ. Chiropractic management of postoperative spine pain: a report of 3 cases. J Chiropr Med. 2013 Sep;12(3):168-75. doi: 10.1016/j.jcm.2013.10.006.
The purpose of this case series is to describe chiropractic care including spinal manipulation for 3 patients with postsurgical spine pain. Three patients with postsurgical spine pain (1 cervical fusion, 1 lumbar discectomy, and 1 lumbar laminectomy) presented for chiropractic treatment at a major US medical center. Treatment included spinal manipulation and/or flexion-distraction mobilization based on patient response to joint loading strategies. In these 3 cases, patients with postsurgical spine pain responded positively to chiropractic care. Spinal manipulation/mobilization was tolerated without significant adverse effects.

84. Gudavalli MR, Vining RD, Salsbury SA, Goertz CM. Training and certification of doctors of chiropractic in delivering manual cervical traction forces: Results of a longitudinal observational study. J Chiropr Educ. 2014 Sep 19.
Doctors of chiropractic (DCs) use manual cervical distraction to treat patients with neck pain. Previous research demonstrates variability in traction forces generated by different DCs. This article reports on a training protocol and monthly certification process using bioengineering technology to standardize cervical traction force delivery among clinicians. Methods: This longitudinal observational study evaluated a training and certification process for DCs who provided force-based manual cervical distraction during a randomized clinical trial. The DCs completed a 7-week initial training that included instructional lectures, observation, and guided practice by a clinical expert, followed by 3 hours of weekly practice sessions delivering the technique to asymptomatic volunteers who served as simulated patients. An instrument-modified table and computer software provided the DCs with real-time audible and visual feedback on the traction forces they generated and graphical displays of the magnitude of traction forces as a function of time immediately after the delivery of the treatment. The DCs completed monthly certifications on traction force delivery throughout the trial. Descriptive accounts of certification attempts are provided. Results : Two DCs achieved certification in traction force delivery over 10 consecutive months. No certification required more than 3 attempts at C5 and occiput contacts for 3 force ranges (0-20 N, 21-50 N, and 51-100 N). Conclusions: This study demonstrates the feasibility of a training protocol and certification process using bioengineering technology for training DCs to deliver manual cervical distraction within specified traction force ranges over a 10-month period.

85. Maruti Ram Gudavalli, PhD, James M. Cox, DC, DACBR: Real-time force feedback during flexion-distraction procedure for low back pain: A pilot study. J Can Chiropr Assoc 2014; 58(2):193-197
This paper reports on the development of real-time feedback on the applied forces during the application of the flexion-distraction procedure. In this pilot study **we measured the forces applied by experienced DCs as well as novice DCs in using this procedure**. After a **brief training with real-time feedback novice DCs have improved on the magnitude of the applied forces**. This real-time feedback technology is promising to do systematic studies in training DCs during the application of this procedure.

86. Gudavalli Maruti Ram et al. Clinician proficiency in delivering manual treatment for neck pain within specified force ranges. The Spine Journal 2015; Volume 15 , Issue 4 , 570 – 576
Clinician proficiency in delivering cervical traction forces within three specified ranges (low force, less than 20 N; medium force, 21–50 N; and high force 51–100 N). **Clinicians delivered manual cervical distraction treatments within the prescribed traction force ranges 75% of the time without visual feedback and 97% of the time with visual feedback**. This study demonstrates that doctors of chiropractic can successfully deliver prescribed traction forces while treating neck pain patients, enabling the capability to conduct force-based dose response clinical studies.

87. Gudavalli MR, Salsbury SA, Vining RD, Long CR, Corber L, Patwardhan AG, Goertz CM. Development of an attention-touch control for manual cervical distraction: a pilot randomized clinical trial for patients with neck pain. Trials. 2015 Jun 5;16(1):259. doi: 10.1186/s13063-015-0770-6.
This pilot study demonstrated the **feasibility of a clinical trial protocol and the utility of a traction-based, minimal intervention as an attention-touch control for future efficacy trials of MCD for patients with neck pain**.

88. Xia T, Long CR, Gudavalli MR, Wilder DG, Vining RD, Rowell RM, Reed WR, DeVocht JW, Goertz CM, Owens EF, Meeker WC. Similar Effects of Thrust and Non-Thrust Spinal Manipulation Found in Adults With Subacute and Chronic Low Back Pain - A Controlled Trial with Adaptive Allocation. Spine (Phila Pa 1976). 2015 Dec 10. [Epub ahead of print]
    - compares short-term effects of a side-lying, thrust spinal manipulation (SM) procedure and a non-thrust, flexion-distraction SM procedure in adults with subacute or chronic low back pain (LBP) over 2 weeks.
    - Thrust and non-thrust SM procedures with distinctly different joint loading characteristics demonstrated similar effects in short-term LBP improvement and both were superior to a wait list control.

89. Gudavalli MR, Olding K, Joachim G, Cox JM: Chiropractic Distraction Spinal Manipulation On Postsurgical Continued Low Back And Radicular Pain Patients: A Retrospective Case Series. Journal Of Chiropractic Medicine 2016; 15(2):121-128
    - At the end of active care, 54 (81%) of patients report greater than 50% pain relief and 13 (19%) less than 50% pain relief. (mean active care: 49 days, average 11 treatments)
    - At 24 months following active treatment, 56 patients returned the survey. 46 (82%) patients report pain relief of greater than 50%, and 10 (18%) patients report 50% or less relief.
    - The mean percent of relief at the end of active care was 71.6 (Standard Deviation (SD): 23.2), and at 24 months was 70 (SD:25).
    - Further at 24 months,
        - 24 patients (43%) had not sought further care
        - 32 patients required further treatment consisting of
        - chiropractic manipulation for 17 (53%),
        - physical therapy, exercise, injections, and medication for 9 (28%), and
        - additional surgery for 5 (16%).
    - Greater than 50% pain relief following chiropractic distraction spinal manipulation was seen in 81% of PSCP patients receiving a mean of 11 treatment visits over a 49 day period of active care. Further systematic and randomized clinical studies are required to determine the benefits of spinal manipulation for post-surgical continued pain patients.

90. Albano L. Innovative application of Cox Flexion Distraction Decompression to the knee: a retrospective case series. J Can Chiropr Assoc. 2017 Aug;61(2):153-161.
The purpose of this study is to introduce the application of Cox flexion distraction decompression as an innovative approach to treating knee pain and osteoarthritis. For all 25 patients, a change was observed in the mean VAS scores from 7.7 to 1.8. The mean number of treatments was 5.3 over an average of 3.0 weeks. Acute patient mean VAS scores dropped from 8.1 to 1.1 within 4.8 treatments over 2.4 weeks. Chronic patient mean VAS scores dropped from 7.5 to 2.2 within 5.4 treatments over 3.3 weeks. No adverse events were reported. This study showed clinical improvement in patients with knee pain who were managed with Cox flexion distraction decompression applied to the knee.

91. Kruse R. Chiropractic Management of Cervicalgia in a Patient with Diffuse Idiopathic Skeletal Hyperostosis Utilizing Cox Manual Cervical Distraction: A Case Report. Journal of the Academy of Chiropractic Orthopedists. June 2017, Volume 14, Issue 2. http://dcorthoacademy.org/journal-issues/chiropractic-management-of-cervicalgia-in-a-patient-with-diffuse-idiopathic-skeletal-hyperostosis-utilizing-cox-manual-cervical-distraction-a-case-report/
A 59 year-old female presented with chronic constant neck pain and stiffness which limited her ability to perform activities of daily living (ADLs). Cervical spine radiographs revealed findings consistent with DISH. This patient was treated with Cox manual cervical distraction resulting in a decrease in the severity and frequency of her pain and improved ability to perform ADLs. Protocol II was utilized to help promote normal facet mobility. This case study describes the treatment of a 59 year old woman with chronic neck pain in the setting of DISH.

92. Joachim GC. Cox Decompression Manipulation and Guided Rehabilitation of a Patient With a Post Surgical C6-C7 Fusion With Spondylotic Myelopathy and Concurrent L5-S1 Radiculopathy. J Chiropr Med. 2014 Jun; 13(2): 110–115. doi: 10.1016/j.jcm.2014.06.005 PMCID: PMC4322019
A 38-year-old man presented to a chiropractic clinic with neck pain and a history of an anterior cervical spine plate fusion at C6-7 after a work related accident 4 years earlier. He had signs and symptoms of spondolytic myelopathy and right lower back, right posterior thigh pain and numbness. The patient was treated with Cox technique and rehabilitation. The patient experienced a reduction of pain on a numeric pain scale from 8/10 to 3/10. The patient was seen a total of 12 visits over 3 months. No adverse effects were reported. A patient with a prior C6-7 fusion with spondylotic myelopathy and concurrent L5-S1 radiculopathy improved after a course of rehabilitation and Cox distraction manipulation. Further research is needed to establish its efficiency.

93. Daniels CJ, Wakefield PJ, Bub GA, Toombs JD. A Narrative Review of Lumbar Fusion Surgery With Relevance to Chiropractic Practice. J Chiropr Med. 2016 Dec;15(4):259-271. Epub 2016 Oct 18.
This article describes the indications for fusion, common surgical practice, potential complications, and relevant published chiropractic literature. This review includes 10 cases that showed positive benefits from chiropractic manipulation, flexion-distraction, and/or manipulation under anesthesia for postfusion lumbar pain. Chiropractic care may have a role in helping patients in pain who have undergone lumbar fusion surgery.

94. Villafañe FE, Harvey A, Kettner N. Redundant Nerve Root in a Patient With Chronic Lumbar Degenerative Canal Stenosis. J Chiropr Med. 2017 Sep;16(3):236-241. doi: 10.1016/j.jcm.2017.02.001. Epub 2017 Apr 7.
The purpose of this case report is to describe the diagnostic imaging features of redundant nerve roots caused by chronic lumbar degenerative canal stenosis (CLDCS). The patient was treated with chiropractic

flexion distraction, which was followed by a course of acupuncture and spinal manipulation. The patient self-discharged following clinical improvement.

95. Choi J, Lee S, Jeon C. Effects of flexion-distraction manipulation therapy on pain and disability in patients with lumbar spinal stenosis. J Phys Ther Sci. 2015 Jun;27(6):1937-9. doi: 10.1589/jpts.27.1937. Epub 2015 Jun 30.
This study examined the effects of flexion-distraction manipulation therapy on pain and disability in patients with lumbar spinal stenosis. Thirty patients with lumbar spinal stenosis were divided into two groups: a conservative treatment group (n=15) and a flexion-distraction manipulation group (n=15). The conservative treatment group received conservative physical therapy, and the flexion-distraction group received both conservative physical therapy and flexion-distraction manipulation therapy. Both groups received treatment 3 times a week for 6 weeks. The Visual Analog Scale was used to measure pain intensity, and the Oswestry Disability Index was used to evaluate the level of disability caused by the pain. The Visual Analog Scale scores for pain were significantly decreased in both groups. In the between-group comparison, the decrease in pain was more significant in the flexion-distraction group. According to the Oswestry Disability Index, the level of disability was significantly decreased in both groups, but the decrease was more significant in the flexion-distraction group. [Conclusion] Flexion-distraction manipulation appears to be an effective intervention for pain and disability among patients with lumbar spinal stenosis.

96. Cambron JA, Schneider M, Dexheimer JM, Iannelli G, Chang M, Terhorst L, Cramer GD. A pilot randomized controlled trial of flexion-distraction dosage for chiropractic treatment of lumbar spinal stenosis. J Manipulative Physiol Ther. 2014 Jul-Aug;37(6):396-406. doi: 10.1016/j.jmpt.2014.05.005. Epub 2014 Aug 6.
The purpose of this pilot clinical trial was to assess the feasibility of recruiting older adults with lumbar spinal stenosis (LSS) into a clinical trial that used different dosages of flexion-distraction manipulation. This randomized controlled trial used a 4-group design. Three groups consisted of chiropractic flexion-distraction manipulation applied at different dosages (8, 12, or 18 treatments). The fourth group was given 8 treatments of placebo care. The recruitment and adherence goals of the study were met with a total of 60 subjects randomized (n = 15 per group) and most subjects attending at least 75% of their scheduled visits. No adverse events were reported by any of the subjects in the trial. Our placebo treatment did not appear to be credible; most subjects correctly guessed that they were receiving a placebo treatment. Between-group effect size estimates were small, indicating larger samples are needed for future studies. This pilot study showed that it is feasible to recruit patients with LSS and that most subjects will adhere to a 6-week treatment schedule. The information gained from this trial will be useful to inform the design of larger trials.

97. Ammendolia C, Chow N. Clinical outcomes for neurogenic claudication using a multimodal program for lumbar spinal stenosis: a retrospective study. J Manipulative Physiol Ther. 2015 Mar-Apr;38(3):188-94. doi: 10.1016/j.jmpt.2014.12.006. Epub 2015 Jan 22.
The purpose of this preliminary study was to assess the effectiveness of a 6-week, nonsurgical, multimodal program that addresses the multifaceted aspects of neurogenic claudication. In this retrospective study, 2 researchers independently extracted data from the medical records from January 2010 to April 2013 of consecutive eligible patients who had completed the 6-week Boot Camp Program. The program consisted of manual therapy twice per week (eg, soft tissue and neural mobilization, chiropractic spinal manipulation, **lumbar flexion-distraction**, and muscle stretching), structured home-based exercises, and instruction of self-management strategies. A paired t test was used to compare

differences in outcomes from baseline to 6-week follow-up. Outcomes included self-reported pain, disability, walking ability, and treatment satisfaction. A total of 49 patients were enrolled, with a mean age of 70 years. The mean difference in the Oswestry Disability Index was 15.2 (95% confidence interval [CI], 11.39-18.92), and that for the functional and symptoms scales of the Swiss Spinal Stenosis Questionnaire was 0.41 (95% CI, 0.26-0.56) and 0.74 (95% CI, 0.55-0.93), respectively. Numeric pain scores for both leg and back showed statistically significant improvements. Improvements in all outcomes were clinically important. This study showed preliminary evidence for improved outcomes in patients with neurogenic claudication participating in a 6-week nonsurgical multimodal Boot Camp Program.

98. Howell ER. Conservative management of a 31 year old male with left sided low back and leg pain: a case report. J Can Chiropr Assoc. 2012 Sep;56(3):225-32.
OBJECTIVE: This case study reported the conservative management of a patient presenting with left sided low back and leg pain diagnosed as a left sided L5-S1 disc prolapse/herniation.
CLINICAL FEATURES: A 31-year-old male recreational worker presented with left sided low back and leg pain for the previous 3-4 months that was exacerbated by prolonged sitting.
INTERVENTION AND OUTCOME: The plan of management included interferential current, soft tissue trigger point and myofascial therapy, **lateral recumbent manual low velocity, low amplitude traction mobilizations** and pelvic blocking as necessary. Home care included heat, icing, neural mobilizations, repeated extension exercises, stretching, core muscle strengthening, as well as the avoidance of prolonged sitting and using a low back support in his work chair. The patient responded well after the first visit and his leg and back pain were almost completely resolved by the third visit.
SUMMARY: Conservative chiropractic care appears to reduce pain and improve mobility in this case of a L5-S1 disc herniation. Active rehabilitative treatment strategies are recommended before surgical referral.

99. Cox JM: Letter to the Editor: Response to "Best Practices for Chiropractic Care for Older Adults: A Systematic Review and Consensus Update." Journal of Manipulative & Physiological Therapeutics , Volume 40 , Issue 7 , 544 – 545

100. Aspegren D, Enebo B, Miller M, White L, Akuthota V, Hyde T, Cox JM: Functional Scores and Subjective Responses of Injured Workers With Back or Neck Pain Treated With Chiropractic Care in an Integrative Program: A Retrospective Analysis of 100 Cases. Journal of Manipulative & Physiological Therapeutics , Volume 32 , Issue 9 , 765 – 771
    - The study identified positive effects of chiropractic management included in integrative care when treating work-related neck or back pain. Improvement in both functional scores and subjective response was noted in all 3 time-based phases of patient status (acute, subacute, and chronic).

101. Cox JM, Keating J: Osteopathy meets chiropractic: evolution of the flexion-distraction technique. Chiropractic History 2006; 75-87

102. Stuber K, Sajko S, Kristmanson K: Chiropractic treatment of lumbar spinal stenosis: a review of the literature. J Chiro Med 2009; 8(2):77–85.
There is a paucity of evidence available with respect to chiropractic treatment of spinal stenosis. The limited evidence that is available points toward chiropractic care being potentially beneficial in the treatment of patients with lumbar spinal stenosis, but further clinical investigations are necessary. Six articles on a total of 70 patients met the inclusion criteria for the review. These articles included 4 case

studies, a case series, and an observational cohort study. Treatments included spinal manipulation and, **most often, flexion-distraction manipulation**.

103. Choi J, Hwangbo G, Park J, Lee S. The Effects of Manual Therapy Using Joint Mobilization and Flexion-distraction Techniques on Chronic Low Back Pain and Disc Heights. J Phys Ther Sci. 2014 Aug;26(8):1259-62. doi: 10.1589/jpts.26.1259. Epub 2014 Aug 30.
Manual therapy using joint mobilization techniques and flexion-distraction techniques is considered an effective intervention for addressing low back pain and disc heights in patients with chronic low back pain.

104. Oh H, Lee S, Lee K, Jeong M. The effects of flexion-distraction and drop techniques on disorders and Ferguson's angle in female patients with lumbar intervertebral disc herniation. J Phys Ther Sci. 2018 Apr;30(4):536-539. doi: 10.1589/jpts.30.536. Epub 2018 Apr 13.
Flexion-distraction and drop techniques may be an effective intervention to improve disorders and Ferguson's angle in female patients with lumbar intervertebral disc herniation.

105. Cornelson SM1, Beavers D2, Harvey A2, Hogarth W2, Kettner NW1. Chiropractic Care in the Management of Inactive Ankylosing Spondylitis: A Case Series. J Chiropr Med. 2017 Dec;16(4):300-307. doi: 10.1016/j.jcm.2017.10.002. Epub 2017 Dec 7.
This report describes chiropractic management for 3 cases of inactive ankylosing spondylitis (AS). Patients were managed by both a medical rheumatologist and a doctor of chiropractic. **Chiropractic care ranged from instrument-assisted spinal manipulation to diversified spinal and soft tissue manipulation and Cox flexion-distraction**. Patients were given home stretches and rehabilitation exercises. All 3 patients experienced some relief of their symptoms including pain reduction and improved activities of daily living. These 3 patients displayed differences and commonalities in clinical, laboratory, and imaging features. Chiropractic manipulation and rehabilitation seemed to be beneficial in reducing symptomatology and improving musculoskeletal function for these 3 patients. These findings suggest the potential for collaborative or integrative management in similar cases.

106. Onifer SM, Reed WR, Sozio RS, Long CR. Antinociceptive Effects of Spinal Manipulative Therapy on Nociceptive Behavior of Adult Rats during the Formalin Test. Evid Based Complement Alternat Med. 2015;2015:520454. doi: 10.1155/2015/520454. Epub 2015 Nov 26.
In this study Cox® Technic is referred to as "low velocity variable amplitude spinal manipulation."
Administration of LVVA-SM in a rat study shows short-term, remote antinociceptive effect similar to clinical findings.

107. Carrasco-Martíneza F, Ibáñez-Verab AJ, Martínez-Amat A, Hita-Contreras F, Lomas-Vega R. Short-term effectiveness of the flexion-distraction technique in comparison with high-velocity vertebral manipulation in patients suffering from low-back pain. Complementary Therapies in Medicine June 2019, Volume 44, Pages 61-67 https://doi.org/10.1016/j.ctim.2019.02.012
Patients with low back pain treated with Flexion-Distraction technique showed and improvement of at least 50% in pain. Flexion-Distraction obtain better results in low back function than high velocity and low amplitude-spinal manipulation. Flexion-Distraction technique could be an effective alternative of low back pain management.

108. Kruse RA, White BA, Gudavalli S. Management of Lumbar Radiculopathy Associated With an Extruded L4-L5 Spondylolytic Spondylolisthesis Using Flexion-Distraction Manipulation: A Case Study. J Chiropr Med.

2019 Dec;18(4):311-316. doi: 10.1016/j.jcm.2019.02.001. Epub 2020 Mar 9. PMID: 33408591; PMCID: PMC7774099.

109. Hwang EH, Kim JY: The study on the asymmetry ratio of surface EMG in low back pain groups. —before and after flexion—distraction technique. J Korea CHUNA. Man Med, 2004, 5: 243–249 [Google Scholar]
Objectives : This study is to evaluate the effect of flexion-distraction technique by measuring surface EMG in low back pain groups. Methods : 5 low back pain patients' contact time, power, fatigue, recovery of muscle were measured before and after flexion-distraction technique. Results : The asymmetry ratio of surface EMG in low back pain groups were Increased, but decreased after flexion-distraction technique. Conclusions : Surface EMG might be used for evaluating the effect of flexion-distraction technique.

110. Pagnez MAM1, Corrêa LA2, Almeida RS3, Meziat-Filho NA2, Mathieson S4, Ricard F5, Nogueira LAC6. The Variation of Cross-Sectional Area of the Sciatic Nerve in Flexion-Distraction Technique: A Cross-Sectional Study. J Manipulative Physiol Ther. 2019 Apr 24. pii: S0161-4754(17)30264-6. doi: 10.1016/j.jmpt.2019.03.003. [Epub ahead of print] [Article in Spanish]
The combination of knee extension and ankle dorsiflexion reduced the CSA of the sciatic nerve, and flexing the knee and keeping the ankle in the neutral position increased it.

111. Kwon, W.-A., Ryu, Y.-S., & amp; Ma, S.-Y. (2012). The effects of Cox distraction on functional assessment measures and disc herniation index in patients with L4-5 herniated disc. Journal of the Korean Data and Information Science Society, 23 (4), 727-738. https://doi.org/10.7465/jkdi.2012.23.4.727
The purpose of the present study was to determine the effect of a 4 week course of Cox distraction manipulation (CDM) combined with therapeutic modalities on the treatment of patients with L4-5 herniated nucleus pulposus (HNP). A total of 15 patients with L4-5 HNP (mean age, 37.76 years; age range 20-50 years) participated in the study. A 4 week course of CDM combined with therapeutic modalities was delivered to the patients for 6 days per week for the first two weeks, and three times per week for two additional weeks. The entire treatment consisted of 18 visits over 4 week period. Comparisons of changes in the muscle strengthening (MS), straight leg raise (SLR), and Oswestry disability index (ODI) at pre-intervention, after two weeks treatment sessions, and at discharge (after 18 treatment sessions) were analyzed. Comparisons of changes in the disc herniation index (DHI) at pre-intervention and at discharge were analyzed using the paired t-test. There were significant improvements in the outcome measures of MS Ibs, SLR test, and ODI score after 2 weeks and 4 weeks sessions of CDM combined with therapeutic modalities as compared with the pre-intervention. However, no significant different pre-test and post-test DHI. CDM combined with therapeutic modalities appears to be a safe and efficacious, noninvasive treatment modality for patients with L4-5 HNP.

112. Siciliano T, Rogers C, Kruse R. Management Of Chronic Low Back Pain In An 80-Year-Old Female Utilizing Modified Side-Lying Cox Technic Flexion Distraction Decompression: A Case Report. Journal Of Contemporary Chiropractic, Vol. 4, No. 1, Mar. 2021, Pp. 35-39, https://Journal.Parker.Edu/Index.Php/Jcc/Article/View/150.
Conclusion: The results of this episode of chiropractic care, utilizing side-lying Cox® Technic flexion-distraction decompression, resulted in favorable outcomes. This particular patient experienced reduced pain, increased sleep, and increased mobility after a trial of 16 treatments. This case demonstrates that a modified Cox® Technic flexion-distraction protocol may benefit patients with low back pain, who are unable to receive treatment in the traditional prone position.

113. Smith D, Olding K. Malaya C, McCarty M, Haworth J, Pohlman K: The Influence Of Spinal Manipulation On Patients With Lumbar Spinal Stenosis: A Pilot Study. J of Bodywork & Movement Therapies. Accepted for publication May 15, 2022.

114. Kruse R, Gudavalli MR, et al. Prospective Study of Post-Surgical Continued Pain (PSCP) Patients Undergoing Flexion Distraction Decompression Spinal Manipulation: Analysis Utilizing the Patient-Reported Outcomes Measurement Information System (PROMIS). The Spine Journal. Submitted on June 2, 2022.

Poster Presentations

- Cox J, Gudavalli MR, Olding K, Joachim G. Outcomes Of Chiropractic Distraction Spinal Manipulation On Post-Surgical Continued Low Back And Radicular Pain Patients: A Retrospective Case Series Study. Presented at ACC RAC March 2016.

- Kruse R. presented "Kruse R, Gudavalli MR, White B, Duran MB. Prospective Study of Post-Surgical Continued Pain (PSCP) Patients Undergoing Chiropractic Flexion Distraction Spinal Manipulation: Analysis Utilizing Patient-Reported Outcomes At 3 Months." at the International Consortium on Manual Therapies. Virtual Live Conference. May 21, 2022. Sponsored by AT Still College of Osteopathic Medicine.

- Kruse R presented "Gudavalli MR, Kruse R, White B, Rider S. Intra-Observer Reliability Of Ultrasound Measurements Of Lumbar Spinous Processes In A Prone Position On A Chiropractic Table." at the International Consortium on Manual Therapies. Virtual Live Conference. May 21, 2022. Sponsored by AT Still College of Osteopathic Medicine.

- Olding K presented "Smith D, Olding K. Malaya C, McCarty M, Haworth J, Pohlman K: The Influence Of Spinal Manipulation On Patients With Lumbar Spinal Stenosis: A Pilot Study." at the International Consortium on Manual Therapies. Virtual Live Conference. May 21, 2022. Sponsored by AT Still College of Osteopathic Medicine.

Proceedings of Professional Conference Presentations

1. Gudavalli MR, Cox JM, Baker JA, Cramer GD, Patwardhan AG: Intervertebral disc pressure changes during the flexion-distraction procedures for low back pain. Presented at and in the proceedings of the International Society for the Study of the Lumbar Spine Meeting, June 1997, Singapore.
Cyriax, Quilette, and Kramer hypothesized that as the vertebrae in the spine are distracted, a negative pressure develops in the disc, and sucks back a protrusion. The present study shows that the decrease in the intradiscal pressures may provide the opportunity for the reduction in the disc bulge during the flexion-distraction procedure. Ramos et al. reported decreases in the intradiscal pressures during Vertebral Axial Decompression (VAD) procedure on three patients measured intraoperatively. The result of the present study are in general agreement with the study reported by Ramos and Martin. Andersson et al. reported increases in the intradiscal pressures at L3-L4 disc on four volunteers during active and passive traction. A possible reason for the increase in the intradiscal pressures could be that the muscles of the in vivo subjects could have been contracting while under active and passive traction. Work is in progress to monitor the muscle activity during in vivo situations of treating the patients using the flexion-

distraction procedure.

2. Gudavalli MR, Cox JM, Baker JA, Cramer GD, Patwardhan AG: Intervertebral disc pressure changes during a chiropractic procedure. Accepted for presentation and publication at the ASME IMECE 97 Bioengineering Convention, November 16-21, 1997, Dallas, Texas. - Advances in Bioenginneering 1999; BED, vol. 39, pgs 187-188
   We observed a significant decrease in intradiscal pressure during the flexion-distraction procedure for low back pain. The pressure has increased during extension motion of the table. The pressures have increased during right lateral motion whereas the pressures have decreased during the left lateral motion. During circumduction the pressures have decreased during the left lateral and flexion motions, where as they have increased during right lateral and flexion combined motions. In all of the motions the pressures returned to their original values when the spine was brought back to the initial prone position. One of the reasons for the increase and decrease during lateral motions is due to the fact that the transducer was inserted somewhat right laterally from the center of the disc. The results clearly show that the pressures are affected during different motions of the spine associated with the motions of the table. Even though the present study is limited to one cadaver, the results are very interesting and studies with more number of cadavers and studies on animals can give further insight into the changes in the pressures at different regions of the spine.

3. Gudavalli MR, Cox JM, Baker JA, Cramer GD, Patwardhan AG: Intervertebral Disc Pressure Changes During a Chiropractic Procedure. Abstract from the Proceedings of the Bioengineering Conference, Phoenix
   We observed a significant decrease in intradiscal pressure during the flexion-distraction procedure for low back pain. When the discs were not pressurized, the pressures went below 0 mm Hg. When the discs were pressurized, the decrease in the intradiscal pressures was much larger, suggesting that in patients with higher intradiscal pressures, the decrease may be much higher during the treatment. The pressures returned to their original values when the spine was brought back to the initial prone position. Quilette(2), and Kramer (3) hypothesized that as the vertebrae in the spine are distracted, a negative pressure develops in the disc, and sucks back a protrusion. Ramos et al. (4) reported on the intradiscal pressure during Vertebral Axial Decompression (VAD) procedure on three patients measured intraoperatively. The results showed that the disc pressures reduced during the VAD therapy. They demonstrated that the disc pressures can go as low as -160 mmHg. The results of the present study are in general agreement with the study reported by Ramos and Martin (4). Anderson at al. (5) reported the intradiscal pressures at L3-L4 disc on four volunteers during standing, lying, active traction, and passive traction. The findings showed an increase in the disc pressure during both active and passive traction. The results from the present study do not agree with the results reported by Anderson et al. (5). A possible reason could be that the muscles of the in vivo subjects could have been contracting while under active and passive traction. Work is in progress to monitor the muscle activity during in vivo situations of treating the patients using flexion-distraction procedure.

4. Gudavalli R, Cox JM: Forces of expert and novice practitioners during flexion-distraction chiropractic treatment. IASTED 2004 proceedings, paper 463-048
   The doctors who have experience have applied significantly higher preloads and peak loads compared to doctors having less than one year of experience. This observation was valid for the forces in the posterior-to-anterior direction as well as inferior to superior direction. Doctors who have more experience have a lesser duration cycle compared to the inexperienced doctors. This system can be used to quantify the skills of experienced chiropractors and this information can be used to train the future doctors of chiropractic. This device can be used to quantify the forces in treating different patient

populations presenting different conditions and a research data base can be developed using that information. Future work will be aimed in this direction. This study is a first to report the force characteristics of experienced and inexperienced doctors using a flexion-distraction procedure.

5. Gudavalli MR: Estimation of dimensional changes in the lumbar intervertebral foramen of lumbar spine during flexion distraction procedure. Proceedings of the 1994 International Conference on Spinal Manipulation, June 10-11, 1994, Palm Springs, CA, pp 81.

6. Gudavalli MR, Yadav V, Vining R, Seidman M, Salsbury S, Patwardhan A, Goertz C. Development of force-feedback technology for training clinicians to deliver manual cervical distraction. International Mechanical Engineering Congress and Exposition (IMECE), November 15-21, 2013, San Diego, CA.

7. Cox JM, Gudavalli MR. Applied chiropractic spinal manipulation research to improve clinical outcomes. 8th Interdisciplinary World Congress on Low Back and Pelvic Pain, October 27-31, 2013, Dubai, UAE.

8. Gudavalli MR, Potluri T, Carandang G, Havey R, Voronov L, Cox J, Rowell R, Kruse R, Joachim G, Patwardhan AG, Henderson CNR, Goertz C. Cervical intradiscal pressure changes during manual distraction. WFC 12th Biennial Congress, April 10-13, 2013, Durban, South Africa.

9. Cox JM, Gudavalli R. Workshop: A Specialized Spinal Manipulation System of Flexion distraction for the Treatment of Low Back and Radicular Pain. 9th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain. Progress In Evidence Based Diagnosis And Treatment. Singapore, November 2, 2016.

10. Cox JM. Platform presentation: Outcomes of chiropractic distraction spinal manipulation on post-surgical continued low back and radicular pain patients: A retrospective case series study. 9th Interdisciplinary World Congress on Low Back and Pelvic Girdle Pain. Progress In Evidence Based Diagnosis And Treatment. Singapore, November 3, 2016.

Journals & Reports

1. Cox JM: Lumbar disc herniation: statistics on an innovative diagnostic and therapeutic approach. J of Clinical Chiropractic September-October 1973

2. Cox JM: Mechanism, Diagnosis and Treatment of lumbar disc protrusion and prolapse. ACA J of Chiropractic XI(11) (November 1974)

3. Cox JM: The mechanism, diagnosis, and treatment of lumbar disc protrusion and prolapse: a statistical evaluation - part 1 and 2. ACA J of Chiropractic XIII(10) (October 1976)

4. Cox JM: The lumbar disc syndrome: a chiropractic evaluation - Part I. Digest of Chiropractic Economics XXI(12) (July-August 1978)

5. Cox JM: The lumbar disc syndrome - part 2. Digest of Chiropractic Economics XXXI(1) (July-August 1978)

6. Cox JM: Low back pain: recent statistics and data on its mechanism, diagnosis and treatment from chiropractic manipulation. ACA J of Chiropractic 1979

7. Cox JM: The facet syndrome. Digest of Chiropractic Economics. XXII(1) (July-August 1980)

8. Cox JM: X-ray examination of the low back pain patient - emphasis on the lateral bending projection. Chiro-Manis Newsletter 1(1) (March 1981)

9. Cox JM: Scoliosis - a discussion of a possible new cause and treatment. Chiro-Manis Newsletter 1(18) (6/81)

10. Cox JM: Unilateral distraction in scoliosis, subluxation and disc protrusion. Digest of Chiropractic Economics XXIV(3) (November-December 1981)

11. Cox JM: Activities causing injury to the lumbar spine: a computer study. ACA J of Chiropractic 1983;XVII(3):16

12. Cox JM, Aspegren DA: Scoliosis - diagnosis, detection, treatment. ACA J of Chiropractic 23(1): 45-52 (1985)

13. Cox JM: Low back pain: organic etiologies, Council on Roentgenology to the American Chiropractic Association (May 1985)

14. Aspegren DA, Cox JM: Inadvertent epidurography during myelography. ACA J of Chiropractic 20(12): 37-40(December 1986)

15. Cox JM: Conservative flexion-distraction management of lumbar disc and facet subluxation syndrome conditions. Los Angeles College of Chiropractic Visiting Scholars' Program (November 11-12, 1989) on lumbar disc syndromes

16. Cox JM, Wright J: Unstable spondylolisthesis. DC Tracts 1(6): 357-368 (December 1989)

17. Cox JM, Hazen L: Avascular necrosis of the hips. J of Chiropractic October 1990: 67-69

18. Cox JM: Lumbar disc disease: distraction adjustive procedures. prepared for Clinical Chiropractic Report published by C.V.Mosby Co. in the first edition (1990) of the journal under POINT/COUNTERPOINT

19. Cox JM: Chiropractic treatment of low back pain utilizing Cox Distraction adjustment procedures. Today's Chiropractic 1993; August 1993

20. Hazen LJ, Cox JM: Cervical and cervicocranial anomalies. ACA J of Chiropractic 1994; 31(9):71-73

21. Cox JM I, Cox JM II: Cox Automated Axial Distraction Protocol and Case Report. Today's Chiropractic January/February 1997 & March/April 1997 issues.
Automated axial distraction is described and depicted.

22. Cox JM I, Cox JM II: Cox automated axial distraction manipulation. Canadian Chiropractor 1999;4(1):26-33
Algorithms of the standard of care for Cox® Distraction are presented and explained. Automated axial distraction, the newest ability of Cox® Technique protocol, is introduced in a very technical, step-by-step fashion with illustrations as to hand positioning as well as instrument use. AAD eases the distraction procedures for the physician and provides a smooth adjustment for the patient.

23. Cox JM I, Cox JM II: Cox Distraction Manipulation Procedures for the Cervical Spine. Florida Chiropractic Association Journal 1999; Jan/Feb: 42-44
Cox® Distraction procedures for the cervical spine and thoracic spine are a natural outgrowth of its application to the low back. This technical overview of Cox® Distraction procedures for the cervical and thoracic spine is intended to introduce this form of care for patients intolerant of classic rotatory thrust techniques due to such anatomical and pathological findings as degenerative disc disease, vertebral artery syndrome, disc herniation, blocked vertebra, occipitalization, scoliosis, other congenital defects, as well as for patients who just cannot be high velocity adjusted.

24. Cox and other researchers: Chiropractic researchers take aim at sciatica. J of the American Chiropractic Association 2001; (March) 38(3):6-13

25. Cox JM: Cox Distraction Manipulation for patients intolerant of HVLA adjustments. Arizona Association of Chiropractic Journal, March/April 2002: 10-13

26. Hayden RA: Multilevel degenerative disc disease: a case study. Georgia Chiropractic J 1996;April: 6-7:34
A case of a 61-year-old female with low back, hip and sciatic pain since for five years has been bedridden or restricted to the sofa prior to care is presented. Onset of the pain was gradual and worsened recently, interfering with work, sleep and rest. Lying flat on her back helped. Pain radiated to both calves at time, left more than right. The physician diagnosed her as having multi-level disc degeneration and degenerative joint disease with significant subluxation of the thoracolumbar spine. She was most symptomatic of a large, medial, contained L5/S1 disc protrusion with S1 nerve root compression.
After four weeks of Cox® Distraction therapy, she reported no leg or back pain. She is able to walk and function again much to the delight of her family and the confusion of her friends.

27. Husbands DK, Pokras R: 1991 year-end compendium: The use of flexion-distraction in a lumbosacral posterior arch defect with a lumbosacral disc protrusion: a case study. ACA J of Chiropractic 1991; December, pgs 21-24
The authors present a case of a 24-year-old Hispanic hyperkyphotic male with a complaint of acute low back pain as the result of a bending and pulling injury. The patient presented with a marked right laterally flexed antalgic lean and appeared to be in severe pain. Radiographs revealed an L6 vertebra with hypoplastic lumbosacral articular facets and spina bifida occulta. The patient also had radicular compression symptomatology on physical exam. He was treated with flexion distraction for three treatments with a significant decrease in symptomatology. The significance of this case is that flexion distraction may also be useful in the treatment of conditions with inherent instability such as in the case presented.

28. National Board of Chiropractic Examiners: Job Analysis of Chiropractic 1993: 78
53% of DC's report using COX

29. National Board of Chiropractic Examiners: Job Analysis of Chiropractic 1999:
58% of DC's report using COX

30. National Board of Chiropractic Examiners: Job Analysis of Chiropractic 2010:
63.7% of DC's report using flexion-distraction

31. Mercy Center Consensus Conference: Guidelines for Chiropractic Quality Assurance And Practice Parameters. 1993: 108, 208
Flexion-distraction – "established" technic – one of only two such in chiropractic

32. Research Findings presented at APHA (American Public Health Association) by Jerrilyn Bachman (Cambron). National College of Chiropractic's OUTREACH 1997; 13(12):5

33. Gallucci G [1438 S.O.M. Center Road, Mayfield Heights, OH 44124 -- (216)461-4848]: The effectiveness of chiropractic treatment for disc syndrome. A Study by Blue Cross and Blue Shield of Ohio and Physicians First, Inc. (1996)
A study was conducted as a joint venture between Physicians First, an established chiropractic clinic, and Blue Cross and Blue Shield of Ohio. The purpose was to compile statistics on the effectiveness of chiropractic treatment of back injuries that might otherwise require surgical intervention. The study was composed of a total of 10 patients with diagnosed intervertebral disc syndrome. All 10 subjects had received treatment from a medical doctor for the diagnosed conditions. The subjects were treated under a twelve week plan which included the utilization of Cox Distraction Technique. Post-treatment surveys revealed that all 10 patients reported improvement in the frequency and severity of symptoms.

34. Nicholson D: DISH Syndrome. Bethesda : MD : USA | Jan 28, 2011 at 2:07 PM PST (http://www.allvoices.com/contributed-news/8029975-dish-syndrome)
Cox Technic Flexion Distraction is discussed as a relieving approach to reducing pain from DISH.

35. Greenwood D: The Cox Technic: Flexion Distraction Spinal Manipulation. *Canadian Chiropractor*. February 2013. Link

36. Lombardy K: "Disc herniation with spondylolisthesis." The Georgia Chiropractor, Spring 2014 issue

Textbooks & Chapters of Textbooks

1. Cox JM: Low Back Pain: Mechanism, Diagnosis and Treatment -
    a. 4th edition. Baltimore: Williams and Wilkins Publishing, 1985 [translated into Japanese, 1987]
    b. 5th edition. Baltimore: Williams and Wilkins Publishing, 1990 [translated into Korean, 1997]
    c. 6th edition. Baltimore: Lippincott Williams and Wilkins, 1999
    d. 7th edition. Baltimore: Lippincott Williams and Wilkins, 2011

2. Cox JM: Neck, Shoulder, Arm Pain: Mechanism, Diagnosis and Treatment. Fort Wayne, IN: privately published by Dr. Cox, 1st edition 1991, 2nd edition 1997, 3rd edition 2005
    a. 4th edition – Fall 2014 – privately published

3. Cox JM: Chapter 21: Flexion distraction manipulation of the low back. in White A, Anderson R: Conservative Care of Low Back Pain. Baltimore: Williams and Wilkins Publishing, 1991

4. Cox JM: Chapter 28: Traction and distraction techniques. in Haldeman S: Principles and Practice of Chiropractic - 2nd edition. Appleton and Lange, 1992

5. Cox JM: chapter update: Traction and distraction techniques. in Haldeman S: Principles and Practice of Chiropractic - 3rd edition. Appleton and Lange, 2004

6. Cox JM: Manipulation under distraction. Chapter in Stude DE: A Clinicians Guide to Spinal Rehabilitation. 1998

7. Browning J: Pelvic Pain and Organic Dysfunction: The PPOD Syndrome. (Treatment with Flexion Distraction). Sutton's Bay, MI: Outskirts Press.

Video for Healthcare Colleagues

1. Cox JM: The mechanism, diagnosis and treatment of low back pain with chiropractic protocol. American Back Society Videotape Meducation Video, Fall Symposium on Back Pain. Las Vegas, NV: American Back Society, November 30 - December 2, 1989

2. Cox JM: Cox® Low Back Treatment using Distraction Technique [doctor's educational videotape]. Fort Wayne, IN: privately produced and published by Dr. Cox, 1990

3. Cox JM: Cox® Cervical Spine Distraction Technique: Diagnosis and Treatment [doctor's educational videotape]. Fort Wayne, IN: privately produced and published by Dr. Cox, 1991

4. Cox JM: Applications of Cox® Distraction Manipulation. Videotape, 1 hour, 1999

5. Cox JM: Cox Distraction Manipulation Protocol Demonstration, 1 hour video, 2001

6. Cox JM: Cox Technic Flexion Distraction and Decompression Demonstration Video (101 minutes), 2013

Video for Public/Patient

1. Cox JM: Low Back Wellness School [patient educational slide and audiotape lecture in home care and prevention of low back pain]. Fort Wayne, IN: privately produced and published and updated 1997

2. Cox JM: Cox® Low Back Exercise Program Videotape [patient education and use at home]. Fort Wayne, IN: privately produced and published, 1993, 1991, 1988 --- new 15 minute version 1999

3. Cox JM: Chiropractic and Your Health: Low Back Wellness School [patient educational videotape]. Fort Wayne, IN: privately produced by Cox and The Production Studio, 1993

4. Cox JM, Burke M (YouTube): Differentiation with Cox Technic Complete Program 8/11

5. Cox JM (YouTube): Outtake of Cox Technic Webinar on bilateral stenosis 9/17

6. Cox JM (YouTube): The Cox Table – Force Measuring Table Version 9/17

7. Cox JM (YouTube): Cox Technic Information for Patients Video #1

8. Cox JM (YouTube): Cox8 Table Tour 9/15

9. Cox JM (YouTube): Cox Technic Webinar Outtakes: Treatment Demo 10/15

10. Cox JM (YouTube): Cox Technic Webinar – Chiropractic Case Presentations (9/13)

11. Cox JM, Cox-Cid J (YouTube): Cox Technic (Flexion Distraction/Cox Technique/Cox Method) 8/11)

12. Cox JM (YouTube): Discat Plus Enhanced 8/17

13. Cox JM (YouTube): Disc & Joint Pain Relief Complex Enhanced 8/17

14. Cox JM (YouTube): Dr. James Cox discusses the use of low volt galvanism

15. Cox JM (YouTube): 50 hours toward ACO diplomate with Cox Technic

16. Cox JM (YouTube): 20 hours toward ACO recertification

Books/Brochures for Public/Patient

1. Cox JM: Low Back and Leg Pain: What It Is and How It It Treated [patient educational book]. Fort Wayne, IN: privately published by Dr. Cox, 1990, updated, 15th edition 2011

2. Cox JM: Neck, Upper Back, Shoulder and Arm Pain: What It Is and How It Is Treated [patient educational book]. Fort Wayne, IN: privately published by Dr. Cox, 1992, 1st edition, 4th edition 2011

3. Cox JM, Cox JA: Cox® Distraction Technique: What It Is and Why It Is Used [patient educational brochure]. Fort Wayne, IN: privately produced and published, 1992, updated 1996, 2010, 2014, 2016

4. Cox JM, Cox-Cid JA: Cox® Distraction Decompression Manipulation Procedures for Spinal Pain Management [healthcare colleague educational brochure]. For Wayne, IN: privately published, 2003, updated 2004, 2010, 2014, 2016

5. Cox JM, Cox-Cid JA: Cox® Distraction Decompression Manipulation for the Cervical Spine [patient educational brochure]. Fort Wayne, IN: privately published, 2003, updated 2004, 2010, 2016

6. Cox JM, Cox-Cid JA: Cox® Distraction Decompression Manipulation for the Lumbar Spine [patient educational brochure]. Fort Wayne, IN: privately published, 2003, updated 2004, 2010, 2016

RESEARCH STUDIES / GRANT PARTICIPATION
Federal Research Grants for Chiropractic Research In Flexion-Distraction Biomechanics

#1 - Chiropractic Demonstration Project Grant – HRSA Grant # R18 AH 10001-01A1
Biomechanics Of Low Back Flexion-Distraction Therapy

On October 5, 1994, Ram Gudavalli, PhD, of the Research Department at the National College of Chiropractic, Lombard, Illinois, was informed that the Health Resources and Services Administration of the United States Department of Health and Human Services will award $313,167 for the basic science study of the application of Cox® Flexion Distraction Manipulation. This is one of the first three federal grants allotted for chiropractic research from the federal government which hopefully will mean favorability for future grants for such research for the chiropractic profession.

The research into the basic science of Cox® Flexion Distraction Manipulation will focus on the changes within the intervertebral foramen, intervertebral disc, and facet joints of adjustments of the lumbar spine that are performed under distraction.

The principal investigator of this study is Ram Gudavalli, PhD. James M. Cox, DC, DACBR, will be the clinician. Dr. A.G.Patwardhan, Research Director at Loyola University School of Medicine and Mark Lorenz, MD, of the Loyola School of Medicine will be co-investigators of the study. Loyola University will perform the statistical analysis of the project.

#2 – Chiropractic Demonstration Project Grant – HRSA Grant # R18 AH 10001
Comparison Study Of Chiropractic (Cox® Flexion Distraction Manipulation) Versus Medical Conservative Care (Physical Therapy)

This grant continues and expands the prior grant into the year 2000. The National College of Chiropractic Research Department along with the Loyola University Stritch School of Medicine will participate in this federally funded comparison study of chiropractic distraction care of low back pain to medical care of low back pain. Dr. Cox is the lead/instructing clinician. Ram Gudavalli, PhD, is the principal investigator with the above listed physician/researchers.

#3 - Chiropractic Demonstration Project Grant – 2000-2003 – HRSA Grant # 1 R18 HP 10011-01
A Comparison Study Of Cox® Flexion Distraction Vs. Medical Care For Chronic Neck Pain

Dr. Ram Gudavalli will now head a team of researchers to study chiropractic Cox Distraction's effectiveness for chronic neck pain. The federal grant of #1, 247, 799 is through the Health Resources and Services Administration (HRSA), #1 R18 HP 10011, titled Chiropractic (cervical distraction adjustment) vs. Medical Care for Chronic Neck Pain. The grant period is September 30, 2000, - September 29, 2003. Awarded to Palmer Center for Chiropractic Research and Palmer Chiropractic University Foundation. Collaborating Institutions are Palmer Center for Chiropractic Research, National University of Health Sciences, Loyola University Stritch School of Medicine (Department of Orthopedic Surgery), Orthosport Physical Therapy, Inc., Auburn University.

#4 - *Cervical Biomechanics & Forces with Cox® Cervical Spine Flexion Distraction and Decompression Spinal Manipulation* (2010-2014)

2 Grants:

(1) C06 RR15443-01 from National Center for Research Resources, NIH

(2) 1 U19 AT004663-01 from National Center for Complementary and Alternative Medicine

Loyola University Medical School, VA Hines hospital and Palmer College of Chiropractic. Ram Gudavalli, PhD is principal investigator with A.G. Patwarden PhD of Loyola University.

Online Published Case Reports - *www.coxtechnic.com/downloads.aspx*

1. Case Report #1 - L5S1 Disc Herniation
2. Case Report #2 - Synovial Cyst
3. Case Report #3 - H-fracture Management
4. Case Report #4 - Cervical Disc Herniation (Dr. Stuart Rosenthal)
5. Case Report #5 - C5-C6 Disc Herniation
6. Case Report #6 - Cervical Spine Pain Patient Avoids Surgery
7. Case Report #7 - Osteoporosis Induced Compression Fracture
8. Case Report #8 - Discogram confirmed disc herniation
9. Case Report #9 - Slipped femoral capital epiphysis leads to degeneration
10. Case Report #10 - Renal cyst causes back pain
11. Case Report #11 - Sequestered L5S1 Disc Fragment
12. Case Report #12 - Synovial Cyst (Dr. Wong)
13. Case Report #13 - Failed back surgery syndrome
14. Case Report #14 - Diastematomyelia
15. Case Report #15 - Large HNP @ C5-6 with MRI Pre/Post
16. Case Report #16 - Patient chooses surgery, has pain after
17. Case Report #17 - C5/6 disc herniation with radiculopathy and instability
18. Case Report #18 - Hip Replacement, Avascular Necrosis, Spondylolisthesis
19. Case Report #19 - Cervical Myelopathy Pain Relief (Dr. Ted Siciliano)
20. Case Report #20 - Spinal cord edema at cervical disc level
21. Case Report #21 - Bilateral Arm and Leg Pain
22. Case Report #22 - Surgery for large extraforaminal disc
23. Case Report #23 - A Common Case of cervical spine degeneration
24. Case Report #24 - Rapid onset stenotic changes
25. Case Report #25 - Cervical Spine Stenosis
26. Case Report #26 - Klippel Feil
27. Case Report #27 - Patient Avoids Third Surgery - Cervical Spine
28. Case Report #28 - Ankylosing Spondylitis (Dr. Mike Poulin)
29. Case Report #29 - Multidisciplinary approach to lumbar disc herniation (Drs. Gangemi, Ditsworth, Lombardi)
30. Case Report #30 - Anomalous 9th Rib Formation with scoliosis
31. Case Report #31 - L5 Spondylolisthesis with Low Back and Leg Pain
32. Case Report #32 - L4-L5 Spinal Stenosis With Synovial Cyst
33. Case Report #33 - Special Protocol for L4-5 disc extrusion (Dr. Stuart Rosenthal)
34. Case Report #34 - MRI correlation with clinical findings in stenosis and disc herniation
35. Case Report #35 - MRI misses fragment, Clinical exam finds it
36. Case Report #36 - Marked motor weakness requires surgery
37. Case Report #37 - Two Disc Herniations - one touches spinal cord
38. Case Report #38 - Degenerative Osteochondrosis with Scoliosis
39. Case Report 38b - Treatment of A Lumbar Spine Synovial Cyst With Cox Technic (Dr. Ted Siciliano)
40. Case Report #39 - Non-Congruent Cervical Spine Pain Patient
41. Case Report #40 - Surgical Low Back Fusion with Spondylolisthesis
42. Case Report #41 - Hip Replacement and Cox Technic Needed for Pain Relief
43. Case Report #42 - Marked Disc Degeneration and Stenosis
44. Case Report #43 - Degenerative Spondylolisthesis & Stenosis

45. Case Report #46 - Far Lateral Disc Herniation: Surgery & Cox Technic
46. Case Report #47 - Butterfly Vertebra Treated Post Surgical Disc Removal
47. Case Report #48 - L5S1 Disc Fragment
48. Case Report #49 - Pre/Post MRI Study of a 10mm Lumbar Disc Extrusion (Drs. Gangemi & LeMarr)
49. Case Report #50 - Spondylolisthesis With L5 Nerve Root
50. Case Report #51 - Sciatica with Muscle Weakness (Dr. Donna Lieberman)
51. Case Report #52 - Realistic Expectations for Spine Fusion and Hip Replacement
52. Case Report #53 - Leg Pain Returns after Surgery, Relieved with FD
53. Case Report #54 - Progressive Disc Degeneration in the Cervical Spine From C6-7 to C4-5
54. Case Report #55 - Large Extraforaminal L2-L3 Disc Herniation
55. Case Reports #56 - Osseoligamentous Free Fragment
56. Case Report #57 - Two Lumbar Disc Herniations
57. Case Report #58 - Patient Avoids Surgery for L3-4 Disc Herniation
58. Case Report #59 – Two Cases of Sciatica
59. Case Report #60 - Upper Level Disc Herniation Thigh Pain
60. Case Report #61 - Motor Weakness and Atrophy (Dr. Dean Greenwood)
61. Case Report #62 - Diabetic, Post Laminectomy Chronic Pain (Dr. Chris Moran)
62. Case Report #64 - Cervical DDD with Scleratogenous Pain Distribution (dr. Cox)
63. Case Report #65 - Lumbar Spine DDD and Spondylolisthesis (Dr. Ted Siciliano)
64. Case Report #66 - DDD with Bilateral Avascular Necrosis (Dr. Mike Poulin)
65. Case Report #67 - 3 Level Spine Surgery Prevented (Dr. Allen Unruh)
66. Case Report #68 - Lumbar Spine Degenerative Disc Disease with Spondylolisthesis (Dr. Ted Siciliano)
67. Case Report #69 - L5S1 Disc Herniation (Dr. James Orphan)
68. Case Report #71 - Pelvic Pain and Organic Dysfunction (Dr. James Browning)
69. Case Report #72 - Low Back Pain and Sciatica in a Golf Professional (Dr. James Schantz)
70. Case Report #73 - L5 S1 Disc Herniation Avoids Surgery (Dr. Randy Rein)
71. Case Report #76 - Chronic Intractable Pain after Surgery (Dr. Chris A Humble)
72. Case Report #77 - Large L5S1 Disc Herniation (Dr. Dean Greenwood)
73. Case Report #78 - Synovial Cyst
74. Case Report #80 - Three Cervical Spine Disc Herniations (Dr. Mike Poulin)
75. Case Report #82 - Surgery for Spinal Stenosis
76. Case Report #83 - Multi-Level Spondylolisthesis and Stenosis (Dr. Lee J Hazen)
77. Case Report #84 - Large C4/5 Spondylotic Disc Bulge, Stenosis, Myelomalacia
78. Case Report #85 - Failed VAXD Care of L4-5 Disc Successfully Care for by Cox Technic
79. Case Report #86 - Extruded L5S1 Disc Herniation, Sciatica, Paresthesia (Dr. Mark Ashley)
80. Case Report #87 - Left Sided Lumbosacral Pain with L4-L5 Disc Herniation and Stenosis Controlled with Cox Technic (Dr. Chris Moran)
81. Case Report #88 - Degenerative Disc Disease Of The Cervical Spine With Radicular Pain Treated With Cox Decompression Adjusting (Dr. Ted Siciliano)
82. Case Report #89 - L5-S1 Extruded Disc Herniation Successfully Cared for with Cox Technic
83. Case Report #90 - Bertolotti's Syndrome (Dr. Roy Siegel)
84. Case Report #91 - Spinal Stenosis With Foot Drop Successfully Relieved with Cox Technic (Dr. Ilan Sommer)
85. Case Report #92 - Cox Technic Relieves Pain from Degenerative Scoliosis and Spinal Stenosis (Dr. Robert Patterson)
86. Case Report #93 - Cox® Technic Flexion Distraction and Decompression Treatment of L3-L4 Degenerative Spondylolisthesis and Spinal Stenosis and a Transitional L5 Vertebral Segment (Bertolotti’s Syndrome) (Dr. Lee Hazen)

87. Case Report #94 - Cox Technic Flexion-Distraction and Decompression Relieves Right Lower Extremity Radiculopathy and Low Back Pain Post Laminectomy (Dr. Eric Frank)
88. Case Report #95 - Spinal Stenosis in an 82-Year-Old Male (Dr. Robert Hayden)
89. Case Report #96 - Lumbar Intervertebral Disc Syndrome L4/5 Left with Compression of L5 Nerve – Relieved (Dr. Bryce Milam)
90. Case Report #97 - C5-6 and C6-7 Disc Herniation with Stenosis Causing Nerve Root Impingement (Dr. James Brandt)
91. Case Report #98 - Cox® Technic for Osteoporotic Thoracic Kyphosis and Pain Syndrome after Vertebroplasty (Dr. Lee Hazen)
92. Case Report #99 - Cervical Spine Degenerative Stenosis in a Post Surgical Continued Pain (FBSS) Patient (Dr. Lee Hazen)
93. Case Report #100 - Facet Arthropathy Induced Nerve Root Compression Resulting In Motor Weakness And Pain (Dr. James Cox)
94. Case Report #101 - Cervical Radiculopathy with a Disc/Spur Complex at C5/6 with Left Nerve Root Compression (Dr. Keith Bartley)
95. Case Report #102 - 37 year old Female with Spondylolisthesis & Disc Herniation (Dr. James Brandt)
96. Case Report #103 Lumbar Spine Disc Herniation without Myelopathy: Patient Compliance is Key (Dr. Shay Corbin)
97. Case Report #104 - L3-L4, L4-L5 Severe Spinal Stenosis Responds To Cox Technic (Dr. Randy Rein)
98. Case Report #105 - Cox Technic Relieves Chronic LBP, Leg Pain due to Degenerative Spondylolisthesis and Stenosis (Dr. James Cox)
99. Case Report #106 - L4-5 Disc Herniation with Motor Weakness - Relief with Cox Technic (Dr. James Cox)
100. Case Report #107 - Thoraco-Lumbar Spinal Stenosis - Avoids 5th Back Surgery (Dr. Kurt Olding)
101. Case Report #108 - L5 Radiculopathy from Large L4/5 Extrusion (Dr. Kurt Olding)
102. Case Report #109 - Lumbar Spine Disc Herniation (Dr. Lucio Evangelista)
103. Case Report #110 - C6-7 Disc Herniation with Neck Pain Relieved (Dr. Joseph D'Angiolillo)
104. Case Report #111 – Retrolisthesis (Dr. James Cox I)
105. Case Report #112 - Post Car Accident Neck Pain and Ear Pain Relief (Dr. James Brandt)
106. Case Report #113 – Resolution of Leg Pain after Failed Back Surgery (Dr. Dean Greenwood)
107. Case Report #114 – Resolution of C6/7 Neck Pain in Male (Dr. Joel Dixon)
108. Case Report #115 – Perseverance of a Stenotic Patient Ends in Relief with Cox Technic (Dr. Kurt Olding)
109. Case Report #116 – Lumbar Disc Herniation with Radiculopathy Treated Successfully with Cox Technic (Dr. Steven Garber)
110. Case Report #117 - Disc Extrusion Resorbed Under Cox® Technic Flexion Distraction and Decompression System (Dr. Ilan Sommer)
111. Case Report #118 – Concomitant Tourette's (Maladie des TICS) and Adolescent Idiopathic Mild Scoliosis complicated by Chronic L5/S1 Facet Syndrome and spinal subluxations treated using Cox® Technic Protocols (Dr. Mike Poulin)
112. Case Report #119 - Moderate Adolescent Idiopathic Scoliosis (AIS) while being braced, now presents with lumbar disc disorder with sciatica, treated using Cox® Technic Protocols. (Dr. Mike Poulin)
113. Case Report #120 - Chronic Severe "S" Scoliosis (Lumbar dextroscoliosis and Thoracic levoscoliosis) treated successfully using Chiropractic for over 30 years and Cox® Technic Protocols for over 11 yrs. (Dr. Mike Poulin)
114. Case Report #121 - Rapid Improvement In A Lumbar Radiculopathy Patient With Cox® Technic (Dr. Tim Hayes)
115. Case Report #122 – Treatment Of Cervical Spine Disc Herniations And Radiculopathy With Cox Decompression Adjusting (Dr. Ted Siciliano)

116. Case Report #123 – Free Fragment Of Disc At L3-4 (Dr. Kurt Olding)
117. Case Report #124 – Disc Herniation With Spondylolisthesis Treated With Cox Technic Flexion Distraction (Dr. Travis Cross)
118. Case Report #125 – Neck Pain And Bilateral Arm Pain Relief With Cox Technic (Dr. Jay Schwartz)
119. Case Report #126 – Cox Technic Helps Relieve Pain From Disc Protrusion When Neurontin Isn't Tolerated (Dr. Sara Miller)
120. Case Report #127 – Multilevel Low Back Disc Herniations And Radiculopathy Relieved (Dr. Gregory Priest)
121. Case Report #128 – Chiropractic Management Of A Combined L4 Lumbar Disc Protrusion A L2-L3 Synovial Cyst (Dr. Michael McMurray)
122. Case Report #129 – Lumbar Discogenic Pain With Motor Weakness Increased By Lumbar Extension (Dr. Adam Keefe)
123. Case Report #130 – Vulvodynia (And Back Pain And Leg Pain) Resolved With Cox Technic (Dr. Michael Johnson)
124. Case Report #131 – Nonspecific Back Pain, Degenerative Disc Disease, Endplate Modic Changes (Dr. Paul Vanier)
125. Case Report #132 - Flexion/Distraction in the Treatment of OA of the Hip
126. Case Report #133 - Chronic LBP with Extremity Pain, Modic Changes
127. Case Report #134 - 14 Year Old with An L5 Central Tear
128. Case Report # 135 - 8.8mm Extrusion Causes LBP, Leg Pain and Buttock Pain - Relief with Cox Technic
129. Case Report #136: Cervical Spine Post-Fusion Patient: Neck Pain And Headache
130. Case Report #137: Success And Failure In An L4-L5 Left Sided Synovial Cyst Case
131. Case Report #138: Cox® Distraction Spinal Manipulation Treatment Of A Large L5-S1 Disc Herniation Extrusion
132. Case Report #139 - Pregnant Patient with LBP and Leg Pain Relieved
133. Case Report #140 - L2-3 Disc Extrusion, Fragment, Scoliosis
134. BONUS CASE REPORT - FBSS Post Surgical Continued Pain Patient Helped with FD
135. Case Report #141 - Large L4-L5 Disc Herniation
136. Case Report #142 - L3-4 Disc Extrusion & Its Long-Term Follow Up
137. Case Report #143 - Multiple Disc Extrusions Relieved
138. Case Report #144 - Improved Motor Weakness of the L5 Nerve Root after One Treatment
139. Case Report #145 - Two Level Spondylolisthesis
140. Case Report #146 - Subtle X-Ray Finding
141. Case Report #147 - Severe Post Surgical Stenosis Treated With Cox Technic
142. Case Report #148 - Stenosis, Myelomalacia, C5-6, C6-7 Disc Protrusions
143. Case Report #149 - 12 Year History of L4 Disc Protrusion
144. Case Report #150 - Care of a Large Lumbar Herniated Disc
145. Case Report #151 - Calcified L5-S1 Disc with Radiculopathy
146. Case Report #152: Relief of C6-7 Disc Herniation with Radiculopathy, Muscle Weakness and Hypoesthesia
147. Case Report #153 - Low Back and Extremity Pain: Walker to Walking
148. Case Report #154 - Chiropractic Integrative Medicine Management of Chronic Low-Back and Right Lower Extremity Scleratogenous Pain (Dr. George Simmons)
149. Case #155 - Large C6-7 Extruded Disc with Extremity Pain and Weakness Avoids Surgical Intervention
150. Case #157 - Cox® Flexion Distraction Decompression of the Knee (Dr. Luigi Albano)
151. Case #158 - Case Series: The Innovative Application of Cox® Flexion Distraction Decompression to the Knee (Dr. Luigi Albano)

152. Case Report #159 - C5-6 Disc Herniation with Cord Impingement (Dr. Larry Widmer)
153. Case Report #160 - Post Surgical C6-C7 Fusion With Spondylotic Myelopathy and Concurrent L5-S1 Radiculopathy (Dr. George Joachim)
154. Case Report #161: Foot Drop, Radiculopathy, Spinal Stenosis (Dr. Howard Rosenberg)
155. Case Report #162 - Cervical Spine Stenosis and Radiculopathy (Dr. Charles Portwood)
156. Case Report #163 - Post-Surgical Continued Pain Syndrome Relief for Recurring L5 and S1 Dermatome Pain (Dr. Kurt Olding)
157. Case Report #164 - Chiropractic Management of Ehlers-Danlos Syndrome (Dr. George Joachim)
158. Case Report #165 - A Patient With Neck and Right Upper Extremity Pain (Dr. Greg Priest)
159. Case Report #166 - 16 Years Post Cervical Fusion Surgery Care (Dr. Mike Poulin)
160. Case Report #167 - The Wisdom of Cox Technic System: Carefully Evaluate the Patient - Positive Valsalva and Kemp (Dr. Ralph Kruse)
161. Case Report #168 - Post-Surgical Neck Pain With Radiculopathy Relieved (Dr. Jay Schwartz)
162. Case Report #169 - L4-5 Disc Extrusion, Radiculopathy, Spondylolisthesis (Dr. Ralph Kruse)
163. Case Report #170 - Pre / Post MRIs of Relieved Disc Extrusion (Joel Dixon DC/Chloe Wilkerson DC)
164. Case Report #171 – Far Lateral Disc Herniation Helped with Cox Technic (Dean Greenwood DC)
165. Case Report #171a – DISH Treated with Cox Technic (Dr. Ralph Kruse)
166. Case Report #173 - Thoracic Disc Protrusion, Cervical Spondylosis, Scoliosis (Dr. Leisa Grgula)
167. Case Report #174 – C5-C6 Disc Extrusion, Neck Pain (Dr. Jared Dilorenzo)
168. Case Report #175 - Lumbar Intervertebral Disc Syndrome L4/5 Right With Compression Of L5 Nerve Root And Foot Drop
169. Case Report #176 - Adjacent Segment Disease with Klippel Feil
170. Case #177 - Adult Scoliosis, DDD, PSCP
171. Case #178 - Management Of Low Back And SIJ Pain In A Pregnant Patient
172. Case Report #179 - Acute Disabling Back Pain - No Imaging!
173. Case Report 180 - L5S1 Disc Herniation, Back Surgery, L4L5 Disc, Chiropractic Relief
174. Case Report #181 - Predisposition, Poor Ergonomics, Recurrent Lumbar Disc Herniation, and Conservative Care
175. Case Report 182 - Lower Cervical Herniation, Headache, Facial Pain Relief
176. Case Report 183 - Cervicothoracic Sprain and Strain
177. CASE #184 - Cervical Spine: Post Car Accident, Headache, 3 disc herniations - Dr. Karl Nixdorf
178. Case Report #185 - Lumbar Disc Extrusion and Severe Sciatic Radiculopathy - Dr. Paul Greenwood
179. Case Report 187 - DISH, Hip and Groin Pain - Dr. Robert Borzone
180. Case #188 - To Treat or Not - Dr. Marc Baker
181. Case Report #189 - Dr. Luigi Albano - Neurofibromatosis with Radiculopathy
182. Case Report #190 - Dr. Portwood - Lumbar Radiculopathy
183. Case Report 191 - Mid and Low Back Pain Due to L3-4, L4-5, L5S1 Discs - Dr. Ted Siciliano
184. Case Report #192: Low Back Pain, Buttock Pain, L1-L4 Discs - Dr. Jay Schwartz

ONLINE RECORDED COURSES - *https://coxtechnic.digitalchalk.com/dc/guest/login*

1. Scoliosis: Degenerative and Idiopathic
2. Neuroanatomical Innervation of the Spine AUDIO only
3. Pathologies I in Chiropractic Practice
4. Pathologies II in Chiropractic Practice
5. Pathologies III & FBSS II in Chiropractic Practice

6. FBSS I (Failed Back Surgery Syndrome) in Chiropractic Practice
7. Research & History of Cox Technic
8. Patient Documentation for the Cox Technic System of Spinal Pain Management
9. Spinal Nutrition
10. Spondylolisthesis, Transitional Segment, and Bertolotti's Syndrome
11. Cervical Spine: Part I - Biomechanics, Diagnosis, and Treatment
12. Cervical Spine: Part II - Biomechanics & Treatment Demonstration
13. Low Back Pain: Research, Cases, and Demonstration
14. Spinal Cysts (Synovial, Tarlov, Discal): Diagnosis, Differentiation, Treatment
15. Scoliosis: Degenerative and Sciatic: Research, Bracing, Cases, and Treatment
16. Cervical Spine: Degenerative Joint and Disc Disease (with discussion of Syrinx)
17. Pelvic Pain and Organic Dysfunction: Relief with Flexion Distraction
18. Cervical Spine: Research Updates, Patient Cases, and Treatment Demonstration
19. The Subluxation: PLUS Rotation Effects on Spinal Elements
20. Free Fragments & Chemical Radiculitis
21. Examination of the Low Back Pain Patient - test by test
22. Examination of the Cervical and Thoracic Spine Pain Patient - test by test
23. Patient Cases #1: CS Cord Edema, Spondylolithesis, LS Free Fragment
24. Patient Cases #2: Scoliosis, Post Vertebroplasty/Kyphoplasty, TS/CS Disc herniation
25. Neuroanatomy of the Spine: Part 1
26. Neuroanatomy of the Spine: Part 2
27. Neuroanatomy of the Spine: Part 3
28. Patient Cases #3: Scoliosis, Disc Herniation, Disc Extrusion, Compression Fracture
29. Clinical Cases and Current Research Fall 2013
30. Disc Degeneration and Regeneration: State of the Current Research Findings
31. When to Refer for Back Surgery: PART I Considerations & Cases
32. When to Refer for Back Surgery: PART 2
33. When to Refer for Back Surgery: PART 3
34. TOP 10 Imaging Findings in the Chiropractic Practice Beyond the Disc Herniation
35. Leg Length Inequality, Compensatory Lovett Scoliosis, Foot Mechanics And Orthotics
36. Treatment Demonstration #1: C1 to S1
37. Treatment Demonstration #2: Far Lateral Disc, Free Fragment, T4 Syndrome
38. Osteoporosis and Nutrition
39. Treatment Demonstration #3: Back Pain Classifications: Quebec, Pfirrmann, Modic (Case: Large L5S1 Extrusion)
40. Treatment Demonstration #4 - Common Drugs Back Pain Patients Take Plus CS Treatment Demo
41. MRI Basic Physics and Interpretation
42. Part I Certification Course - Section 1 - RECOMMENDATION: Take Part I courses in sequence.
43. Part I - Section 2
44. Part I - Section 3
45. Part I - Section 4
46. Part I - Section 5
47. Part I - Section 6
48. Part I - Section 7
49. Part I - Section 8
50. Part III (1) - Section 1 - NOTE: Could take these individually though in sequence is recommended. (Sec. 1 topic: Nerve supply, nerve pressure, pain modulation, introduction to course theme)

51. Part III (1) - Section 2 - Synovial Cyst cases and Pregnancy related back pain (live patient presentations)
52. Part III (1) - Section 3 - Pelvic Pain and Organic Dysfunction
53. Part III (1) - Section 4 - Back Surgery: procedures (neurosurgeon), outcomes, live patient cases
54. Part III (1) - Section 5 - Interdisciplinary practices with Cox Technic physicians
55. Part III (1) - Section 6a - Neurosurgeon's talk on Mind, Body and relation to wellness
56. Part III (1) - Section 6b - Neurosurgeon's talk on "Fraud of Chronic Pain"
57. Part III (1) - Section 7 - Cox Technic - research, use in clinic, protocols, demo, patient cases
58. Part III (1) - Section 8 - co-management of cases, closing comments, research update
59. Afferentation #1
60. Afferentation #2
61. Afferentation #3
62. Cox Technic: Evidence Based Practice for Cervical, Thoracic and Lumbar Spine
63. Afferentation #4
64. Chiropractic and the Immune System
65. Cervico-Thoracic Spine Diagnosis and Treatment
66. Cox Technic for Neck and Back Pain
67. ICD-10 Coding and Disc Classification
68. Applying Spinal Manipulation to the ICD-10 Codes
69. Spondylolisthesis, Doming of the Diaphragm for Hamstring stretch, treatment, cases, nutrition
70. Cox® Technic: It's More Than You Think It Is! Neck and Back Pain Relief
71. Cervical Spine V - 2016 CS Webinar Series - Session 1
72. Cervical Spine VI - 2016 CS Webinar Series - Session 2
73. Cervical Spine VII - 2016 CS Webinar Series - Session 3
74. Cervical Spine VII - 2016 CS Webinar Series - Session 4
75. "I know what's wrong with you, and we can help!"
76. Headache, Cervical Spine and Spinal Manipulation - Part 1
77. Headache, Cervical Spine and Spinal Manipulation - Part 2
78. Open Forum: Q&A with Dr. Cox
79. Osteoporosis: The Neglected Condition - Part 1
80. Osteoporosis: The Neglected Condition - Part 2
81. COX® TECHNIC: The Evidence-Based Neck and Back Pain Relief System
82. NUHS Homecoming Hour 1 – research and cases
83. NUHS Homecoming Hour 2 – research and cases
84. Tell The World: Using Published Papers to Tell The World What Chiropractic Can Do
85. Research Pearls for the Spine Specialist #1
86. Research Pearls for the Spine Specialist #2
87. Cases 2017 #1 – sciatica opposite side/L1 compression fx/side-lying treatment for degenerative scoliosis
88. Cases 2017 #2 – post-surgical back patient followed for 16 years with regrown disc herniation with treatment demo, plus demo of doming of the diaphragm
89. Cases 2017 #3 – multilevel disc herniations, demo and discussion of forces applied during treatment
90. Cases 2017 #4 – spinal stenosis facts today from literature, case of bilateral leg pain due to stenosis, treatment demonstration
91. Cases 2017 #5 – spine research pearls from today literature, cases of spinal cysts (discal, synovial, Tarlov), their differentiation and treatment demonstration
92. Forces Applied During Cox Technic Treatment via the real-time force-measuring Cox8 Table
93. Tampa Honors Course 2017 Hour 1 – Dr. Ron Evans – the orthopedic exam of low back pain patient

94. Tampa Honors Course 2017 Hour 2 – Dr. Ron Evans – the orthopedic exam of low back pain patient (continued)
95. Tampa Honors Course 2017 Hour 3 – Dr. Ron Evans – the orthopedic exam of low back pain patient (continued)
96. Tampa Honors Course 2017 Hour 4 – Dr. Ron Evans – post-surgical continued pain patients and chiropractic
97. Tampa Honors Course 2017 Hour 5 – post-surgical continued pain care with Cox Technic
98. Tampa Honors Course 2017 Hour 6 – latest spine research pearls, cervical myelopathy cases and treatment
99. Tampa Honors Course 2017 Hour 7 – NIH Cervical Spine Study outcomes, cases: adult scoliosis with DDD, hip/back pain, sciatica, MVA neck/low back pain, treatment demo
100. Tampa Honors Course 2017 Hour 8 – Case Presentations: spinal cysts, cervical anatomy and treatment forces on real-time force measuring Cox Table, how to present Cox Technic to public
101. Tampa Honors Course 2017 Hour 9 – Chondroitin Sulfate & B Vitamins in Cartilage & Metabolic Health
102. Tampa Honors Course 2017 Hour 10 – case of lumbar radiculopathy that has been everywhere, Q&A of weekend
103. Case Report Series #7 –1 hr – cases (1) progression of osteoporotic compression fracture and (2) recurrent L5S1 HNP after discectomy
104. Case Report Series #8 –1 hr –(1) T6-7 HNP and (2) cervical spine fusion C5-7 with continued neck and shoulder pain and low back pain
105. Spinal Stenosis in the Geriatric Population - Part 1
106. Spinal Stenosis in the Geriatric Population - Part 2
107. Spinal Stenosis in the Geriatric Population - Part 3
108. Spinal Stenosis in the Geriatric Population - Part 4
109. Disc Degeneration and Regeneration: 2018 Update
110. Why we practice as we do (Historical Principles of Cox® Technic) – Part 1
111. Why we practice as we do (Historical Principles of Cox® Technic) – Part 2
112. Why we practice as we do (Historical Principles of Cox® Technic) – Part 3
113. Mechanism, Diagnosis and Treatment of Back and Radicular Pain Based on Federally Funded Research
114. The Truth About Chiropractic Practice: Answers To Misinformation About Chiropractic—1 hour
115. The Truth of Chiropractic Practice - Hour 2—1h
116. DRG: The Dorsal Root Ganglion—1 hr 16 mins
117. Myelopathy Part 1—1 hr 5 mins
118. Osteopathy Meets Chiropractic—1 hr 8 mins