Clinical Policy Bulletin: Chiropractic Services

Number: 0107

Policy

Note: Some plans have limitations or exclusions applicable to chiropractic care. Please check benefit plan descriptions for details.

1. Aetna considers chiropractic services medically necessary when all of the following criteria are met:

   A. The member has a neuromusculoskeletal disorder; and
   B. The medical necessity for treatment is clearly documented; and
   C. Improvement is documented within the initial 2 weeks of chiropractic care.

If no improvement is documented within the initial 2 weeks, additional chiropractic treatment is considered not medically necessary unless the chiropractic treatment is modified.

If no improvement is documented within 30 days despite modification of chiropractic treatment, continued chiropractic treatment is considered not medically necessary.

Once the maximum therapeutic benefit has been achieved, continuing chiropractic care is considered not medically necessary.

Chiropractic manipulation in asymptomatic persons or in persons without an identifiable clinical condition is considered not medically necessary.

Chiropractic care in persons, whose condition is neither regressing nor improving, is considered not medically necessary.

Manipulation is considered experimental and investigational when it is rendered for non-neuromusculoskeletal conditions (e.g., attention-deficit hyperactivity disorder, dysmenorrhea, epilepsy; and gastro-intestinal disorders, not an all inclusive list) because its effectiveness for these indications is unproven.

Manipulation of infants is considered experimental and investigational for non-neuromusculoskeletal indications (e.g., infants with constipation).

Chiropractic manipulation has no proven value for treatment of idiopathic scoliosis or for treatment of scoliosis beyond early adolescence, unless the member is
exhibiting pain or spasm, or some other medically necessary indications for chiropractic manipulation are present.

II. Aetna considers the following chiropractic procedures experimental and investigational:

A. Active Release Technique (see CPB 0388 - Complementary and Alternative Medicine)
B. Active Therapeutic Movement (ATM2)
C. Advanced Biostructural Correction (ABC) Chiropractic Technique
D. Applied Spinal Biomechanical Engineering
E. Atlas Orthogonal Technique
F. Bioenergetic Synchronization Technique
G. Biogeometric Integration
H. Blair Technique
I. Bowen Technique
J. Chiropractic Biophysics Technique
K. Coccygeal Meningeal Stress Fixation Technique
L. Cranial Manipulation
M. Directional Non-Force Technique
N. FAKTR (Functional and Kinetic Treatment with Rehab) Approach
O. Gonzalez Rehabilitation Technique
P. Koren Specific Technique
Q. Manipulation for infant colic
R. Manipulation for internal (non-neuromusculoskeletal) disorders (Applied Kinesiology)
S. Manipulation Under Anesthesia (see CPB 0204 - Manipulation Under General Anesthesia)
T. Moire Contourographic Analysis
U. Network Technique
V. Neural Organizational Technique
W. Neuro Emotional Technique
X. Sacro-Occipital Technique
Y. Spinal Adjusting Devices (ProAdjuster, PulstarFRAS, Activator)
Z. Therapeutic (Wobble) Chair
AA. Upledger Technique and Cranio-Sacral Therapy
AB. Webster Technique (for breech babies)
AC. Whitcomb Technique (see CPB 0388 - Complementary and Alternative Medicine).

III. Aetna considers the following diagnostic procedures experimental and investigational:

A. Computerized radiographic mensuration analysis for assessing spinal mal-alignment
B. Dynamic spinal visualization (including digital motion x-ray and videofluoroscopy, also known as cineradiography)
C. Neurocalometer/Nervoscope - see CPB 0029 - Thermography
D. Para-spinal electromyography (EMG)/Surface scanning EMG - see CPB 0112 - Surface Scanning and Macro Electromyography
E. Spinoscopy - see CPB 0112 - Surface Scanning and Macro Electromyography
F. Thermography - see CPB 0029 - Thermography.
Background

Chiropractic is a branch of the healing arts that is concerned with human health and prevention of disease, and the relationship between the neuroskeletal and musculoskeletal structures and functions of the body. The primary focus of chiropractic is the relationship of the spinal column and the nervous system, as it relates to the restoration and maintenance of health. A practitioner of chiropractic is referred to as Doctor of Chiropractic (D.C.), Chiropractic Physician or Chiropractor.

The primary focus of the profession is the vertebral column; however, all other peripheral articular structures and adjacent tissues may be treated, depending on state chiropractic scope of practice laws.

Neuromusculoskeletal conditions commonly treated by chiropractic physicians include:

- Contractures
- Degenerative conditions of the joints
- Fibrositis
- Headaches (including tension headaches, migraines, and vertebrogenic-type headaches)
- Myalgia
- Myofibrositis
- Neuralgias
- Non-infectious inflammatory disorders of the joints, muscles, and ligaments of the spine and extremities
- Osteoarthritis -- Intervertebral disc disorders of the spine such as disc protrusion, bulging, degeneration, and displacement
- Peripheral joint trauma
- Radiculopathies
- Repetitive motion injuries
- Spinal facet syndromes
- Spondylolisthesis
- Spondylosis
- Sprains and strains

The chiropractor may treat multiple neuromusculoskeletal conditions during a single visit.

Chiropractors use broadly accepted diagnostic procedures to assess diseases and adverse health conditions.

The primary mode of chiropractic treatment is manipulation or adjustment. Chiropractic manipulation is the application of a controlled force to re-establish normal articular function. The objective of manipulation is to restore the normal mobility and range of motion within the joint.

The chiropractor affects the body's physiology and promotes healing by locating and correcting mechanical disorders of joints or joint subluxations. In chiropractic, the term "subluxation" is used interchangeably with the term "spinal subluxation complex" or "vertebral subluxation complex". A subluxation may also be called a joint dysfunction, joint fixation, functional joint lesion, somatic dysfunction, or biomechanical dysfunction. A subluxation has been defined as a fixation, lack of motion, or aberrant motion of an articular joint, resulting in physiological changes within the joint that may cause inflammation of the joint and its capsule, which may result in pain, swelling, muscle spasm,
nerve irritation, damage to joint cartilage, and loss of normal range of motion. Nerve irritation may cause pain and spasm to radiate. Vascular, sensory, and motor changes may accompany a spinal subluxation complex.

Some non-neuromusculoskeletal conditions may be managed by chiropractors when practicing within the scope of their licenses. In assessing the need for chiropractic treatment, both neuromusculoskeletal conditions and any related coexisting non-neuromusculoskeletal disorders should be considered.

Chiropractors treat disease without the use of medications or surgery. When medication or surgery is indicated, the chiropractor should refer the patient to an allopathic or osteopathic physician, as appropriate. Patients may receive medical treatment from an allopathic or osteopathic physician simultaneously or in conjunction with a chiropractic physician.

Chiropractors may diagnose disease and prescribe office-based treatments and home exercises. Chiropractors do not commonly make house calls.

In addition to manipulation, chiropractors may employ adjunctive nutritional, hygienic, and environmental modalities, physiotherapeutic modalities, rehabilitation, and therapeutic massage for the treatment of subluxation and related conditions. The use of adjunctive modalities must be appropriate for the diagnosis and must augment or enhance the manipulative treatment. The type of therapy used should be consistent with the status of the patient's condition (e.g., acute, subacute, rehabilitative or chronic).

Examples of adjunctive physiotherapeutic measures that have been used in chiropractic include:

- Acute phase: thermal (cold) therapy, electrotherapy, trigger point therapy;
- Rehabilitative phase: exercise; and
- Subacute phase: thermal (heat), electrotherapy, ultrasound.

Massage therapy and traction procedures are not considered to be manipulation.

Literature indicates that chiropractic treatment during pregnancy may be appropriate. Chiropractic therapy is often effective in reducing back pain and allowing the pregnant patient to function and perform her activities of daily living.

Physical Therapy Modalities:

Although chiropractors often use physical modalities with spinal manipulation, there is a lack of evidence that modalities yield additional benefits over spinal manipulation alone. The UCLA Back Pain Study examined the net effect of physical modalities on low back pain outcomes among chiropractic patients in a managed-care setting (Hurwitz et al, 2002; Hurwitz et al, 2006). Half of the 681 patients participating in this clinical trial of low back pain treatment strategies were randomized to chiropractic care with physical modalities (n = 172) or without physical modalities (n = 169). The other half of the study subjects were assigned to medical care with or without physical therapy modalities. Subjects were followed for 6 months with assessments at 2, 4, and 6 weeks and at 6 months. The primary outcome variables were average and most severe low back pain intensity in the past week, assessed with numerical rating scales (0 to 10), and low back-related disability, assessed with the 24-item Roland-Morris Disability Questionnaire. Almost 60 % of the subjects had baseline low back pain episodes of more than 3 months' duration. The 6-month follow-up was 96 %. The investigators reported, comparing groups assigned to chiropractic alone to chiropractic plus physical therapy modalities, the adjusted mean differences between groups in improvements in average and most severe pain and disability were clinically insignificant at all follow-up assessments (Hurwitz et al, 2002). The
investigators reported that clinically relevant improvements in average pain and disability were more likely in the modalities group at 2 and 6 weeks, but this apparent advantage disappeared at 6 months. Perceived treatment effectiveness was greater in the modalities group. The investigators concluded that physical modalities used by chiropractors in this study did not appear to be effective in the treatment of patients with low back pain, although the investigators noted that a small short-term benefit for some patients cannot be ruled out. In a subsequent report on the 18-month outcomes of the UCLA Back Pain Study, 89.6% of the original cohort were followed through 18 months (Hurwitz et al, 2006). Among study subjects assigned to chiropractic care, assignment to physical therapy modalities in addition to chiropractic was not associated with improvement or remission (adjusted RR = 0.98; 95% confidence interval [CI]: 0.62 to 1.55) compared to chiropractic care alone. The investigators concluded that physical modalities appear to have no benefit in chiropractic care.

In another publication, Haas et al (2004) reported on a randomized controlled pilot study conducted in the faculty practice of a chiropractic college outpatient clinic examining the effects of the number of chiropractic treatment visits for manipulation with and without physical modalities on chronic low back pain and disability. The study involved 72 patients with chronic, non-specific low back pain of mechanical origin. All patients received high-velocity low-amplitude spinal manipulation. Half received one or two of the following physical therapy modalities at each visit: soft tissue therapy, hot packs, electrotherapy or ultrasound. The investigators reported that, at 4 weeks, there was no effect of treatment regimen (chiropractic or chiropractic plus physical therapy modalities) on pain or functional disability at 4 weeks or 12 weeks follow-up.

In another randomized controlled clinical study, joint manipulation plus myofascial therapy was found to be no more effective than joint manipulation alone for persons with subacute low back pain. Hsieh et al (2002) reported on the results of a randomized, assessor-blinded clinical trial to investigate the relative effectiveness of 3 manual treatments and back school for patients with subacute low back pain. Two hundred patients with subacute low back pain were randomly assigned to one of four treatments for 3 weeks: back school, joint manipulation, myofascial therapy, and combined joint manipulation and myofascial therapy. The investigators reported that all 4 groups showed significant improvement in pain and activity scores after 3 weeks of care, but did not show further significant improvement at the 6-month follow-up assessment. No statistically significant differences were found among treatment groups at either at the 3-week or 6-month reassessments. The investigators concluded that, for subacute low back pain, combined joint manipulation and myofascial therapy was no more effective than joint manipulation or myofascial therapy alone.

Experimental and Investigational Interventions:

Some diagnostic and therapeutic procedures are not considered medically necessary or essential to the treatment of an illness or injury and are not broadly accepted by the chiropractic profession.

Manipulation is deemed experimental and investigational when it is rendered for non-neuromusculoskeletal conditions, because the effectiveness of chiropractic manipulation for this indication has not been proven by adequate scientific studies, published in peer-reviewed scientific journals. An example is the use of manipulation in lieu of antibiotics for treatment of suppurative otitis media. Manipulative procedures are not proven to be an effective substitute for childhood immunizations or for the treatment of infectious diseases, and are not covered for these indications.

Chiropractic/manipulative management of scoliosis has not been shown to substantially
alter the idiopathic scoliotic curve or progression of the curve in late adolescence or adulthood. Therefore, chiropractic manipulation is considered unproven and is not covered for treatment of idiopathic scoliosis or for treatment of scoliosis beyond early adolescence, unless the patient is exhibiting pain or spasm or if some other medically necessary indication for chiropractic manipulation is present.

Scoliotic deviations may be a result of functional adaptations to lumbo-pelvic lower extremity dysfunction for which chiropractic care is appropriate. Manipulative procedures, in conjunction with electrical muscle stimulation and exercise, can significantly reduce the associated muscle spasm and resultant pain of scoliosis during the acute exacerbations and/or injury, and improve spinal mobility prior to an active exercise regimen. Chiropractic/manipulative management of scoliosis, however, has not been shown to substantially alter the idiopathic scoliotic curve or progression of the curve in late adolescence or adulthood. In a systematic literature review of non-surgical treatment in adult scoliosis, Everett and Patel (2007) stated that there is only very weak evidence for the use of chiropractic manipulation in adult deformity.

The use of chiropractic to correct abnormal spinal curvature in asymptomatic persons is considered experimental and investigational. Chiropractic Biophysics Technique (CPB), also known as Clinical Biomechanics of Posture, is a variation of straight (subluxation-based) chiropractic whose overall goal is to restore posture. Advocates of CBP are reported to ascribe to the controversial position that decreased neck curvature is pathological and requires correction whether or not the patient has symptoms.

The CBP method is based on the idea that postural analysis is valid for diagnosing ligament contractures, muscle weakness, and proprioceptive deficits. The assumed deficits supposedly reduce blood flow, which decreases oxygen delivery and causes various diseases. To qualify for treatment, patients undergo a postural examination and are screened for contraindications to manipulation and cervical extension traction. Therapy begins with relief care consisting of 1 to 12 sessions of spinal adjustments, cold or hot packs, trigger point therapy for muscle spasms, and/or massage with a motorized table. When relief care ends, CBP practitioners switch patients to rehabilitative care, which consists of weekly mirror image adjustments, neck and low back extension traction, as well as mirror image exercises intended to modify spinal curvature over a longer period of time. Initial rehabilitative plans often last 6 to 12 months, after which patients are switched to monthly visits for life.

There is insufficient scientific evidence to support the use of CBP. The published peer reviewed literature focuses primarily on explaining the theoretical basis for the Chiropractic Biophysics Technique. Harrison et al (1996) discussed the theory underlying the Chiropractic Biophysics Technique, explaining how certain linear algebra concepts provide the theoretical basis for making postural corrections. The authors explained how Chiropractic Biophysics Technique uses these concepts in examination procedures, manual spinal manipulation, instrument assisted spinal manipulation, postural exercises, extension traction and clinical outcome measures. Jackson et al (1993) reported on the intra- and inter-rater reliability of the geometric line drawings used in CBP on lateral cervical radiographs. The investigators concluded that the reliabilities for intra- and inter-examiner were accurate enough to provide measurements for future clinical studies.

There is a paucity of published peer reviewed literature evaluating the effectiveness of the Chiropractic Biophysics Technique in improving clinical outcomes (e.g., reductions in pain and disability, improvements in function). Colloca and Polkinghorn (2003) described the use of CBP protocols in conjunction with other chiropractic techniques in 2 persons with Ehlers-Danlos syndrome. In a 10-year follow-up study of neck x-ray findings in
asymptomatic patients, Gore (2001) found no relationship between the loss of neck curvature and the development of pain or degenerative changes. Haas and colleagues (1999) noted that changes in spinal structure do not necessarily cause symptoms. They stated that CBP advocates have failed to (i) establish the biological plausibility of what they consider an ideal spine, (ii) show that their diagnostic tests enable better patient management, (iii) demonstrate meaningful outcomes such as decreased pain or disability, and (iv) validate the routine use of spinal x-rays to measure spinal displacement.

Active release technique (ART) is a patented soft tissue system that treats problems with muscles, tendons, ligaments, fascia and nerves (e.g., headaches, back pain, carpal tunnel syndrome, shin splints, shoulder pain, sciatica, plantar fasciitis, knee problems, and tennis elbow). These conditions have one important commonality -- they often result from injury to over-used muscles. Each ART session is a combination of examination and treatment. The ART provider uses his/her hands to evaluate the texture, tightness and movement of muscles, fascia, tendons, ligaments and nerves. Abnormal tissues are treated by combining precisely directed tension with very specific patient movements. These treatment protocols -- over 500 specific moves -- are unique to ART. They supposedly allow providers to identify and correct the specific problems that are affecting each individual patient. Active release technique is similar to some massage techniques, albeit more aggressive.

While ART may be utilized by some chiropractors, it is different from conventional chiropractic manipulation. Furthermore, Drover et al (2004) reported that ART protocols did not reduce inhibition or increase strength in the quadriceps muscles of athletes with anterior knee pain. Further study is required.

There is inadequate evidence of the effectiveness of spinal manipulation in treatment of dysmenorrhea. In a Cochrane review, Proctor et al (2006) concluded that there is no evidence to suggest that spinal manipulation is effective in the treatment of primary and secondary dysmenorrhea.

There is inadequate evidence of the effectiveness of chiropractic for treatment of epilepsy. In a review on the use of complementary and alternative medicine (CAM) including manipulative-based medicine such as chiropractic in the treatment of epilepsy, Ricotti and Delanty (2006) noted that in the available literature, there is a sense of the merit of these therapies in epilepsy, but there is a paucity of research in these areas. The authors stated that, in a science of double-blind, randomized controlled trials, appropriate designs and outcome measurements need to be tailored to CAM. More effort needs to be put into future trials, with the assistance of qualified CAM professionals to ensure conformation to their therapeutic principles.

The ProAdjuster is a hand-held device most commonly used by chiropractors for the diagnosis and treatment of back pain. The technology associated with this device entails the use of a piezoelectric sensing head/probe that is pressed onto the spine sending ultrasound to the vertebral column for measurements of movement of each vertebra or the lack of it. A series of signal waves, each representing an individual vertebra, appears on a computer screen beside digital bar charts, where longer, red bars indicate a mis-alignment in the lower spine. When the ProAdjuster identifies a problem, it then delivers a series of rapid and measured percussion taps that works like a traditional chiropractic adjustment. The sensing system will automatically stop the adjustment when normal motion is detected.

There is insufficient scientific evidence regarding the clinical value of the ProAdjuster for the management of patients with back pain or any other conditions. Available published literature centers on the piezoelectric sensor technology. According to Zhang and Fu
piezoelectric quartz crystal biosensor is a new sensor with the comprehensive utilization of the high sensitivity to mass and the surface characteristics of quartz crystal (e.g., conductance, density, dielectric constant, viscosity), as well as the high specificity of biologic identification molecules. The authors state that piezoelectric quartz crystal biosensors have been used in various settings such as environmental monitoring (e.g., detection of organophosphate levels in river water), foods sanitary control (e.g., detection of sulfamethoxazole residue or Salmonella in milk), as well as medical laboratory diagnosis (e.g., DNA biosensor, biosensor for estrogenic substances, and micro-array immunosensor for quantitative detection of serum or urine human chorionic gonadotropin).

Beck and colleagues (2006) compared a piezoelectric contact sensor with an accelerometer for measuring the mechanomyographic (MMG) signal from the biceps brachii during sub-maximal to maximal isokinetic and isometric forearm flexion muscle actions. These researchers found that there were no significant relationships for normalized MMG mean power frequency (MPF, percent maximum) versus isokinetic and isometric torque for the contact sensor, but the accelerometer demonstrated a quadratic or linear relationship for the isokinetic and isometric muscle actions, respectively. There were also a number of significant mean differences between the contact sensor and accelerometer for normalized MMG amplitude or MPF values. The findings of this study indicated that in some cases involving dynamic and isometric muscle actions, the contact sensor and accelerometer resulted in different torque-related responses that may affect the interpretation of the motor control strategies involved.

A number of other spinal adjusting instruments have been developed that share similarities to the ProAdjuster, including the PulStarFRAS. Similar to the ProAdjuster, the PulStarFRAS (Function Recording and Analysis System) can be used for diagnostic as well as therapeutic purposes. The PulStarFRAS is designed to generate an objective and repeatable analysis of the mobility (compliance) of the spinal structure. The resulting computerized differential compliance (CDC) scans are used as an aid in the identification of spinal joint dysfunction. The PulStarFRAS provides a low-force multiple impulse therapy to resolve joint fixation. There is a lack of adequate evidence regarding its clinical value of the PulStarFRAS.

The Activator is a spinal adjusting instrument that is similar to the ProAdjuster in that it provides low force. The Activator Methods Chiropractic Technique system of analysis isolates and locates euronro-articular dysfunctions or subluxations by observing changes in relative leg length while the patient lies prone on a treatment table. The Activator Adjusting Instrument is applied based on indications from the analysis as to somatic location and force vector. The Activator produces a maximum of 0.3 Joules of kinetic energy, which is intended to be sufficient to induce relative movement of vertebrae and their associated joints, but below the forces associated with tissue injury.

There is insufficient evidence to validate the clinical validity of the Activator Methods Chiropractic Technique methods of leg length analysis. In addition, there is insufficient evidence that use of the Activator results in benefits equivalent to the more studied methods of manual chiropractic manipulation.

A study by Wood et al (2001) is a controlled clinical outcome study comparing the Activator technique to manual manipulation. In a pilot study (n = 30), Wood et al (2001) found that both instrumental manipulation by means of the Activator II Adjusting Instrument and manual manipulation have beneficial effects associated with reducing pain and disability and improving cervical range of motion in patients with neck pain. In this study, subjects were randomly assigned to 2 groups: one group was assigned to manipulation with the Activator, the other to manual chiropractic manipulation using a standard technique. The
Activator Methods Chiropractic Technique of leg length analysis was used to determine treatment locations in both the instrument group and the manual group. All treatments, both manual and instrumental, were applied by a single chiropractor. Subjects were treated until they were asymptomatic or received a maximum of 8 treatments, and were followed for 1 month after completion of therapy. The investigators reported that no significant differences were observed between the instrumental manipulation group and the manual manipulation group with respect to subjective outcomes (pain and disability) and objective outcomes (range of motion) \((p > 0.025)\). The study has a number of important limitations, including the small sample size, so that the study may be under-powered to detect clinically significant differences in outcomes among groups. In addition, the small size of the study and the fact that all treatments were provided by a single chiropractor raise questions about the generalizability of the findings. The investigator who assessed the clinical outcomes was not blinded to group assignment, raising the possibility of examiner bias. The short duration of follow-up in this study does not allow one to compare the durability of results of these treatments. The statistical analysis used in this study was inappropriate to answer the key question about the effectiveness of the Activator compared to manual therapy in that the study used a superiority design rather than a more stringent non-inferiority design (i.e., the null hypothesis of this study was that there were no significant differences between the groups in clinical improvement). The investigators stated that future studies could benefit from including an untreated group and a sham treatment group to determine the true clinical benefits of these manipulative procedures. The investigators concluded that a randomized controlled clinical trial in a similar patient base with a larger sample size is necessary to verify the clinical relevance of these findings.

An unpublished study (Pfefer et al, 2007) compared the outcomes in terms of pain and function of acute low back pain patients treated with either Activator Methods Chiropractic Technique or a standard method of chiropractic manipulation (diversified chiropractic spinal manipulation). A total of 47 patients with acute or subacute low back pain were randomly assigned to the Activator Technique or manual chiropractic manipulation. Each treatment group had a single chiropractic practitioner. The Activator doctor used the standard Activator leg length discrepancy protocols, whereas the manual therapy doctor used a combination of motion and static palpation to determine the areas to be treated. Subjects were treated with duration and frequency at the clinical discretion of each group’s treating chiropractor, for up to 6 weeks. Subjects were assessed at study initiation, at weekly intervals for the first 3 weeks of therapy, and at week 6. The investigators reported that the null hypothesis of non-equivalence was rejected for measure of disability (the Modified Oswestry disability questionnaire score), but not for pain (Visual Analog Scores (VAS) for pain). This study avoided some of the limitations of the study by Woods et al, in that it used an equivalence design for statistical analysis rather than a superiority design; tolerance was set at 20%, so that the 2 treatments could differ from each other by up to 20% and still be considered equivalent. Outcomes were assessed in a blinded manner by student research assistants. The investigators noted that a clear weakness of this study is confounding of the provider with the technique, and that future studies could address this issue by assigning several providers of equal competence to deliver the technique. Other limitations of this study are the small sample sizes and limited duration of follow-up.

Kawchuk et al (2006) reported on a study comparing variability in the magnitude and duration of force produced by manual and instrument-based manipulation. In this study, 4 therapists (2 novices and 2 experts certified in the use of Activator instruments by the manufacturer) used 4 different mechanical instruments to apply force to a load cell fixed to a rigid surface. These 4 instruments included 2 spring-based instruments (the Activator IV and the Activator Signature), a compressed gas instrument (the Air Activator), and an
electromechanical instrument (the Impulse from Neuromechanical Innovations, Phoenix, AZ). A different group of 2 experts licensed in chiropractic and 2 unlicensed novices used traditional manual techniques to apply force to a sensor mat. The investigators reported that manual applications of force were generally greater in magnitude and duration than those delivered by instrument. The mean force of all manual applications was 264 Newtons and the mean force duration was 145 milliseconds, whereas the mean force for all instrument applications was 171 Newtons and the average force duration was 0.963 milliseconds. The investigators reported that force-producing instrumentation exhibited less variation in absolute force and force duration compared to manual techniques. On average, the standard deviation for all manual applications represented 16 % of the applied force and 23 % of the mean force duration. For all instrument applications, the standard deviation represented 4 % of the mean applied force and 5 % of the mean force duration. The investigators noted, however, that there were significant differences in absolute force between operators using the same instrument. The investigator concluded that the use of an instrument would be expected to reduce human inconsistency and result in reduced variation in magnitude and duration of force among operators. This study is limited in that it did not report on clinical outcomes of manual versus instrumented manipulation in humans.

Yates et al (1988) examined the effectiveness of the Activator technique compared to sham Activator treatment in lowering blood pressure or no treatment in 21 patients with elevated blood pressure, finding that the Activator treatment significantly reduced blood pressure in the short-term. The investigators concluded that further research is necessary to evaluate the long-term effectiveness of treatment. "While spinal manipulative therapy appears to be effective in producing a temporary reduction in blood pressure immediately after treatment, the effect of such treatment in reducing blood pressure over a period of days or weeks is unknown and warrants further investigation."

In a case series study (n = 9), Devocht et al (2003) reported that the symptoms of temporomandibular disease improved following a course of treatment using the Activator methods. The authors concluded that further investigation of this type of chiropractic treatment for patients with the articular type of temporomandibular disease is warranted. Moreover, Fuhr and Menke (2005) stated that the Activator Adjusting Instrument may be a clinically useful tool, but its ultimate scientific validation requires testing using sophisticated research models in the areas of neurophysiology, biomechanics, and statistical analysis. This is in agreement with the observation of Polkinghorn (1998) who noted that instrument-delivered adjustments (i.e., the Activator Adjusting Instrument) may provide benefit in cases of cervical disc protrusion in which manual manipulation causes an exacerbation of the symptoms or is contraindicated altogether. The author concluded that further study in this area should be made via large scale studies organized in an academic research setting.

The Atlas orthogonal technique is an upper-cervical, spinal-corrective procedure that is intended to restore a person’s balance and stimulate the natural-healing capabilities normally present in the body. Unlike other chiropractic procedures, there is no twisting or cracking involved. Besides correcting spinal issues, the Atlas orthogonal technique is thought to help with various conditions such as arthritis, migraine headaches, asthma, and fibromyalgia. However, there is a lack of evidence regarding the clinical value of this technique.

The Blair technique is a specific system of analyzing and adjusting the upper cervical vertebrae. Attention is given to the atlas and axis (the first 2 cervical vertebrae) since they are the most freely moveable vertebrae in the spinal cord and the ones most commonly mis-aligned. The objective of the Blair technique is not to diagnose or treat diseases or
conditions, but to analyze and correct vertebral subluxations such that the body can repair and maintain health from within. However, there is a lack of evidence regarding the clinical value of this technique.

Biogeometric integration has been described as a conceptual understanding that enhances chiropractors' knowledge of the human body. Seminars on biogeometric integration provide an understanding of the innate geometry of the body and force dynamics surrounding the creation and release of subluxations. The philosophy, science, and art of chiropractic are examined from a post-Newtonian point of view, providing the opportunity to express and understand chiropractic in accord with contemporary science. Through understanding of the innate geometry of the body, chiropractors are thought to be able to more effectively and gently release the subluxation and assess the effectiveness of the adjustment. The geometric understanding of the body also serves to bridge the gap between the many techniques of chiropractic by providing a common language and understanding from which to converse. However, there is a lack of evidence regarding the clinical value of this approach.

The Whitcomb Technique, advocated by Paul Whitcomb, allegedly can cure patients with fibromyalgia. It entails a quick neck manipulation, 3 times a day, 5 days a week, for at least 2 months. The number of neck manipulations ranged from 60 to 143. However, there is a lack of evidence regarding the clinical value of this method.

There is inadequate evidence of the effectiveness of Neuro Emotional Technique (NET) for attention deficit hyperactivity disorder (ADHD) or other indications. Karpouzis et al (2009) stated that an abundance of literature is dedicated to research for the treatment of ADHD. Most, is in the area of pharmacological therapies with less emphasis in psychotherapy and psychosocial interventions and even less in the area of complementary and alternative medicine (CAM). The use of CAM has increased over the years, especially for developmental and behavioral disorders, such as ADHD. Almost 2/3 of parents with children with ADHD have used CAM. Medical evidence supports a multi-disciplinary approach (i.e., pharmacological and psychosocial) for the best clinical outcomes. The NET, a branch of chiropractic, was designed to address the biopsychosocial aspects of acute and chronic conditions including non-musculoskeletal conditions. Anecdotally, it has been suggested that ADHD may be managed effectively by NET. A randomized, placebo-controlled, double-blind, clinical trial was designed to assess the effectiveness of NET on a cohort of children with medically diagnosed ADHD. Children aged 5 to 12 years who met the inclusion criteria were randomized to one of three groups. The control group continued on their existing medical regimen and the intervention and placebo groups had the addition of the NET and sham NET protocols added to their regimen, respectively. These 2 groups attended a clinical facility twice-weekly for the first month and then once-monthly for 6 months. The Conners' Parent and Teacher Rating Scales (CRS) were used at the start of the study to establish baseline data and then in 1-month and in 7-month time, at the conclusion of the study. The primary outcome measures chosen were the Conners' ADHD Index and Conners' Global Index. The secondary outcome measures chosen were the DSM-IV: Inattentive, the DSM-IV: Hyperactive-Impulsive, and the DSM-IV: Total subscales from the Conners' Rating Scales, monitoring changes in inattention, hyperactivity and impulsivity. Calculations for the sample size were set with a significance level of 0.05 and the power of 80%, yielding a sample size of 93. The authors noted that the present study should provide information as to whether the addition of NET to an existing medical regimen can improve outcomes for children with ADHD.

Bablis et al (2009) described the profile of patients presenting to a private chiropractic clinic specializing in NET; and identified trends in the presentation of symptoms from these patients. A total of 761 consecutive new patients presented to a large, multi-doctor
chiropractic clinic in which practitioners all adopt a similar philosophical paradigm and practice NET. From January 2005 to December 2005, self-referred patients completed a new patient questionnaire, in which they self-reported 1 primary complaint for why they were visiting the practitioner. Pre-determined patient information was entered manually into a database and basic descriptive statistics extracted. Overall, 67.3% of participants were female and 32.6% of the participants were between the ages of 31 and 40; 54.8% of patients presented with a primary musculoskeletal complaint and 36.0% a non-musculoskeletal complaint. Of the musculoskeletal complaints, 40.8% of patients presented with back pain, 20.9% with neck pain and 11.5% with shoulder pain. The most common form of non-musculoskeletal complaint was immune and recurrent infections (13.9%), stress and anxiety (12.8%) and depression (10.9%). 41.4% of participants reported a first time complaint, however, of the patients who had had the presenting complaint before, 60.7% reported as having the complaint for greater than 1 year.

Musculoskeletal and non-musculoskeletal participants had similar pain profiles. The authors concluded that this retrospective analysis is the first comprehensive description of the scope of NET patients and their presenting complaints. The patient profile of this NET clinic has a higher degree of non-musculoskeletal patients than that usually reported in non-NET chiropractic offices, and other forms of chiropractic previously described in the literature. They stated that further cross-sectional research is required to determine if this particular clinic is indicative of all NET practices and whether the presenting symptoms, especially the non-musculoskeletal, are resolved with NET.

There is insufficient evidence to support the use of chiropractic in treatment of non-neuromusculoskeletal conditions in children. In a review "Chiropractic Diagnosis and Management of Non-musculoskeletal Conditions in Children and Adolescents," Ferrance and Miller (2010) noted that a great deal has been published in the chiropractic literature regarding the response, or lack thereof, of various common pediatric conditions to chiropractic care. The majority of that literature is of low scientific value (i.e., case reports or case series). The purpose of this review was to summarize the literature from the point of view of clinicians, rather than researchers, and to discuss some additional detail of the conditions themselves. Databases searched were PubMed, Mantis, Index to Chiropractic Literature, and CINAHL. Keywords were chiropractic paired with colic, crying infant, nocturnal enuresis, asthma, otitis media and ADHD. Most of the published literature centers around case reports or series. The more scientifically rigorous studies show conflicting results for colic and the crying infant, and there is little data to suggest improvement of otitis media, asthma, nocturnal enuresis or attention deficit hyperactivity disorder. The authors concluded that the efficacy of chiropractic care in the treatment of non-musculoskeletal disorders has yet to be definitely proven or disproven, with the burden of proof still resting upon the chiropractic profession.

There is a paucity of evidence of the effectiveness of spinal manipulation for treatment of headaches. Vernon et al (2009) stated that tension-type headache (TTH) is the most common headache experienced by adults in Western society. Only 2 clinical trials of spinal manipulation for adult TTH have been reported, neither of which was fully controlled. In 1 trial, spinal manipulation was compared to amitriptyline. This trial was stopped prematurely due to poor recruitment. The purposes of this study were to (i) describe the trial protocol, as it contained several novel features, (ii) report the limited data set obtained from sample of completed subjects, and (iii) discuss the problems that were encountered in conducting this study. Sufferers of TTH with more than 10 headaches per month were randomly assigned to 4 groups: (i) real cervical manipulation + real amitriptyline, (ii) real cervical manipulation + placebo amitriptyline, (iii) sham cervical manipulation + real amitriptyline, and (iv) sham cervical manipulation + placebo amitriptyline. A baseline period of 4 weeks was followed by a treatment period of 14 weeks. The primary outcome was headache intensity.
frequency obtained from a headache diary in the last 28 days of the treatment period. A total of 19 subjects completed the trial. In the unadjusted analysis, a statistically significant main effect of chiropractic treatment was obtained (-2.2 [-10.2 to 5.8], p = 0.03), which was just below the 3-day reduction set for clinical importance. As well, a clinically important [corrected] effect of the combined therapies was obtained (-9 [-20.8 [corrected] to 2.9], p = 0.13), but this did not achieve statistical significance. In the adjusted analysis, neither the main effects of chiropractic nor amitriptyline were statistically significant or clinically important; however, the effect of the combined treatments was -8.4 (-15.8 to -1.1), which was statistically significant (p = 0.03) and reached the criterion for clinical importance. The authors concluded that although the sample size was smaller than initially required, a statistically significant and clinically important effect was obtained for the combined treatment group. There are considerable difficulties with recruitment of subjects in such a trial. They stated that this trial should be replicated with a larger sample.

Haas et al (2010) presented a preliminary model to identify the effects of expectancy of treatment success and the patient-provider encounter (PPE) on outcomes in an open-label randomized trial of spinal manipulation for cervicogenic headache. A total of 80 subjects with chronic cervicogenic headache (CGH) were randomized to 4 groups: 2 levels of treatment dose (8 or 16) and 2 levels of therapy from a chiropractor (spinal manipulation or light massage). Providers were instructed to have equal enthusiasm for all care. Structural equation modeling with standardized path coefficients (beta) was used in a path analysis to identify the effects of patient expectancy and the PPE on CGH pain. The model included monthly pain from baseline to 12 weeks. Expectancy and PPE were evaluated on Likert scales. The patient-provider encounter was measured as patient perception of chiropractor enthusiasm, confidence, and comfort with care. Baseline patient expectancy was balanced across groups. The PPE measures were balanced across groups and consistent over the 8-week treatment period. Treatment and baseline pain had the strongest effects on pain outcomes (|beta| = 0.46 to 0.59). Expectations had little effect on pain (abs value(beta) < 0.15). The patient-provider encounter had a weak effect on pain (abs value(beta) = 0.03 to 0.27) and on subsequent confidence in treatment success (abs value(beta) = 0.09 and 0.12). The authors concluded that encouraging equipoise in the PPE and balancing expectancy across treatment groups may protect against some confounding related to the absence of blinding in a randomized controlled trial of pain. In this trial, their effects were found to be small relative to the effects of treatment and baseline values.

In a multi-center, prospective, randomized, placebo-controlled, and blinded study, Borusiak and colleagues (2010) examined the effectiveness of cervical spine manipulation in children and adolescents with suspected cervicogenic headaches. A total of 52 children and adolescents (21 boys and 31 girls) aged 7 to 15 years were assigned either to placebo or true manipulation with another 2-month follow-up. Main outcome measures were percentage of days with headache, total duration of headache, days with school absence due to headache, consume of analgesics, intensity of headache. These investigators did not find a significant difference between the placebo group and the true manipulation group with respect to the defined main outcome measures. The authors concluded that they were unable to show an efficacy of cervical spine manipulation in 52 children and adolescents with suspected cervicogenic headaches.

There is little reliable evidence to support the use of chiropractic in treatment of idiopathic dizziness. In a pilot study, Hawk et al (2009) collected preliminary information on the effect of a limited and extended course of chiropractic care on balance, chronic pain, and associated dizziness in a sample of older adults with impaired balance. These investigators conducted a randomized trial targeting a sample size of 30, comparing 2 schedules of chiropractic care to a no-treatment group. Group 1 (limited schedule) was
treated for 8 weeks, group 2 (extended schedule) was treated for 8 weeks and then once-monthly for 10 months, and group 3 received no treatment. Assessments were made at baseline and 1, 2, 6, and 12 months later. The primary outcome was changed in the Berg Balance Scale (BBS) from baseline to 1 year. Changes in the Pain Disability Index (PDI) and Dizziness Handicap Index (DHI) were also measured. A total of 34 patients were enrolled, 13 in group 1, 15 in group 2, and 6 in group 3. Only 5 had baseline BBS scores less than 45, indicating increased risk for falls. There were no treatment-related adverse events. Nine patients dropped out by 1 year. No significant differences within or between groups in median BBS from baseline to 12 months were observed. Median PDI scores improved more from baseline to 1 year in group 2 compared with groups 1 and 3 ($p = 0.06$, Kruskal-Wallis test). For the 9 patients with dizziness, a clinically significant improvement in DHI scores of groups 1 and 2 was observed at 1 month and remained lower than baseline thereafter; this was not true of group 3. The authors concluded that further investigation of the possible benefit of chiropractic maintenance care (extended schedule) for balance and pain-related disability is feasible and warranted, as well as both limited and extended schedules for patients with idiopathic dizziness.

In a pilot study, Lewis et al (2006) examined if the active therapeutic movement (ATM2) can decrease low back pain (LBP), increase range of motion (ROM) and what the mechanism may be that is responsible for any decrease in pain. The ATM2 was shown to be effective in reducing LBP complaints although not significantly better than the abdominal hollowing exercise. Subjects were all students in their 20's and the overall presenting pain levels were low to start. The fact that the ATM2 did not significantly decrease LBP more than the mat exercise is not surprising as abdominal hollowing exercises are often prescribed for patients with LBP. The ATM2 was shown to be effective in increasing lumbar ROM whereas the mat exercise was not. The ATM2 did not appear to impact central nervous system re-programming of the transverse abdominus (TrA) muscle based on this procedure. However, studies that have looked at TrA timing have utilized needle electromyography (EMG) and this study used surface EMG that only can pick up the reflection of TrA activity. In addition, the software program used was difficult to read the extremely short time values necessary to accurately measure timing of the trunk muscles. Based on the results of this pilot study, the ATM2 has potential for helping patients with LBP and warrants further study.

The Koren Specific Technique (KST) appears to be a new system of analysis in chiropractic. With the KST method, the adjustment is generally made with an instrument called the "Arthrostim" although finger pressure can also be used. The KST allegedly opens up a new horizon on the analysis and correction of health problems by accessing the binary information of the holographic body, which supposedly enables a trained practitioner to access information about a patient's physiology that otherwise would not be available. However, there is a lack of evidence regarding the effectiveness of this approach.

Ernst (2009) noted that some chiropractors claim that spinal manipulation is an effective treatment for infant colic. The author performed a systematic review aimed at evaluating the evidence for this claim. Four databases were searched and 3 randomized controlled trials met all the inclusion criteria. The totality of this evidence fails to show the effectiveness of this treatment. The author concluded that the above claim is not based on convincing data from rigorous clinical trials.

According to the International Chiropractic Pediatric Association (Ohm, 2006), the Webster protocol is a specific chiropractic sacral analysis and diversified adjustment. The goal of the adjustment is to reduce the effects of sacral subluxation/SI joint dysfunction. In so doing neuro-biomechanical function in the pelvis is facilitated. Cohain (2007) stated that
techniques for turning a term breech baby include (i) external cephalic version (ECV) using hands and ultrasound only; (ii) acupuncture point stimulation, by needle or moxibustion; (iii) chiropractic "Webster" technique; (iv) hypnotherapy; and (v) special exercises. The author noted that 50 % of breech fetuses at 34 weeks will turn by themselves to head down by 38 weeks. Therefore, to be considered effective, a technique for turning breech must turn the baby and keep it turned more than 50 % of the time. Only ECV with an experienced practitioner has been documented to have a greater than 50 % success rate at 37 weeks; in 95 % of cases the head stays down. Furthermore, an UpToDate review on “Overview of breech presentation” (Hofmeyr, 2011) does not mention the use of chiropractic or the Webster Technique.

Ernst (2011) stated that many chiropractors believe that chiropractic treatments are effective for gastro-intestinal (GI) disorders. In a systematic review, the author evaluated the evidence from controlled clinical trials supporting or not supporting this notion. A total of 6 electronic databases were searched for relevant studies. No limits were applied to language or publication date. Prospective, controlled, clinical trials of any type of chiropractic treatment for any type of GI problem, except infant colic, were included. Only 2 trials were found -- 1 was a pilot study, and the other had reached a positive conclusion; however, both had serious methodological flaws. The author concluded that there is no supportive evidence that chiropractic is an effective treatment for GI disorders.

The FAKTR (Functional and Kinetic Treatment with Rehab) Approach was developed about 9 years ago by Greg Doerr, D.C. and Tom Hyde, D.C. who began to experiment with treating soft tissue/fascial disorders through the use of instruments. Both physicians were trained in a variety of soft tissue techniques including instrument-assisted soft tissue mobilization (IASTM) and decided to incorporate their previous training into a concept that included function and treatment of the kinetic chain while utilizing various forms of rehabilitation at the same time. They also incorporated treatment in the position of provocation (pain, loss of range of motion, feeling of tightness within the fascia/soft tissues) and during motion. The FAKTR approach incorporates all of the above variations to evaluate and treat soft tissue/fascial conditions. http://www.faktr.com/about-faktr/what-is-faktr.html. However, there is a lack of evidence regarding the effectiveness of the FAKTR Approach.

According to the Family Chiropractic Wellness Center, the Gonzalez Rehabilitation Technique (GRT) is a collection of patented techniques that evaluate and restore major nerves in the body. This approach supposedly makes the body function more efficiently by allowing previously wasted energy to be used for healing. The GRT does not treat any conditions. More importantly, the GRT focuses on “up-regulating” the nerves that may be associated to a condition so that the body heals itself; GRT is a technique that improves the way the nerves activate. An analogy is that if one can visualize a muscle or organ being controlled by a dimmer switch, one may be able to understand how 10 individuals with the exact same injury/condition can each have a unique level of dysfunction. In many cases the muscle or organ may be only slightly dimmed with minimal symptoms of pain, decreased range of motion, decreased strength and impaired organ function. And in other instances it may be completely dimmed, resulting in debilitating pain, paralysis, and poor organ function. In any case, the GRT is similar regardless of the level of dysfunction. The GRT can be directed to specific nerve groups to help patients with certain conditions. For example: the foot is controlled at the S1, L5 and L4 spinal levels. If anyone has ANY condition affecting the foot (e.g., broken foot, diabetic ulcer on the foot, hammer toes, heel spurs, plantar fasciitis, and sprained ankle, etc.), one or more of these nerves are affected and by “up-regulating” these nerves the function will return and the conditions/symptoms improve if not completely disappear. The GRT practitioners are trained in various methods of correction including manual, instrument and light therapy techniques; and they report
success of this approach in treating patients with various conditions including but not limited to: http://www.amherstburgchiropractic.com/doctor/chiropractor/76L/amherstburg-chiropractor/family-chiropractic-wellness-centre.htm.

- Autoimmune diseases: Guillain-Barre syndrome, multiple sclerosis, rheumatoid arthritis
- Brain injury: Bell's palsy, paralysis, speech and swallowing dysfunction, stroke
- Joint and bone injury: Broken bones, decreased joint space, ligament tears, post-surgery
- Spinal cord injury: Paralysis, sensory and motor injury
- Sports injury: Decreased range of motion, muscle and joint pain

There is a lack of evidence regarding the effectiveness of GRT in the treatment of pain, musculoskeletal disorders and other conditions.

Dynamic spinal visualization is a general term used to describe several different imaging technologies, including digital motion x-ray and videofluoroscopy, also known as cineradiography.

Digital motion x-ray (DMX) is a video-based fluoroscopy system, involving the use of either film x-ray or computer-based x-ray ‘snapshots’ taken in sequence. The procedure is performed with the patient standing and actively moving in a weight bearing position within the system. Film x-rays are digitized into a computer for manipulation while computer-based x-rays are automatically created in a digital format. The digitized images are then put in order using a computer program and played on a video monitor, creating a moving image of the body. DMX allows clinicians to view the spine and extremity articulations in real-time at 30 exposures per second, and evaluate several aspects of the body’s structures such as intervertebral flexion and extension to determine the presence or absence of abnormalities.

Videofluoroscopy and cineradiography are different names for the same procedure that utilizes a technique called fluoroscopy to create real-time video images of internal structures of the body. Unlike standard x-rays that take a single picture at one point in time, fluoroscopy works more like a video camera, providing motion pictures of the inside the of body. The findings can be displayed in real time on a video monitor or recorded to allow computer analysis or evaluation at a later time.

The Therapeutic (Wobble) Chair (Pettibon System, Inc., Chehalis, WA) is a patented, height adjustable stool with a specially-designed seat. The seat provides 360 degrees of rotation, 40 degrees of side-to-side flexion and 35 degrees of front-to-back flexion on a universal type joint to facilitate all possible combinations of exercise motion needed for lumbar disc mobility, re-hydration, nutrition delivery, and waste elimination. http://pettibonsystem.com/product/wobble-therapeutic-chair. However, there is insufficient evidence to support the clinical value of the Therapeutic (Wobble) Chair.

Morningstar (2006) stated that lumbar disc herniation is a problem frequently encountered in manual medicine. While manual therapy has shown reasonable success in symptomatic management of these cases, little information is known how manual therapy may affect the structure and function of the lumbar disc itself. In cases where lumbar disc herniation is accompanied by radicular symptoms, electrodiagnostic testing has been used to provide objective clinical information on nerve function. The author examined the treatment rendered for a patient with lower extremity neurological deficit, as diagnosed on electrodiagnostic testing. Patient was treated using spinal manipulation and exercises performed on a Pettibon Wobble Chair, using electrodiagnostic testing as the primary outcome assessment. An elderly male patient presented to a private spine clinic with
right-sided foot drop. He had been prescribed an ankle-foot orthosis for this condition. All sensory, motor, and reflex findings in the right leg and foot were absent. This was validated on prior electromyography and nerve conduction velocity testing, performed by a board certified neurologist. Patient was treated using spinal manipulation twice-weekly and wobble chair exercises 3 times daily for 90 days total. Following this treatment, the patient was referred for follow-up electrodiagnostic studies. Significant improvements were made in these studies as well as self-rated daily function. The author concluded that motion-based therapies, as part of a comprehensive rehabilitation program, may contribute to the restoration of daily function and the reversal of neurological insult as detected by electrodiagnostic testing. The author noted that electrodiagnostic testing may be a useful clinical tool to evaluate the progress of chiropractic patients with lumbar disc herniation and radicular pain syndromes. This was a single case study and findings were confounded by combinational use of spinal manipulation and Pettibon wobble chair.

In contrast to other hands-on modalities, where the practitioner imposes correction on the client through manipulation, the Bowen Technique facilitates the body in healing itself, with minimal intervention. Because of the subtle nature of the Bowen Technique, and the body's continuing response to it over several days thereafter, other forms of manipulative therapy are discouraged for up to 5 days after a session, as they may interfere with the efficacy of the work. [http://www.bowtech.com/WebsiteProj/Pages/AboutAboutBowtech.aspx](http://www.bowtech.com/WebsiteProj/Pages/AboutAboutBowtech.aspx). However, there is a lack of evidence regarding the effectiveness of the Bowen Technique.

Alcantara et al. (2014) stated that constipation compromises the health-related quality of life of children. Chiropractic is a popular alternative therapy for children with constipation. These investigators performed this integrative review of the literature to inform clinical practice. This integrative review of the literature began with an examination of the databases PubMed [1966 to 2013], MANTIS [1964 to 2013] and Index to Chiropractic Literature [1984 to 2013]. The search terms used were "constipation", "chronic constipation", and "bowel dysfunction" in the context of chiropractic. Inclusion criteria involved the care of children 0 to 18 years old published in the English language. These researchers found 14 case reports, 1 case series, and 1 review of the literature. A number of chiropractic techniques were described with treatment varying according to the diagnosis, chief complaint and age of the patient. The authors concluded that this integrative review revealed the need for more research and theoretical development on the care of children with constipation.

**Preventive or Maintenance Chiropractic Manipulation:**

Preventive or maintenance chiropractic manipulation has been defined as elective health care that is typically long-term, by definition not therapeutically necessary but is provided at preferably regular intervals to prevent disease, prolong life, promote health and enhance the quality of life. This care may be provided after maximum therapeutic improvement, without a trial of withdrawal of treatment, to prevent symptomatic deterioration or it may be initiated with patients without symptoms in order to promote health and to prevent future problems.

Preventive services may include patient education, home exercises, and ergonomic postural modification. The appropriateness and effectiveness of chiropractic manipulation as a preventive or maintenance therapy has not been established by clinical research and is not covered.

Supportive care has been defined as treatment for patients who have reached maximum therapeutic benefit, but who fail to sustain benefit and progressively deteriorate when there are periodic trials of treatment withdrawal. Continuation of chiropractic care is considered
medically necessary until maximum therapeutic benefit has been reached, when the patient fails to progress clinically between treatments, or when pre-injury/illness status has been reached. Once the maximum therapeutic benefit has been achieved, continuing chiropractic care is not considered medically necessary and thus is not covered.

Active corrective care is ongoing treatment, rendered after the patient has become symptomatically and objectively stable, to prevent a recurrence of a patient's condition by correcting underlying abnormal spinal biomechanics that appear to be the cause of the initial injury. The efficacy of active corrective care is not supported by scientific evidence and is not covered.

CPT Codes / HCPCS Codes / ICD-9 Codes

CPT codes covered if selection criteria are met:

- 98940 Chiropractic manipulative treatment (CMT); spinal, one to two regions
- 98941 spinal, three to four regions
- 98942 spinal, five regions
- 98943 extraspinal, one or more regions

CPT codes not covered for indications listed in the CPB:

- 22505 Manipulation of spine requiring anesthesia, any region
- 93760 Thermogram; cephalic
- 93762 peripheral

Other CPT codes related to the CPB:

- 20552 Injection(s); single or multiple trigger point(s), one or two muscle(s)
- 20553 single or multiple trigger point(s), three or more muscle(s)
- 95831 - 95857 Muscle and range of motion testing
- 95860 - 95887 Electromyography
- 95905 - 95913 Nerve conduction studies
- 95937 Neuromuscular junction testing (repetitive stimulation, paired stimuli), each nerve, any 1 method
- 96000 - 96004 Motion analysis
- 97001 - 97799 Physical medicine and rehabilitation

Other HCPCS codes related to the CPB:

- G0151 Services performed by a qualified physical therapist in the home health or hospice setting, each 15 minutes
- S3900 Surface electromyography (EMG)
S9131 Physical therapy; in the home, per diem

**ICD-9 codes covered if selection criteria are met (0-3 years of age):**

- 333.83 Spasmodic torticollis
- 343.0 - 343.9 Infantile cerebral palsy
- 353.0 - 353.9 Nerve root and plexus
- 359.0 - 359.9 Muscular dystrophies and other myopathies
- 714.0 - 714.9 Rheumatoid arthritis and other inflammatory polyarthropathies
- 720.0 - 724.9 Dorsopathies
- 732.0 - 732.9 Osteochondropathies
- 737.40 - 737.9 Curvature of spine associated with other conditions
- 754.0 - 754.9 Congenital musculoskeletal deformities
- 755.50 - 755.59 Other anomalies of upper limb, including shoulder girdle
- 755.60 - 755.69 Other anomalies of lower limb, including pelvic girdle
- 756.10 - 756.19 Anomalies of spine
- 756.4 Chondrodystrophy
- 840.0 - 847.9 Sprains and strains [limbs and back]
- 848.1 Sprains and strains of jaw
- 848.3 - 848.5 Sprains and strains of other ribs, sternum, and pelvis
- 905.1 - 905.9 Late effects of musculoskeletal and connective tissue injuries
- 907.3 - 907.9 Late effects of injuries to nerve root(s), spinal plexus and other nerves of trunk, peripheral nerves of shoulder girdle and upper limb, and peripheral nerves of pelvic girdle and lower limb
- 953.0 - 953.9 Injury to nerve roots and spinal plexus
- 955.0 - 955.9 Injury to peripheral nerve(s) of shoulder girdle
- 956.0 - 956.9 Injury to peripheral nerve(s) of pelvic girdle and lower limb
- 957.0 Injury to superficial nerves of head and neck

**ICD-9 codes covered if selection criteria are met for adults and children (4 years of age and older):**

- 307.81 Tension headache
- 333.83 Spasmodic torticollis
- 339.00 - 339.89 Other headache syndromes
- 343.0 - 343.9 Infantile cerebral palsy
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>346.00 - 346.93</td>
<td>Migraine</td>
</tr>
<tr>
<td>353.0 - 353.9</td>
<td>Nerve root and plexus disorders</td>
</tr>
<tr>
<td>354.0 - 354.9</td>
<td>Mononeuritis of upper limb and mononeuritis multiplex</td>
</tr>
<tr>
<td>355.0 - 355.9</td>
<td>Mononeuritis of lower limb</td>
</tr>
<tr>
<td>359.0 - 359.9</td>
<td>Muscular dystrophies and other myopathies</td>
</tr>
<tr>
<td>524.60 - 524.69</td>
<td>Temporomandibular joint disorders</td>
</tr>
<tr>
<td>714.0 - 714.9</td>
<td>Rheumatoid arthritis and other inflammatory polyarthropathies</td>
</tr>
<tr>
<td>715.00 - 715.98</td>
<td>Osteoarthritis and allied disorders</td>
</tr>
<tr>
<td>716.00 - 716.99</td>
<td>Other and unspecified arthropathies</td>
</tr>
<tr>
<td>717.0 - 717.9</td>
<td>Internal derangement of knee</td>
</tr>
<tr>
<td>719.00 - 719.99</td>
<td>Other and unspecified disorders of joint</td>
</tr>
<tr>
<td>720.0 - 724.9</td>
<td>Dorsopathies</td>
</tr>
<tr>
<td>725.0 - 729.9</td>
<td>Rheumatism, excluding the back</td>
</tr>
<tr>
<td>732.0 - 732.9</td>
<td>Osteochondropathies</td>
</tr>
<tr>
<td>733.5</td>
<td>Osteitis condensans</td>
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<tr>
<td>733.6</td>
<td>Tietze's disease</td>
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<td>733.7</td>
<td>Algoneurodystrophy</td>
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<tr>
<td>734</td>
<td>Flat foot</td>
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<tr>
<td>736.00 - 736.9</td>
<td>Other acquired deformities of limbs</td>
</tr>
<tr>
<td>737.40 - 737.9</td>
<td>Curvature of spine associated with other conditions</td>
</tr>
<tr>
<td>738.2</td>
<td>Acquired deformity of neck</td>
</tr>
<tr>
<td>738.4</td>
<td>Acquired spondylolisthesis</td>
</tr>
<tr>
<td>738.5</td>
<td>Other acquired deformity of back or spine</td>
</tr>
<tr>
<td>738.6</td>
<td>Acquired deformity of pelvis</td>
</tr>
<tr>
<td>738.8</td>
<td>Acquired deformity of other specified site</td>
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<tr>
<td>738.9</td>
<td>Acquired deformity of unspecified site</td>
</tr>
<tr>
<td>739.0 - 739.9</td>
<td>Nonallopathic lesions, not elsewhere classified [allowed by CMS]</td>
</tr>
<tr>
<td>754.0 - 754.9</td>
<td>Congenital musculoskeletal deformities</td>
</tr>
<tr>
<td>755.50 - 755.59</td>
<td>Other anomalies of upper limb, including shoulder girdle</td>
</tr>
<tr>
<td>755.60 - 755.69</td>
<td>Other anomalies of lower limb, including pelvic girdle</td>
</tr>
</tbody>
</table>
756.10 - 756.19 Anomalies of spine

756.4 Chondrodystrophy

784.0 Headache

839.00 - 839.9 Other, multiple, and ill-defined dislocations [including vertebra]

840.0 - 847.9 Sprains and strains [limbs and back]

848.1 Sprains and strains of jaw

848.3 - 848.5 Sprains and strains of other ribs, sternum, and pelvis

905.1 - 905.9 Late effects of musculoskeletal and connective tissue injuries

907.3 -907.9 Late effects of injuries to nerve root(s), spinal plexus(es) and other nerves of trunk, peripheral nerves of shoulder girdle and upper limb, and peripheral nerves of pelvic, girdle and lower limb

953.0 - 953.9 Injury to nerve roots and spinal plexus

955.0 - 955.9 Injury to peripheral nerve(s) of shoulder girdle

956.0 - 956.9 Injury to peripheral nerve(s) of pelvic girdle and lower limbs

957.0 Injury to superficial nerves of head and neck

ICD-9 codes not covered for indications listed in the CPB (not all-inclusive):

314.00 - 314.01 Attention deficit hyperactivity disorder

345.00 - 345.91 Epilepsy and recurrent seizures

520.0 - 579.9 Diseases of the digestive system

625.3 Dysmenorrhea

652.11 - 652.13 Breech or other malpresentation successfully converted to cephalic presentation [Webster technique]

737.30 - 737.32 Scoliosis [and kyphoscoliosis], idiopathic; resolving infantile idiopathic scoliosis; and progressive infantile idiopathic scoliosis

780.33 Post traumatic seizures

780.39 Other convulsions [seizure disorder NOS]

789.7 Colic (infantile)

The above policy is based on the following references:


Southampton; 2004.


120. Cohain JS. Turning breech babies after 34 weeks: The if, how, & when of turning breech babies. Midwifery Today Int Midwife. 2007;83(18):18-19, 65.
122. Hofmeyr CJ. Overview of breech presentation. Last updated July 12, 2011. UpToDate, Inc. Waltham, MA.


