Otitis media in young children

Hendricks CL, Larkin-Thier SM.
J Chiro Res Clin Inv 1989; 2(1):9–13.

This article explores the current medical literature on otitis media. Utilizing the information gathered from this literature search, a research study is being developed to test the hypothesis that chiropractic adjustments of the cervical region may effect a resolution of acute and chronic otitis media. The authors review anatomy of the ear and current medical treatment of otitis media and propose a hypothesis for future chiropractic clinical research.

Effect of osteopathic medical management on neurologic development in children

Frymann VM, Carney RE, Springall P.
JAOA 1992; 92(6):729–744.

For 3 years, children between 18 months and 12 years of age with and without recognized neurologic deficits were studied at the Osteopathic Center for Children. Their response to 6 to 12 osteopathic manipulative treatments directed to all areas of impaired inherent physiologic motion was estimated from changes in three sensory and three motor areas of performance. Houle's Profile of Development was used to compare neurologic with chronologic age and rate of development, and scores were age-adjusted. Results in children after treatment were compared with those following a waiting period without treatment.

Neurologic performance significantly improved after treatment in children with diagnosed neurologic problems and to a lesser degree in children with medical or structural diagnoses. The advances in neurologic development continued over a several months' interval. The results support the use of osteopathic manipulative treatment as part of pediatric healthcare based on osteopathic medical philosophy and principles.

An evaluation of chiropractic manipulation as a treatment of hyperactivity in children

Giesen JM, Center DB, Leach RA.
J Manip Physiol Ther 1989; 12:353–363.

The principle aim of this study was to determine the effectiveness of chiropractic manipulative therapy in the treatment of children with hyperactivity. Using blinds between investigators and a single subject research design, the investigators evaluated the effectiveness of the treatment for reducing activity levels of hyperactive children. Data collection included independent evaluations of behavior using a unique wrist-watch type device to mechanically measure activity while the children completed tasks simulating schoolwork. Further evaluations included electrodermal tests to measure autonomic nervous system activity. Chiropractic clinical evaluations to measure improvement in spinal biomechanics were also completed. Placebo care was given prior to chiropractic intervention. Data were analyzed visually and using nonparametric statistical methods. Five of seven children showed improvement in mean behavioral scores from placebo care to treatment. Four of seven showed improvement in arousal levels, and the improvement in the group as a whole was highly significant ($p = 0.009$). Agreement between tests was also high in this study. For all seven children, three of the four principal tests used to detect improvement were in agreement either positively or negatively (parent ratings of activity, motion recorder scores, electrodermal measures, and x-rays of spinal distortions). While the behavioral improvement taken alone can only be considered suggestive, the strong intertest agreement can be taken as more impressive evidence that the majority of the children in this study did, in fact, improve under specific chiropractic care. The results of this study, then, are not conclusive, however, they do suggest that chiropractic manipulation has the potential to become an important nondrug intervention for children with hyperactivity. Further investigation in this area is certainly warranted.

Chiropractic treatment of a 7-month-old with chronic constipation: a case report

Hewitt EG.
Chiro Tech 1993; 5(3):101–103.

A 7-month-old girl suffering from chronic constipation since birth had a history of painful straining and hard, pellet-like stools. Stools ranged in frequency from one per day to once every 3 days. After treatment consisting of full spine and cranial adjusting, the patient's bowel function normalized to one to two soft, effortless stools per day. Maintenance of these improvements was confirmed at a 1-year follow-up visit.

Chiropractic care of children with nocturnal enuresis: a prospective outcome study

Leboeuf C, Brown P, Herman A, Leembruggen K, Walton D, Crisp TC.
J Manip Physiol Ther 1991; 14:110–115.

Functional nocturnal enuresis is a common problem which causes a great deal of stress to the suffering children and their families. Some chiropractors advocate chiropractic care as a mode of therapy for this complaint. One hundred and seventy-one enuretic children, aged 4 to 15, were treated with chiropractic adjustments, and their number of wet nights was monitored by their parents. The median number of wet nights per week was 7.0 at the onset of the study. After 2 weeks without any therapy, the number of wet nights had decreased to 5.6 ($p = .01$) and by the end of the treatment this figure was 4.0 ($p < .0001$). Following the course of treatment, 15.5% of subjects wet a maximum of 2 nights per fortnight, or, where data for the last 2 weeks of therapy were unavailable, a maximum of 1 night/week. This result is less favorable than the therapeutic success of other common types of therapy, which have reported "cure" rates well above 50%. The only variable which predicted treatment outcome was the initial estimate

of bed-wetting: the more severe the condition at the onset, the less likely was the child to improve by the end of the study. In the absence of a control group there appears to be no validity in the claim that chiropractic is a treatment of choice for functional nocturnal enuresis.

The neuropathophysiology of traumatic hemiparesis and its association with dysfunctional upper cervical motion units: a case report

Schimp JA, Schimp DJ.
Chiro Tech 1992; 4(3):104–107.

A 7-year-old boy suffering from traumatic hemiparesis following an auto-pedestrian injury, was found by magnetic resonance imaging and computer-aided tomography to have an intact cervical spine and cord with no evidence of pathology. The attending physician had warned the child's parents that recovery of the left upper extremity may be incomplete. The hemiparesis did completely resolve after low force adjusting had been employed to the atlantooccipital articulation. The pathomechanics of pyramidal hemiparesis and a theoretical mechanism of correction are discussed.

Infantile colic treated by chiropractors: a prospective study of 316 cases

Klougart N, Nilsson N, Jacobsen J.
J Manipu Physiol Ther 1989; 12:281–288.

A prospective, uncontrolled study of 316 infants suffering from infantile colic and selected according to well-defined criteria shows a satisfactory result of spinal manipulative therapy in 94% of the cases. The median age of the infants was 5.7 weeks at the beginning of the treatment. The results were evaluated by analysis of a diary continuously kept by the mother and an assessment file comprised by interview. The study was carried out as a multicenter study lasting 3 months and involving 73 chiropractors in 50 clinics. The results occurred within 2 weeks and after an average of three treatments.

Children in Danish chiropractic clinics: a descriptive questionnaire study

Jensen KM, Rasmussen LR.
Eur J Chiro 1989; 37:117–124.

In a prospective questionnaire study, 604 children were new patients at 20 Danish chiropractic clinics in a 3-month period. They represented 16.7% of all new patients seen in the 20 clinics in the same period. Compared with an earlier study, this shows a marked increase in the influx of children in Danish chiropractic clinics. The age distribution and main complaints of the children are described.

More than one-third of the children were less than a year old and, out of these, 58% had infant colic as their main complaint. Half of the children had been under medical attention for their main complaint before the first chiropractic consultation, yet only 5% were referred to the chiropractor by a medical doctor. Twenty-seven per cent of the children had complaints of the musculoskeletal type, which is a low percentage compared to that of adult patients.

The children had an average of 3.7 treatments in finished courses of treatment by the chiropractor.

Chiropractic adjustments and esophoria: a retrospective study and theoretical discussion

Schutte BL, Tesse HM, Jamison JR.
J Aust Chiro Assoc 1989; 19:126–128.

Anecdotal experience suggests that esophoria (and other eye disturbances) can be influenced by spinal subluxations. This paper reports on a retrospective study of 12 children with esophoria. The findings suggest that certain types of esophores may respond to cervical spine adjustments. The neurophysiology of cervical proprioception and gaze control are discussed.

Chiropractic management of enuresis: time-series descriptive design

Gemmell HA, Jacobson BH.
J Manip Physiol Ther 1989; 12:386–389.

Researchers have indicated that single-subject experimental designs may be of value in chiropractic clinical practice, allowing for the development of a scientific data base. The purpose of this paper was to employ a single-case time-series descriptive design in a condition (enuresis) not commonly treated in chiropractic practice, but that which is thought by some to be responsive to manipulation.

Chiropractic adjustment in the management of visceral conditions: a critical appraisal

Jamison JR, McEwen AP, Thomas SJ.
J Manip Physiol Ther 1992; 15:171–180.

Objective: To establish whether Australian chiropractors regard spinal adjustment as an intervention option for patients presenting with visceral conditions and to ascertain the preferred level of adjustment for patients presenting with migraine, asthma, hypertension or dysmenorrhea.

Design and Setting: A survey of all chiropractors registered in Australia.

Outcome Measure: Practitioners' opinions regarding the usefulness of spinal adjustment in the management of patients with visceral conditions were canvassed. Based upon their personal clinical experience, practitioners were requested to comment on the appropriate level of adjustment in the management of various visceral conditions.

Main Results: Twenty-two percent of the 1311 chiropractors regis-

tered in Australia responded to the survey. More than half of the respondents favored a role for spinal adjustment in the management of patients with visceral conditions. The perceived usefulness of spinal adjustment varied according to the condition being managed, as did the preferred level of adjustment.

Conclusions: Chiropractors continue to use spinal adjustment in the management of visceral conditions despite this intervention being regarded as an obstacle to the recommendation of public funding for chiropractic services in Australia. Further investigation into the validity of the chiropractic management of visceral conditions is recommended.

Cessation of a seizure disorder: correction of the atlas subluxation complex

Goodman RJ, Mosby JS.
J Chiro Res Clin Inv 1990; 6(2):43–46.

Observations of one patient presenting with a seizure disorder are reported. Relief of symptoms is noted subsequent to correction of the misalignment of the occipito-atlanto-axial complex. The authors suggest a relationship between the misaligned skull and subjacent vertebrae and some seizure disorders.

Torticollis in infants and children: a report of three cases

Aker PS, Cassidy JD.
J Can Chiropr Assoc 1990; 34(1):13–19.

Three cases of torticollis are recorded, one of a child with congenital muscular torticollis and two of infants with acquired torticollis caused by neurogenic tumours. All were treated by chiropractors before the correct diagnosis was made. The differential diagnosis of torticollis in infants and children is important in clinical practice.

A description of 320 chiropractic consultations by Australian adolescents

Ebrall PS.
Chiropr J Aust 1994; 24:4–8.

Objective: To obtain and then describe data relating to the nature of the patient visit made to chiropractors by Australian adolescents.

Design: A prospective recording instrument provided to volunteer chiropractors, with the provision to record data of 100 consecutive patient visits from Monday, 7 September 1992.

Setting: The private practice locations of 25 registered chiropractors, drawn from 6 of the 8 jurisdictions in Australia, and who were members of the Chiropractors' Association of Australia.

Results: Of 2,500 patient visits recorded, 320 (12.8%) were made by adolescents (52% female, 48% male) with an attendance rate by state ranging from 10.25% (NSW) to 15% (SA). The age distributions were relatively even with the male peak at 22 years and the female at 23. Half the visits were funded by a private insurer and 38% were self funded. The largest diagnostic entities were mechanical low back pain (39%), neck pain (34%), thoracic pain (22%), neck and shoulder pain (18%) and cervicogenic headache (17%). Twenty-one visits (7%) were classed as preventive, with a presenting complaint of "check-up" or "maintenance." Only 9 visits (2.8%) carried a working diagnosis of a visceral-type disorder, mostly in conjunction with a musculoskeletal complaint. The participating rate by age for treatment provided under the provision of a workers' compensation scheme was high for the late adolescent age group, being 18.2% at age 20, three times the sample participation rate of 6% ($n = 19$).

Conclusion: The case-mix of adolescent presentation to chiropractors largely centres on musculoskeletal pain and cervicogenic headache, but includes (albeit as a minority) other disorders for which the practitioner requires alert differential diagnostic skills.

Kinematic imbalances due to suboccipital strain in newborns

Biedermann H.
J Manual Med 1992; 6:151–156.

Using case histories and catamneses, the pathogenetic potential of the craniovertebral junction in newborn and young children is discussed. Supporting neurophysological findings are presented. The symptom complex of "kinematic imbalances due to suboccipital strain" (KISS syndrome) has a wide range of clinical signs and can in many cases be dealt with effectively by manual therapy. The main symptoms are torticollis, unilateral microsomy, C-scoliosis and motoric asymmetries, often accompanied by unilaterally retarded maturation of the hip joints and slowed motor development. Risk factors seem to be: intrauterine misalignment, application of extraction aids, prolonged labor and multiple fetuses.

Post-traumatic myelopathy following flopping high jump: a pilot case of spinal manipulation

Woo C-C.
J Manip Physiol Ther 1993; 16:336–341.

Objective: To present the first case of spinal cord injury from high jump and the first pilot case of spinal manipulation for post-traumatic myelopathy.

Clinical Features: An 11-year-old tetraplegic boy was admitted to the hospital, where he had a thorough neurological examination, including myelogram, EEG and skull and spinal x-rays, with normal findings. The author revealed subtle subluxations on plain x-ray films. Triceps hyperreflexia was detected bilaterally. Bilateral patella and ankle clonus with hyperreflexia, basic and excess spasticity, and bilateral extensor plantar responses were noted in the lower limbs. A clinical diagnosis of early post-traumatic incomplete spastic tetraplegia below C7 was made.

Intervention and Outcome: He did not respond to 3 months of orthodox conservative hospital management, including steroid therapy. Spinal manipulation of the lower cervical and upper thoracic spine

was performed in a private chiropractic clinic for 2 weeks. He apparently recovered after 3 months of spinal manipulation. On recent examination, he has virtually completely recovered. He still suffers from hand muscle atrophy, hyperrelexia of the triceps and ankle reflex and bilateral positive Babinski reflex; ankle and patellar clonus are almost absent.

Conclusions: The early response and long-term (9-year follow-up) benefits of spinal manipulation to the early delayed traumatic myelopathy of this patient suggest spinal cord ischemia as its pathophysiology. Mechanisms of post-traumatic myelopathy are postulated. Biomechanical mechanisms of spinal manipulation for neurological recovery of post-traumatic myelopathy and/or radiculopathy are advanced. Further pilot spinal manipulation by experienced chiropractors after adequate anti-edematous (steroid) therapy is recommended for selected patients with post-traumatic myelopathy and/or radiculopathy, especially in a multidisciplinary spinal injury unit.

Lumbar apophyseal ring fractures in adolescents

Thiel HW, Clements DS, Cassidy JD.
J Manip Physiol Ther 1992; 15:250–254.

Fracture of the vertebral ring apophysis in the lumbar spine is an uncommon condition that has been reported in adolescent patients presenting with low back pain. The pathophysiology is considered to be a fracture of the posterior ring apophysis in association with a herniated disc. The nature and the extension of the lesion is best established by computed tomography scan with sagittal reconstruction. We present three cases to illustrate the classic clinical and radiologic findings. Management of the condition is also discussed.

Vertebral subluxation and otitis media: a case study

Phillips NJ.
J Chiro Res Clin Inv 1992; 8(2):38–39.

In this case, a 23-month-old female with chronic otitis media who has undergone traditional medical treatment with no relief of symptoms finds sustained improvement with chiropractic care. A mechanism for the etiology of chronic otitis media is suggested.

Nocturnal enuresis: treatment implication for the chiropractor

Kreitz BG, Aker PD.
J Manipu Physiol Ther 1994; 17(7):465–473.

Objective: A comprehensive review of the literature concerning the etiology, diagnosis, and the natural history of primary nocturnal enuresis is presented. Contemporary treatment options are discussed in light of the documented annual remission rate of this disorder.

Data Source: Articles reviewed were obtained by conducting a computer-aided search of papers indexed in *Medline* and the *Index to Chiropractic Literature* from 1989 to 1993. In addition, the *Chiropractic Research Abstracts Collection* and bibliographies from pertinent articles were manually searched.

Data Synthesis: Primary nocturnal enuresis affects some 200,000 children and their families throughout Canada. Twenty percent of children wet the bed at age 5, 10% at age 10, and only about 1% at age 15. The documented natural history of the disorder reveals that for those affected, 10% to 20% exhibit spontaneous resolution per year. Contemporary treatment options center on three factors that play primary roles in the etiology of this condition: functional bladder capacity, patient conditioning and the circadian rhythm of nocturnal ADH secretion.

Conclusions: The success of each therapeutic option must, in part, be attributed to the natural history of enuresis, as well as any educational or placebo aspects of treatment. Conditioning therapy utilizing the urine pad alarm may be the most reasonable initial mode of intervention. Spinal manipulative therapy has been shown to possess an efficacy comparable to the natural history.

A wholistic approach to the treatment of bronchial asthma in a chiropractic practice

Lines DH.
Chiropr J Aust 1993; 23:4–8.

Three case studies involving two children and a mature adult with medically established diagnoses of bronchial asthma are presented. Management in each case involved chiropractic adjustments combined with a "clinical ecology" approach which has been found useful in identifying food and environmental allergens that may act as triggering factors for asthma attacks. This paper suggests that such a broad-based management approach may lead to higher rates of response to chiropractic treatment of asthma, as well as providing greater long-term relief for its victims.

Resolution of infantile Erb's palsy utilizing chiropractic treatment

Harris SL, Wood KW.
J Manip Physiol Ther 1993; 16:415–418.

Objective: To present a case study of infantile Erb's palsy that responded to conservative chiropractic care.

Clinical Features: A 5-week-old infant boy suffered from a limp left arm. A clinical diagnosis or Erb-Duchenne palsy was made. Birth records were obtained to further substantiate the diagnosis.

Intervention and Outcome: The patient received specific chiropractic adjustments to the mid-cervical spine and muscle stimulation therapy with an upper extremity exercise program. The Erb's palsy resolved with only a mild residual "waiters tip" deformity within 2 months.

Conclusion: In this case, chiropractic adjustments with muscle stimulation therapy is suggested as an effective treatment for Erb's palsy. Further studies are required to better understand chiropractic's effectiveness in Erb's palsy cases.

Treatment of facial muscles affected by Bell's palsy with high-voltage electrical muscle stimulation

Shrode LW.
J Manip Physiol Ther 1993; 16:347–352.

Objection: This report discusses high-voltage electrical muscle stimulation and chiropractic manipulation used to treat two patients who suffered from Bell's palsy.

Clinical Features: Case A: A 15-year-old with left sided facial palsy was seen 2 days after the onset of symptoms. Upon observation, the left upper and lower eyelids were dropping and the left eye had excessive tearing. Motion palpation indicated multiple fixations in the cervical spine. Laboratory studies showed a microcytic anemia. A clinical diagnosis of Bell's palsy (House-Brackmann Grade V) and microcytic anemia was made.

Case B: A 17-year-old with left sided facial palsy was seen 8 days after onset of symptoms. Upon observation, the patient showed left sided facial paralysis and an inability to close the left eye completely. Motion palpation indicated multiple fixations in the cervical spine. A clinical diagnosis of Bell's palsy (House-Brackmann Grade V) was made.

Intervention and Outcome: Both patients were treated with high-voltage pulsed galvanic current at 80 peaks/sec with a 7-inch hand-held held probe for 10 minutes each visit. In addition, the cervical spine fixations were mobilized using chiropractic manipulation. Case A was resolved after 6 weeks of treatment and case B was resolved after 3 weeks of treatment.

Conclusion: Both patients benefited from these procedures with complete resolution of symptoms. The techniques outlined should be used at an early stage to accelerate progress toward normal facial muscle function.

Neglected spinal cord, brain stem and musculoskeletal injuries stemming from birth trauma

Gottlieb MS.
J Manip Physiol Ther 1993; 16:537–543.

Objective: A review of the medical literature was undertaken to determine cause, diagnosis, prognosis, treatment and prevention of injuries resulting from birth trauma. The primary focus was the neonate, though infant, child and adult were also considered because the effects of birth trauma can be life-long.

Data Source: A compilation of case studies and review articles were extracted from numerous "MED-LINE" literature searches. Key Terms included: Birth Trauma, Central Nervous System Injuries, Musculoskeletal Injuries, Stillbirth, Sudden Infant Death Syndrome (SIDS), Cerebral Palsy, Brachial Plexus Palsies (Erb's and Klumpke's), Neonatal-Infantile Respiratory Distress, Obstetric Accidents (Forceps, Vacuum Cup and Cesarean Deliveries), Subluxation, Chiropractic Treatment. American, British, Danish and German studies were included to show the universality of the problem.

Study Selection: Findings were selected on the basis of a clear connection between birth trauma and the resulting symptoms, syndromes and/or death.

Data Extraction: Findings were compiled by studying articles from the literature search. The quality and validity were assessed by corresponding references, method of documentation, number of case studies, length of time over which studies took place and presence of follow-up documentation.

Data Synthesis: Inadequacies and source discrepancies were also included with regard to cause and types of obstetric accidents.

Conclusion: Birth trauma remains an underpublicized and, therefore, an undertreated problem. There is a need for further documentation and especially more studies directed toward prevention. In the meantime, manual treatment of birth trauma injuries to the neuromusculoskeletal system could be beneficial to many patients not now receiving such treatment, and it is well within the means of current practice in chiropractic and manual medicine.

Chiropractic correction of congenital muscular torticollis

Toto BJ.
J Manip Physiol Ther 1993; 16:556–559.

Objective: To present a case of congenital muscular torticollis and discuss the clinical manifestations and chiropractic treatment.

Clinical Features: A 7-month-old male infant with significant head tilt since birth was brought to a chiropractic physician for evaluation. The infant's history included ear infections, facial asymmetry and regurgitation. Significant spasm of the left sternocleidomastoid and trapezius muscles, a left lateral atlas and suboccipital joint dysfunctions were present upon examination. A diagnosis of congenital muscular torticollis was made.

Intervention and Outcome: Treatments included chiropractic manipulation, trigger point therapy, specific stretches, pillow positioning and exercises. Excellent results were obtained.

Conclusion: Suggests that chiropractic intervention a viable treatment option for congenital muscular torticollis. Further studies should be performed to compare the effectiveness of other treatment options.

Congenital muscular torticollis in four-month-old monozygous female twins: a case study

Pursel KJ.
J Chiro Res Clin Inv 1994; 9(2):47–50.

A case study is presented of monozygous twin infants and their positive response to chiropractic care. There is a discussion of chiropractic etiological theory. A chiropractic case management model as well as surgical and chemotherapeutic treatments including the use of botulinum toxin-A are explored.