



# Chiropractic management of a patient with symptoms of attention-deficit/hyperactivity disorder

Jeffrey M. Muir MSc, DC\*

MSc Candidate, Health Research Methodology, Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, ON L8S 4L8, Canada

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## Abstract

**Objective:** The purpose of this study is to report a case of a child with attention-deficit/hyperactivity disorder (ADHD) who was treated with chiropractic care.

**Clinical Features:** Parents of a 5-year-old boy with diagnosed ADHD brought him for chiropractic care to address his subjective signs (acting out, ability to follow instructions, and poor home and school performance), which also included waking at night due to asthmatic symptoms and low self-esteem. Palpation revealed hypertonicity and trigger points in the paraspinal muscles at the thoracolumbar region with local pain. A preliminary diagnosis included cervical and thoracolumbar facet joint irritation with concurrent muscle hypertonicity.

**Intervention and Outcomes:** Treatment including spinal manipulative therapy, soft tissue therapy, and stretching was provided. Treatment began on a thrice-weekly basis and declined to twice weekly over the course of approximately 12 weeks. After 1 year of treatment, subjective improvements were noted in episodes of acting out, ability to follow instructions, and general home and school performance.

**Conclusions:** The patient improved over 1 year in which he received chiropractic care, including manual treatments such as spinal manipulative therapy and soft tissue therapies. This suggests that there may be a role for doctors of chiropractic in the management of patients with ADHD.

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## Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a well-studied condition and is a common childhood-onset

psychological disorders.<sup>1</sup> The *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*,<sup>2</sup> lists activities such as inattention to homework or chores, inability to follow instructions or remain seated, disorderly behavior, and fidgeting as behaviors consistent with ADHD. Treatment traditionally consists of pharmacological interventions and behavioral treatments.

As in many other areas, though, complementary and alternative (CAM) treatments are becoming more

\* 18-550 Fennell Ave. East, Hamilton, ON, Canada L8V 4S9.  
Tel.: +1 905 962 6362; fax: +1 905 574 8699.  
E-mail address: drjeffmuir@gmail.com.

commonly investigated as a potential alternate to pharmaceutical intervention or in combination with other biomedical treatments. The CAM treatments for ADHD range from nutritional interventions such as natural supplements, vitamins, and minerals to bio-feedback; to acupuncture<sup>3-5</sup>; and to chiropractic care. The evidence supporting the use of chiropractic care is preliminary but suggests that there may be some positive effects.<sup>6,7</sup> The supportive evidence is in the form of case reports and/or case series,<sup>8</sup> with few clinical trials investigating the efficacy of chiropractic treatments for ADHD.<sup>9</sup> The evidence generally has shown positive trends,<sup>10,11</sup> although the body of evidence remains inadequate. The purpose of this case report is to describe the chiropractic management of a patient with symptoms of ADHD.

## Case report

A 5-year-old boy presented with his parents for evaluation of chiropractic treatment options for ADHD. The patient had been referred to a mental health practitioner by his family physician who diagnosed the patient with ADHD 1 year prior. Following biomedical treatments, the patient's parents were seeking alternatives because they thought that previous treatments had not been completely successful in managing his subjective signs of acting out, ability to follow instructions, and poor home and school performance. They reported that their son had scored high on information processing and concentration testing and that there were no reports of nocturnal enuresis, sleep apnea, or Tourette syndrome. They said that the patient often woke in the night, but that those episodes were generally related to asthmatic symptoms. The parents had noted low self-esteem in their son but that he was a normal, active child as compared with his friends and peers. He slept approximately 11 to 12 hours per night (normal toddler/preschool sleep duration, 11.9 [9.9-13.8] hours per night<sup>11</sup>).

The medical history included a scheduled Cesarean delivery (birth weight, 3685 grams) following an uneventful full-term pregnancy. He reportedly met all physical and vocabulary developmental milestones and had no reported musculoskeletal complaints. Medications included daily fluticasone propionate oral inhaler for his asthmatic symptoms, with albuterol, fluticasone nasal, and montelukast (oral) used intermittently. No medications for ADHD were being used at the time of chiropractic assessment.

On physical examination, the patient had normal posture and no abnormal spinal curvatures. Cervical spine ranges of motion were full and painless. Results of orthopedic testing of the cervical spine were as follows: Kemp test result was positive for pain bilaterally at C2/3/4; compression, Jackson, Maigne, and Houle test results were negative bilaterally. Palpation of the cervical spine revealed joint tenderness and restrictions at C2/3/4 on the right and C2/3 on the left. The paraspinal muscles at the corresponding levels were hypertonic and tender to palpation.

Lumbar spine active ranges of motion were full and painless. Result of orthopedic testing of the lumbar spine was as follows: straight leg raise was 90° bilaterally with no pain reported; Thomas test, Patrick-FABERE test, Gaenslen test, Yeoman test, and sacroiliac compression test results were all negative bilaterally, whereas posterior-anterior pressure at the thoracolumbar junction elicited local pain. Palpation revealed hypertonicity and trigger points in the paraspinal muscles at the thoracolumbar region with local pain.

A preliminary diagnosis included cervical and thoracolumbar facet joint irritation with concurrent muscle hypertonicity. A treatment plan of spinal manipulative therapy, soft tissue therapy, and myofascial release therapy was initiated. The treatment plan included 3 treatments per week for a period of 6 to 8 weeks, with a reevaluation at weeks 4 and 8. Treatment began in mid-June, with 11 treatments provided over the remainder of the summer because of scheduling conflicts. With the beginning of school in September, a more regular schedule was possible. The patient was reevaluated; and treatments were provided 2 to 3 times per week through November, with 4-week reevaluations (total treatments provided, 21). Between December and May (study completion), treatments were provided on an average of twice monthly (total treatments, 13).

Chiropractic treatment included palpation to determine locations of facet joint fixation and trigger and tender points in hypertonic musculature. Chiropractic spinal manipulation (diversified technique) was provided, with the most consistent locations of facet joint irritation being the upper cervical spine, interscapular region, and thoracolumbar region. Paraspinal muscle hypertonicity was common in the upper cervical spine, although rarely in the suboccipital region, and at the thoracolumbar junction. In general, little muscle hypertonicity was noted in the lumbar spine region or the gluteal/pelvic regions. Over the course of 1 year, no adverse effects were reported. No significant illnesses or injuries were reported by the patient's

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