

# Improvement in a 3½-year-old Autistic Child Following Chiropractic Intervention to Reduce Vertebral Subluxation

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## ABSTRACT

**Objective:** To describe, discuss and track the subjective and objective changes of a 3½ year old autistic girl following chiropractic adjustments over a 10 week period.

**Clinical Features:** A 3½ year old female child with reduced social interaction and language skills and learning difficulties presented for chiropractic care. The child had been diagnosed with autism 1 year earlier.

**Interventions and Outcomes:** The child received full spine adjustments where indicated to reduce vertebral subluxation, using the Torque Release Technique protocol and Integrator™ instrument. Strong verbal and physical apprehension to initial care was observed, however no signs of this were present after 5 visits, along with further improvements in social interactions,

language skills and increased symmetry in surface EMG and thermal scanning over the 10 weeks of care.

**Conclusion:** The subjective and objective improvements observed by both practitioner and parents following chiropractic care indicate a link between subluxation and autistic behavioral patterns. Comparable studies have been undertaken previously with similar findings, however further study needs to be conducted to determine the exact relationship between chiropractic care and behavioral changes in autistic children.

**Key Words:** *autism, chiropractic care, Torque Release Technique, Integrator™, subluxation, pediatric, surface EMG, thermal scanning.*

## Introduction

Autism can be defined as a behavioral developmental disorder generally presenting in children in the first 18 months of life.<sup>1</sup> Individuals with autism can be affected in different ways, but all seem to suffer from a triad of abnormalities: difficulty in interacting with others, impairments in communication, and difficulty in thinking imaginatively.<sup>1,2</sup> The estimated population of people with autism in New Zealand is approximately 40,000 or 1 in every 100 people.<sup>3</sup>

Many causes of autism have been speculated but no definitive conclusion has been reached. Genetic associations along with internal and external environmental stimuli, both in-utero and at any stage post partum are the most accepted theories regarding etiology.<sup>2,4</sup> No matter the cause, it is clear that all those affected by autism have problems with sensory-neural integration and consequent motor output.<sup>5</sup>

## Case Report

A 3½ year old girl was brought in for chiropractic care after being diagnosed 12 months prior with autism. The child did not speak or communicate with anyone except through screaming and tantrum like outbursts. She would not socialize at all with others her age and did not engage in physical activity other than that initiated during a tantrum. Constipation was noted at several stages of her life as was difficulty sleeping. Watching videos on television appeared to have a calming affect on her.

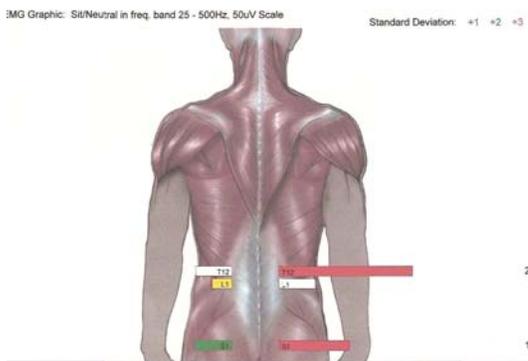
The mother described the birth as non-traumatic however the child was delivered via vacuum extraction with the mother receiving an epidural. Immediately following birth the child was separated from her mother and a vitamin K injection was administered within a heel prick. All standard vaccinations were administered and the child was reported to have reacted *differently* to other children. She slept for 24 hours after receiving the first series of vaccinations. The child suffered a fall from her cot at 5 months of age with no noticeable damage

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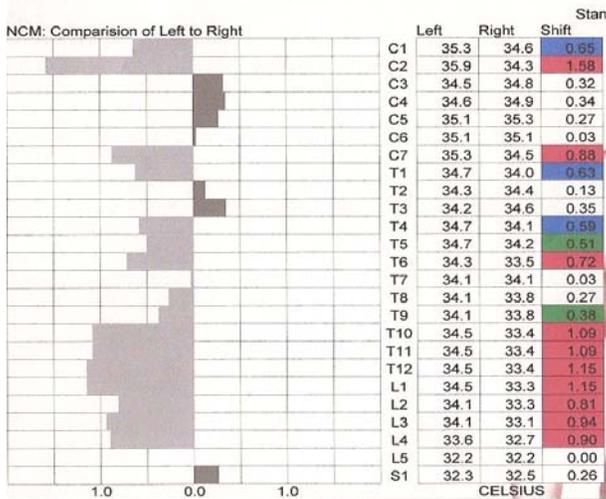
and she was breastfed for 18 months. She had not spoken at all and only verbalized via screaming, which was observed on presentation.

The initial chiropractic exam revealed decreased respiration in the thoraco-lumbar region and a fast left cervical syndrome. Palpation and range of motion testing, along with spinal thermal and electromyography (EMG) scans were difficult to conduct due to the apprehension of the child. The initial EMG was consequently only performed on the lumbar spine. These initial EMG and thermography scans revealed large areas of asymmetrical motor and autonomic function respectively throughout the entire spine. See Figure 1. The scans were performed using the Insight™ surface EMG and thermal scanning technology.

Figure 1: A: Initial sEMG



B: Initial Thermography



The child was checked and adjusted 28 times over a 10 week period using the Torque Release Technique (TRT) model and Integrator™ instrument. The main focus of TRT is detecting areas of subluxation at locations of dural attachment, being the upper and lower cervical spine (C1, C2, C5), sacrum, coccyx and the pelvis.<sup>6</sup>

**Results**

Within 2 weeks and 5 adjustments the child—who was previously very apprehensive, lay on the table herself and by the 6<sup>th</sup> visit was holding the chiropractor’s hand.

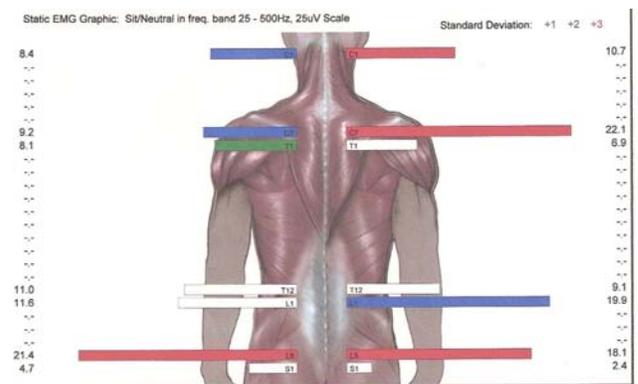
Also noticed on the 5<sup>th</sup> visit was an emotional response when C2 was adjusted for the first time. On the 10<sup>th</sup> visit the child verbalized for the first time when being adjusted and was reported to be laughing during the same week. During the 6<sup>th</sup> week under care and her 18<sup>th</sup> visit, the child was reported to have been constipated. No signs were present 24 hours later at the 19<sup>th</sup> visit. The changes observed during the first month of care as reported by the child’s mother are given in Table 1 below.

**Table 1**  
Reported changes in the child 1 month after chiropractic care

More	Less
Increased spontaneity	Occurrence of nightmares
Expressions of joy	Expressions of sadness and
Better posture	Apparent discomfort
	Hyperactivity

Comparable thermal and EMG scans were taken at 1 and 2 months following the onset of care. Importantly, the EMG scan was able to be taken of the full spine on both follow-up occasions. Increased balance and symmetry was noted on the 1<sup>st</sup> month’s scans in both motor and autonomic function as tested bilaterally parallel to the spine, which further improved on the 2<sup>nd</sup> month scans. See figures 2 and 3.

Figures 2: A: 2<sup>nd</sup> sEMG



B: 2<sup>nd</sup> Thermal Scan

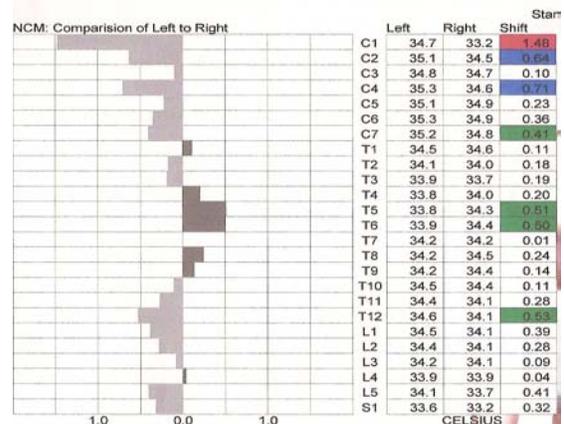
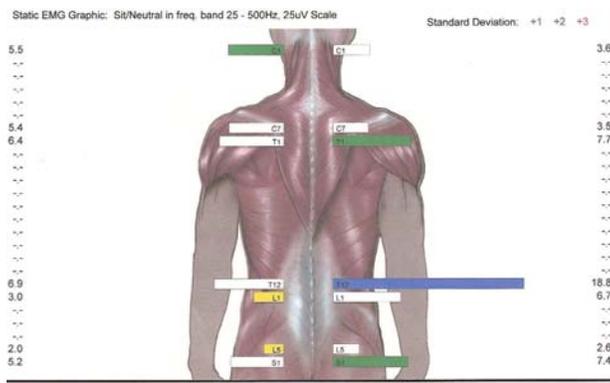
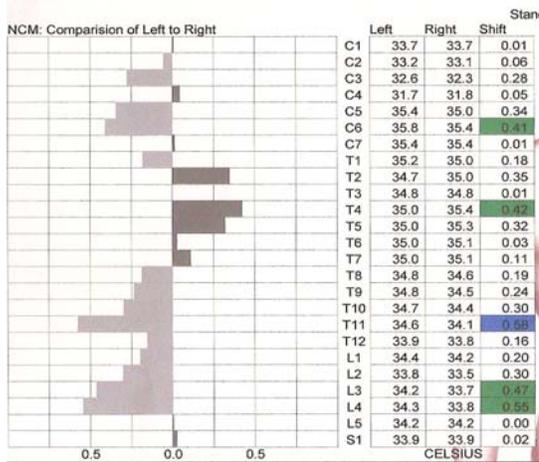


Figure 3: 3rd sEMG



B: 3<sup>rd</sup> Thermal Scan



## Discussion

Current literature fails to identify any single anatomical, physical, physiological, psychological or neurochemical cause for autism and no single trait is pathognomonic for a diagnosis.<sup>1</sup> Recent studies suggest environmental causes such as infection, digestive dysfunction, autoimmune responses and side effects to antibiotics and vaccines; but these appear to only be associations.<sup>5</sup> Etiology is at best referred to as multifactorial but even this has not been proven. Whatever the cause, there appears to be a problem with environmental perception (sensory neural integration) and subsequent response (motor output).<sup>5,11</sup>

Despite uncertainty in pathogenesis, autopsy results on autistic subjects have yielded consistent findings in the cerebral and particularly cerebellar regions of the brain.<sup>7, 8</sup> Twelve autistic cases showed Purkinje neuronal loss with a consequent reduction in size, most notably in the posterior cerebellar vermis.<sup>7-9</sup> The vermis receives visual, auditory and vestibular inputs as well as somatic sensory input from the head and proximal parts of the body.<sup>10</sup> Hence the vermis plays a large role in sensing the surrounding environment, a function that appears to be affected in autistic people. Thus the part of the brain that plays a major role in perceiving the environment appears to be reduced in size, cell number and also function in autistic patients.

Here subluxation-based chiropractic care can have its impact.

A vertebral subluxation refers to a mechanical problem in the spine that relates to nerve interference. Due to altered biomechanics of the spine, a subluxation can lead to an imbalance in sensory input into both the cerebrum and cerebellum - especially the vermis - from the left, right or both sides of the body. This sensory dysafferentation then leads to alteration in the central integrative state of the neuronal cells involved with initiating the response to the environmental stimuli (cerebellum and motor cortex initially), which in the case of autistic children can manifest as either hyperactive or hypoactive responses to their environment.<sup>11</sup> Adjustments have the effect of resetting the joint and the mechanoreceptor activity to a resting state with a subsequent change in the central integrative state of the central nervous system, leading to a more appropriate response to the environment.<sup>5</sup>

## Conclusion

This case report illustrates how an improvement respectively in both subjective and objective behavioral patterns and nerve system symmetry followed chiropractic care in a child with autism. Similar cases have been published previously with comparable behavioral changes, however further research is required to determine the exact role of chiropractic in benefiting children with autism.<sup>1</sup>

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