

# Improvement in aggression, hyperactivity and social skills in a 4- year-old male with Autism Spectrum Disorder: A case report

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**Background:** A four-year-old patient with Autism Spectrum Disorder was presented for care, with parents citing concerns around aggression, hyperactivity and poor social functioning.

**Management:** The patient commenced a course of chiropractic care during which manual adjusting and activator methods were deployed (modified to be age appropriate). His care was subluxation-based and not symptom specific.

**Outcomes:** Concurrent with a reduction in subluxations, the child's mother reported a reduction in aggression, destructive behaviour and hyperactivity. This case report indicates that further research into the role of Chiropractic in patients with neurodivergent conditions such as ADHD and ASD is warranted.

**Indexing Terms:** Chiropractic; Subluxation; Autism Spectrum Disorder.

## Introduction

It is well-established that *Autism Spectrum Disorder* (ASD) is complex, and its aetiology remains unknown. Present thinking leans toward a combination of genetic and non-genetic risk factors, but as there are no ASD-specific biomarkers, diagnosis is based on behavioural factors and typical features such as '*repetitive behaviours, and impaired social communication and interaction.*' (1) There are numerous common comorbidities in the ASD population, such as Aggression, hyperactivity, and impulsivity along with Obsessive Compulsive Disorder and Attention-Deficit Hyperactivity Disorder, intellectual disability, and anxiety and depression. (1)

For many sufferers, sensorimotor issues also co-occur. A recent longitudinal study suggested altered connectivity between cerebellum, visual and sensory-motor networks in people with ASD. (2) The data emerging from the study pointed to '*decreased connectivity of the visual association network with somatosensory, medial and lateral motor networks,*' and '*increased connectivity*

... this hyperactive 4y child with a diagnosis of Autism improved his development, speech, and socialisation under conventional Chiropractic care, focussed on correction of subluxation'



*of the cerebellum with these sensory and motor networks in ASD compared with typically developing subjects.'* (2)

While the complexity of ASD cannot be understated, it is notable that sensory integration training is a highly utilised intervention. That said, there is a lack of consensus around its evidence base at present. (3)

The Chiropractic evidence surrounding *Autism Spectrum Disorder* is currently limited to case report data. While this limits our ability to make sweeping claims as to the impact of Chiropractic care on ASD, and the highly complex and political nature of the disorder would likely make unsubstantiated claims problematic, it is of clinical value to note that numerous case reports have shown improvements in ASD-related symptomatology while under chiropractic care. (4, 5)

In non-ASD related research, 12w of chiropractic care was found to be effective in improving sensorimotor function in older adults. (6) Other reports showed that chiropractic care was effective in improving cerebellar motor processing, sensorimotor integration and altered motor control. (7, 8) While at face value, these studies may appear disconnected from ASD, it is reasonable to posit that subluxation-based care for the nervous system may potentially elicit similar results in an ASD population.

It has also been suggested that over-activation of the sympathetic nervous system may be '*related to social, emotional and cognitive behaviours*' in autistic people, especially when they have low parasympathetic tone. (9) Given the impact chiropractic care may have on the sympathetic nervous system, as evidenced by Heart Rate Variability measures among others, this may also be a potential mechanism behind the improvement in ASD symptomatology seen in case report data.

Further research would be required to establish any causal link to both improved sensory-motor integration, sympathetic tone and ASD. This case report describes the Chiropractic care and outcomes for a four-year old male with ASD, aggression, hyperactivity and poor social skills.

### Case history

A four-year-old male was presented to a Chiropractic clinic for assessment and care. He was a novice to Chiropractic at the time of his presentation and a very active child with an existing diagnosis of Autism Spectrum Disorder.

The main complaints given by his mother were aggressiveness, speech delay, poor eye contact and hyperactivity. She remarked that he hits anyone who gets close to him, and hits his head on the floor whenever he gets frustrated or angry.

Upon presentation a thorough history and examination were undertaken. Maternal health history included pre-eclampsia, an induced labour and a 10d stay in the natal intensive care unit due to infection. Antibiotics were prescribed to resolve this. Aside from this, and the diagnosis of ASD, his medical history was unremarkable.

Clinical findings upon chiropractic examination included confirmation of hyperactivity and poor eye contact. The patient was also hypersensitive to touch. A Chiropractic Leadership Alliance (CLA) thermoscan was used to assess subluxations, which were identified at C1-C2, and at the R) Sacro-iliac joint.

### Management

The patient was placed on a 2mo care plan in which he was seen two times per week for two months, with a progress evaluation at the 2mo mark. The established aims of care were to correct subluxations being areas of interference in the nervous system, with a specific focus on the upper cervical spine. During this time, he was adjusted using manual and activator methods (modified to ensure age appropriate force levels).

## Outcomes

After the first week of care the patient was noted as being less hyperactive and less aggressive, with his mother noting that he had stopped hitting others and hitting his head against the floor.

During the first six weeks of care it was noted that his verbal interactions had increased. His mother noted that he was talking a lot more and had better eye contact. His socialisation skills also improved, and he was no longer throwing or hitting others. Subjective feedback from the mother, and observations by the chiropractor, showed that he looked happier and more settled. This was concurrent with care to correct his subluxations.

The mother noted that she felt relieved to see that her son was no longer hitting himself or others. She also felt hope that her son may be able to achieve a better quality of life.

## Discussion

Post chiropractic care the patient is showing improvements in development, speech, and socialisation. His teacher stated that he is doing better in class as well. These three elements alone may elicit a significant benefit over time as educational attainment, social connectedness, and achievement of developmental milestones create significant impacts for the individual, whether or not they have ASD. For individuals with ASD, this may enhance a sense of belonging and achievement that they may otherwise struggle to obtain.

While the mechanisms behind the improvement in the patient's behavioural characteristics are yet unknown, it is possible that by removing the interference in the nervous system, the brain can communicate better with the rest of the body. As mentioned above, sensorimotor integration, sympathetic tone and autonomic balance may contribute to a greater sense of ease which then enables the patient to better engage with the world around him. Further reporting is needed to confirm this.

Future research into the impacts of chiropractic care on sympathetic tone and sensorimotor integration in ASD patients would be beneficial. While claiming to '*cure Autism*' remains a long way off for any health-care modality, this and other case report data provide a potential impetus to investigate the impact of Chiropractic care on autonomic nervous system tone, sensorimotor integration and its impacts on children with autism.

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### *About the Chiropractors*

Dulce Aguilar received her BS in Kinesiology from California State University in 2012 before going on to graduate with her doctor of chiropractic from Southern California University of Health Sciences in 2016. She is certified in the Webster technique and uses the MC<sup>®</sup> technique, and has worked at the Centre for Health and Human Potential where she developed a passion for caring for children and patients with complex health issues across the life span.

### *About the Case Report project*

This Case Report is a part of the [ASRF Case Report Project](#), a project designed to gather client studies from chiropractors and transform them into much-needed case reports, focused on the effects of chiropractic care on clinical presentations highly relevant to chiropractic, such as stress, immunity and adaptability.

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