

Case Study

Improvements in Mood, Posture and Balance in an Older Patient Receiving Chiropractic Care: A Case Study

Melinda Bredin, B.A (Psych),
B.Chiro.¹
Katie Putt²

1. Lecturer, New Zealand College
of Chiropractic
2. Senior Intern, New Zealand
College of Chiropractic

Abstract

Objectives: To report on and discuss the changes in a 72 year old male who presented for chiropractic care suffering from multiple health complaints.

Case History: A 72 year old male presented to a private chiropractic practice in Auckland, New Zealand suffering from severe postural alterations, mild depression, low back pain, balance disturbances, perpetual tiredness and mild depression.

Interventions and Outcomes: Over a nine week period, a specific and conservative chiropractic care plan was provided to the patient. The care plan involved Network Spinal Analysis (NSA) adjustments and the frequency of care was altered throughout this period based on both subjective and objective measures. A complete health history and physical examination was completed prior to care. A full posture analysis (Posture Pro 8 posture analysis system), and surface electromyography (sEMG) scans were performed at baseline and were then monitored regularly over the nine week period. Subjective measures were also monitored during each adjustment visit. Significant improvements were noted in postural and sEMG findings as well as in subjective measures of health over the 9 week period.

Conclusions: While under chiropractic care, improvements in both self-reported subjective and objective measures were noted in a patient with severe postural alterations, low back pain, balance disturbances, perpetual tiredness and a mildly depressive state of mind. These improvements include overall physical, mental, and emotional well-being of the patient.

Key Words: *chiropractic, Network Spinal Analysis (NSA), adjustment, well-being, posture, surface EMG scans, vertebral subluxation*

Introduction

Posture is the relative position of the body at any one moment, and the position of every joint in the spine has an effect on the position of every other joint¹. When posture is normal, little energy expenditure and muscle activity is required to sustain an upright stance, and it provides minimal stress on joints². Anatomical landmarks are used when analysing posture including the head, shoulders, hips and feet, these landmarks are used to create angles; a normal posture profile would represent zero degrees at all angles. When posture is abnormal, the angles are above or below zero degrees which puts extra stress on these joints contributing to overall extra stress on the spine¹.

The Association of Chiropractic Colleges defines subluxation as “A complex of functional and/or structural and/or pathological articular changes that compromise neural integrity and may influence organ system function and general health.”³ Chiropractic care aims to optimise health and well-being through the reduction of subluxation, allowing optimal nervous system function which contributes to promoting all aspects of health and well-being⁴.

Joints in the spine contain neurological components such as mechanoreceptors which are crucial for the optimal functioning of the nervous system⁵. Postural alterations put

extra stress on these joints, this has a chain effect on the rest of the spine which in turn affects the functioning of the nervous system^{5,6}. Postural alterations are a structural articular change which compromises neural integrity¹. Stress and input to the spine and therefore input to mechanoreceptors can induce secondary changes in nervous system processing, which may lead to spinal cord hyperexcitability and sensitise nociceptors (pain receptors) within the spine; this interference occurring within the nervous system contributes to subluxation, as defined above^{1,2,5}. This may lead to deficits such as pain, decreased range of motion, disturbances in muscle strength, headaches, pulmonary dysfunction, balance disturbances, and overall decreased physical functioning^{1,5}.

A small amount of research exists that suggests chiropractic care may lead to improvements in postural abnormalities^{8,9}. This case study adds to this growing body of literature by describing changes in posture and well-being in an older patient who was receiving chiropractic care.

Case History

A 72-year-old caucasian male presented for chiropractic care at a private practice in Auckland, New Zealand in January 2014. An initial history examination revealed difficulty walking due to balance disturbances, low back pain referring into the hips and thighs, perpetual tiredness, and a mildly depressed mood and state of mind. It was noted that he was currently prescribed heart and blood pressure medication that he had been taking for a total of 10 years.

Intervention and Outcomes

Over a period of 9 weeks, a specific and conservative chiropractic care plan was provided for the reduction of vertebral subluxations. The chiropractic care plan consisted of a series of adjustments using the Network Spinal Analysis (NSA) technique developed by Dr Donald Epstein. NSA uses gentle and specific contacts to the spine to cue the frontal cortex of the brain, promoting re-organisation within the body using breath and muscle movement. The identification and self-regulation of spinal tension and subluxation patterns give the patient a greater self-awareness of the relationships between the physical body, mind, and emotion, which are aspects of the body under control of the nervous system. This technique allows the body to become more connected through the reduction of vertebral subluxation and optimises nervous system function⁷.

Baseline surface electromyography (sEMG) scans were taken at the initial visit and then again at progress examinations. This scan represents areas of asymmetrical motor function throughout the entire spine in a seated position (see figures 1 and 2). A postural analysis was also performed at the initial visit, and again several times throughout the course of care. This was done using the Posture Pro 8 posture analysis system and measures the alignment of anatomical landmarks using antero-posterior and lateral photographs of the patient. Angles are created by drawing lines through these landmarks to which represent the degree of postural alterations (see figures 3-6).

Subjective measures were recorded on each visit where the patient described how he had felt since his last visit including

improvements and concerns. The care plan consisted of 3 visits per week for the first 3 weeks, and then was modified to 2 visits per week for a further 5 weeks after a progress examination was performed.

The most significant subjective improvements were noted in the second and third weeks of care with increased energy levels, feeling steadier with increased balance, and feeling happier overall with a more positive outlook on life. In the 6th week of care the patient described a feeling of standing straighter, decreased pain levels with activity, and he wanted to go out for longer walks with his wife, and felt more social with a general positive increase in his mood.

As represented in figures 1 and 2, the sEMG scans show an increase in symmetry and balance in motor function at the time of the first progress examination. Figures 3-6 and Table 1 show the postural improvements that occurred over the 9 week period. The most significant improvements were seen in the lateral head view with the misalignment decreasing from 43 to 27 degrees.

Discussion

Morningstar⁵ describes that components and receptors that are crucial in maintaining posture are found predominantly in the skin and joint receptors of the spine; these receptors and therefore elements of postural control are under the control of the nervous system. If there is distorted input to the nervous system, due to subluxation in the spine, the nervous system will not function optimally; as a result this can have an effect on normal posture. In this case, the cervical spine displayed the greatest degree of postural alterations. Morningstar⁵ explains that the cervical spine is a “virtual warehouse of postural afferent integration.” There are many neurological components which are responsible for maintaining a normal head and neck position^{1,5}; thus when the nervous system is in a less than optimal state of function, normal head and neck posture may be compromised.

A case series conducted by Coleman⁸ reported improvements in the lateral cervical curve following chiropractic care of 10 out of 13 subjects who were involved in the study. The study used radiographs as an objective measure of cervical curve. The results showed improvement in cervical posture over the course of several adjustments. Coleman⁸ discusses support from similar case studies which also show improvement in the cervical curve of patients receiving chiropractic care.

Postural alterations can also be caused by factors such as degenerative joint disease and trauma and vestibular dysfunction. The vestibular system contributes to movement, posture and balance sense⁹. Vestibular receptors transmit signals regarding orientation of the head in regards to the gravitational axis of the central nervous system. Output from the vestibular system influences postural muscles serving the vestibulospinal reflex which produces compensatory body movements to stabilise the body in space⁹. This system increasingly declines with the aging process^{9,10}. Panagis⁹ explains that chiropractic care has positive effects on the vestibular system, and therefore may influence balance which may be one explanation for the improvements in posture observed in this case.

This case study adds to the small but growing body of evidence relating to the role chiropractic care can play in the management of patients with postural abnormalities. Further clinical and basic science research is required to better understand this potential role.

Conclusion

Chiropractic care appears to have had a positive impact on postural disturbances and overall health and wellbeing in the older adult patient described in this case. Further research is required to investigate what role chiropractors may play in helping older adults with postural disturbances.

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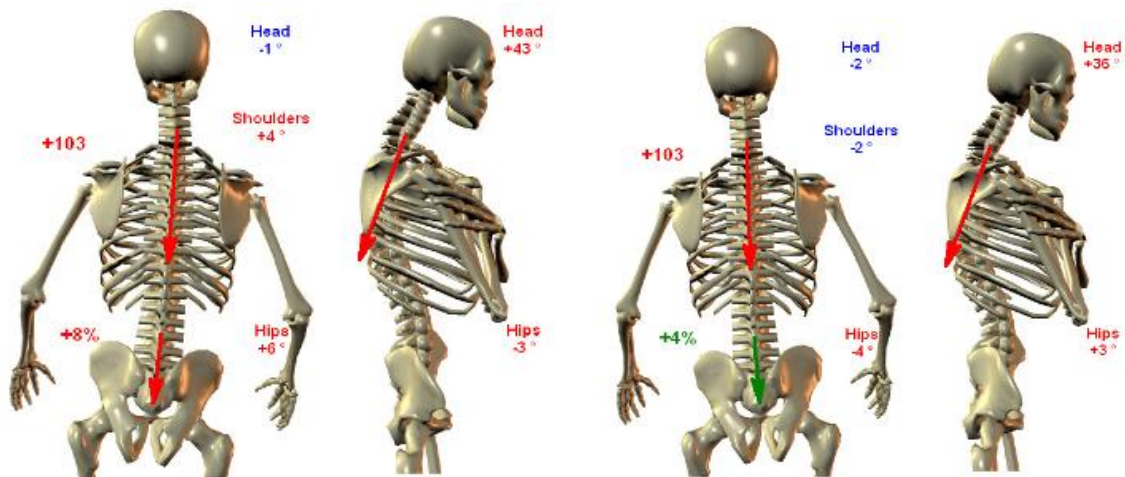
Table 1

Week (posture exam number)	Anterior-posterior: head	Anterior-posterior: shoulders	Anterior-posterior: hips	Lateral: head	Lateral: hip	Lateral: feet
1(1)	-1°	4°	6°	43°	-3°	3°
2(2)	-2°	-2°	-4°	36°	3°	3°
4(3)	-1°	-1°	-3°	33°	-2°	2°
9(4)	-3°	-1°	-1°	27°	0°	0°
Overall change	2°	5°	7°	16°	3°	3°

Figures 1 and 2



Figures 3 and 4



Figures 5 and 6

