Australian Spinal Research Foundation

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2014 - 2025

TABLE OF CONTENTS

2025 3

The Effects of Chiropractic Care on Posture, Suboptimal Breastfeeding, and Infant Health 3

Validating a Child-Friendly Measure of Coherence, Adaptability and Resilience in Chiropractic Settings... 3

The Effects of Chiropractic Care on Children with Sensory Processing Disorder: A Pilot Observational Study 3

2024 5

Investigating the predictive relationship between level and severity of vertebral subluxation and balance using AI techniques 5

Reproducibility of Sagittal Cervical Spine Alignment on Serial Radiographs: A systematic Review of the Literature..... 5

The Effects of Chiropractic Adjustments on Sleep Quality in Chronic Snorers: A Pilot Study 6

2023 7

Psychoneuroimmunology as a Framework for Studying the Effects of Chiropractic Care in Obese Population: A Proof-of-Concept Trial..... 7

Exploring the Neurophysiological Effects of Chiropractic Care on Preterm Infants 7

Exploring the Impact of Chiropractic Care on Patient Stress Levels, Immune Function, Resilience, and General Adaptability: Insights from Patient Perspectives 8

Investigating the Predictive Relationship Between Level and Severity of Vertebral Subluxation and Stress Using AI Techniques 9

2022 10

Evaluation of the Important of Chiropractic Care on Cognitive Function using fMRI 10

The Effects of Six Weeks of Chiropractic Care on Stress & Immune Function..... 10

Autonomic Nervous System `responses to Six Weeks of Chiropractic Care in People with Subclinical Spinal Pain: A Pragmatic Pilot Randomised Controlled Trial 11

Feasibility of Using the Gait & Balance App in Chiropractic Clinics for Measuring Balance in Older Adults 11

Convergent Validity of Stress Symptoms Measured Spine Dysfunction, Stress Sensory-Motor Integration Questionnaire..... 12

2021 13

Investigating the Immune Status of New and Long-Term Chiropractic Patients..... 13

Automated Pupillometry to Assess the Effects of a Single Session of Chiropractic Adjustments of Vertebral Subluxations..... 13

The Effects of Chiropractic Adjustment on Prefrontal Cortex Activity & Acute Stress: A Pilot Study 14

2020 15

Acute Effects of Spinal Manipulation on Pro- and Anti- inflammatory Cytokine Levels in Multiple Sclerosis 15

Impact of a Corrective Model of Chiropractic Care in Immune Cell Phenotype & Function 15

2019 17

Contemporary Chiropractic: Shifting Practice and Outcomes 17

Does Specificity Matter when Chiropractors Adjust Vertebral Subluxations? 18

Effects of Cervical Chiropractic Adjustments on Heart Rate Variability, Quality of Life & Tumour Marker of Colon Cancer Patients 18

2018 20

The Bio-Mechanical Assessment of Vertebral Subluxation using 3D Motion 20

The Clinical Utility of Leg Length Inequality Assessment 20

2017 22

Pilot study of interrater and intrarater reliability of the Advanced BioStructural Correction™ 'Objective Synchronous Test' 22

The Accuracy, Reliability, and Validity of the Thompson Sacral Leg Lift Test 22

The Impact of Chiropractic Adjustments on Brain Function and Integration 23

2015 25

Are Pelvis-Thorax Coordination Patterns Altered Following High-Velocity Low-Amplitude Spinal Adjustment? 25

The Effect of Cervical Spine Adjustment on Elderly Patient's Grip-strength 25

2014 27

Developing an Animal Model of the Upper Cervical Subluxation 27

Epigenetic Regulation of Neuronal Differentiation by HVLA and LVAA Forces 27

Chiropractic Care and the Control of Eye Movement in Children with Attention Deficit Hyperactivity Disorder: A Pilot Study 28

2025

The Effects of Chiropractic Care on Posture, Suboptimal Breastfeeding, and Infant Health

Feeding is vital for newborns, but musculoskeletal imbalances—such as tightness or uneven posture—can make breastfeeding difficult. These issues may cause poor latch, one-sided feeding, or discomfort, leading to unsettled behaviour, early weaning, and loss of breastfeeding's health benefits. This research will investigate whether gentle chiropractic care can support infants with postural imbalances that affect feeding. Over eight weeks, participating infants will receive care while researchers monitor posture, feeding, health, and development. Findings may reveal how chiropractic care helps improve feeding, comfort, and early development, offering families a safe, non-invasive option and informing healthcare practice for infant feeding difficulties.

Grant Value: $39,555
Chief Investigator: Dr Jenna Duehr– New Zealand College of Chiropractic
Status: In progress

Researcher Updates:

July 2026
The Health and Disability Ethics Committee (HDEC) has now granted full approval for the study. With this final approval in place, recruitment and data collection can commence.

Validating a Child-Friendly Measure of Coherence, Adaptability and Resilience in Chiropractic Settings

This pilot study will develop and validate a paediatric outcome measure specifically designed for chiropractic care, focusing on nervous system coherence, resilience, and adaptability in children aged 3-8 years. Current health assessment tools are symptom and diagnosis-focused and inadequate for evaluating wellness-based outcomes central to chiropractic care. Drawing from salutogenic theory and integrating chiropractic principles, this research will create a developmentally appropriate instrument through systematic psychometric validation involving expert consultation, cognitive interviews, and pilot testing with 50-100 families across a 6-week monitoring period. This tool will enable evidence-based documentation of functional improvements following vertebral subluxation correction, advancing research capabilities and clinical practice standards.

Grant Value: $10,000
Chief Investigator: Dr Sarah Hock and Dr Alan Brewster – Sherman College of Chiropractic
Status: In progress

Researcher Updates:

July 2026

The project is progressing as expected and is on track for completion in mid-2027. The expert panel is reviewing draft questions and response options to ensure the instrument captures meaningful measures for children aged 3–8. In parallel, the team is exploring app-development platforms and visual response formats. Once the panel's review is complete, the instrument and visuals will be refined before moving into app development, cognitive testing, and pilot implementation.

The Effects of Chiropractic Care on Children with Sensory Processing Disorder: A Pilot Observational Study

The primary aims of this pilot trial are to examine the feasibility of conducting an observational study on a paediatric (ages 5-12) population with parent-reported sensory processing disorder (SPD) receiving normal and customary chiropractic care in a local, community-based paediatric clinic. Primary outcomes of interest include enrolment, tolerability, adherence, and retention. Secondary aims involve assessing the potential effects of subluxation-based paediatric chiropractic care on heart rate variability (HRV), bilateral weight distribution (BWD), and parent-reported outcomes (PROs). The results of this trial will inform the feasibility

of a future definitive study powered to assess the clinical impacts of chiropractic care on a paediatric SPD population.

Grant Value: $11,002
Chief Investigator: Dr Tyson Perez – Life University
Status: In progress

2024

Investigating the predictive relationship between level and severity of vertebral subluxation and balance using AI techniques

This research aims to investigate the impact of Vertebral Subluxation, or dysfunction, on static and dynamic balance. The study will utilise machine-learning models and time series analysis to predict static and dynamic balance parameters based on subluxation severity and to analyse its evolution over time. Participants underwent chiropractic sessions, with static and dynamic balance parameters gauged using the Gait & Balance Mobile App. Key outcomes will determine whether chiropractic care influences balance and elucidate the relationship between subluxation and balance. The integration of Artificial Intelligence into chiropractic research aims to provide personalised interventions and deepen the understanding of patient care.

Grant Value: $25,947.50
Chief Investigator: Dr Imran Amjad – New Zealand College of Chiropractic
Co-Investigator: Dr Imran Khan Niazi – New Zealand College of Chiropractic
Status: Complete

Researcher Updates:

February 2026

Data analysis, machine learning, and AI modelling have been completed, and the results have been finalised. A manuscript is being prepared for submission.

June 2025

Data preprocessing (extraction of Subluxation from clinical notes) and analysis using machine learning and AI models has been completed, and some initial results have been obtained. The models are now being refined further to produce the final results. Expected completion date is November 2025.

Reproducibility of Sagittal Cervical Spine Alignment on Serial Radiographs: A systematic Review of the Literature

Adequate reliability of spinal displacement analysis on sagittal cervical radiographs is essential for chiropractors to use Xray for the detection and quantification of the biomechanical component of subluxation in clinical practice. Sufficient reproducibility of radiographic imaging (patient positioning, equipment positioning, etc.) of the spine is necessary to have scientific validity of the biomechanical component of subluxation. Non-reproducible methods of obtaining X-rays for this analysis could lead to unreliable measurements, incorrect care, and invalid measures of clinical outcomes. This project is a systematic review of the literature that will methodically explore the state of literature and collate the literature on the repeatability of obtaining sagittal spine radiographs.

Grant Value: $12,240
Chief Investigator: Dr Joe Betz & Dr Deed Harrison – Chiropractic BioPhysics® NonProfit.
Status: In progress

Researcher Updates:

January 2026

The team is pleased to report that, after securing a highly qualified librarian with expertise in systematic review search strategies, the PubMed search has been completed and abstracts have been collected for the first screening stage. The grey literature search has been finished, and full-text articles are now being gathered for the second screening stage, positioning the project for strong progress moving forward.

June 2025

The search strategy and design are underway with input from an independent third-party librarian scientist. Database-specific beta testing has been completed, and refinements are ongoing to enhance search

accuracy. A grey literature search is being conducted in parallel, with results to be compared against electronic database findings. Data collection and review should be completed by the end of the year with a paper to follow.

Presentations:

47th Chiropractic Bio Physics Annual Conference August 2025. Arizona, USA
Reliability of the Biomechanical Assessment of the Sagittal Lumbar Spine and Pelvis on Radiographs

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The Effects of Chiropractic Adjustments on Sleep Quality in Chronic Snorers: A Pilot Study

Nasal congestion is a major risk factor for sleep-disordered breathing, ranging from snoring to Obstructive Sleep Apnoea (OSA). Around 30% of the population experience chronic snoring, the earliest and most common symptom of OSA. Resultant poor sleep quality is strongly associated with poor mood control and many serious health conditions, such as obesity, type-2 diabetes, cardiovascular disease, and premature death. To date, there are only two case studies that have demonstrated chiropractic care is associated with improved OSA and sleeping problems. Thus, it might be possible that subluxation-based Chiropractic care can impact the nasal cycle and sleep quality. This pilot trial will enable us to calculate effect sizes and understand the logistics required to inform a future Randomised Controlled Trial, particularly around recruitment, data collection and analysis.

Grant Value: $19,500
Chief Investigator: Dr Beau Woods – Australian Chiropractic College
Co-Investigators: Dr Nitika Kumari, Dr Imran Niazi, Dr Heidi Haavik – NZCC &
Associate Professor David White – AUT & BioDesign Research Hub
Status: In Progress

2023

Psychoneuroimmunology as a Framework for Studying the Effects of Chiropractic Care in Obese Population: A Proof-of-Concept Trial

The primary aims of the proposed proof-of-concept trial are centred around examining the feasibility of conducting a prospective, chiropractic intervention study on an obese population living in and around Athens, Georgia. This includes evaluating various implementation outcomes including recruitment, adherence, tolerability, retention, acceptability, and data fidelity. As a secondary aim, we will assess the potential effects of removing vertebral subluxations via chiropractic adjustments on psychological, neurological, and immunological functioning. The results of this trial will inform the design of a future randomised, controlled trial (RCT) that has an increased focus on effectiveness outcomes.

Grant Value: $10,000
Chief Investigator: Dr Tyson Perez – Life University & Dr Phillip Tomporowski - University of Georgia
Status: Completed

Researcher Updates:

April 2026
The study has been completed, and a manuscript has been reviewed and submitted to the Frontiers in Psychiatry Journal.

June 2025

Data collection is due to be completed in early August, with the analysis starting in September. It is hoped that manual preparation and submission will take place at the end of 2025.

December 2024

The trial has generated significant interest; however, enrolment has faced challenges, primarily due to strict participation requirements. In response, these criteria have been adjusted, substantially increasing the pool of qualified participants, and improving enrolment. The aim is to have data collected by the end of June 2025, with analysis and manual preparation taking place towards the end of 2025.

Publications:

Frontiers in Psychiatry, Volume 17, July 2026.
Perez TM, Sliwka M, Smith-Ireland D, Jackson A and Sullivan S (2026) Psychoneuroimmunological changes in adults with obesity receiving chiropractic care: a single-arm pilot trial.

Exploring the Neurophysiological Effects of Chiropractic Care on Preterm Infants

Chiropractic care is frequently utilised by infants and children for wellbeing and various health concerns. Considering the utilisation and apparent benefits of chiropractic care for infants, but the significant lack of research exploring the mechanisms and neurophysiological effects of chiropractic adjustments on infants, it is necessary to explore these potential effects further. This research aims to investigate the feasibility of conducting a randomised controlled trial (RCT) utilising Electroencephalogram (EEG) and heart rate variability (HRV) to measure changes to the central and autonomic nervous system (ANS) following chiropractic care in preterm infants. Preterm infants are at a heightened risk of developing deficits in neuromotor development and cognitive and executive functions and thus are an important group to investigate potential benefits of chiropractic care.

Grant Value: $9,960
Chief Investigator: Dr Jenna Duehr – New Zealand College of Chiropractic
Status: In Progress

Clinical Applications:

This study has provided excellent information on the practical feasibility of recording EEG and ECG in young infants. The information has allowed data collection procedures to be refined for future use in a planned larger scale study that will explore brain development and function changes in infants receiving chiropractic care over 2 months. The analysis of the EEG data will provide us more information on certain feasibility aspects.

Researcher Updates:

February 2026

Data analysis for EEG has been completed, data analysis of ECG is almost complete. Once data analysis is completed a manuscript will be prepared. Project should be complete by mid 2026.

July 2025

Due to ethics restrictions, data was only gathered for full term infants. The remainder of the project remains the same- feasibility of recording EEG and ECG in infants receiving chiropractic care to explore the potential neurophysiological effects.
Data collection has been completed for this study and the pre-processing of the EEG and ECG data is being carried out with data analysis to follow. It is hoped that the project will be complete by the end of 2025.

January 2025

Ethics have been approved, and recruitment and data collection will start mid-2025, after Jenna has her PhD candidate ship confirmed.

Posters:

Association of Chiropractic Colleges Educational Conference and Research Agenda Conference, March 2026. Kansas

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Exploring the Impact of Chiropractic Care on Patient Stress Levels, Immune Function, Resilience, and General Adaptability: Insights from Patient Perspectives

Neuroscientific studies provide valuable insights, but not all chiropractors and patients engage with this research. Many prioritise real-life experiences of others who have improved their health through similar approaches. Recognising the need for patient-centred approaches, this project explores patient perspectives and attitudes regarding the impact of chiropractic care on immune function, stress, adaptability and resilience. Utilising qualitative and mixed methods, this project aims to enhance the understanding of chiropractic practice from the patient's viewpoint, contributing to rigorous research focused on vertebral and health outcomes. Ultimately, the goal is to make chiropractic care more accessible and relevant, strengthening its position in healthcare.

Grant Value: $18,093 *(funding for first year)*
Chief Investigator: Dr Tanja Glucina – New Zealand College of Chiropractic
Status: In Progress

Clinical Applications:

The research findings to date have important clinical applications, particularly in understanding and reporting on patients' views and experiences of care. It is meaningful for patients to hear others' experiences, and once published, this research helps make the findings more relatable and applicable to real-life situations. By focusing on patient perspectives, this research may allow clinicians to better align their practices with patient expectations, ensuring that care is more patient-centred and responsive.

Researcher Updates:

January 2025

Currently in the data collection and analysis phase. Estimated project completion is late 2026.

Investigating the Predictive Relationship Between Level and Severity of Vertebral Subluxation and Stress Using AI Techniques

This Research aims to investigate the impact of Vertebral Subluxation, or dysfunction, on stress levels. The study will utilise machine-learning models and time series analysis to predict stress based on subluxation severity and to analyse its evolution over time. Participants underwent chiropractic sessions, with stress levels gauged using Heart Rate Variation (HRV), sputum, and hair cortisol. Key outcomes will determine whether chiropractic care influences stress levels and elucidate the relationship between subluxation and stress. The integration of Artificial Intelligence into chiropractic research aims to provide personalised interventions and deepen the understanding of patient care.

Grant Value: $19,947.52 (funding for the first year)
Chief Investigator: Dr Imran Amjad & Dr Imran Khan Niazi – NZCC
Status: Complete

Clinical Applications:

This study examined the effects of chiropractic care on stress, using both physiological (cortisol) and psychological (DASS-21) measures in adults and children over 12 weeks. Linear mixed-effects models showed that baseline cortisol and DASS scores were stronger predictors of stress outcomes than subluxation scores or treatment groups, which was supported by the results from machine learning models (Random Forest, Gradient Boosting, and SVR). While cortisol levels increased post-intervention, DASS scores declined, suggesting differing physiological and psychological responses. However, the results for the children's data were inconclusive. Overall results suggested that cortisol response may be more biologically driven and not easily altered through short-term chiropractic care, highlighting the need for longer-term studies and broader biomarker inclusion.

Researcher updates:

February 2026

Data analysis, machine learning, and AI modelling have been completed, and the results have been finalised. A manuscript is being prepared for submission.

July 2025
The data analysis, machine learning, and AI modelling have been completed, and the manuscript is now being written with a completion date set for November 2025.

January 2025
Data preprocessing (extraction of Subluxation from clinical notes) and conversion of the non-structured data into structured data has commenced and it should be finished by June 2025. Once the data is in a structured format, attention will be focussed on looking at the predictive AI-based modelling.

2022

Evaluation of the Important of Chiropractic Care on Cognitive Function using fMRI

This study aims to investigate the effects of chiropractic adjustments on brain function, specifically the prefrontal cortex (PFC), using functional MRI and advanced computational methods e.g. multivariate pattern decoding. The PFC plays a central role in higher-level cognition and modulation of cognitive control. It is implicated in various complex behaviours, including stress response and emotion regulation in resilience. This is a first of its kind fMRI study that would allow identification and localisation of the changes at neural level that may underlie the positive effects of chiropractic care on emotion regulation behaviour.

Grant Value: $36,487
Chief Investigator: Dr Adrian Wenban – Barcelona College of Chiropractic.
Status: In Progress

Researcher Updates:

August 2024

A research laboratory has been prepared with all the related equipment. Between August 2024, and November 2024 study participants will be recruited, and reviewed to ensure they meet the study criteria, with data collection and analysis taking place from March 2025.

March 2024

The project team has created a clear project design and formulated clear study objectives. The software required for the study has been developed and undergone preliminary testing to ensure functionality and reliability. The researchers are now planning and resourcing a research laboratory with appropriate electronic and physical security measures, as required by Spanish data protection laws. The plan is to then recruit participants during the third quarter of 2024 and commence data collection in 2025, with the aim of data analysis taking place mid 2025, and manuscript preparation late 2025. The team are all dedicated to see the project progress and be able to see how fMRI can demonstrate the effect chiropractic therapy has on the human brain.

The Effects of Six Weeks of Chiropractic Care on Stress & Immune Function

In the literature, chiropractic care has been shown to impact the central nervous system (CNS), autonomic nervous system (ANS), and immune system function. There is a lack of robust research investigating the long-term benefits of chiropractic care on stress and immune function. This research will investigate the effects of 6 weeks of chiropractic care on stress and immune function.

Grant Value: $39,946
Chief Investigator: Dr Imran Khan Niazi – New Zealand College of Chiropractic.
Status: Completed

Researcher Updates:

January 2025

Manuscripts have been completed and been submitted for publication.

July 2024

Data has been collected and analysed. The manuscript is currently being written. Plan is to submit by the end of 2024.

July 2023

Ethics has been approved and data collection is now underway.

Autonomic Nervous System `responses to Six Weeks of Chiropractic Care in People with Subclinical Spinal Pain: A Pragmatic Pilot Randomised Controlled Trial

This pilot randomised control trial involves the allocation of 20 adults with subclinical spinal-related pain to either six weeks of 'chiropractic care' or six weeks of 'sham chiropractic care'. Multiple objective biomarkers of autonomic function will be used as outcome measures, including heart rate variability, galvanic skin response, pupil response to light, pre-frontal cortex function using functional near infrared spectroscopy, and assessing participants quality of life with the PROMIS-29 health questionnaire. This is the first step in a series of larger studies that will investigate the impact of adjusting vertebral subluxations on autonomic functions.

Grant Value: $9,924
Chief Investigator: Ms Marie Brunsart – New Zealand College of Chiropractic.
Status: Completed

Researcher Updates:

January 2025

The project has been completed with Marie making the Dean honours roll for her thesis. Marie is now working on publications of her work and will keep us posted.

July 2024

The thesis has been written and submitted; it will be published by the end of the year.

July 2023

Data collection has been completed and we are now moving onto data processing and analysis.

Feasibility of Using the Gait & Balance App in Chiropractic Clinics for Measuring Balance in Older Adults

In the literature, chiropractic care has been shown to impact older adults' sensory and motor systems, which may impact neuromuscular risk factors for falling. Therefore, looking at the change in the balance of older adults (Age>65) before and after chiropractic adjustments can provide valuable insight to chiropractors. Currently, chiropractors do not have a tool to give information about balance measures during the session. Therefore, in this study, we will look at the feasibility of using a novel mobile-based balance assessment tool, gait and balance app (G&B), to monitor the balance in older people (Age > 65) every week during chiropractic care.

Grant Value: $9,687
Chief Investigator: Dr Usman Ghani – New Zealand College of Chiropractic.
Status: Complete

Clinical Applications:

The study shows that the Gait & Balance (G&B) app is a feasible and clinically useful way for chiropractic clinics to track balance in older adults, with patients reliably completing brief balance and DASS-21 assessments during routine visits. Repeated measures indicated meaningful improvements in dynamic gait—especially walking speed, step timing, and step length—while static postural sway changed little, highlighting functional mobility as the most responsive outcome. Integrating app-based balance testing with psychological screening offers a practical, biopsychosocial approach to monitoring progress and personalising care over time.

Researcher Updates:

February 2026

Data collection and analysis is now complete and a manuscript is being written.

August 2025

Data collection is now finished. Feasibility parameters have been calculated. Preliminary secondary analysis is also complete. The feasibility results are being complied, with an expected completion of early 2026.

July 2024

Data collection is ongoing and will be completed in the next two months. Estimated completion date is mid-2025.

July 2023

Data collection has commenced and should be gathered by the end of 2023.

Convergent Validity of Stress Symptoms Measured Spine Dysfunction, Stress Sensory-Motor Integration Questionnaire

This research will investigate the convergent validity of physiological and psychological stress symptoms measured by the novel Stress and Sensorimotor Integration Questionnaire (SDSSMIQ) against the established Depression, Anxiety and Stress scale. The SDSSMIQ is a new tool that has been developed to measure the degree to which an individual's vertebral subluxation affects how they process sensory information and function and how vertebral subluxations correlate with symptoms of stress. This study will be the first of a series of research studies to assess the psychometric properties of the SDSSMIQ.

Grant Value: $9,736
Chief Investigator: Dr Jenna Duehr – New Zealand College of Chiropractic.
Status: In Progress

Clinical Applications:

The findings from the data analysis indicate good correlation between the DASS and the SDSSMIQ on stress symptoms. This is an important step in validating the SDSSMIQ so that it can be widely utilised in clinical practice. This will eventually allow for the collection of data on patient outcomes using this questionnaire that can be used in further research.

Researcher Updates:

February 2026

Data manuscript has been prepared and edited for submission; project should be complete by mid-2026.

July 2024

Data scientist has finished the statistical analysis, and we are discussing the interpretation and if more analysis needs to be done. Estimated completion date is mid-2025.

July 2023

Data collection has been completed, and we are now moving onto data processing and analysis.

2021

Investigating the Immune Status of New and Long-Term Chiropractic Patients

Basic science evidence suggests that chiropractic adjustments modulate immune mediators in healthy individuals in the short term and cortisol levels in symptomatic and asymptomatic individuals. However, clinically relevant research has not yet been done. The purpose of this study is to determine whether there is an association between regular chiropractic care and immune status. Two groups, one that has received regular chiropractic care over the past 12 months and one that has not, will complete self-reporting questionnaires and blood analyses relevant to assessing their immune status. The results of this observational case-control study will help inform the design of future experimental trials.

Grant Value: $39,898

Chief Investigator: Dr Heidi Haavik – New Zealand College of Chiropractic

Progress: Completed

Researcher Updates:

January 2025

Manuscripts have been completed and submitted for publication.

July 2024
Data has been collected and analysed. The manuscript is currently being written with the plan to submit by the end of 2024.

July 2023

Ethics has been approved, and data collection is now underway.

Automated Pupillometry to Assess the Effects of a Single Session of Chiropractic Adjustments of Vertebral Subluxations

The pupil diameter, controlled by sympathetic and parasympathetic innervation, is a direct reflection of autonomic nervous system (ANS) activity. This study aims to investigate the clinical feasibility of using pupillary activity measured with a cost-effective eye tracker as a measure of ANS function in people under chiropractic care. Computerised pupillometry is a low cost, non-invasive objective measure that could potentially be a useful outcome measure for chiropractors in practice to assess nervous system function in their patients.

Grant Value: $9,976
Chief Investigator: Dr Imran Amjad – New Zealand College of Chiropractic
Status: In Progress

Researcher updates:

August 2025

Data collection is now complete, and the analysis is being finalised. Now in the process of preparing the abstract and manuscript for a conference submission and publication. Completion estimated early 2026.

July 2024

Data collection took a little longer, but it has now been completed and is currently being analysed. Estimated completion date is mid 2025.

July 2023

Data collection has commenced and should be gathered by the end of 2023.

The Effects of Chiropractic Adjustment on Prefrontal Cortex Activity & Acute Stress: A Pilot Study

Chiropractic adjustments have a positive impact on various aspects of central and autonomic nervous system function, in particular, a single session of chiropractic adjustments has been shown to alter pre-frontal cortex (PFC). However, how chiropractic adjustments impact PFC activity under stress has not been explored. This proposed pilot study aims to evaluate the feasibility of conducting a randomised controlled trial using mobile functional near-infrared spectroscopy to understand the effects of chiropractic adjustments on PFC activity during a stressful activity. This study will help us to refine the study protocol and understand how chiropractic adjustments influence acute stress and PFC activity.

Grant Value: $9,931
Chief Investigator: Dr Nitika Kumari – New Zealand College of Chiropractic
Status: In Progress

Clinical Applications:

Both groups demonstrated significant increases in subjective stress during MAST. However, following intervention, the chiropractic group exhibited a significantly attenuated stress response compared to controls (MAST 5-min: 4.33 ± 0.58 vs. 5.08 ± 1.21, $p < 0.05$; linear mixed model adjusting for baseline). The chiropractic group also maintained lower stress scores at 10-min post-MAST. fNIRS analysis revealed increased activation in dorsolateral and orbitofrontal PFC regions in the control group after the acute stress challenge, while the chiropractic group showed stable or reduced PFC activation post-intervention, consistent with enhanced neural efficiency and resilience. In the control group, subjective stress correlated strongly with prefrontal activation ($r = 0.76$, $p < 0.01$), whereas this relationship was absent in the chiropractic group, indicating a decoupling of perceived stress and neural response after intervention.

Researcher updates:

August 2025

The data analysis is now complete, and a poster has been accepted for presentation at the Society for Neuroscience Conference in San Diego (15–19 November). Now in the process of preparing the manuscript for publication, with an expected completion of date of early 2026.

July 2024

Data collection took a little longer than expected but has now been completed and is now being analysed. Estimated completion data for the project is mid-2025.

July 2023

Data collection has commenced and should be completed by the end of the year.

2020

Acute Effects of Spinal Manipulation on Pro- and Anti- inflammatory Cytokine Levels in Multiple Sclerosis

Multiple sclerosis (MS) is an inflammatory autoimmune disease associated with an imbalance between pro- and anti-inflammatory cytokines resulting in a demyelinating and neurodegenerative disease. There is moderate quality evidence that spinal manipulation (SM) is better than control in influencing cytokine activity in asymptomatic individuals, but few studies have been completed in individuals with chronic inflammatory conditions. The objective of this project is to examine the immediate (1 SM treatment) and summative impact (8 SM treatments/4wks) on pro-inflammatory (IL-1β, IL-6, TNF-α) and anti-inflammatory (IL-4, IL-10) plasma cytokines 20 minutes and 2 hours post-SM in individuals diagnosed with neuroinflammatory relapsing-remitting MS (MS-RR).

Grant Value: $39,980
Chief Investigator: William R. Reed DC, PhD
Status: Complete

Researcher Updates:

April 2026

Article published in Frontiers for Rehabilitation Science — please see the link under Publications. Below is a summary of the findings.

The study identified six pro-inflammatory cytokines/chemokines that consistently changed after spinal manipulation, suggesting that SM may influence inflammatory activity in RRMS. The authors note that these preliminary results support conducting a larger, well-powered trial that measures these biomarkers at multiple timepoints and examines whether soft-tissue work prior to SM affects the response.

August 2025
Manuscript has been completed and is currently under peer review.

June 2025
Data collection is completed; the serum samples have been analysed for inflammatory biomarker levels. The aim is to have all data analysed in the next few weeks and a draft manuscript started.

December 2024

Steady progress has been made, with a remaining 2 participants to be recruited, to complete the data set. Project anticipated to be complete in February 2025.

May 2024

Significant progress has been made in the last 6 months, with most participants having consented, enrolled, and completed the study. Project expected to be complete in December 2024, with publications & presentations to follow.

Publications:

Frontiers for Rehabilitation Science, Volume 7, April 2026.
Alanazi MS, Motl RW, Jones BA, Qu H, Li P and Reed WR (2026) Effects of thoracic manipulation with trigger point therapy on inflammatory cytokine levels in individuals with multiple sclerosis: a pilot study.

Impact of a Corrective Model of Chiropractic Care in Immune Cell Phenotype & Function

This study will expand previous suggestive work in the literature [1-6] to explicitly determine whether immune function can be improved after a series of spinal manipulative therapy (SMT) sessions. The primary aim is to investigate and measure the impact of reducing vertebral subluxation on immune cell function. Before and after 12 weeks of prescribed chiropractic SMT treatments in participants diagnosed with vertebral subluxation, immune biomarkers will be measured with state-of-the-art lab-based immune cell phenotyping.

This research will be the first to comprehensively characterise the impact of SMT to reduce vertebral subluxation on immune function in humans.

Grant Value: $37,763 (Co-Funded with the UCA)
Chief Investigator: Dr Jonathan Little – University of British Columbia
Status: Complete

Researcher Updates:

April 2026

The manuscript is being finalised and will hopefully be published by the end of 2026.

July 2024

Findings demonstrate a potential relationship between the improvement in pain and immune cell phenotype after chiropractic care.

March 2023

The project has experienced some delays; however, data collection is taking place, and researchers are proceeding towards analysis and completion of the project.

2019

Contemporary Chiropractic: Shifting Practice and Outcomes

The overall goal of this PhD project is to develop the understanding of chiropractic practice through mixed methods research, and to inform systematic controlled studies in the field of chiropractic, specifically pertaining to vertebral subluxation-based research. This proposal seeks to assist the profession in its understanding of individual philosophies and how this relates to how chiropractors' practice and communicate chiropractic. This research will also investigate the public's perception of the chiropractic profession, including vertebral subluxation. Using patient reported outcome measures (PROMs), the study may also be able to show the impact of vertebral subluxation-based care on client outcomes. This research project aims to create a platform to strengthen chiropractic, both intra-professionally and within the healthcare arena locally and internationally.

Grant Value: $10,000
Chief Investigator: Dr Tanja Glucina – New Zealand College of Chiropractic
Status: Complete

Researcher Updates:

January 2025

PhD successfully defended and awarded in December 2024.

July 2024

Thesis was presented in April, Tanja is now working through recommendations ready to complete in December.

December 2023

Thesis submitted.

Publications:

Complementary Therapies in Clinical Practice, Volume 55, May 2024
Glucina, T. T., Krägeloh, C. U., Spencer, K., & Holt, K. Development and Validation of the Chiropractic Professional Identity Embodiment Scale (CPIES).

Journal of Bodywork and Movement Therapies, Volume 35, July 2023, Page 75-83
Glucina, T. T., Krägeloh, C. U., Spencer, K., & Holt, K. Defining chiropractic professional identity: A concept analysis.

Complementary Therapies in Clinical Practice, Volume 39, May 2020
Glucina, T. T., Krägeloh, C. U., Farvid, P., & Holt, K. Moving towards a contemporary chiropractic professional identity.

Presentations:

Chiropractic Educators Research Forum (CERF) Conference "Collaboration: Education and Research Stronger Together. December 2024, Virtual
Glucina, T.T., Krageloh, C., Spencer, K., Holt, K. (2024). Assessing Test-Retest Reliability of the Chiropractic Professional Identity Embodiment Scale: A Collaborative Study.

Chiropractic Educators Research Forum (CERF) Conference "Collaboration: Education and Research Stronger Together. December 2024, Virtual
Glucina, T.T., Krageloh, C., Spencer, K., Holt, K. (2024). Development and Validation of the Chiropractic Professional Identity Embodiment Scale: A Collaborative Study.

Proceedings of the 17th World Federation of Chiropractic Biennial Congress Convention October 2023. Gold coast, Australia
Glucina, T.T., Krageloh, C., Spencer, K., Holt, K. (2023). Instrument construction and initial validation: The Chiropractic Professional Identity Subtype Orientation Scale (CPISOS).

Concordia – Adelaide College of Chiropractic March 2022. Adelaide, Australia
Changing the Conversation around the Professional Identity of Chiropractic

New Zealand Chiropractors Asssociation AGM June 2021. New Plymouth, New Zealand
The importance of Chiropractic Professional Identity

Posters:

Chiropractic Academy for Research Leadership Congress (CARLoquium) March 2022, Virbela. Poster D32
Glucina, T.T., Krageloh, C., Spencer, K., Holt, K. (2021). Defining Chiropractic Professional Identity

Chiropractic Academy for Research Leadership Congress (CARLoquium) March 2021, Virbela. Poster E28
Glucina, T.T., Krageloh, C., Farvid, P., Holt, K. (2021). Moving towards a contemporary chiropractic professional identity

Proceedings of the 16th World Federation of Chiropractic Biennial Congress Convention September 2021, Virtual.
Glucina, T.T., Krageloh, C., Spencer, K., Holt, K. (2021). Defining Chiropractic Professional Identity.

Does Specificity Matter when Chiropractors Adjust Vertebral Subluxations?

Correcting vertebral subluxations lies at the heart of chiropractic practice. Most chiropractic techniques emphasise the importance of a thorough spinal examination to locate and analyse vertebral subluxations and determine the most appropriate approach to facilitate their correction. Yet, no research exists that clearly shows that specific spinal adjustments are of more benefit to nervous system and human function than gross, non-specific, spinal manipulation. This study is the first in a programme of research that will investigate the importance of the artful, masterful application of chiropractic care for improved patient outcomes.

Grant Value: $19,535
Chief Investigator: Dr Heidi Haavik – New Zealand College of Chiropractic
Status: Completed

Publications:

Scientific Reports 14, Article 1159, January 2024
Niazi, I.K., Navid, M.S., Merkle, C. et al. A randomized controlled trial comparing different sites of high-velocity low amplitude thrust on sensorimotor integration parameters. https://doi.org/10.1038/s41598-024-51201-9

Newsletters:

Article in ASRF newsletter. December 2021
Does Specificity matter?

Effects of Cervical Chiropractic Adjustments on Heart Rate Variability, Quality of Life & Tumour Marker of Colon Cancer Patients

This preliminary clinical trial will examine the effects of vagal nerve activation via cervical chiropractic adjustments on clinical outcomes in patients with colon cancer. Specifically, we hypothesize that participants randomly assigned to receive cervical chiropractic adjustments will have higher heart rate variability (HRV), better health-related quality of life (QOL) and lower levels of both pain and a colon cancer tumour marker, than controls. We aim to recruit 80 participants with advanced colon cancer (stage III-IV) who will be

measured at baseline for QOL, pain, HRV and a colon cancer marker. Thereafter, they will be randomized to receive the intervention or sham for 10 weeks. Follow up will be at specific intervals across 6months.

Grant Value: $39,850 (Co-Funded with the UCA)
Chief Investigator: Adrian Wenban & Yori Gidron Barcelona College of Chiropractic
Status: In Progress

Researcher updates:

May 2025

The project has been relocated to Israel where professor Gidron is located, and local chiropractors have already been recruited to support the study. Final changes to the protocol are being made, including broadening inclusion criteria to include patients diagnosed with earlier stages of colon cancer than originally planned.

The expectation is to be ready for approval by the ethics committee in July and recruitment of patients in September. Data collection will take around a year with the expectation for the study to conclude in September 2026.

July 2024

Dr Adrian Wenban and Dr Yori Gidron have now collaborated with Dr Stephanie Sullivan from Life University to complete this research. This has resulted in it needing to be submitted for approval with Life University, and consequently some alterations have been made, most importantly broadening the outcomes measures related to the ANS beyond just looking at the HRV. The team at LU are now carrying out an inter-examiner reliability study of the added ANS outcome measures before starting patient recruitment. More information to follow later in 2024.

October 2021
Unfortunately Covid has caused delays with the gathering of data.

2018

The Bio-Mechanical Assessment of Vertebral Subluxation using 3D Motion

This project seeks to investigate the second ASRF Research Agenda point, which is "Can subluxations be identified validly, reliably and reproducibly?". To do this, we are proposing to measure the kinematics of spinal motion with a three-dimensional motion capture system and characterise changes in movement associated with spinal segmental levels that have been identified as being subluxated. This study is a collaborative study between the New Zealand College of Chiropractic and Aalborg University in Denmark. This study will be carried out in the state-of-the-art 3D motion capture laboratories located at Aalborg University.

Grant Value: $80,000 (a joint venture project with ASRF and The Hamblin Trust)
Chief Investigator: Dr Imran Khan Niazi – New Zealand College of Chiropractic
Status: In Progress

Researcher Updates:

July 2024

The data analysis is underway but it is very complex high density EMG data, and it is taking much longer than anticipated to analyse. For example, the data analysis just for the flexion task at one speed took almost 800 hours to complete. It is estimated that the project will be completed by the end of 2025.

October 2023

We have finished data collection. We collected data on 3D biomechanics of the lumbar spine during lumbar flexion, extension, rotation, and lateral flexion at two different speeds of movement.

March 2022

Covid has caused numerous and significant delays. We did secure funding from another funding body to investigate the neurophysiological aspects of subluxated and non-subluxated individuals using High-density EMG. So, the data we have already collected will provide us with greater clarity about the neurophysiological aspects of vertebral subluxations. Also, we added the question of investigating the effects of a single session of chiropractic care on the biomechanics and neurophysiological aspects of subluxation.

Publications:

Article in ASRF newsletter, June 2022
Understanding the Biomechanics of a Vertebral Subluxation

The Clinical Utility of Leg Length Inequality Assessment

Tests of leg length inequality are an integral component of many chiropractic analytical techniques. However, little is known about the clinical utility of leg length testing. This project will evaluate the psychometric properties of leg length inequality testing. This will include an assessment of the reliability and validity of the test, sensitivity to change of the test, and an assessment of whether the cephalad pressure placed on the patient's feet during compressive leg testing influences the results of the test. This study should be of interest to chiropractors and educators who routinely use and teach the use of this test as a means of analysing for vertebral subluxations.

Grant Value: $19,708
Chief Investigator: Dr Kelly Holt – New Zealand College of Chiropractic
Status: In Progress

Clinical Applications:

Agreement between examiners varied widely, showing the test is highly sensitive to small changes in how it's performed. Subtle differences in positioning, movement and contact affected measured leg-length

differences, so consistent results couldn't be reproduced in this controlled setting. These findings point to underlying biomechanical factors that need further investigation before any clinical conclusions can be made.

Researcher Updates:

February 2026

Data collection is complete for two major phases. The analysis for the first phase is complete, and analysis of the second phase is currently underway. Hope to be completed by the end of 2026.

January 2025

Second phase of data collection is ongoing with the hope to be completed by the middle of 2025.

July 2024

The first phase of data collection has been completed, and second phase is in progress. It is anticipated that this second phase will be completed in the next two months. It is estimated that the project will be completed by the end of 2024.

October 2023

COVID-related uncertainties, and team members were stuck overseas, resulting in a shortage of on-ground staff delayed the progress of this project.

2017

Pilot study of interrater and intrarater reliability of the Advanced BioStructural Correction™ 'Objective Synchronous Test'

Determining where to adjust is fundamental to the practice of chiropractic. Many of the methods commonly utilised in chiropractic practice have low reliability or conflicting results. There is no universally agreed upon 'gold standard' test for detecting subluxation, meaning that a validity study is not possible. However, the agreement between different chiropractors testing the same person can be measured statistically. The objective synchronous test is the primary procedure used by chiropractors trained in Advanced BioStructural Correction™ to determine where to adjust. This study aims to evaluate both the inter-rater and intra-rater reliability of this test. This research is important because the reliable detection of subluxation is fundamental to the clinical practice of chiropractic.

Grant Value: $2,500
Chief Investigator: Dr Beau Woods & Dr Melinda Stanners – Torrens University Australia, Dr Kelly Holt – New Zealand College of Chiropractic.
Status: Complete

Publications:

Journal of Contemporary Chiropractic, Volume 6, Issue 1, January 2023, Page 1 – 7
Woods, B., Thomas, N., Stanners, M., & Holt, K. (2023). Reliability of the objective Synchronous test as used in Advanced Biostructural Correction™ to assess for L5 dysfunction (Roosta-L5). Journal of Contemporary Chiropractic, 6(1)

Clinical Applications of this research:

This project helps chiropractors to understand the reliability of the Objective Synchronous Test, as used in Advanced BioStructural Correction. This methodology is at least as good, if not better, than commonly used chiropractic procedures such as motion palpation and static palpation.

The Accuracy, Reliability, and Validity of the Thompson Sacral Leg Lift Test

Tests of sacral function are an integral component of many chiropractic techniques, however, individual tests that include sacroiliac joint motion have generally been found to have limited reliability and validity. The sacral leg check is routinely used in chiropractic practice but it's clinical utility has not yet been adequately assessed. This project will evaluate the psychometric properties of the sacral leg check. This will include an assessment of the reliability, validity, and sensitivity to change of the test. This should be of interest to chiropractors and educators who routinely use and teach the use of this test as a means of analysing subluxations in the sacroiliac region.

Grant Value: $19,911
Chief Investigator: Dr Kelly Holt – New Zealand College of Chiropractic
Status: In Progress

Researcher updates:

February 2026

Data collection is complete for two major phases. The analysis for the first phase is complete, and analysis of the second phase is currently underway. Hope to be completed by the end of 2026.

January 2025

Second phase of data collection is ongoing with the hope to be completed by the middle of 2025.

July 2024

The first phase of data collection has been completed, and second phase is in progress. It is anticipated that this second phase will be completed in the next two months. It is estimated that the project will be completed by the end of 2024.

October 2023

COVID-related uncertainties, and team members were stuck overseas, resulting in a shortage of on-ground staff. Has delayed the progress of this project. However, data is being collected right now and the analysis will take place during 2024.

November 2018

Training is progressing well. We are still modifying the protocol as we go but are happy with the progress we are making with our reliability findings. We have secured the use of a motion capture lab to perform the reliability and validity data collection which will really benefit this part of the project.

The Impact of Chiropractic Adjustments on Brain Function and Integration

Do you have days when you reach for an object and miss, or seem to make a lot more typos than usual?

A vertebral subluxation is an area in the spine of altered biomechanical and neurological function, which is treated by chiropractors. Vertebral subluxations alter the sensory feedback from the spine to the brain and can affect your brain's ability to blend information coming from other senses, affecting co-ordination and the ability to learn new movements. This project is measuring whether chiropractic care can improve eye-hand coordination, brain function and the learning and performance of complex new movements.

This grant represents an outstanding opportunity to use the equipment recently obtained through a Canada Foundation for Innovation grant to investigate the impact of vertebral subluxations on brain function. To understand the source(s) in the brain where the changes occur, the "whole head" 64-channel EEG my lab system will be used. The advanced AsaPro software that is part of this system is essential to map the source (areas of the brain) responsible for changes in individual SEP peaks. Without this research, our assertions that chiropractic adjustments have changed the strength of the contribution from different brain areas important for learning new movement patterns, would not be readily accepted by the scientific community. It is also critical to understand if altered sensory input due to the presence of vertebral subluxations is altering cerebellar plasticity, as it is much harder to reverse maladaptive neuroplasticity in the cerebellum than in the cortex. The Eye Link II is the only system with the sensitivity to investigate the role of altered sensory input on multisensory integration and motor performance. If we can show that SCNP individuals have altered cerebellar function, which affects oculomotor integration and motor skill acquisition and retention, it has the potential to provide sensitive biomarkers of people at risk of injury or accident. In our modern world, everyone wants to be smarter, faster and better at performing and learning new skills. If chiropractic can be shown to help achieve this, it will greatly expand the range and number of individuals who would benefit from care, ranging from athletes wanting to improve performance to employers wanting to decrease performance errors to individuals wanting to improve function and well-being at work, home and leisure. This study has a strong focus on the cerebellum because it is so important in learning skilled movement and has connections to nearly every other part of the brain. If we can provide evidence of the mechanisms by which chiropractic adjustments are improving function it provides a scientific rationale for both maintenance and preventive care.

Grant Value: $80,000
Chief Investigator: Professor Bernadette Murphy – University of Ontario Institute Technology
Status: Complete

Clinical Applications:

The work confirms that individuals with SCNP individuals have altered cerebellar function, which affects oculomotor integration and motor skill acquisition and retention. In the future this work has the potential to provide sensitive biomarkers of people at risk of injury or accident. In our modern world, everyone wants to

be smarter, faster and better at performing and learning new skills. If chiropractic can be shown to help achieve this, it will greatly expand the range and number of individuals who would benefit from care, ranging from athletes wanting to improve performance to employers wanting to decrease performance errors to individuals wanting to improve function and well-being at work, home and leisure. This study has a strong focus on the cerebellum because it is so important in learning skilled movement and has connections to nearly every other part of the brain. If we can provide evidence of the mechanisms by which chiropractic adjustments are improving function it provides a scientific rationale for both maintenance and preventive care.

Publications:

Experimental Brain Research, Volume 240, Issue 7-8, August 2022, P.1911-1919
Sanmugananthan, P., Burkitt, J.J.*, Campbell, D*. Cheema, N., Murphy, B.A., Yielder, P. (2022). "The Impact of Subclinical Neck Pain on Goal-Directed Upper Limb Movement in the Horizontal Plane." Experimental Brain Research (in press).*

Cureus, Volume 13, Issue 10, October 2022
Sanmugananthan P, Nguyen N, Murphy B, Hosseini, A. (2021) Design and Development of a Rotating Chair to Measure the Cervico-Ocular Reflex. Cureus 13(10): e19099. DOI 10.7759/cureus.19099

Posters:

Neural Control of Movement, July 2022. Dublin, Ireland
Ushani Ambalavanar, Nicholas La Delfa, Heather McCracken, Mahboobeh Zabihhosseinian, Bernadette Murphy. Differential Changes in Somatosensory Evoked Potentials and Motor Performance: Pursuit Movement Task versus Force matching Tracking Task.

Presentations:

Biannual International Society of Electrophysiology & Kinesiology (ISEK XIV) July 2022. Quebec, Canada
Devonte Campbell, Bernadette Murphy, James Burkitt, Nicholas La Delfa, Praveen Sanmugananthan, Paul Yielder. Accepted "The effects of subclinical neck pain on cerebellar processing as measured by the cervico-ocular and vestibulo-ocular reflexes"

Biannual International Society of Electrophysiology & Kinesiology (ISEK XIV) July 2022. Quebec, Canada
Ushani Ambalavanar, Paul Yielder, Heather McCracken, Hailey Tabbert, Bernadette Murphy "Subclinical neck pain leads to Differential Changes in Early and Middle-latency Somatosensory Evoked Potentials and Motor Performance in response to a novel force matching tracking task"

Southern Ontario Motor Behaviour Symposium in partnership with the Centre for Motor Control April 2022. Wilfred Laurier University, Waterloo, Canada
Devonte Campbell, Bernadette Murphy, James Burkitt, Nicholas La Delfa, Praveen Sanmugananthan, Paul Yielder. The effects of spinal manipulation on cerebellar processing as measured by the cervico-ocular & vestibulo-ocular reflexes in a subclinical neck pain population (2022).

Southern Ontario Motor Behaviour Symposium 2023. Virtual hosted by University of Toronto Centre for Motor Control
Praveen Sanmugananthan*, Bernadette A. Murphy ,James Burkitt*, Paul Yielder. (2020) The impact of subclinical neck pain on upper limb vertical goal-directed movements in the dominant and non-dominant arms.

University of Toronto Centre for Motor Control 2023. Virtual hosted by University of Toronto
Rufeyda Cosgun*, Devonte Campbell*, James J. Burkitt*, Paul Yielder. Bernadette A. Murphy (2020) Vestibulo-ocular reflex padaptation appears to be increased in people with sub-clinical neck pain.

Exercise Neuroscience Group Biannual meeting June 2019. McMaster University, Hamilton, Canada
Cosgun, Rufeyda*,Murphy, Bernadette. Development of a protocol to investigate the vestibulo-ocular reflex in sub-clinical neck pain (2019).

Newsletters:

Article in ASRF newsletter. September 2022
Recurrent neck pain alters brain function and eye-hand coordination, and chiropractic care can help reverse the changes.

2015

Are Pelvis-Thorax Coordination Patterns Altered Following High-Velocity Low-Amplitude Spinal Adjustment?

The therapeutic mechanism of spinal adjustment (SA) for low back pain patients remains elusive. One promising mechanism is the potential for SA to influence the different biomechanics and neuromuscular control of spine movement in low back pain patients. Our goal is to investigate the effect of SA on neuromuscular control of coordination patterns between the pelvis and thorax in low back pain patients. This data would provide clinicians and researchers with evidence for the mechanistic foundation of SA and may also provide an objective outcome for clinical prediction rules to identify patients who are likely to improve with SA.

Grant Value: $20,000
Chief Investigator: Dr Samuel Howarth – Canadian Memorial Chiropractic College & Dr Bernadette Murphy – University of Ontario Institute of Technology
Status: Completed

Researcher updates:

October 2023

The final analysis has been completed. Thoracopelvic coordination was operationalised using continuous relative phase. Two measures were extracted that related to the overall coordination pattern (mean absolute relative phase) and the variability of the coordination pattern from one gait cycle to the next (deviation phase). We were unable to replicate the previous finding of differences in thoracopelvic coordination between people with and without low back pain. Furthermore, neither the coordination nor the variability of coordination was different following SMT. There are many potential explanations for these findings. Two of these are the large amount of between-subject variability for coordination patterns and the high-functioning status of our participants with low back pain.

The Effect of Cervical Spine Adjustment on Elderly Patient's Grip-strength

The elderly suffer from reduced health-related quality of life and increased mortality from all causes in association with reduced grip strength. In addition, a recent study, wherein chiropractic neck adjustments increased judo athletes' grip strength, recommended further similar studies, to evaluate performance enhancing effects of chiropractic adjustments, amongst other populations. The present preliminary study aims to determine whether chiropractic adjustments improve neck movement and grip strength in elderly patients. This investigation is important because the results will contribute to the knowledge base regarding the effects of chiropractic adjustments and may open new pathways to explore the scientific basis of chiropractic theory.

Grant Value: $9,283
Chief Investigator: Dr Adrian Wenban – Barcelona College of Chiropractic
Status: Complete

Posters:

Journal Chiropractic Education, Volume 34, Issue 1, March 2020, Page 103
Wenban AB, Perez de la Oslo P. THe effect of cervical spine adjustment on elderly patient's grip strength. [Abstract] Journal of Chiropractic Education. 2020;34(1):103.

Newsletters:

Article in ASRF newsletter. March 2022
The Effect of Cervical Spine Adjustment on Elderly Patient's Grip-strength

2014

Developing an Animal Model of the Upper Cervical Subluxation

Subluxation of the upper cervical vertebrae is regarded among chiropractors as an important cause of disease and disability. However, currently there is no animal model of the upper cervical subluxation, and so it is difficult for researchers to study the underlying mechanisms and the clinical consequences of this lesion. This research will develop a model of the upper cervical subluxation, and test whether this model compromises spinal cord function and the function of visceral organs, as many chiropractors postulate. This model will permit researchers to address important questions about the consequences and treatments of upper cervical subluxation.

Grant Value: $23,068
Chief Investigator: Dr Brian Budgell – Canadian Memorial Chiropractic College
Status: Complete

Researcher updates:

Final Report

We had previously reported that experiments from the earlier phases of the study were consistent with the hypothesis that relatively moderate (non-destructive) short-term compression of the upper cervical spinal cord causes a reversible impairment of spinal cord function and this is reflected in changes in cardiovascular function. This supports, but of course in itself does not prove, the concept of the upper cervical subluxation producing effects beyond purely bio mechanical changes.

June 2018

The experiments completed to date indicate that, in an animal model, relatively moderate (non-destructive) short-term compression of the upper cervical spinal cord causes a reversible impairment of spinal cord function, and this is reflected in changes in cardiovascular function. This is consistent with, but of course in itself does not prove, the concept of the upper cervical subluxation producing effects beyond purely biomechanical changes. To the extent that biological rationale is one component of clinical decision making, this may provide some guidance to clinicians confronting the case of upper cervical subluxation with, for example, cardiovascular changes. Stakeholders should be encouraged to know that all experiments planned in the grant application have been completed with sufficient reliable data to produce a credible manuscript for a peer-reviewed journal. New knowledge obtained through these experiments will be used to design subsequent studies with further clinical implications.

Epigenetic Regulation of Neuronal Differentiation by HVLA and LVAA Forces

Spinal manipulative treatment (SMT) is the primary clinical approach in chiropractic care. The cellular and molecular mechanisms responsible for SMT remain elusive. It is well know that SMT influences neurophysiological activities. However, a question remains: How can very short transient changes of cellular electricity impact patients' long-term health? We propose to address this issue by examining whether manipulate forces impact neurons at cellular and molecular levels, particular in epigenetic regulation of neuronal differentiation – a potential mechanism in neuroplasticity. This research project should yield important insights in understanding the long-term benefits of chiropractic care.

Grant Value: $40,000
Chief Investigator: Liang Zhang – Palmer College of Chiropractic
Status: Complete

Researcher updates:

April 2019
Final report completed. *The long-term effects of brief stimulated LVVA loads on neurogenesis in cultured PC-12 cells*

Chiropractic Care and the Control of Eye Movement in Children with Attention Deficit Hyperactivity Disorder: A Pilot Study

Attention deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder that is associated with significant alterations in brain development and function.(1) One of these alterations in brain function involves a breakdown in the control of eye movement which can be responsible for the reading impairments that are often seen in children with ADHD.(2) It is possible that chiropractic care may enhance control of eye movements in children with ADHD. To study this potential relationship, we will perform a crossover design pilot study that will investigate the effects of chiropractic care on the control of eye movement in 15 children with ADHD.

Grant Value: $19,600
Chief Investigator: Dr Alice Cade – New Zealand College of Chiropractic
Status: Complete

Publications:

Auckland University of Technology – Masters postgraduate qualification
Cade, A., Jones, K., Haavik, H., Holt, K. (2017) Chiropractic Intervention and the control of eye movement in children with Attention Deficit Disorder: A pilot study. Auckland University of Technology, Auckland Submitted April 2017 as part of Masters postgraduate qualification.

Brain Sciences 2021, Vol.11, Page 1047
Cade, A., Jones, K., Holt, K., Penkar, A.M., & Haavik, H. (2021). The Effects of Spinal Manipulation on Oculomotor Control in Children with Attention Deficit Hyperactivity Disorder: A Pilot and Feasibility Study. Brain Sciences 2021, Vol. 11, Page 1047, 11(8), 1047.

Presentations:

Platform presentation ACC-RAC 2018. Dallas, Texas
Cade, A., Taylor, D., Holt, K. (2017) The effects of chiropractic care on oculomotor control in children with attention deficit hyperactivity disorder: A pilot study. ACC-RAC 2018. Dallas, Texas

Newsletters:

Article in ASRF newsletter. December 2022
The Eyes Have It – Objective Markers of Concussion in Clinical Practice