

FACT SHEET

THE EFFECTS OF A SINGLE SESSION OF CHIROPRACTIC CARE ON BRAIN SOURCE CONNECTIVITY

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Research Project Summary

Project Complete

Over the past decade there has been growing evidence to suggest that chiropractic care influences brain function. The researchers that have done this work have used sophisticated brain research methods such as measuring brain waves using electroencephalography (EEG). These studies have shown that adjusting subluxations in the spine alters function in various brain structures. However, the evidence for the involvement of these brain structures is indirect. Although EEG measures brain activity very accurately time-wise, it has poor spatial resolution, which means it's hard to tell exactly where in the brain the activity occurs.

Recently efforts have been made to improve the spatial resolution of EEG using a new EEG technique, known as multichannel matching pursuit technique. With this technique it is possible to determine with greater clarity where in the brain activity occurs.

A group of chiropractic researchers in New Zealand and Canada are pairing up with a group from Denmark and intend to use this new technique to explore which structures in the brain are talking to each other prior to, and after, chiropractic adjustments.

The researchers believe that they will be able to identify differences in the way the brains of a group of 15 subluxated individuals, who are developing spinal symptoms, function compared with a group of 15 healthy people with no history of symptoms. They also believe that a single session of chiropractic care in the subluxated group will change the way parts of the brain are talking to each other.

The researchers aim to reveal the brain areas involved in subclinical pain processing, then study the communication between these brain areas and how the communication changes following a single session of spinal adjustments.

By completing this study the researchers hope to gain a much better understanding about how vertebral subluxations and adjustments affect nervous system function.

Impact of Research

Awards

- Delegates Award, CAA Scientific Symposium held in Melbourne in 2015.
- 1st place poster award at The Parker Experience Seminar held in Las Vegas in 2016.

Publication

- Lelic D, Niazi IK, Holt K, Jochumsen M, Dremstrup K, Yielder P, et al. Manipulation of Dysfunctional Spinal Joints Affects Sensorimotor Integration in the Prefrontal Cortex: A Brain Source Localization Study. *Neural plasticity*. 2016;2016:3704964.

Presentation:

- Lelic D, Niazi IK, Holt K, Jochumsen M, Dremstrup K, Yielder P, Murphy B, Drewes AM, Haavik H. (2015) The changes in sensorimotor integration that happen with manipulation of dysfunctional spinal joints occur at the pre-frontal cortex: A brain source localization study. WFC Conference May 2015; Athens, Greece
- Lelic D, Niazi IK, Holt K, Jochumsen M, Dremstrup, Yielder P, Murphy B, Drewes AM, Haavik H. (2015) Manipulation of dysfunctional spinal joints affects sensorimotor integration in the pre-frontal cortex: A brain source localization study. CAA Scientific Symposium held in Melbourne, 17th-18th October 2015
- Lelic D, Niazi IK, Holt K, Jochumsen M, Dremstrup, Yielder P, Murphy B, Drewes AM, Haavik H. Chiropractic adjustments alter sensorimotor integration in the pre-frontal cortex – A brain source localization study. The Parker Experience Seminar. January 2016, Las Vegas, Nevada, USA
- Lelic D, Niazi IK, Holt K, Jochumsen M, Dremstrup, Yielder P, Murphy B, Drewes AM, Haavik H. Chiropractic adjustments alter sensorimotor integration in the pre-frontal cortex – A brain source localization study. ACCRAC March 2016, Orlando, Florida, USA