Outcome

Project Complete

Background: The traditional chiropractic vertebral subluxation hypothesis proposes that vertebral misalignment cause illness, disease, or both. This hypothesis remains controversial.

Objective: To briefly review and update experimental evidence concerning reflex effects of vertebral subluxations, particularly concerning peripheral nervous system responses to vertebral subluxation.

Data Source: Information was obtained from chiropractic or scientific peer-reviewed literature concerning human or animal studies of neural responses to vertebral subluxation, vertebral displacement or movement, or both.

Conclusion: Animal models suggest that vertebral displacements and putative vertebral subluxation may modulate activity in group I to IV afferent nerves. However, it is not clear whether these afferent nerves are modulated during normal day-to-day activities of living and, if so, what segmental or whole-body reflex effects they may have. (J Manipulative Physiol Ther 2000;23:t01-3)


Research Project Summary

A fundamental premise on which the clinical practice of chiropractic is based is that misalignment of bones (vertebra) and/or dysfunction in the movement of the bones in the vertebral column or spine produces dysfunction in the nervous system, which leads to ill health and disease. These vertebral misalignments are referred to by chiropractors as vertebral subluxation and may be present in humans or animals.

Recent work in our laboratory suggests that vertebral displacement/misalignment in the neck can influence the nervous system. However, it remains to be determined if these effects are normal responses as might occur in daily activities of living or are in fact likely to cause dysfunction that is consistent with ill health or disease.

The general aim of this study is to determine if a vertebral subluxation in the neck, as proposed by the chiropractic vertebral subluxation hypothesis, alters the characteristics of postural reflexes that are normally elicited by some neck movements.

The study will be performed in adult rats that are first anaesthetised. Recordings will be made from muscles or nerves in the forelimbs while simultaneously moving the upper part of the neck. The effects of moving the neck should normally induce activity in specific muscles and nerves. The characteristics of this response are well defined. We will examine if the existence of a vertebral subluxation in the upper neck changes the characteristics of this neck-evoked reflex response in a manner that suggests dysfunction in the control of posture. We will then reduce the misalignment or subluxation and examine if the characteristics return to the pre-subluxation state.

This study will determine if vertebral subluxation in the upper neck influence neck evoked postural reflexes in a manner consistent with dysfunction and or ill health. Furthermore, it will determine the relative amount of misalignment necessary to cause changes in the characteristics of the reflex. Importantly, it will identify if the reduction of the vertebral subluxation produces normal characteristics in the reflex.
Impact of Research

Publications


- Bolton PS (2000) "Reflex effects of vertebral subluxation: the peripheral nervous system. An update" *Journal of Manipulative and Physiological Therapeutics Online*


Presentations
