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The correlation between cervical proprioception and cranio-cervical flexion tests in patients with whiplash-associated disorders

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2008-03-03T08:14:20Z
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CORRELATION BETWEEN CERVICAL PROPRIOCEPTION AND CRANIO-CERVICAL FLEXION TESTS IN PATIENTS WITH WHIPLASH - ASSOCIATED DISORDERS.

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A research report submitted to the Faculty of health Sciences, University of the Witwatersrand, Johannesburg, in partial fulfilment of the requirements for the degree of Master of Science in Physiotherapy.

Johannesburg

January 2007

DECLARATION:

I, Merle Snyckers, declare that this research report is my own work. It is being submitted for the degree of Master of Science in Physiotherapy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

_____

(Merle Snyckers)

_____ day of _____, 2007.

ABSTRACT:

Whiplash-associated disorders are a common occurrence. Physiotherapy rehabilitation of such disorders include, among others, improving the recruitment ability of the deep cervical flexor muscles. Cervical proprioception, which has recently gained attention, is not commonly addressed. Evidence points to a possible link between cervical proprioception and deep cervical flexor recruitment ability. This study aimed to determine whether such a correlation exists. This is significant as it highlights the role that recruitment training of the deep cervical flexors has on cervical proprioception.

A correlation study design was employed that involved 29 patients with whiplash-associated disorders. They were tested in their ability to perform the cranio-cervical flexion test and Revel's test for proprioception. Linear regression was employed to interpret the results.

This study concluded that a correlation exists between the ability to perform the cranio-cervical-flexion test and cervical proprioception.

ACKNOWLEDGEMENTS:

I would like to thank my supervisors Ms Nonceba Mbambo and Mrs Anita Nkusi for their endless patience and perseverance through this process. Thank you to Aimee Stewart for her guidance and support. Thank you also to Dr Becker for the statistical input.

LIST OF ABBREVIATIONS AND DEFINITIONS:

CCFT	Cranio-cervical-flexion test: This is an indirect measure of the recruitment ability of the deep cervical flexors. The patient is lying supine on a plinth with a bio-feed back unit placed under the occiput. The patient is instructed to "nod" the head to a reading of 22 mmHg. This is progressed to 30mmHg.
Whiplash	An acceleration-deceleration mechanism of energy transfer to the neck, normally due to a motor vehicle accident.
Proprioception	An awareness of the movements and position of the limbs and other body parts.
Neutral Zone	The small range of displacement around a vertebral segments neutral position where little resistance is offered by passive spinal restraints.
Stabilisers	Type I skeletal muscle fibres well adapted for slow, maintained contractions involved in the maintenance of body posture.
Movers	Type II skeletal muscle fibres specialised for fine, fast movement.
Global strengthening	Strengthening of all the movers and stabilisers of the spine.
Whiplash-associated-disorders	A variety of clinical manifestations due to bony or soft tissue injuries following a whiplash injury.

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