

## To Study Vertebral Artery Blood Flow Velocity During Cervical C1-C2 Manual Traction -Mulligan

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### Abstract

**Aim:** To investigate the blood flow of vertebral artery at c1-c2 region during manual traction -Mulligan. **Method:** The focus of the present study is measuring haemodynamic parameters including peak systolic velocity (PSv) and end diastolic velocity (EDv) of vertebral arteries at the sub occipital region of cervical spine in neutral positioning and whether there is change in the hemodynamic parameters during c1-c2 manual traction (mulligan) using Doppler ultrasonography in normal individual mean age  $24.68 \pm 2.03$  year. **Results:** The result showed significance difference ( $p=0.000$ ) in blood flow velocity for PSv and EDv between neutral position and during manual traction for left and right vertebral arteries. **Conclusion:** This technique had no mechanical effect on vertebral artery rather it has an impact on hemodynamic status of artery and are of great value in increasing the knowledge of the possible treatment protocol related to the blood flow changes with the movements of cervical spine.

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### Introduction

Cervical spine mobilizations and manipulations are commonly used by physiotherapists and other health professionals to treat mechanical neck pain. After manipulation of cervical spine, minor short term side effects are very usual. (Refshauge 1994) Subjects may feel only local discomfort at the cervical spine where mobilization or manipulations are addressed. Other common symptoms like headache, tiredness, and radiating discomfort dizziness or nausea can also be seen in patients (Ernst 2001 and Cagnie 2004). Refshauge 1994 hypothesized that there can be ischemia in the area supplied by vertebral artery. The vertebral artery is unique among the neck vessels by virtue of its position with the cervical spine and relationship to the adjacent muscle, ligaments & disc etc. It is the major blood supply to musculoskeletal structures of the cervical spine and the cervical spinal cord. (Moore & Dalley 1999). The vertebral artery is, divided into four parts; the first part originates from the subclavian artery in the root of the neck to the sixth cervical vertebra, second part courses through the foramina transversaria of the sixth cervical vertebra to the first cervical vertebra; third part is from the foramen transversarium of the first cervical vertebra (atlas) to the dura mater at the foramen magnum also called as suboccipital part and the fourth part lies within the cranium to the pontomedullary border (Abd El-Bary and Dujovny 1995; Anderson & Bannister 1989) Between the first and second cervical vertebrae, the vertebral artery runs a variably tortuous course. It is at this level that much of the rotation of the cervical spine takes place (Kapandji, 1987; Soames, 1994),