

# What is the most effective number of sets of neck mobilisations to reduce pain?

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|----------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Submission date</b><br>14/10/2014   | <b>Recruitment status</b><br>No longer recruiting     | <input checked="" type="checkbox"/> Prospectively registered<br><input type="checkbox"/> Protocol            |
| <b>Registration date</b><br>26/11/2014 | <b>Overall study status</b><br>Completed              | <input type="checkbox"/> Statistical analysis plan<br><input type="checkbox"/> Results                       |
| <b>Last Edited</b><br>13/03/2020       | <b>Condition category</b><br>Musculoskeletal Diseases | <input type="checkbox"/> Individual participant data<br><input type="checkbox"/> Record updated in last year |

## Plain English summary of protocol

### Background and study aims

Neck pain can have a serious effect on a person's quality of life. It can limit their ability to perform everyday tasks, lead to loss of range of movement and the pain can spread to other areas such as the shoulder, arm or hand. Joint mobilisation techniques can provide relief from these symptoms and are a safe and good way to improve neck movements. This involves a physiotherapist gently moving bone or individual vertebrae to relieve pain, stiffness and increase range of movement. Here, we are carrying out a study to compare different number of sets of a manual therapy intervention (treatment) for the neck (mobilisations). We want to find out the optimum number of mobilisation sets which produces the greatest pain relieving effect. We will want to look at whether one longer set should be used or several shorter sets (up to 5) to produce these effects. The study's findings should help to improve the clinical recommendations for manual therapies for neck pain.

### Who can participate?

Healthy volunteers, aged at least 18 and from a sample of second and third year sports therapy students currently studying at University College Birmingham (UK).

### What does the study involve?

Participants are randomly allocated into one of four groups. Those in group 1 receive one sustained oscillatory mobilisation technique (one per second) for five minutes. Those in group 2 receive up to five repeated mobilisation sets (one per second for one minute). Those in groups 3 and 4 are 'control' groups and are left in same position (prone) but no manual contact is made. Group 3 will receive the same outcome measurement timings as Group 1, and Group 4 the same as group 2 respectively. At the end of study, we will compare the number of mobilisation sets with changes in pain and neural mechanosensitivity.

### What are the possible benefits and risks of participating?

Participants will view primary research first hand and it is anticipated that this will help with their own future research. There should not be benefits beyond the short term changes in range of movement or altered pain relief. The main risk is a short term localised discomfort which should disappear within 24 hours or dizziness, double vision, difficulty swallowing, speaking or fainting which should disappear, if present, very quickly after the treatment. It should be noted

that this would be extremely rare however, the researchers will ensure that a medical questionnaire has been filled in before participation begins and these symptoms will be assessed at the beginning and end of the treatment with only those considered safe allowed to proceed. The participants will be asked to sit for a period of ten minutes before leaving. The mobilisations will only be administered by therapists with post graduate level training in manual therapy techniques and principles.

Where is the study run from?

The sports injury clinic at University College Birmingham (UK).

When is the study starting and how long is it expected to run for?

March 2015 to April 2016.

Who is funding the study?

Funding is provided by the lead researcher and University College Birmingham (UK).

Who is the main contact?

Mr Matthew Willett

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## Contact information

### Type(s)

Scientific

### Contact name

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## Additional identifiers

## Study information

### Scientific Title

The effect of different number of posterior-anterior mobilisation sets on cervical pressure pain threshold and upper limb neurodynamic mechanosensitivity

**Acronym**

N/A

**Study objectives**

It is hypothesised that the pain pressure threshold will increase and the peripheral neurodynamic mechanosensitivity will decrease with an increased number of sets of cervical mobilisation until a natural threshold is reached. It is not known if increasing number of mobilisation sets (up to five) will increase pain pressure thresholds or decrease peripheral neural mechanosensitivity to a greater degree than using one longer, equivalent set of mobilisations. The null hypothesis is that there will be no difference in pain pressure threshold or upper limb neurodynamic mechanosensitivity between groups; this may arise if changes are solely down to the amount of mobilisation repetition. Asymptomatic participants used. Results should help inform care of people with neck and upper limb musculoskeletal disorders.

On 15/09/2015 the following changes were made to the trial record:

1. The overall trial start date was changed from 22/10/2014 to 15/3/2015.
2. The overall trial end date was changed from 25/03/2015 to 25/03/2016.
3. The target number of participants was changed from 80 to 60.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

University College Birmingham, 01/10/2014, ref. AR/01/09/STethics

**Primary study design**

Interventional

**Study design**

Randomised single-blind within-subject repeated measures study design

**Study type(s)**

Treatment

**Health condition(s) or problem(s) studied**

Neck and upper limb musculoskeletal disorders

**Interventions**

Current interventions as of 15/09/2015:

Grade 3 mobilisations will be applied to subjects C5-6 right articular pillar in a posterior-anterior direction post randomisation at a frequency of 1 Hertz. Grade three mobilisations have been used on previous randomised trials involving the cervical spine.

1. Group 1: 5 sets x 60 repetitions
2. Group 2: 300 repetitions
3. Control group 1 - No manual contact- Outcomes measured at baseline and every minute for five minutes (equivalent to 5 sets x 60 reps)
4. Control Group 2- No Manual contact - Outcomes measured at baseline and after five minutes (equivalent to 1 x 300 reps)

A script will be used to standardise verbal instructions. A metronome will be used to maintain pace.

Previous interventions:

Grade 3 mobilisations will be applied to subjects C5-6 right articular pillar in a posterior-anterior direction post randomisation at a frequency of 1 Hertz. Grade three mobilisations have been used on previous randomised trials involving the cervical spine.

1. Group 1: 5 sets x 60 repetitions
2. Group 2: 300 repetitions
3. Group 3: No manual contact

A script will be used to standardise verbal instructions. A metronome will be used to maintain pace.

### **Intervention Type**

Procedure/Surgery

### **Primary outcome(s)**

Pain Pressure Algometer will be measured by a blind assessor and noted to assess pain pressure threshold (PPT) in four separate predetermined locations based on signature zones. These locations will be marked with a water soluble pen and measured in the same order each time.

The objective tests will be repeated after each intervention set. The mean of three measurements will be calculated and recorded.

### **Key secondary outcome(s)**

Neurodynamic test 1 will be measured by a blind assessor to estimate the mechanosensitivity of the upper limb peripheral nervous system. The elbow angle will be measured by goniometer.

The objective tests will be repeated after each intervention set . The mean of three measurements will be calculated and recorded.

### **Completion date**

25/03/2016

## **Eligibility**

### **Key inclusion criteria**

1. Aged at least 18
2. No history of neck or upper limb pain within last 3 months

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Adult

**Lower age limit**

18 Years

**Sex**

All

**Key exclusion criteria**

1. Red flags to manual therapy
2. Dizziness, drop attacks, nausea, dysphagia, dysarthria, diplopia, facial numbness, nystagmus
3. Inability to lie prone

**Date of first enrolment**

01/02/2015

**Date of final enrolment**

01/02/2016

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre**

University College Birmingham

Birmingham

United Kingdom

B3 1JB

**Sponsor information****Organisation**

University College Birmingham (UK)

**ROR**

<https://ror.org/042ver755>

**Funder(s)****Funder type**

University/education

**Funder Name**

This project is funded by the lead researcher and University College Birmingham

**Results and Publications**

Individual participant data (IPD) sharing plan

**IPD sharing plan summary**

Available on request