

LIVERPOOL JOHN MOORES UNIVERSITY PARTICIPANT INFORMATION SHEET



Title of Project: The comparison of the Leap Motion Controller to the standard goniometer when measuring finger joint angles in healthy adults.

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You are being invited to take part in a student research study. Before you decide it is important that you understand why the research is being done and what it involves. Please take time to read the following information. Ask us if there is anything that is not clear or if you would like more information. Take time to decide if you want to take part or not.

1. What is the purpose of the study?

The purpose of this study is to compare the precision and repeatability of a protractor based manual angle measurement tool of the hand against a portable device that takes 3D visual snapshots of the hand using two small cameras. Ultimately, we hope to identify an optimal method for assessing the alignment of fingers which can be used in the clinical management of patients with hand movement problems.

2. Why have I been invited to take part?

We have provided you with the opportunity to participate in this study. You may be able to take part in this study if:

- You are 18 or over
- You do not currently have or have had no previous experience with pain, swelling, injuries, infections, disorders or dysfunctions in one or both of your hands over the last 6 months e.g. rheumatoid arthritis

You must not take part in this study if:

- You are below the age of 18
- You currently have and or have had any previous experience with pain, swelling, injuries, infections, disorders or dysfunctions in one or both of your hands over the last 6 months e.g. rheumatoid arthritis

3. Do I have to take part?

Participation is voluntary - it is up to you to decide whether or not to take part. You should read this information sheet and if you have any questions you should ask the research team. You should not agree to take part in this research until you have had all your questions answered satisfactorily. If you agree to take part, you will be given this participant information sheet and asked to sign a consent form. You are still free to withdraw at any time and without

giving a reason. A decision to withdraw will not affect your *rights/any future treatment/service you receive*.

4. What will happen to me if I take part?

If you wish to voluntarily take part and have met the inclusion criteria then the research will take place at the biomechanics lab in the Tom Reilly Building at Liverpool John Moores University. You will be required to attend only one visit. This visit will last between 15-25 minutes. You will not have to attend a visit at a specific time, we can arrange a time with you that is appropriate for most importantly yourself and myself and the hand therapist. We will only require your full name, sex and date of birth. Data collection will involve the measurement of all finger and thumb joint angles from both of your hands. Recordings of the finger joint angles will be performed by using the Leap Motion Controller will take place. Once the session has been successfully completed, we will not contact you for future research. Once you attend the visit, you will first be required to rest your elbow on the table surface and clench your hand into a fist position as much as possible. Once the data has been collected, you will be provided with the opportunity to have a break if required and/or necessary. You will also be required to rest your elbow on the table surface and expand your hand out as much as possible performing a full extension of your hand. Lastly, you will be required to rest your hand in a neutral position. This exact procedure will be repeated for the other hand. During the point at which you fully flex your hand in a neutral position, the hand therapist will use a standard goniometer to measure each finger joint angle of one of the hands. You will be required to hold your hand in this position while a snapshot of the hand is taken from myself using the 'Leap Motion Sensor' and a laptop. This same procedure will be repeated in an extended hand position and a neutral resting position.

5. Are there any risks, discomforts, benefits involved?

While holding your hand in certain position for a period of time, there is a chance in which there may be discomfort with strain or fatigue of the hand, other than that there are no other identifiable risks associated with this study. The risk of strain or fatigue of the hand will be minimised by providing breaks if required and/or necessary between each hand position. There are no contraindications, nor are there any limits to confidentiality. There are no outlining benefits when taking part in this study, you will be provided with the opportunity of visually seeing the 'Leap Motion Sensor' ability to produce a virtual reality reflection on the laptop, which might be memorising to participants who are not familiar with this device. This study may have a profound future benefit, in relation to lending itself to examine the Leap Motion Sensor's capability of measuring finger joint angles and in the future potentially one day replacing or working in combination with the standard goniometer in clinical settings.

6. Will my taking part in the study be kept confidential?

The data collection will be stored on an LJMU laptop. Once data has been collected each day, the files will be transferred from the researcher's memory stick to their LJMU M-Drive and deleted from their memory stick immediately afterwards. All information/data will be stored confidentially and only accessed by the researcher. All personal identifiable information will be deleted and the data stored anonymously. Information linking you to the participant code is stored in a protected and encrypted password file, which is only accessible by the researcher. To ensure that confidentiality is further and tightly secured, all data collected from you is identified with a code, to which you cannot be identified by simply reading the code e.g. P1. All personal identifiable information will be destroyed, once the study has been completed. If you have any questions or queries, please do not refrain from emailing me at: W.C.Morales@2015.ljmu.ac.uk

This study has received ethical approval from the School of Sport & Exercise Sciences Research Ethics Committee (U18SPS093 and 05/02/18)

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If you any concerns regarding your involvement in this research, please discuss these with the researcher in the first instance. If you wish to make a complaint, please contact SPSethics@ljmu.ac.uk and your communication will be re-directed to an independent person as appropriate.

Note: A copy of the participant information sheet should be retained by the participant with a copy of the signed consent form.