The University Of Sheffield.

Application 052209

Section A: Applicant details

Date application started:
Thu 2 March 2023 at 12:38

First name:
Luke

Last name:
Cleland

Email:
ldcleland1@sheffield.ac.uk

Programme name:
PhD Psychology

Module name:
Research project

Last updated:
25/04/2023

Department:
Psychology

Applying as:
Postgraduate research

Research project title:
Investigating texture perception at the foot sole

Has your research project undergone academic review, in accordance with the appropriate process?
Yes

Similar applications:
- not entered -

Section B: Basic information

Supervisor

Name	Email
Hannes Saal	h.saal@sheffield.ac.uk

Proposed project duration

Start date (of data collection):
Mon 1 May 2023

Anticipated end date (of project)
Fri 1 March 2024

3: Project code (where applicable)

Project externally funded?
Yes

Project code
MR/N013840/1

Suitability

Takes place outside UK?
No

Involves NHS?
No

Health and/or social care human-interventional study?
No

ESRC funded?
No

Likely to lead to publication in a peer-reviewed journal?
Yes

Led by another UK institution?
No

Involves human tissue?
No

Clinical trial or a medical device study?
No

Involves social care services provided by a local authority?
No

Is social care research requiring review via the University Research Ethics Procedure
No

Involves adults who lack the capacity to consent?
No

Involves research on groups that are on the Home Office list of 'Proscribed terrorist groups or organisations?
No

Indicators of risk

Involves potentially vulnerable participants?
No
Involves potentially highly sensitive topics?
No

Section C: Summary of research

1. Aims & Objectives

The foot sole is the interface between the human body and the external environment. The sense of touch enables us to identify the textures that we are walking on. However, how textures are perceived by the foot is unknown. Existing research on texture perception has focused on the hand, which possesses a much higher number of tactile receptors and experiences very different demands than the foot sole, which is regularly exposed to high forces during walking. Recently, textured insoles have been used with the aim of increasing responses of tactile receptors, yet little is known about which textures should be used and even how individuals perceive such textures.

The current project will investigate how texture is perceived at the foot sole by presenting a range of stimuli (such as rugs, astro turf, garden decking, gym mats) to the foot sole and asking participants to rate the texture/material along numerous axes, including smoothness-roughness, softness-hardness and slipperiness-stickiness. This project will allow for comparisons to be made between the hands and the feet in terms of how perception differs, whilst also providing insight into textures that should be used during interventions or show insole design.

2. Methodology

Participants will be invited to the motion capture laboratory and presented with an information sheet, which they will read prior to signing a consent form.

Participants will then be asked to remove their shoes and socks so that no material impedes perception at the skin surface.

Participants will provided with a blindfold and noise-cancelling headphones prior to the start of all trials so that no visual or auditory cues influence perception.

There will be up to 3 conditions:

Condition 1: texture perception under load.
The textures will be randomly arranged on the floor. Participants will be guided by an experimenter and asked to step onto and off of each texture, spending no more than 3 seconds stood on the material. Following the step off, participants will rate the texture along one of the axes in question. The participant will be supported at all times by holding onto the guiding stick. 3 presentations of each stimulus for each perceptual dimension will occur. Once all presentations for one perceptual dimension have occurred, participants will have a short 2 minute break.
Following this block, participants will have a 5 minute rest.

Condition 2: perception at the foot sole under no load.
Participants will be sat on a chair, and each texture will be placed under their foot. Participants will be asked to explore the texture for 3 seconds with the sole of their foot, providing a rating along each perceptual dimension. 3 presentations of each stimulus will occur for each perceptual dimension.

Condition 3: perception at the fingertip.
Condition 2 will be repeated, but participants will be sat at a table and asked to explore the texture with their hand for 3 seconds before providing their rating on each perceptual dimension.

3. Personal Safety

Have you completed your departmental risk assessment procedures, if appropriate?

Yes

Raises personal safety issues?

No

No sensitive topics will be approached and no dangerous equipment will be used.

Section D: About the participants

1. Potential Participants

Participants will be healthy and aged between 18 and 40. No sensory deficits should be present, such as neuropathy.

2. Recruiting Potential Participants

Initially, friends and colleagues of the researchers will also be invited to take part in this research project via email. The participant information sheet will be provided during advertisement of the project.
Should more participants be required, first year psychology students will be recruited using an online system and these will be provided research credits in return.

2.1. Advertising methods

Will the study be advertised using the volunteer lists for staff or students maintained by IT Services? No

- not entered -

3. Consent

Will informed consent be obtained from the participants? (i.e. the proposed process) Yes

Participants will be presented with, and be required to read, an information sheet containing all of the relevant details of the study. After reading the information sheet, a consent form will need to be filled out and signed to confirm that everything was understood and that the participant is happy to continue with taking part.

4. Payment

Will financial/in kind payments be offered to participants? Yes

First year undergraduate psychology students will be offered research credits which are required for them to be able to use the system themselves in their third year.

5. Potential Harm to Participants

What is the potential for physical and/or psychological harm/distress to the participants?

All textures that are used reflect those that people come across in daily life, such as rugs, crash mats, astro turf and garden decking. Therefore there is no risk of harm to participants.

Participants may be disoriented when wearing a blindfold and noise-cancelling headphones. In condition 1, participants will be guided at all times by an experimenter. In condition 2 and 3, participants are not required to move.

COVID-19 protocols will be followed to minimise the chance of transmission of the disease, including ensuring researchers have returned a negative COVID-19 test result, along with sanitising of surfaces, and observing social distancing where possible.

How will this be managed to ensure appropriate protection and well-being of the participants?

Risk assessments designed for safe working in the motion capture lab will be followed, as will the risk assessment for sensory deprivation. If participants need a break or are overwhelmed by blindness and not being able to hear, participants can withdraw at any time. The textures used will cause no harm to participants.

6. Potential harm to others who may be affected by the research activities

Which other people, if any, may be affected by the research activities, beyond the participants and the research team?

No other people will be affected by the research activities.

What is the potential for harm to these people?

There is no risk of harm

How will this be managed to ensure appropriate safeguarding of these people?

There is no risk of harm

7. Reporting of safeguarding concerns or incidents

What arrangements will be in place for participants, and any other people external to the University who are involved in, or affected by, the research, to enable reporting of incidents or concerns?

Contact details of the research team will be provided, include the lead researcher and principal investigators. Participants will be encouraged to speak to the research team should there be any safeguarding concerns. Any issues will be discussed with the departmental safeguarding officers.
It is likely all participants will be staff or students of the university, and these participants will be encourages to use the multiple routes available to them through the university to report any issues or concerns that they have.

Who will be the Designated Safeguarding Contact(s)?

Lead researcher: Luke Cleland - ldcleland1@sheffield.ac.uk
Principle investigator: Dr. Hannes Saal - h.saal@sheffield.ac.uk

How will reported incidents or concerns be handled and escalated?

Any issues or concerns will first be discussed within the research team. If things can not be dealt with or rectified through this, or should the concern be more serious, then departmental safeguarding officers will be contacted and asked for their advice. Should this be required, their guidance will be followed with regards to further investigation and escalation.

Section E: Personal data

1. Use of personal data

Will any personal data be processed or accessed as part of the project?
No

Are you sure that no personal data will be processed or accessed during your project?
Yes

Section F: Supporting documentation

Information & Consent

Participant information sheets relevant to project?
Yes

Document 1120590 (Version 1) All versions

Consent forms relevant to project?
Yes

Document 1120591 (Version 1) All versions

Additional Documentation

External Documentation

- not entered -

Section G: Declaration

Signed by:
- not entered -
Date signed:
- not entered -

Offical notes

- not entered -