Title of research:

Techniques Assessing Auditory synchrony in Subjects with 'Typical' Sensori-Neural Hearing Loss and Auditory Neuropathy Spectrum Disorder

Participant Information Sheet

You are being invited to take part in a research study in the Audiology and Deafness Research Group at The University of Manchester. Before you decide if you would like to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information (see contact details below). Take time to decide whether or not you wish to take part. Thank you for reading this.

Who will conduct the research?

The researcher that will be carrying out assessments in this project is Francesca Stirling. Francesca is an Audiologist carrying out a PhD in Audiology at The University of Manchester.

The research will take place in the Audiology and Deafness group of the School of Psychological Sciences.

Title of the Research

The title of this project is '**Techniques Assessing Auditory synchrony in Subjects with 'Typical' Sensori-Neural Hearing Loss and Auditory Neuropathy Spectrum Disorder**'.

This means that we are looking at different tests of hearing in a condition called Auditory Neuropathy Spectrum Disorder, and some of the tests that we will be using are carried out automatically, without the person having to respond to the sounds that they hear.

What is the aim of the research?

We are trying to measure different aspects of hearing in people with Auditory Neuropathy Spectrum Disorder, so that we can understand this condition more fully. We are also trying to see whether the amount of difficulty someone has with hearing speech is linked to results from some of these different types of hearing tests.

In the future, if some of these automatic tests (in which people don't have to respond to the sounds themselves) are linked with difficulty in speech hearing, then they may also be used in babies with Auditory Neuropathy Spectrum Disorder to predict what

their difficulties might be, and to manage their hearing problems as effectively as possible.

Why have I been chosen?

You have been invited to take part in this study because you have reported difficulties with your hearing that have the pattern of the Auditory Neuropathy Spectrum Disorder hearing impairment.

What would I be asked to do if I took part?

If you decide to take part in this study, you will be asked to attend two sessions. These sessions will all take place in the Ellen Wilkinson Building at The University of Manchester.

Session 1:

This session will take place over a morning and afternoon, and lunch will be provided for you. There will be regular breaks and tea and coffee will be provided between testing.

Morning:

- Examination of your ear canals and eardrum with an otoscope.
- A test called tympanometry, to check that your eardrums are moving well. This takes approximately 2 minutes.
- Pure-tone audiometry – this is a test of the quietest sounds that you can hear at different pitches.
- Then there will be 3 tests in which you will be played different sounds, and asked to choose out of different options which sounds have different changes in them. For example, on one of the tests, you will be asked which sound, out of three sounds, had a small silent gap in it. These tests help us to see how you are able to pick up fast changes in the timing of sounds. This is important, because speech is a sound that changes quickly over time. We would like to see if these tests are linked to any difficulties that you have in listening to speech.
- Then there will be a test of speech listening, to see how much difficulty you have listening to speech in quiet and in a noisy background.

Afternoon:

- In this session you don't have to respond to any of the sounds that are played to you.
- You will be seated in a booth to help reduce the interference of background sounds.
- Four sensors will be placed on your head which will record the way that your brain responds to the different sounds that are played to you. Before the sensors are put in place, the area will be cleaned of natural oils and scrubbed with a paste (like an exfoliator) to prepare for the sensor to be placed there.

- For part of the session you will be able to watch a film on a screen (the sound will be switched off and subtitles will be on the screen) whilst sounds are being played to you through earphones.
- For the second part of the session, you will be asked to relax whilst more sounds are played to you through the earphones. It is ok if you fall asleep during this part of testing, and sleeping can even help to make the responses to the sounds clearer.
- After these tests, the sensors will be removed and the session will be finished.

Session 2:

This session will take approximately 2-2½ hours, and tea and coffee will be provided before and after testing. There will also be breaks built into this session for you.

- This is another session in which sounds will be played to you, but you don't need to respond to them. The responses will be recorded from the brain again to sounds that are played to you through an earphone.
- Your head will be measured, and a soft fabric cap (that looks like a swimming cap) shall be placed on your head. This cap has 32 small holes in it, and sensors will be placed in these holes after filling the holes with a small amount of gel first.
- Then different sounds will be played to you, and the responses of your brain to these sounds will be recorded.
- The sounds will be played in blocks lasting approximately five minutes, and there are ten blocks. You will be able to have a break between blocks after every 3 blocks (or more frequently if you require this).
- At the end of the session, the cap and the sensors will be removed, and there is a sink with a shower head (and shampoo provided) if you wish to wash your hair to remove any leftover gel.

What happens to the data collected?

If you decide to take part in the study, you will be given a participant number. All of the results of the tests that you have taken part in will be labelled with this number. There will be no personal details on the data from tests, in order to keep them anonymous. This data is stored in a locked filing cabinet, and on a password-protected computer.

The data will be collected and put together in order to build a picture of the range of responses to these different tests in Auditory Neuropathy Spectrum Disorder, and to see how the results from different tests are linked to each other.

What happens if I do not want to take part or if I change my mind?

It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time without giving a reason and without detriment to yourself

Will I be paid for participating in the research?

Travel expenses for the 2 sessions will be reimbursed, and lunch and refreshments will be provided.

What is the duration of the research?

There are two sessions. The first will take place over a full day, and the second session will last approximately 2-2½ hours.

Where will the research be conducted?

The three sessions will all take place in the Ellen Wilkinson Building at The University of Manchester. If you decide to participate then you will receive a Campus Map with details of the location.

Will the outcomes of the research be published?

The results of this project will be written up and form part of a PhD thesis. They will also be submitted for publication in a relevant journal of Audiology, so that they might inform future clinical practice.

A report will be made for participants. If you would like to receive a copy, please let the researcher know.

Criminal Records Check

The researcher (Francesca Stirling) has undergone a Criminal Records Bureau enhanced disclosure check as part of the approval process for testing in this PhD.

Contact for further information

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What if something goes wrong?

If there is an issue related to the research for which you want help or advice, please contact the researcher (details above) or the academic advisor for this project, Dr Kai Uus at kai.uus@manchester.ac.uk

If you wish to make a formal complaint about the conduct of the research, please contact the Head of the Research Office, Christie Building, University of Manchester, Oxford Road, Manchester, M13 9PL.