

## Dunedin Study Brain Imaging Project – Phase 52 Explanation of Procedures

Dear Study member,

This information sheet is an outline of the Brain Imaging Project for Phase 52. As explained in this document, compared to Phase 45 we will be doing a much shorter scan, with no games. We hope you will read this carefully and agree to participate in this important project.

As with all aspects of the Dunedin Study, your involvement is completely voluntary and you can withdraw at any time.

### What is the purpose of this study?

The purpose of this project is to learn more about how the brain changes as we get older. We will compare the results of these scans to your last MRI scans at Phase 45, and we will also use other information you (and your family and others) have provided over the years. In the future, this may help improve the way in which medical science can predict and treat brain diseases such as Alzheimer's Disease.

### What is involved in the MRI scan?

We use an MRI scanner to take pictures of your brain. As you know, an MRI scanner is basically a large magnet with a tube in the middle that allows us to take pictures of the inside of your body, or in our case, your brain. The MRI procedure is completely non-invasive and painless, that is, you will not be poked, prodded or disturbed in any way. You can simply rest comfortably and if you prefer, watch a TV show or movie. We will ask you to lie very still as the smallest movement can affect the images.

### I had an MRI scan at Phase 45 – is anything different this time?

The appointment will be similar to your one at Phase 45. The main difference is that we will only be doing *structural* scans (pictures taken of your brain anatomy). This means that:

- The time you will spend in the scanner will be shorter (about 45 minutes compared to 70 minutes last time).
- The preparation session before your scan and debrief after will be shorter
- You will not have to play games or wear a press-pad on your arm in the scanner
- If you normally wear glasses or contacts you will not have to wear our special

- MRI-safe glasses in the scanner
- You can watch a video to pass the time
- You can have coffee or tea at any time before your appointment

## **Retinal photographs**

In addition to the MRI scan, once again we will take photos of your retina. You will be familiar with this as we did it at the last two assessment phases. The purpose is to examine the health of the small blood vessels that are easily visible in the eye. As in previous assessments, we will send the images to our collaborator in Singapore, Professor Tien Wong whose team will grade the scans. They will return the images for storage at the Dunedin Study Unit.

## **Wristband assessment**

This time we are introducing a new assessment which will measure your exposure to different chemicals during your daily life. We will give you a silicone wristband which will absorb these chemicals and can be returned to us for analysis after you have worn it for a week. And as a thank-you for helping us with this assessment, when you return your wristband we will send you a retail voucher of your choice.

## **What actually happens on the day?**

- First, a Dunedin Study staff member will meet with you at Pacific Radiology, on Great King Street and once again explain the procedures. If you agree to participate, we will ask you to sign a Dunedin Study consent form and a Pacific Radiology consent form.
- We will then review the safety questions that we asked you over the phone to make sure nothing has changed since, and it is safe for you to undergo scanning.
- We will ask you to change into scanning clothes provided by Pacific Radiology and take off all metal items, including jewelry. Your belongings will be stored in a secure place.
- The MRI technician will make you comfortable on the scanner bed with a blanket for warmth and a pillow under your knees. You lie flat on your back and about half of your body will go into the scanner, depending on your height.
- We will give you earphones so that you can hear us and enjoy a video, if you wish to do so. A microphone allows you to talk to us in between scans. The MRI technician will lower a type of plastic helmet over your head. This helmet allows us to take the pictures of your brain.
- We will give you a squeeze ball to hold – squeezing this will tell us to stop the scan straight away and check that you are feeling ok. Throughout the entire scan session, we will be talking to you to make sure that you are comfortable and happy to

continue.

- Once the MRI technician is sure that you are comfortable, they will leave the scanner room to go into the control room to start scanning. The technician and Dunedin Study staff member will be present in the control room throughout the scans.
- The technician will take pictures of your brain while you relax and watch a TV show or listen to music. We will often remind you to keep as still as you can because any movement of your body – even a tiny one – can make the images too blurry to be useful.
- You will spend approximately 45 minutes in the scanner. At the end of the session, we will ask you about your experience during the procedure.
- Throughout the scanning, we will be checking that you are okay and happy to continue with the scan.
- We will take the retinal photographs either before or after the scan.
- Before you leave we will explain the wristband assessment, and give you a wristband and a kit to take home.

### **What are the risks of being involved in the Brain Imaging Study?**

- MRI uses magnets to make pictures of the inside of the head. There are no ill effects reported from the magnetism used for these studies. A known risk is that the magnet could attract certain kinds of metal and this could cause an injury. We will ask you about metal within your body (this includes certain dyes used in tattoos, body piercings and IUDs). The MRI room door is secure so that no one carrying metal objects can enter the room while you are having this scan performed.
- The MRI scanner makes loud buzzing and clanging noises so wearing headphones ensures safety and comfort.
- Even at the age of 52, we will ask female Study members if there is any chance they might be pregnant.
- The MRI machine that you will lie in is open at both ends but is still somewhat confining. This may cause you to have some feelings of anxiety. You will be able to communicate with the Dunedin Study and scanning staff throughout the procedure. At any point, you can ask for the scanning to stop and come out of the scanner.
- When you look inside the body, you do not always know what you might find. There is a chance that the radiologist might notice changes in your brain, which may be related to a health condition. If this happens, we will contact you to discuss the findings and to help with any onward referral, if needed.

## What are the benefits of taking part in the Study

As with other aspects of the Dunedin Study, there is no direct benefit to you in participating but there is the possibility that this research will produce knowledge that is useful for preventing or slowing down age-related illnesses.

Please note that the scans are for research purposes only. It is not a substitute for medical testing or neuropsychological evaluation. This research protocol is not designed to provide medical testing of any kind.

## Confidentiality

Finally, and as always, we assure you that ALL information we collect is for research only. It is strictly confidential and NEVER released to anyone unless you request it. Under no circumstances would we share your information with anyone, including partners and parents.

If you have any concerns and questions at any time please contact:

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### STUDY PARTICIPANT'S RIGHTS

If you would like advice as to your rights as a participant in this Study, you may wish to contact the University of Otago Human Ethics Committee (Health) Administrator:

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