

# Fit to Study – Brain imaging sub-study

## CHILDREN INFORMATION SHEET

Ethics Approval Reference: R51313





## **What is the purpose of the study?**

The brain is divided up into many different areas. Each region functions in a specific way in order to help us during specific tasks, such as during reading or learning, or watching TV.

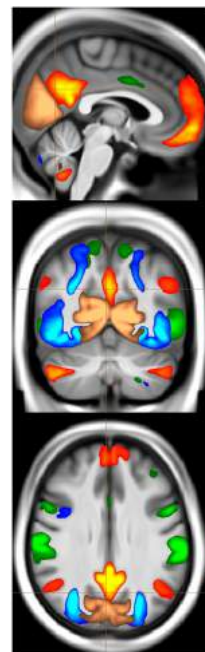
We do not yet have a good understanding of the effect of physical activity on the brain and mental skills. We are interested in understanding how the content of Physical Education (PE) lessons in school affects the organisation and function of the brain.

This knowledge might help future efforts to optimise PE lessons to improve brain function. We are interested in studying many different pupils, including those who don't enjoy PE and those who don't participate in sports.

## **How?**

In this study, we will use magnetic resonance imaging (MRI) to collect information relating to the structure and function of the brain. We will also ask pupils to complete some mental and physical tasks.

We will be working with many pupils just like you, to track brain development and the effect of physical activity on the brain. We will invite you back in 1-year for another brain scan and behavioural session.





### **Why have I been invited to take part?**

You have been invited to take part in the MRI sub-study because your school is taking part in the Fit to Study project. Fit to Study is testing the effect of school PE on academic performance.

### **Do I have to take part?**

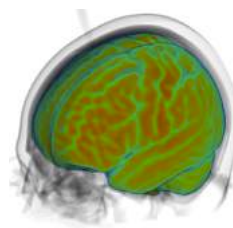
It is up to you to decide whether you want to take part. If you do decide to take part, you can still change your mind and withdraw at any time and without giving a reason. This will not affect you in any way and nobody will be angry.

### **What will I do if I agree to take part?**

Before taking part, you will fill out a safety questionnaire and you will be asked to sign a form stating that you are happy to participate.

Each study visit includes three parts:

- (1) Tasks on a computer (e.g. of memory or attention) – up to 60 minutes.
- (2) An MRI brain scan– up to 60 minutes.
- (3) Some questionnaires and physical tasks – up to 50 minutes. (For this, bring along some sports clothes or comfortable clothes).



Your parent or the person who looks after you will also come with you to the study visit. If you wish, a friend or relative is welcome to accompany you on the visit – although they won't enter the MRI scanner rooms.

We will take frequent breaks to make sure that you feel entirely comfortable throughout your participation.

In the week following this assessment, you will be asked to wear a wristwatch-style activity monitor. You will be able to run, jump, move and play as you normally do.

We will ask you to come back and do the same assessments 1-year later.



### **Can anyone have a scan?**

Brain scanning is safe, but it is important to make sure that you have no metal in your clothes or in your body. We will check that you have no metal with you before you go into the scanner. To check whether it is safe for you to have a scan we will ask you questions beforehand including questions about any previous operations or accidents that may have involved metal. We will ask you these questions over the phone before your visit and again on the day of the visit.

While there is no evidence to suggest that MRI is harmful to unborn babies, as a precaution, the Department of Health advises against scanning people who are pregnant unless there is a clinical benefit. For this reason, if you are a girl then you will be asked whether you may be pregnant. We will ask this question on the telephone before your visit. We will ask you again during your visit, with your parent/guardian present. If there is any chance that you might be pregnant, or if you don't want to answer this question, you should not take part in this study.

### **What is it like to have a brain scan?**

For one of the scans, you can just relax in the scanner while we take pictures. For the other scans, you can watch a film. We'll talk to you between scans. The scanner is very noisy when we take the pictures, so we will give you ear protection.





### **Will joining this study help me?**

We hope you might find it interesting to be part of a brain science project. However, there will not be any direct benefits to you. The results from this research may help us understand the effects of physical activity on brain function and mental skills in young people.

### **Will my details be kept private?**

Yes, everything we write down is private and we will keep it safe. Nobody else will be told your scores on the tasks. If there is a concern about your brain scan, we will contact your doctor. We will keep your brain scans and any other information we collect, unless you decide that you no longer want us to have it. You can ask us at any time to get rid of your information.



On the day of testing you will be also asked to fill out some questionnaires which ask questions about your physical development (e.g whether your voice has broken for boys or whether you have started your period for girls), as well as whether you have ever smoked cigarettes or used drugs. You will fill out these questionnaires by yourself. Your answers are private and will be anonymised and kept safe. Nobody else will be told about how you replied.

### **What if something goes wrong?**

It is unlikely anything will go wrong. If you think there are any problems, or you have any worries about the study you can tell your parent or guardian and they can tell us, or you can talk to the researcher who will be looking after you.





## **Common MRI questions answered**

### **Is an MRI or functional MRI (fMRI) safe? Are there any risks?**

Instead of using radiation to form an image (as with X-rays), MRI uses magnetic fields and radio waves, which are safe for most people. The only time when they are not safe is if you have things in your body containing metal, such as metallic implants or devices.

This is because the MRI machine generates a very powerful magnetic field, which may pull metallic items or implants towards it, or cause medical devices to malfunction. If you have certain types of metallic implants or medical devices, you may not be allowed to participate. Some people are claustrophobic (i.e. afraid of small spaces) which makes MRI an unpleasant experience for them.

### **How does MRI work?**

If you are interested in finding out more about how MRI works then please have a look at the Oxford Sparks animation !

<https://www.ndcn.ox.ac.uk/divisions/fmrib/what-is-fmri/a-spin-around-the-brain>

### **What will happen during the MRI scan? What is it like?**

Before you go into the MRI room, you may be asked to change into a pocket-less and metal free "pajama-style" top and trousers. You can keep your underwear and socks on, but underwired bras must be removed; if you have a suitable non-wired bra you may wear this instead. Please avoid any fabrics that contain metallic threads or have been silver impregnated (often marketed as anti-microbial/bacterial or anti-odor/stink). All jewellery must be removed. Eye shadow and mascara should be avoided, since some types contain metallic particles. Once we've made sure there's no metal, you'll be asked





to lie down on the scanner bed. This will slide into the MRI scanner until approximately knee level. We'll tuck you in with blankets and foam padding to keep you comfortable and still. The scanner is noisy, so we'll give you earplugs, but you can still hear and talk to us over an intercom.

### **If I move while being scanned, will I be injured?**

There is no risk of injury if you move, but the images we take will be blurred. For this reason, we will ask you to stay as still as you can.

### **If you find something concerning in the scan, will you let me know?**

It is important to note that we do not carry out scans for diagnostic purposes, and therefore these scans are not a substitute for a doctor's appointment. Our scans are not routinely looked at by a doctor, rather our scans are intended for research purposes only. Occasionally, however, a possible abnormality may be detected. In this case, we would notify your GP. If your GP felt that the abnormality was medically important, your parent/guardian would be contacted directly and further investigations, such as a hospital (NHS) diagnostic scan, might be recommended. Your parent/guardian would not be informed unless the doctor considers the finding has clear implications for your current or future health. All information is kept strictly confidential.

### **Can I stay on my regular medication and still receive a scan?**

There is no risk associated with taking medication and receiving an MRI; however, we will need to discuss the suitability of you taking part in the study if you are on medication.



## Important Contacts

Mr Thomas Wassenaar

Postgraduate Researcher

Tel: 07864 800761

E-mail: [thomas.wassenaar@ndcn.ox.ac.uk](mailto:thomas.wassenaar@ndcn.ox.ac.uk)



Dr Piergiorgio Salvan

Post-Doctoral Researcher

Tel: 07864 800761

E-mail: [piergiorgio.salvan@ndcn.ox.ac.uk](mailto:piergiorgio.salvan@ndcn.ox.ac.uk)



Prof Heidi Johansen-Berg

Principal Investigator

Tel: 01865 222548

E-Mail: [heidi.johansen-berg@ndcn.ox.ac.uk](mailto:heidi.johansen-berg@ndcn.ox.ac.uk)



FMRIB Centre

Nuffield Department of Clinical Neurosciences

John Radcliffe Hospital

Headington

Oxford, OX3 9DU

