

INFORMATION & CONSENT SHEET

Using EEG to measure colour processing from flickering visual stimuli

INVITATION TO TAKE PART

You are being invited to take part in a research study to further our understanding of colour vision deficiency (CVD). Thank you for carefully reading this information sheet, a copy of which you can keep for your records. This study is being conducted by Dr Lucy Somers (research assistant) and Dr Jenny Bosten (senior lecturer) from the School of Psychology, University of Sussex. Lucy Somers is happy to be contacted at L.Somers@sussex.ac.uk. If you have any questions. The research is being funded by the European Research Council.

WHY HAVE I BEEN INVITED TO TAKE PART AND WHAT WILL I DO?

We are testing around 12 people with colour vision deficiency (CVD), and 10 people with full colour vision. The experiment will involve two sessions, each taking approximately 120 minutes. To assess your colour vision, you will be asked to complete a short electronic colour matching task using an anomaloscope. The test takes 10 to 15 minutes and, depending on the colour matches you make, allows your colour vision to be classified into either full colour vision or several different types of CVD. Following the test, you will be told how your colour vision has been classified and we find that you do not have full colour vision you will be given further information about colour vision types and invited to join a mailing list for future research involving participants with CVD.

During the data collection sessions, you will be fitted with an electroencephalographic (EEG) cap with additional face electrodes adhered with surgical tape to your lower eyelid. You will be asked to adjust the flicker of colours on a screen, and then to passively observe about 60 minutes of coloured flickering patterns on the screen. You will control your breaks and the start of trials. We will be measuring your EEG activity in response to the visual stimuli on screen. After testing you will be provided with hair washing facilities and a fresh towel to wash the gel out of your hair.

We expect participation in the experiment, across the two sessions to take between 3.5 to 4 hours and you will be reimbursed either £12 per hour or 4 course credits per hour (rounded to the nearest 15 minutes), for your time spent.

ARE THERE ANY RISKS OR BENEFITS TO TAKING PART?

The study will allow researchers to understand more about the colour vision system. The results will be shared with other researchers (e.g. via conference presentations or written up in scientific journal articles) and may form part of student dissertations. Pseudo-anonymised data will be made available for reanalysis via the Open Science Framework.

There are no known long-term risks associated with the recording of EEG. The electrode cap may induce some short-term discomfort, similar to wearing a swimming cap, and some red marks on exposed skin (e.g. the forehead) due to contact pressure. If you feel uncomfortable at any time before or during the experiment you may request a break or discontinue your participation at any time. You are free to withdraw from the study at any time and you are not required to give a reason for withdrawing.

To minimise the risk of transferring transmissible diseases (including but not limited to hepatitis, human immunodeficiency virus (HIV) and Creutzfeldt-Jacob disease) the following actions are taken: (i) excluding participants who know they have such a transmissible disease; (ii) excluding participants who have abrasions to the scalp which might increase the risk of either receiving or transmitting pathogens and (iii) by thoroughly cleaning the EEG cap after use and cleaning or replacing any equipment used to apply the electrode gel.

For further information about this research please contact the project supervisor Dr. Jenny Bosten (j.bosten@sussex.ac.uk). This research has been approved (ER/L487/20) by the Science, Engineering and Medicine Faculty REC: Science, Engineering and Technology (SEM F-REC:SET). If you have any ethical concerns, please contact the Chair of the SEMSET ethics committee (frecsemset@sussex.ac.uk).

The study involves exposure to flickering stimuli presented on a computer screen. Flickering stimuli have the potential to induce a photo-sensitive epileptic seizure or migraine in susceptible individuals. This is relatively rare, and the experiment does not pose risks more substantial than those posed by exposure to strobe lighting you may have encountered in other situations (e.g. at concerts, live events that include lighting displays or on TV shows accompanied with a seizure warning).

If you experience migraines triggered by visual stimuli (e.g. bright or flickering light or high contrast patterns), you are advised not to take part but you are free to weigh up the risks yourself and decide whether to withdraw from the study or participate. The flickering stimuli are more intense and regular than those you typically encounter in your everyday life, and thus they may trigger migraine if you are susceptible to migraine. There is some risk that the stimuli will induce headache or migraine even in individuals who do not regularly experience these.

If you feel any pain or discomfort at any point during the experiment you should alert the researcher who will halt the experiment at your request. You can do this by verbally requesting to stop. During data collection you will be in control of the start of each trial, and every 5 minutes you will be prompted to take a break. If you feel any discomfort, you will be given as long as you need to rest. In the case of any medical emergency, an on-site first aider will be called who will assess the situation and seek further medical help as necessary. Remember that you are free to withdraw from the study at any time and you are not required a reason for withdrawing. Discontinuation does not affect your reimbursement, you will be reimbursed for your time spent in the lab.

You should not take part in the study if you meet any of the exclusion criteria. If you meet any of the criteria, you should NOT take part, but you are not obliged to give the researcher a reason. You are not required to divulge any sensitive information to the researcher. If these criteria do not apply to you and you are happy to take part, please indicate that you understand the exclusion criteria and that they do not apply to you by inserting your initials in the boxes at the end of this form. The exclusion criteria are:

- You have a history of photosensitive epilepsy, i.e. epileptic seizures triggered by visual stimuli (e.g. bright or flickering light or high contrast patterns).
- You have skin injuries to the scalp including blisters, burns or other superficial wounds.
- You have temporal mandibular joint (TMJ) disease or any recurrent problems with your head and neck, you should also not take part.

The research team will not be able to detect the presence of any medical abnormalities from the EEG data recording during the research session as they do not have the relevant clinical training. Both you and the research team will not gain any medical information from the data. For example, the research team will not be able to tell whether or not you have certain neurological conditions and will not be able to inform you about this.

There is a chance that the test will reveal that you have anomalous colour vision. If your colour vision has been classified as anomalous, you will receive an information sheet about your colour vision type. Please be reassured that having anomalous colour vision has little impact on everyday life, and many adults are unaware that they have anomalous colour vision. Please note that the test does not confer a formal diagnosis of anomalous colour vision, and you should see your optometrist if you want to have a formal test.

The University of Sussex has insurance in place to cover its legal liabilities in respect of this study.

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WHAT WILL HAPPEN TO THE RESULTS AND MY PERSONAL INFORMATION?

The results of this research may be written into a scientific report for a student dissertation and/or a scientific publication. The results may also be presented at scientific conferences. We anticipate being able to provide a summary of our findings by the 1st December 2026 (l.somers@sussex.ac.uk; j.bosten@sussex.ac.uk). Your anonymity will be ensured in the way described in the consent information below. If you have any questions about the way your data is being handled in the research, you could contact the University of Sussex's Data Protection Officer at dpo@sussex.ac.uk. Please read this information carefully and then, if you wish to take part, please sign to show you have fully understood this sheet, and that you consent to take part in the study as it is described here.

CONSENT

- I understand that by signing below I am agreeing to take part in the University of Sussex research described here, and that I have read and understood this information sheet.
- I understand that my participation is entirely voluntary, that I can choose not to participate in part or all of the study, and that I can withdraw at any stage without having to give a reason and without being penalised in any way (e.g., if I am a student, my decision whether or not to take part will not affect my grades).
- I understand I can request without penalty that my data be withdrawn and deleted even after the data collection is complete, any time up until the results are analysed (1/12/2026).
- I understand that my personal data will be used for the purposes of this research study and will be handled in accordance with [Data Protection legislation](#). I understand that the University's [Privacy Notice](#) provides further information on how the University uses personal data in its research.
- I understand that my collected data will be stored in a de-identified way (e.g. using ID numbers not names) and kept separate from other details about me (e.g. from the consent form). Electronic data will be stored securely on a university managed system, and hard-copies will be stored behind a locked door. De-identified data may be made publicly available through online data repositories or at the request of other researchers.
- I understand that my identity will remain confidential in any written reports of this research, and that no information I disclose will lead to the identification in those reports of any individual either by the researchers or by any other party, without first obtaining my written permission.
- I understand that my name and data will not be shared with any third party outside the research group, unless I later provide written permission.
- Please initial this box if you would like to be added to a database of participants for future studies by the Sussex Vision lab or the University of Sussex. If you are added to the participant database your name, email address, gender and date of birth will be recorded, and you will hear via email about future studies that require participants. If at any time you want to withdraw from the participant database, you should email Dr. Jenny Bosten (j.bosten@sussex.ac.uk) or click an 'unsubscribe' link in any email sent advertising future studies. ☐

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- Please initial this box to confirm that you consent to the pseudo-anonymised data being used for future research projects and to be made available on an open access framework. ☐
- Please initial this box to confirm that you have no known skin wounds to your scalp, no transmissible diseases. ☐
- Please initial this box to confirm that you understand that no medical information will be gathered from the EEG data recorded during the session. The research team will not discover or be able to provide any information about any potential medical conditions you may have. ☐
- Please initial this box to confirm that you have no history of photosensitive epilepsy. ☐
- Please initial this box to confirm that you understand that the visual stimuli may induce migraine or headache, particularly in participants with a history of visually induced migraines. Please remember that you are free to withdraw from the study at any time without giving a reason and that if you feel any discomfort at any point you should let the researcher know to halt the study. ☐

Name of Participant

Date

Signature