

# Rhythmic processing in a multisensory context

## Participant information

Humans rely on rhythmic actions every day, for example when walking, clapping, or performing simple motor tasks. Despite this, we still know relatively little about how the brain processes rhythmic patterns in complex situations involving multiple sensory cues. To help us learn more about how people perceive and respond to structured rhythmic information, you are invited to participate in a research project that examines how individuals perform simple tapping tasks while receiving visual and auditory input.

You will take part in this experiment together with three other participants as part of a small group.

We will record the timing of your finger-taps using a pad, and the electric activity produced by the brain using electroencephalography (EEG). In compensation for your time and effort, we offer you DKK 260 for participating in the project. The compensation is taxable B-income and is declared to the Danish Tax Authorities (SKAT).

Before you agree to participate and sign the consent form, you should carefully read the information material. Note that, at any moment, you can withdraw from the experiment without giving an explanation and without compromising your right to receive a proportional compensation. We estimate that the EEG recordings and short auditory tests will take around 2 hours in total.

To participate, you should meet the following criteria:

- o You have normal health (no neurological or psychiatric illness)
- o You have normal hearing
- o Your age is between 18 and 55 years
- o You are not taking drugs that affect brain activity (e.g. pain drugs such as opioids)
- o You are fluent in English
- o You have read and accept the participant information sheet and the EEG information packages.

## INFORMATION

### ELECTROENCEPHALOGRAPHY (EEG)

EEG measures the electrical activity produced by the brain using electrodes placed on the surface of the head. EEG is a completely non-invasive technique with minimal risks or side effects. Further details about EEG can be found in the corresponding information package.

### USEFULNESS OF THE EXPERIMENT

The experiment will greatly advance our knowledge about how the brain handles rhythmic information in situations where several sensory signals are present at the same time. This type of processing is essential for many everyday activities and offers insight into how the nervous system integrates different sources of information during simple motor tasks. Therefore, while the knowledge gained from the research might not be immediately applied to a specific problem, it can be used in the development of new technologies and in clinical contexts in the future. Notice that the collected data will not be used for medical or diagnostic purposes and as such EEG data will not be screened for any diseases or medical conditions.

## INFORMED CONSENT

Before we start the experiment, you will receive verbal information about the project and you will have the opportunity to ask any questions you may have. You will then be asked to sign an informed consent form stating that you wish to participate voluntarily after receiving sufficient information. It should be emphasized that you can withdraw from the experiment at any time without giving a reason or compromising some monetary compensation.

## EEG RECORDINGS

On the day of the experiment, you will be prepared for the experiment. First, to minimize the presence of electromagnetic noise, you will be asked to leave electronic objects out of the EEG room (e.g. smartphones). Second, we will attach a cap with EEG electrodes to your scalp which involves the application of conductive gel (you can wash your hair after the experiment in our bathroom). You will then be asked to sit together with three other participants in the EEG room. Throughout the session, you will perform a finger-tapping task in which each participant follows a rhythmic metronome. The task consists of four conditions, including breaks between them. During the entire experiment, we will record your EEG activity and finger-tapping behavior. After each task, you will answer brief questionnaire about your experience. The total duration of the experiment will be approximately 120 minutes.

## RISKS

There are no harmful effects of EEG recordings, as long as general safety regulations of the hospital are complied with. See corresponding information packages for details.

## DATA PROTECTION

Your data will be processed and stored in accordance with the Danish Data Protection Act and the General Data Protection Regulation (GDPR) in the EU. After payments have been finalized, we will anonymize your data by deleting your name, CPR no, and telephone number/email. This means that it is longer possible to trace the research data back to you. If you have further questions about this, you can ask the experimenters and/or contact AU's data protection officer at [dpo@au.dk](mailto:dpo@au.dk).

## YOUR RIGHTS

As a subject, you have the right to withdraw from the experiment at any time without further justification, if you so wish. This will have no negative consequences for you, and you will continue to receive proportionate compensation for your time. If you withdraw from the experiment, you also have the right to request that all your data be deleted. However, please note that after anonymization of the data, we are no longer able to identify and delete individual data sets.

## PLACE OF THE EXPERIMENT

Aarhus University Hospital, Entrance J, Palle Juul-Jensens Boulevard 99, 8200 Aarhus N.

Before going to the experiment, please check in advance with the experimenters any doubt regarding location, time or access.

Kind regards,

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