

# Anxiety traits are visible in the brain

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Questionnaires or concentration tasks can be used to screen for anxiety, but so too can EEG recordings – at least indirectly. The frequent mind wandering of anxious people can also be seen on MRI scans. These are just some of the findings of clinical neuropsychologist Dana van Son. Ph.D. defence on 24 April.

Anxious people tend to avoid threatening situations. For instance, they look away rapidly if they see an image of a serious injury. They are then quicker to see the dot that they have been asked to find under one of two images. Dana van Son began by determining whether her [test subjects](#) were more or less anxious with the aid of questionnaires and concentration tests. She then recorded their [brain activity](#) in an EEG before getting them to do the test with the images and dots. The avoidance response was visible in the EEG. Van Son thus linked the results of questionnaires and concentration tasks with EEG and fMRI recordings.

## **Mind wandering**

"Anxiety is difficult for others to understand," says Van Son. She began her research with questions about performance anxiety but ended up investigating the phenomenon of anxiety traits. Anxious people often focus on their anxious thoughts, which prevents them from performing a concentration task to the best of their ability. "This mind wandering during a task led to a visibly different pattern in the fMRI scans of the people who were more anxious." The EEG and fMRI recordings led Van Son to suspect that the avoidance and mind wandering are linked to the control room of the brain: the prefrontal cortex.

## **Performance anxiety**

Van Son's next question was whether this inability to control one's thoughts is crippling to people with performance anxiety. And whether anxious thoughts play an important role in this. "Performance anxiety is often about cognitive performance. You have to focus on the questions, but are distracted by your own anxious thoughts telling you that you can't do it."

## **Training could help**

"Concentration and anxiety training could help people with anxiety traits," says Van Son. She would like to carry on researching how [concentration](#) works in people with [anxiety](#) traits. However, the idea of working as a postdoc in a different, emerging [research field](#) also appeals. Preferably abroad.

Provided by Leiden University

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