

# Researchers show that eye vergence influences visual attention

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The new study provides new data around attention and visual perception.

The journal *PLOS ONE* has recently published a study which provides new data around attention and visual perception. The article "A role of eye vergence in covert attention" was authored by researchers from the Institute for Brain, Cognition and Behaviour (IR3C) the University of Barcelona.

Even if the neural mechanism that produces visual attention is not clearly known, certain trends in perceptual and neural responses have been observed in the absence of eye movements. The study describes the relation between fixational eye movements which take part in fixation, so-named eye vergence, and covert attention. [Visual stimuli](#) modulate vergence movements (the angle of eye vergence) to catch attention. This

illustrates the relation between eye vergence and bottom-up attention. In visual and auditory cue/no-cue paradigms, the angle of vergence is greater in the cue condition than in the no-cue condition. According to researchers, this shows a top-down attention component.

Therefore, the study proves that there is a close link between covert attention and modulation in eye vergence during eye fixation. It suggests a basis for the use of eye vergence as a tool for measuring attention and may provide new insights into attention and perceptual disorders.

Among the applications of the study, researchers address the diagnosis of the [attention deficit hyperactivity disorder](#) (ADHD) in children and adults. ADHD is a chronic disorder which occurs in 3-6 % of children, and in more than 50% of the cases it continues in adulthood. A [correct diagnosis](#) is necessary to receive an effective treatment in which parents and teachers help the child to develop his or her potential. Diagnosis is possible thanks to the clinical data got from the people who suffer ADHA who are characterized by not paying attention to the objects they look to.

Braingaze is a technological company led by Hans Supèr and Laszlo Bax, which taking as departure point the results of his research on the visual attention, has developed a model able to make an accurate detection of this ADHD biomarker, using some simple stimuli in a test which lasts less than 30 minutes. The model can be also used to analyse the attention that a driver poses in the driving activity he or she is developing. This offers a possibility to improve the systems to detect tiredness which are already in the most modern cars. Finally, the model can be also applied to neuromarketing. The method developed by the company Braingaze uses eye tracking to detect all fixation points, in order words, all the points which received the subject's attention.

**More information:** Puig, M. et al. A Role of Eye Vergence in Covert

Attention. *PLOS ONE*, 2013.

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