

Callous and unemotional traits show in brain structure of boys only

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Callous-unemotional traits are linked to differences in brain structure in boys, but not girls. This reports a European research team led by the University of Basel and University of Basel Psychiatric Hospital in a study on brain development in 189 adolescents. The journal *Neuroimage: Clinical* has published the results.

Callous-unemotional traits have been linked to deficits in development of the conscience and of empathy. Children and adolescents react less to negative stimuli; they often prefer risky activities and show less caution or fear. In recent years, researchers and doctors have given these personality traits increased attention, since they have been associated with the development of more serious and persistent [antisocial behavior](#).

However, until now, most research in this area has focused on studying callous-unemotional traits in populations with a psychiatric diagnosis, especially conduct disorder. This meant that it was unclear whether associations between callous-unemotional traits and brain structure were only present in clinical populations with increased aggression, or whether the antisocial behavior and aggression explained the brain differences.

Using [magnetic resonance imaging](#), the researchers were able to take a closer look at the [brain development](#) of typically-developing teenagers to find out whether callous-unemotional traits are linked to differences in brain structure. The researchers were particularly interested to find out if the relationship between callous-unemotional traits and brain structure differs between boys and girls.

Only boys show differences in brain structure

The findings show that in typically developing boys, the volume of the anterior insula, a brain region implicated in recognizing emotions in others and empathy, is larger in those with higher levels of

callous-unemotional traits. This variation in brain structure was only seen in boys, but not in girls with the same [personality traits](#).

"Our findings demonstrate that callous-unemotional traits are related to differences in [brain structure](#) in typically-developing boys without a clinical diagnosis," explains lead author Nora Maria Raschle from the University and the Psychiatric Hospital of the University of Basel in Switzerland. "In a next step, we want to find out what kind of trigger leads some of these children to develop [mental health problems](#) later in life while others never develop problems."

More information: Nora Maria Raschle et al. Callous-unemotional traits and brain structure: Sex-specific effects in anterior insula of typically-developing youths, *NeuroImage: Clinical* (2017). DOI: [10.1016/j.nicl.2017.12.015](https://doi.org/10.1016/j.nicl.2017.12.015)

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