

# Interoceptive accuracy differs across life stages, weaker in those with autism

July 19 2021, by Zhang Nannan

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Interoception is the ability to process and integrate signals originating from oneself internally, including heartbeats and breathing patterns. This ability is important for maintaining homeostasis (i.e., physiological equilibrium at all times) in order to achieve an optimal functional of daily lives. On the other hand, recent findings also suggest that autism spectrum disorders are associated with a wide range of sensory integration impairments including interoceptive accuracy.

However, it is still not clear whether individuals with subclinical features of autism (autistic traits sharing similar but less severe impairments in

social and communicative skills comparing to clinically diagnosed cases of autism) also exhibit similar impairments in interoceptive [accuracy](#). It is also not clear how interoceptive ability and its association with autistic traits vary in different age groups.

In order to address this issue, Dr. Raymond Chan's team from the Institute of Psychology of the Chinese Academy of Sciences (CAS) has developed an innovative paradigm involving eye-tracking measures to examine the multidimensional interoception and autistic traits in different age groups.

In so doing, they recruited 114 healthy college students aged 19–22 and explored the correlations among autistic traits and interoceptive accuracy using an "Eye-tracking Interoceptive Accuracy Task" (EIAT), which presents two bouncing shapes and requires participants to look at the one bouncing in synchrony with their real-time heartbeat.

This task requires no verbal report or key-pressing, so it has the advantage over other tasks for exploring interoceptive accuracy in [preschool children](#) and individuals with psychiatric disorders or speech impairments.

Their findings showed that autistic traits correlated significantly with the ability to describe and express emotion (alexithymia) but not with the different dimensions of interoception such as interoceptive accuracy (performance of interoceptive ability on behavioural tests), interoceptive sensibility (subjective sensitivity to internal sensations on [self-report questionnaires](#)) and interoceptive awareness (personal insight into interoceptive aptitude).

They then recruited 52 preschool children aged four to six, 50 adolescents aged 12–16 and 50 adults aged 23–54 to specifically examine relationship of autistic traits and interoceptive accuracy across

the three age groups.

Results showed that interoceptive accuracy evolves from childhood to early adulthood, and then declines with age. Adolescents aged from 12 to 16 years exhibited the highest average accuracy. Finally, curvilinear regression of the whole dataset portrayed the developmental trajectory of interoceptive accuracy as having a reverted U-shape trend that peaks in early adulthood.

Taken together, based on the newly developed innovative task that does not require participants to make verbal reports or key-pressing, Dr. Chan's findings suggest that interoceptive accuracy significantly differs between typically-developing preschool children, adolescents and adults. The study also highlights the need for future study into preschool children with suspected [autism spectrum disorders](#).

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**More information:** Han-xue Yang et al, Multidimensional Interoception and Autistic Traits Across life Stages: Evidence From a Novel Eye-tracking Task, *Journal of Autism and Developmental Disorders* (2021). [DOI: 10.1007/s10803-021-05155-w](https://doi.org/10.1007/s10803-021-05155-w)

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