

Inhibition changes across the lifespan: experimental evidence from the Stroop task

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Individuals constantly exert inhibitory control over their thoughts and behaviors to plan actions that compete with habits and impulses. Cognitive inhibition enhances the selection of task-relevant stimuli and is closely related to neural changes that occur across the lifespan.

Since few studies have focused on the entire lifespan, this study aimed to assess cognitive inhibition abilities in a sample of 425 healthy participants (age range: 7-88 years) using the Stroop task.

The participants were grouped according to age into children, adolescents, young adults, adults, middle-aged adults, and older adults. A series of ANOVAs considered Group as the independent variable and Performance indices as the dependent variables.

The children did not show an interference effect (Stroop effect), likely due to the lack of an automated reading process as a consequence of ongoing brain maturation. Adolescents and young adults performed significantly faster than older adults did. The results indicate that response speed reaches its peak during adolescence and young adulthood and then slightly decreases until older age. Nevertheless, compared with the other groups, only older adults showed significant differences in the Stroop effect, suggesting that inhibitory abilities remain relatively consistent throughout adulthood but rapidly worsen in recent years due to the physiological decline in cognitive and brain functioning associated with aging.

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