

Aging and Time Perception: Differences in Explicit and Implicit Timing

Thursday, September 11, 2025 2:10 PM (20 minutes)

Time perception is a fundamental cognitive function that plays a crucial role in coordinating behavior and interacting with the environment. Explicit and implicit timing represent two distinct yet partially overlapping processes, with explicit timing involving conscious estimation of intervals and implicit timing relying on automatic processing of temporal regularities. Aging is associated with cognitive decline, but its impact on these timing mechanisms remains unclear.

This study investigated age-related differences in explicit and implicit timing using electroencephalography (EEG). Participants included 26 older adults (age > 60, mean age: 70.7 years) and 30 young adults (mean age: 21.7 years) as a comparison group. Two tasks were administered: a temporal bisection task (explicit timing) and a foreperiod task (implicit timing). Behavioral performance and EEG data (focusing on the Contingent Negative Variation, CNV, and N1-P2 complex) were analyzed.

Results revealed that older adults exhibited impaired performance in the explicit timing task, with a tendency to overestimate durations, while their implicit timing remained largely preserved. EEG analyses showed reduced CNV amplitude in older adults, particularly for longer intervals, suggesting altered temporal accumulation processes. The N1-P2 complex, associated with temporal expectations, was also attenuated in older adults during implicit timing. These findings indicate that aging differentially affects explicit and implicit timing, with explicit timing being more vulnerable to cognitive decline, likely due to demands on memory and attention. The study highlights the dissociation between these timing mechanisms and provides insights into the neural correlates of temporal processing in healthy aging.

If you're submitting a symposium talk, what's the symposium title?

If you're submitting a symposium, or a talk that is part of a symposium, is this a junior symposium?

No

Primary authors: Dr BARBIERO, Jacopo (Dipartimento di Psicologia Generale, Università degli Studi di Padova); Dr DEL POPOLO CRISTALDI, Fiorella (Dipartimento di Psicologia Generale, Università degli Studi di Padova); Dr BABNIK, Irena (Dipartimento di Psicologia Generale, Università degli Studi di Padova); MIONI, Giovanna (University of Padova)

Presenter: Dr BARBIERO, Jacopo (Dipartimento di Psicologia Generale, Università degli Studi di Padova)

Session Classification: Lunch and poster 1

Track Classification: Space, time and number