

## Take Your Time: What Meter and Rhythm can tell us about Developmental Dyslexia.

Monday, September 23, 2024 3:40 PM (10 minutes)

Rhythm and reading must be somehow related, as several studies uncovered that dyslexic individuals display poor performance in rhythmic tasks. However, the nature of the rhythm-reading relationship is far from being fully explored. The present work aims at establishing whether the disadvantage observed in participants with dyslexia has its origins in rhythmic awareness, meter reproduction and, thus, motor control, or, as proposed by Pagliarini et al. (2020), anticipatory timing skills.

To this aim, we included in our study 61 participants ( $F = 35$ ;  $M = 25$ ; not binary = 1; age on average = 21.6 SD = 2.42), 29 of them with learning disorders and related difficulties in reading, asking them to complete a rhythm discrimination task, a tapping task at different speed (60-80-100-120 bpm) and a new version of anticipatory timing task.

Data were analyzed through different logistic mixed models (GLMM) including participants as random intercept, to test whether performance in each task could classify participants as part of the experimental or the control group.

Although all tasks could discriminate the two groups, participants with dyslexia reported a minimal disadvantage ( $p = 0.03$ ) in rhythm discrimination, while they displayed a significant ( $p < .001$ ) deficit in fast meter reproduction and anticipatory timing. These results suggest not just that dyslexic participants have lower skills in more complex tasks that require fast procedural information integration but highlight also the role of fast sequential production of movements, supporting the cerebellar theory.

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**Primary author:** CARIOTI, Desirè (Università degli Studi di Milano-Bicocca)

**Co-authors:** Ms FIGINI, Camilla (Università degli Studi di Milano-Bicocca); Mr TONEATTO, Carlo (Università degli Studi di Milano-Bicocca); Prof. GUASTI, Maria Teresa (Università degli Studi di Milano-Bicocca); Ms RIVA, Martina (Università degli Studi di Milano-Bicocca); Prof. STUCCHI, Natale Adolfo (Università degli Studi di Milano-Bicocca)

**Presenter:** CARIOTI, Desirè (Università degli Studi di Milano-Bicocca)

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