

**MITTWOCHSVORTRAGSREIHE AM PSYCHOLOGISCHEN INSTITUT
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Thema: Impaired simultaneous processing of multi-element arrays in dyslexic readers

For assessing simultaneous visual processing in adolescent dyslexic readers a string processing task was used. The task required the report of a single element of briefly presented multi-element strings. Study 1 used digit-strings of varying length (2, 4 and 6 elements) and revealed increasing difficulties of dyslexic readers compared to normal reading controls with increasing string length. The string processing deficit of the dyslexic readers was associated with high number of eye movements during reading reflecting reliance on serial word decoding. The association between being restricted to serial word decoding and impaired digit-string processing was considered as evidence for impaired processing of multiple elements simultaneously. Study 2 again revealed impaired string processing in dyslexic readers (adult university students) but similar M-shaped position profiles for 5-element digit- and letter strings compared to controls. The M-shaped profiles stem from a processing advantage of the first, middle and final elements of the strings. This advantage is considered as reflecting simultaneous processing, thus challenging the simultaneous processing deficit hypothesis of dyslexic reading of Study 1.