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**Temporal processing deficits in dyslexic children with and without comorbid disorders**

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This study attempts to elucidate whether a temporal processing deficit plays a causal role in dyslexia and what its incidence is in children with pure dyslexia and those comorbid for both dyslexia and other developmental disorders. Tasks assessing phonological, auditory, visual and motor abilities were given to both dyslexic and matched control children. The auditory skills of these children were assessed using tasks of syllable identification (/ba/ & /da/ or *coat* & *goat*), speech discrimination (synthetic /ba/-/da/ with the first and second formants only) and non-speech discrimination (/ba/-/da/ with the second formant only), and frequency modulation (FM) detection at 2 and 240 Hz. The children were then tested on visual and motor tasks in order to study the relationship between these skills and auditory skills. Testing this range of skills in each child allowed determination of whether such impairments are general and multimodal or limited to certain modalities, and whether they are present in all dyslexics or only a subpopulation. Within the dyslexic group, children were therefore sought who were comorbid for dyslexia and other developmental disorders, such as dyspraxia and Attention Deficit Hyperactivity Disorder (ADHD), thus investigating whether a temporal processing deficit was present only in these individuals. Sensory and motor abilities were then compared to phonological abilities, indicating whether a temporal processing impairment plays a causal role in the occurrence of the phonological impairments characterising dyslexia. It was hypothesised that temporal processing deficits have a higher incidence in dyslexic than control children but are only present in a minority of cases, and preliminary results support this hypothesis. The implications, from these results, for a causal role of a temporal processing deficit in dyslexia are discussed with reference to current theories of dyslexia. [Study funded by a Marie Curie Fellowship from the European Commission and the Medical Research Council.]