

Much work remains to be done to improve the lives of children with dyslexia

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Scientific understanding and medical treatments for dyslexia have advanced over the past 5 years, but much work remains to be done to fully understand the causes of dyslexia and to improve the lives of children who struggle to learn to read, according to a Seminar published Online First in *The Lancet*. Indeed, most children are only diagnosed with dyslexia after they have experienced serious difficulties in school, at a time when it is much harder for them to master new skills, and this could be preventing children with dyslexia from achieving the best outcomes.

"Professionals should not wait until children are formally diagnosed with dyslexia or experience repeated failures before implementation of reading treatment, because remediation is less effective than [early intervention](#)", explain Robin Peterson and Bruce Pennington from the University of Denver in the USA.

About 7% of the population are dyslexic, and boys are about twice as likely to have dyslexia as girls. Dyslexia was originally believed to involve problems with visual processing, but mounting evidence suggests that the underlying deficit involves difficulty with how sounds in language are heard and mapped onto letters (phonological impairment).

"Like all behaviourally defined disorders, the cause of dyslexia is multifactorial and is associated with multiple [genes](#) and [environmental risk factors](#)", explain the authors. Despite the recent identification of six genes that contribute to the disorder, very little is known about how these

and other possible [genetic determinants](#) might contribute to dyslexia or the role of the environment in the cause of the condition.

Further research is needed to reveal further undiscovered genes that may contribute to dyslexia, to identify which gene locations are shared and not shared with comorbid disorders, including [attention deficit hyperactivity disorder](#) (ADHD), and to examine the effects of environmental risk factors such as the language and pre-literacy environments that parents provide for their children.

"We still need to learn more about the nature of phonological deficit and how this problem interacts with other linguistic and non-linguistic risk factors, the developmental course of neural abnormalities and how these predict treatment response, and which environmental risk factors contribute to the development of poor reading and whether these are the same across demographic groups", explain Peterson and Pennington.

They add that as well as scientific challenges, more needs to be done to address treatment issues. "Brain-imaging studies have shown that effective intervention seems to promote normalisation of activity in the left hemisphere reading and language network that has shown reduced activity in dyslexia."

Although diagnosis is often delayed until school age, common coexisting conditions such as ADHD, language impairment, and speech sound disorder are likely to be apparent much earlier, and could be used to help predict a child's risk of later reading problems, conclude the authors, adding that: "Many effective treatments are low cost, which further draws attention to the importance of early identification, prevention, and treatment of [dyslexia](#) for public health."

More information: [www.thelancet.com/journals/lan...12\)/60198-6/abstract](http://www.thelancet.com/journals/lan...12)/60198-6/abstract)

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