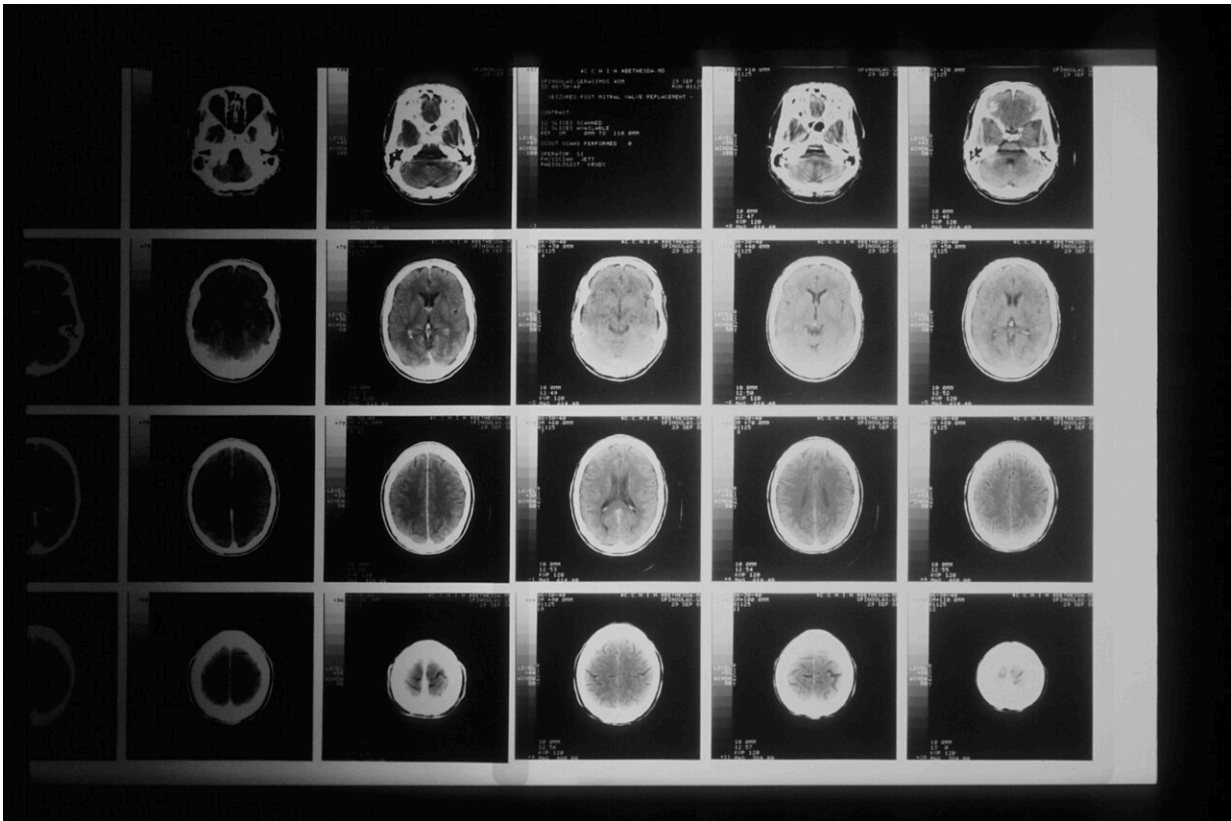


# Language learning difficulties in children linked to brain differences

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Developmental language disorder (DLD) is an extremely common disorder, affecting approximately two children in every classroom. Children with DLD struggle to comprehend and use their native

language, facing trouble with grammar, vocabulary, and holding conversations. Their language difficulties considerably increase the risk of having difficulties when learning to read, underachieving academically, being unemployed, and facing social and mental health challenges.

In research published in the journal *eLife*, Dr. Saloni Krishnan and colleagues used MRI brain scans that were specifically sensitive to different properties of the brain tissue. For example, the scans measured the amount of myelin and iron in the brain. Myelin is a fatty substance that wraps around neurons and speeds up transmission of signals between [brain areas](#). It is like the insulation around electrical cables. The research demonstrated that children with DLD have less myelin in parts of the brain responsible for acquiring rules and habits, as well as those responsible for language production and comprehension.

Dr. Krishnan (Reader, Royal Holloway, University of London), who led the study as a Research Fellow at the University of Oxford, says that "DLD is a relatively unknown and understudied condition, unlike better known neurodevelopmental conditions such as ADHD, dyslexia, or autism. This work is an important first step in understanding the brain mechanisms of this disorder."

Senior author Kate Watkins, professor of cognitive neuroscience at the University of Oxford, says that "this type of scan tells us more about the makeup or composition of the brain tissue in different areas. The findings might help us understand the pathways involved at a [biological level](#) and ultimately allow us to explain why children with DLD have problems with [language learning](#)."

More studies are needed to determine if these brain differences cause language problems and how or if experiencing [language difficulties](#) could cause these changes in the brain. Further research may help

scientists find new treatments that target these brain differences.

**More information:** Saloni Krishnan et al, Quantitative MRI reveals differences in striatal myelin in children with DLD. *eLife*.

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