

New breakthrough in understanding a severe child speech impediment

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An international study led by the Murdoch Children's Research Institute has made a breakthrough in identifying a potential cause of the most severe child speech impediment – apraxia.

One in 1000 children has apraxia, but understating the origins of this debilitating [speech disorder](#) has until now remained elusive.

A team of researchers, led by MCRI [speech](#) pathologist Prof Angela Morgan, has identified anomalies in a key speech pathway of the brain connected to speech.

Prof Morgan said a better understanding could help neuroscientists and speech pathologists look to developing more targeted treatments for children.

The research paper, "Dorsal language stream anomalies in an inherited speech disorder" is published in the latest issue of the international journal, *Brain*.

Prof Morgan, who is also Professor of Speech Pathology at the University of Melbourne, said children with apraxia fail to learn to speak clearly and combine sounds properly, the timing and sequencing of their words is also affected.

"People struggle to understand what they say, which has major negative long-term effects on their ability to form [social relationships](#), [self-esteem](#), [academic achievements](#) and quality of life," Prof Morgan said.

Prof Morgan said the research team was able to identify irregularities in a core brain pathway in apraxia sufferers.

"Normal MRI scans found no anomalies, but we used a very sophisticated scan, that enables Brain Tractography analysis, which measures the integrity of brain pathways," Prof Morgan said.

"We looked at the brains of seven families members with apraxia and found there were core differences in a key brain tract for speech – the

dorsal language stream."

Dr. Morgan said this newly discovered variance in that brain pathway appeared to be critical to how people listen and then produce speech.

More information: Frédérique J Liégeois et al. Dorsal language stream anomalies in an inherited speech disorder, *Brain* (2019). [DOI: 10.1093/brain/awz018](https://doi.org/10.1093/brain/awz018)

Provided by Murdoch Children's Research Institute

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