Each year, 600 Australian children are diagnosed with cerebral palsy, the commonest childhood disability. One third of children with cerebral palsy never walk and half have cognitive impairments, limiting future independence and adult employment.

cerebral palsy

muscle **mayhem**

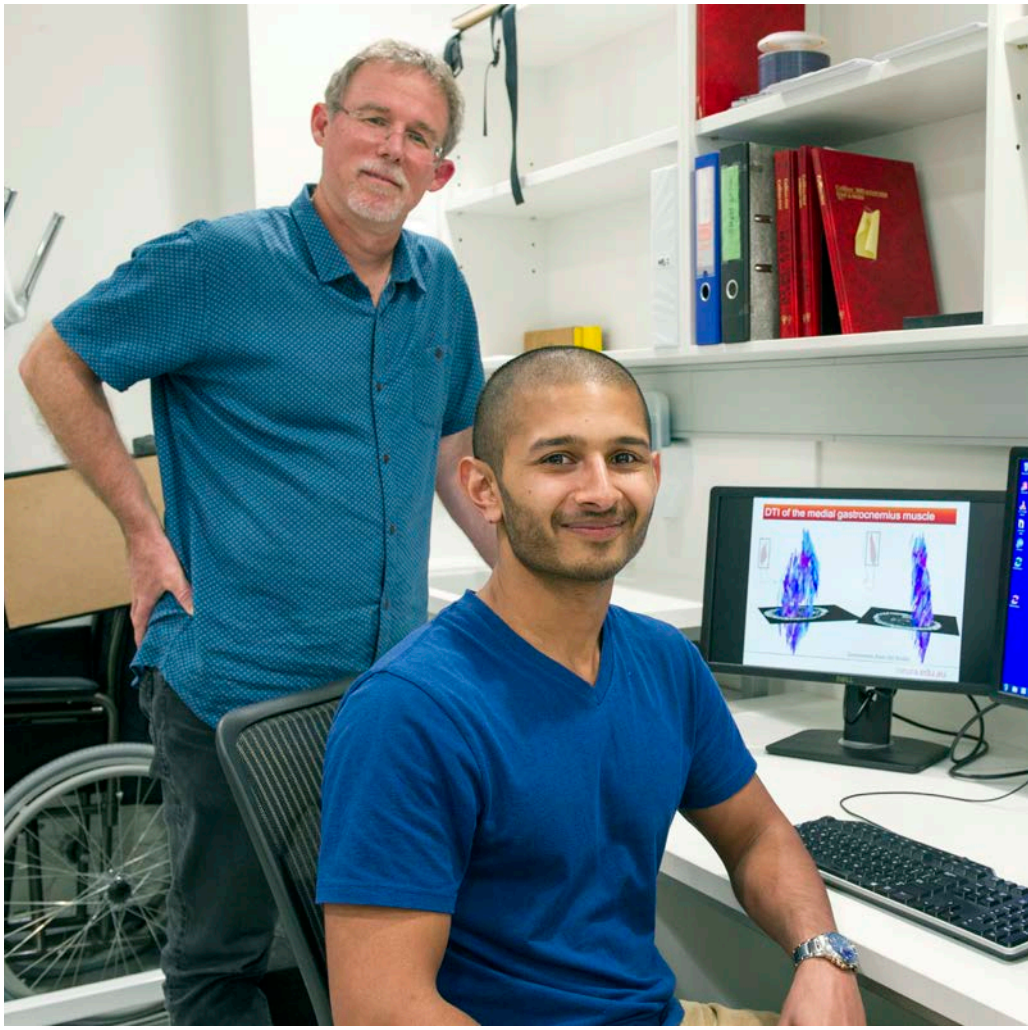
A study into the cause of muscle contracture in people with cerebral palsy is being conducted by Neuroscience Research Australia (NeuRA).

Lead researcher Professor Rob Herbert said the study would use diffusion tensor imaging (DTI) – a new type of magnetic resonance imaging developed by the NeuRA research team to determine whether contractures are caused primarily by adaptation of muscle fibres or tendons.

"We have developed computer algorithms that make it possible for the first time to obtain reliable measurements of muscle architecture such as lengths of muscle fascicles," Professor Herbert said.

"These methods will be used to compare the architecture of calf muscles in children with cerebral palsy and their normally developing peers. Measurements of muscle architecture will be obtained from 30 typically developing children and 30 children with cerebral palsy who have significant muscle contractures."

Around 75 per cent of children and adolescents with cerebral palsy have contractures. They're a problem because they prevent normal joint mobility, and frequent contractures prevent children with cerebral palsy from walking, feeding themselves or performing other daily activities. Contractures can also result in deformity.



Professor Rob Herbert and PhD student Arkiev D'Souza are using a new technique called diffusion tensor imaging to examine the causes of muscle contracture in people with cerebral palsy.

"Remarkably, given the prevalence and consequences of contracture, the mechanisms of contracture are poorly understood," Professor Herbert said.

Professor Herbert said the study would provide the first clear indication of the extent to which contractures in children are caused by changes in muscle and tendon structures, which is vital information for effective prevention and treatment.

"We expect to be able to definitively resolve questions about the source of muscle contractures in children with cerebral palsy.

Neuroscience Research Australia - an independent, non-profit research institute – is currently recruiting participants who live in Sydney for the study.

To find out more visit **neura.com.au**