



[MEDIA STORY](#)

World's largest longitudinal muscle MRI study set to benefit children with cerebral palsy

PROGRAM:
ADVANCED HUMAN IMAGING

**INFRASTRUCTURE/
EXPERTISE:**
MRI

LEAD ORGANISATION:



SUPPORTING PARTNERS:



The completed MUGgLE study has produced vital data on muscle growth patterns and muscle underdevelopment in children with cerebral palsy.

Challenge

Cerebral palsy, the most common physical disability in children, affects ~34,000 Australians. It impacts movement and posture, often leading to muscle weakness and stiffening.

Previous studies have typically only examined muscle groups collectively – such as the ‘lower leg’ or ‘back’ – but lacked muscle-specific information needed by clinicians, surgeons and patients to guide treatment decisions.

Solution

Over 6 years, enabled by research-dedicated MRI infrastructure and support from NIF, Dr Bart Bolsterlee and his team conducted 762 scans of 280 children to monitor muscle growth.

Through targeted scanning and advanced image analysis, they isolated individual muscles and developed growth charts for each one.

The work gave unprecedented knowledge into the impairment of specific muscles, and uncovered other distinctions about growth patterns, growth spurts, and the development differences between bones and muscles.

Impact

The resulting muscle-growth charts answer key questions about muscle development in children with cerebral palsy. They allow clinicians to identify underdeveloped or impaired muscles relative to a child’s age.

This globally unique set of data is a now vital collection – researchers, clinicians, orthopaedic surgeons, radiographers and families can begin to make more informed decisions about treatment.

“Not all treatment options for children with cerebral palsy are effective – some are controversial – and there’s little data on how these treatments affect muscle growth. I hope our techniques can start to change this.”



– DR BART BOLSTERLEE, NEUROSCIENCE RESEARCH AUSTRALIA (NEURA)



↑ MUGGLE STUDY PARTICIPANT, BARNABY, AT NEURA, AT THE NIF NODE UNIVERSITY OF NSW/NEURA. IMAGE COURTESY OF NEURA

