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From acute to chronic pain

Mr Wei-Ju Chang from the School of Science and Health has been awarded a Postgraduate Scholarship from the National Health and Medical Research Council to study the transition from acute to chronic low back pain. His PhD research is supervised under the direction of Dr Siobhan Schabrun and Dr Matt Liston from Western Sydney University and Dr James McAuley from UNSW.

'Low back pain (LBP) is the most common chronic musculoskeletal pain condition with about 90% of cases categorised as non-specific due to the lack of an identifiable cause of the pain', Mr Chang explains. 'We don't know why some people recover after hurting their back and others do not. It is likely related to changes that have gone on in the brain, in particular, reorganisation in the brain, or neuroplasticity, and sensitisation of the central nervous system. Literature tells us that some abnormalities in certain regions of the brain - for example, primary motor and sensory cortical networks - exist in the chronic LBP. What we don't know is when and how these changes occur. This research aims to characterise the reorganisation of the brain in the transition from acute to chronic LBP and to determine at what stage of the transition abnormalities in the brain develop. This information about the mechanisms driving pain chronicity is essential if therapeutic interventions are to be implemented before chronic pain develops.'

The research will take a longitudinal approach and people with acute, non-specific LBP will be examined when they first present with the pain, and at 3 and 6 months after the initial onset of pain. These time points have been set to follow the progress of acute LBP that either resolves or becomes chronic pain. Specialised equipment will be used to measure the neuroplasticity of the brain and central sensitisation. The results will help understand the relationships

between physiological mechanisms, psychosocial factors and pain.

LBP is a costly musculoskeletal disorder that affects as many as 80% of the population. Chronic LBP is a complex condition and currently there is no effective treatment supported by strong research and clinical evidence. The results from this research will provide us with critical information about some of the physiological mechanisms involved in the development of chronic LBP and will hopefully lead to more effective treatments and better outcomes for the individuals suffering chronic LBP in the future.

Project Title: Understanding the brain in the transition from acute to chronic low back pain
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