

ISEK 2022 Congress



People with chronic low back pain (CLBP) commonly demonstrate impaired lumbar extensor isometric muscle force accuracy compared to asymptomatic controls. An additional measure of force (torque) control is torque steadiness, i.e., the ability of an individual to exert steady torque during a submaximal voluntary contraction. The generation of smooth torque is crucial for physical function, and reductions in torque steadiness can influence the precision of movements. To date, it was unclear whether torque steadiness is also altered in people with CLBP. We investigated if individuals with CLBP display reduced torque steadiness compared to asymptomatic controls during eccentric contractions of the lumbar extensors and the neuromuscular mechanisms underlying the control of torque steadiness by utilising high-density surface electromyography (HDEMG). Our study provided new insights into the behaviour of the lumbar erector spinae muscle during eccentric contractions in people with CLBP, showing lower torque steadiness in people with CLBP, associated with increased ES HDEMG amplitude (higher energetic cost).

This study contributes to the existing body of knowledge and further supports the notion that individuals with CLBP have poorer control of their trunk extensor muscles compared to asymptomatic individuals. Academics and clinicians can use such findings to design novel rehabilitation and assessment strategies for people with CLBP.

I would like to express my gratitude to the MACP for providing a grant that covered the travel costs for attending the International Conference of the International Society of Electromyography and Kinesiology (ISEK) to disseminate the findings of this study. The MACP's support enabled me to share our insights on the neuromuscular mechanisms underlying chronic low back pain with a wider audience and contribute to the development of new assessment and rehabilitation strategies. I am grateful for the MACP's continued dedication to advancing musculoskeletal physiotherapy research and practice.