

03 · UNITED KINGDOM · 2025

Biomechanical Comparison of Sit-to-Stand and Squat Using the CRAFT Framework and MAI Motion Analysis

A proof-of-concept comparison of two familiar functional tasks using Control, Repetition, Asymmetry, Flow and Twist to reveal movement strategies that qualitative observation may miss.

EVENT	British Orthopaedic Association Annual Congress
AUTHORS	Mathew George — Leicester Medical School; Tanvi Verma and Professor Paul Lee — MSK Doctors
THEMES	CRAFT framework · Functional testing · Biomechanics · Rehabilitation

Scientific focus

Sit-to-stand and squat are common clinical tasks that expose lower-limb strength, balance, control and neuromuscular coordination. They are often judged qualitatively or through simple counts and timing. The CRAFT framework provides five consistent dimensions — Control, Repetition, Asymmetry, Flow and Twist — through which MAI Motion can compare the two tasks using objective, repeatable metrics.

Why it matters

Assessing both tasks through a common framework may help identify distinct biomechanical profiles, subtle compensations and asymmetries. The presentation positions the approach as a clinic-ready method for tracking rehabilitation and supporting data-informed decisions while retaining tasks that patients and clinicians already understand.