

Facilities

[Kinesiology Laboratory - School of Sport and Exercise Sciences \(/facilities/kinesiology-lab/index.aspx\)](/facilities/kinesiology-lab/index.aspx)

The Human Movement Research Group laboratories house a combination of equipment, which enables detailed study of characteristics of human posture and movement and the neural and visual signals responsible for their control.

This includes:

- a 13 camera Vicon MX body motion analysis system;
- multiple Kistler force platforms to measure ground reaction forces;
- wired and telemetry EMG systems;
- mobile high speed eye tracker to monitor eye movements;
- transcranial magnetic stimulation to experimentally alter brain output in order to observe the effects on movement characteristics;
- high-resolution ultrasound imaging systems for recording and quantitative analysis of internal muscle structure kinematics during dynamic contractions;
- a programmable motorised isokinetic dynamometer.

The 30m x 5m Kinesiology Laboratory has for part of its length a 10m high ceiling, which allows the study of large-scale movements that would not normally be possible in a laboratory setting, e.g. trampolining, high jumping or flyball interception. There also are computer-controlled, 5m high, motorized staircases which allow investigations of the perception, kinematics, and energetics of stair climbing. An 'intelligent walkway' embedded in the floor presents stepping targets to walking participants with various degrees of advance warning and is among others used in fall risk research.