



Motion Analysis Laboratory – Biomechanics at York

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How do our musculoskeletal and nervous systems work together to allow us to perform all of life's daily activities? How much force do we place on our knee joints when we walk, in our spines when we lift, or in our wrists when we grasp? How do our muscles most safely respond when we trip or need to climb over an obstacle?

For all of these questions, how do healthy people and those with injuries or illnesses differ? What do these differences indicate about how workplace injuries happen and how we can best prevent and rehabilitate them?



The Motion Analysis Laboratory addresses these and other biomechanics questions. In a space large enough for running, walking or simulated working, state-of-the-art, computer-controlled cameras allow researchers to capture, measure and recreate the motion of body segments in 3D for further analysis.

The laboratory's sophisticated equipment – force plates imbedded in the floor, sensors that measure a muscle's electrical activity and a cutting-edge platform below the force plates that simulates slips and falls in a controlled and safe environment – allows us to study external forces' effect on the body. This data allows us to assess how the brain times muscle activation, estimate the force of the muscle activation, examine available recovery time and look for signs of muscle fatigue.

