APA 4311

Biomechanics Research Projects

Mechanics of athletic, normal or pathological locomotor tasks (overground, on stairs or on ramps)

Electromyographic or biomechanical evaluation of occupational movements (lifting, keyboarding, etc.)

Computer simulation of airborne planar human motions (swim starts, jumping, diving, etc.)

Power analysis of ballistic human motions (jumping, starting, diving, throwing, striking, kicking, etc.)

Evaluation of qualitative biomechanical principles (summation of forces, sequencing of muscle contractions, continuity of force application, equilibrium, etc.)

Evaluation of materials for impact protection of the body (helmet, face guards, shoes, etc.)

Mechanics of lifting (power lifting, manual materials handling, etc.)

Mechanical evaluation (reliability/validity) of ergometers (bicycle, rowing, etc.)

Evaluation of frictional or tractional properties of shoes on floors or playing surfaces

Biomechanics of ballet or dance (jumps, kicks, turns, etc.)

Note, that students should restrict their research projects to those that use equipment that is readily available in the Biomechanics Laboratories. These include Kistler or AMTI force platforms, electromyographic amplifiers, Vicon or SIMI motion capture systems, KinCom isokinetic dynamometer and various other transducers. Use of other equipment must be authorized in advance. In some cases ethics approval must be obtained.