Applied Biomechanics Laboratory

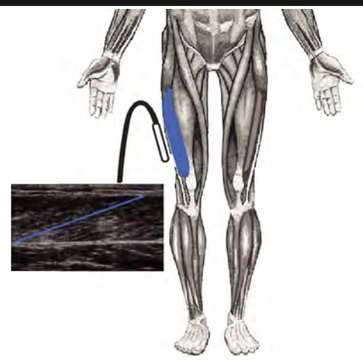
X-MEN BIOMECHANICS LEGENDS

Joint Department of BIOMEDICAL ENGINEERING

UNC CHAPEL HILL | NC STATE UNIVERSITY

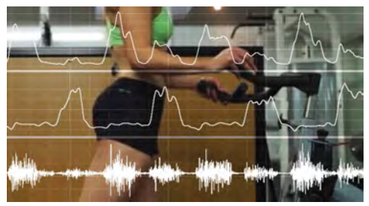
National Biomechanics Day

ULTRASOUND IMAGING



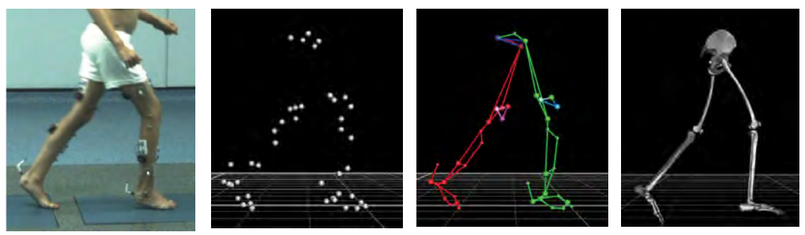
ULTRASOUND PROBES SEND HIGH FREQUENCY SOUND WAVES INTO THE BODY. THESE SOUND WAVES REFLECT OFF TISSUES IN DIFFERENT DIRECTIONS DEPENDING ON THE TISSUE PROPERTIES, THE ULTRASOUND PROBE CAN DETECT THESE VERY SMALL DIFFERENCES IN SOUND AND DISPLAY THE REFLECTED SOUNDS REPRESENTING THE TISSUE LANDSCAPE AS AN IMAGE.

ELECTRO-MYOGRAPHY



ELECTROMYOGRAPHY (EMG) MEASURES THE ELECTRICAL POTENTIAL GENERATED BY ACTIVE MUSCLES. EMG CAN DETECT ACTIVATION LEVEL, MUSCLE RECRUITMENT ORDER, AND MOVEMENT INTENT.

MUSCULOSKELETAL MODELING



MUSCULOSKELETAL MODELING COMBINES INFORMATION LIKE JOINT ANGLES, EXTERNAL FORCES, AND MUSCLE ACTIVATION TO ESTIMATE INFORMATION ABOUT THE MOVEMENT INCLUDING MUSCLE FORCE AND JOINT LOADING.