



Measurement During Motion Clinical Care & Research

Brooks Motion Analysis Center (MAC)

The MAC uses state-of-the-art 3D motion capture technology to deliver customized recommendations to promote recovery for individuals post ACL reconstruction. Our program focuses on athletes returning to sport to reduce the risk of re-injury. Our analysis emphasizes symmetry of both lower limbs using measurements including joint motion (range of motion occurring during each task performed) and forces produced by each leg.

Our team consists of a sports physical therapist, a biomechanical engineer, and you. You are the most important member of the team. Please read the following information about your test session and how the information will be used. You may ask questions at any time.

Motion analysis report

Each motion analysis report includes assessment interpretations, recommendations, clinical assessment outcomes, and graphical representation of the motion capture data collected during your assessment. The report takes two-to-three weeks to complete. A copy of the report is provided to the referring clinician or physician who will then discuss the results with you.

What to expect during the test

A typical visit will begin with a clinical assessment that generally takes 45-60 minutes. During this time, clinical testing for flexibility, strength, and balance are done with a board certified sports physical therapist. Measurements of your height and body weight are also collected.



Clinical assessment of hip muscle strength



Placement of reflective markers on the torso and legs during setup

Patient setup involved special reflective markers being attached to your skin. The reflective markers are placed on the skin to identify joints and specific landmarks on the body. The reflections are detected by infrared cameras and help us learn how your joints move as you perform different tasks. The space is large and open and the room is blocked from public view. These markers are attached with double-sided tape. Therefore, we ask that you do not use lotion on the day of your assessment. Patient setup generally takes 30 minutes.



Infrared camera that detects the reflective markers placed specific places on your joints

The motion assessment involved five repetitions of five functional tasks shows to correspond to your ability to perform in your sport. In-ground force plates measure the amount of force you create during jumping-landing tasks and squats to help us evaluate symmetry and detect impairments. Breaks will be allotted between tasks as needed.

The specific tasks you will perform include:

- **Overhead squat**
With bar raised overhead, squat to maximal depth
- **Drop vertical jump**
Standing on 12" box, drop onto both feet, maximum vertical jump, and land on both feet
- **Single leg land**
Standing on 8" box, drop onto one foot and hold (will do this for both legs)
- **Lateral step down**
Standing on 8" box lower the opposite leg until heel touches (will do this for both legs)
- **Single leg drop vertical down**
Standing on 6" box, drop onto one foot, maximum vertical jump, and land on the same foot (will do this for both legs)

Please note: If you do not feel comfortable doing the jumping tasks, please talk to the physical therapist before scheduling the appointment. We want to ensure your safety during our assessment.



Jumping onto specialized force plates that measure landing force during Motion Assessment

Interpreting the data

After a combination of injury prevention and performance testing, the motion capture data collected from your assessment will be processed using state-of-the-art scientific techniques. Our team, consisting of a board certified sports physical therapist and biomechanical engineer, will then use the information from your motion capture, clinical assessment, and your medical history to provide a comprehensive interpretation of your movements. This interpretation will help determine appropriate corrective exercises to improve functional movement to minimize your risk for injury and maximize your performance.

What to wear

Men

- Short-length shorts or shorts thin enough to be rolled up and clipped (shorts can be provided)
- Tank top, unless you are comfortable without a shirt
- Athletic shoes that fit appropriately
- NO LOTION

Women

- Short-length shorts or spandex (no pants)
- Tank top, unless you are comfortable wearing a sports bra
- Athletic shoes that fit appropriately
- Hair-band(s)
- NO LOTION

Location

3901 University Blvd. S. Suite 101
Jacksonville, FL 32216

