



MEASUREMENT DURING MOTION *CLINICAL CARE & RESEARCH*

Brooks Motion Analysis Center (MAC)

Motion analysis is a powerful tool used for studying walking disorders in both adults and children. Our programs focus on individuals with neurologic and orthopedic impairments as well as athletes returning to sport. With the use of cutting-edge technology, we can provide specific and quantifiable information that can be used to improve your recovery. Measurements can include: muscle activity (timing and coordination), joint motion (range of motion occurring during each phase of gait), and force produced by each leg.

Our team consists of physical therapists, biomechanical engineers, and exercise physiologists. However, it is important to remember that 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.

What We Use

- **Electromyography (EMG)** sensors detect muscle activity so that abnormalities can be pinpointed.
- Small **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 walk. The space is large and open and the room is blocked from public view.
- **Force plates** measure the amount of force you create during walking.

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 long pants)
- Tank top, unless you are comfortable wearing a sports bra.
- Athletic shoes that fit appropriately
- Hair-band(s)
- NO LOTION

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 specialist. Measurements of your height and body weight are also collected.



Patient **setup** involves special reflective markers being attached to your skin. These markers are attached with double sided tape and allow the infrared cameras to detect your movement.

Surface EMGs will also be used to detect your muscle activity during movement tasks. EMG signals are sensitive to your skin condition. Therefore, we ask that you do not use lotion on the day of your assessment. The application process for EMGs requires removal of excessive leg hair and cleansing of the skin with an alcohol swab. The sensors are then wrapped with cohesive tape to prevent movement artifact. Patient setup generally takes 30 minutes.



The **motion assessment** involves you performing 4 functional tasks in a designated location of the lab. 5 repetitions of each task will be completed, and breaks will be allotted between tasks. 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 touch (will do this for both legs)



***Please note:** If you have not reached a level where you feel comfortable jumping, please talk to your referring clinician or physician and schedule an appointment with us at a later date so that we can ensure your safety during our assessment.

Studying the data

The motion capture data collected from your test will be processed using state-of-the-art scientific techniques. A trained physical therapist will then use the information from your motion capture, the clinical assessment, and your medical history to provide a clinical interpretation of your movements during specific tasks. These interpretations will help determine appropriate treatment plans or simply to assess the effectiveness of current interventions.

Each motion analysis report includes assessment interpretations, recommendations and/or treatment suggestions, clinical/biomechanical assessment outcomes, and graphical representation of the motion capture data collected during the test. A copy of the report is provided to the referring clinician or physician. A standard motion analysis report takes two-to-three weeks to complete, allowing time for processing and interpretation.

Location

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

