



## 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.
- A passive **harness** connected to an overhead track can be used for safety.

## 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. One-piece bathing suit can be worn to avoid stomach exposure
- 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 spasticity, joint mobility, and strength are done with a specialist. Measurements of your height, leg-length, and body weight are also collected and standard video/pictures of you walking will be recorded during this time.



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 may 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 walking several times in a designated location of the lab. Assistive devices such as walkers or canes can be used during the capture, and breaks will be allotted between bouts. During walking you may be asked to perform a variety of tasks, such as:

- Walking at various speeds
- Walking backward
- Standing from a sitting position
- Stepping over an obstacle
- Any activity that the therapist identifies as safe that will produce relevant and beneficial information



## 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 assessment outcomes, and graphical representation of the motion capture data collected during the test. A copy of the report accompanied with a CD 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**

