

# BROOKS<sup>®</sup> Rehabilitation

## Motion Analysis Center



## 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 child's 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 board certified pediatric physical therapists, biomechanical engineers, and exercise physiologists. However, it is important to remember that you and your child are the most important members of the team. Please read the following information about the 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 child's joints move when walking. The space is large and open and the room is blocked from public view.
- **Force plates** measure the amount of force your child creates during walking.

## What to Wear

### Boys

- 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, NO REFLECTIVE CLOTHING

### Girls

- 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, NO REFLECTIVE CLOTHING

## What to Expect During the Test

A typical visit will begin with collecting measurements of your child's height, leg-length, body weight, and standard video/pictures of walking will be recorded.



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 child's movement.

Surface EMGs may also be used to detect muscle activity during movement tasks. EMG signals are sensitive to skin condition; therefore, we ask that your child's skin is free of lotion on the day of 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 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 your child 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

The visit is completed with a **clinical assessment** that generally takes 30-45 minutes. During this time, clinical testing for spasticity, joint mobility, and strength are done with a specialist.

Total visit length is between 1.5 – 2 hours.



## Studying the data

The motion capture data collected from the test will be processed using state-of-the-art scientific techniques. A trained physical therapist will then use the information from your child's motion capture, the clinical assessment, and medical history to provide a clinical interpretation of his/her 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 four weeks to complete, allowing time for processing and interpretation.

## Location

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

