



CENTER FOR RESEARCH IN
HUMAN MOVEMENT VARIABILITY

CLINICAL GAIT ANALYSIS



Data gathered from this assessment helps clinicians understand how patients with movement related conditions walk. This information is used to identify treatment areas for improving overall mobility.



WHAT TO EXPECT

A visit can vary in length, but approximately 2.5 hours is needed to complete all assessments. Our team will meet you in the lobby. From there, we have changing rooms for your child to get ready. If possible, we will ask your child to perform tasks barefoot and not eat breakfast that morning to improve metabolic measurement accuracy.

During a session, we will ask your child to walk back and forth in the room several times. This is challenging for some kids, but we will work with you to make sure your child is as comfortable as possible. Data used to look at your child's ability to walk is gathered from:

- Digital video recordings
- Foot pressure measurements when standing and walking
- 3D motion capture
- EMG to record muscle activity
- A 6-minute oxygen consumption test

After your visit is over, our engineers and technicians will process your data and create a report to give to your doctor and physical therapist. They use this information to develop a specialized care plan to meet your needs.

UNO's Movement Analysis Core (MOVAN) has dedicated laboratory technicians that complete clinical gait analyses and maintain the laboratories and equipment. Laboratory technicians have either a Masters or Doctoral degree in Biomechanics or related field. Current students may also assist as part of their education.

DIRECTIONS AND PARKING

The Biomechanics Research Building (BRB) is located on the University of Nebraska at Omaha's Dodge Street Campus at the Northeast corner of University Drive and Elmwood Park Road.

The BRB address can be entered on your phone as your destination and it will take you to **parking lot "O"**. Or search for "UNO campus map".

Please park on the right side (east side) of the parking lot in a spot labeled "Gait Lab Testing".

What to bring to your visit

1. High-cut shorts with an elastic waistband and a tank top
2. Braces and walking aids (crutches, walkers, or canes), if you need them
3. Shoes for walking with and without braces
4. Familiar toys and books to relax and give yourself something to do during downtime between tests

ASSESSMENTS



Digital Video

High-definition video cameras record how your child moves during typical walking. This can be performed barefoot or with shoes and braces on.

Video of your child walking helps us see how they move with no other devices before fatigue could be a factor.








Oxygen Consumption Test

This equipment measures how much energy your child uses when they walk. We record how much oxygen their body uses through a special mask attached to a machine.

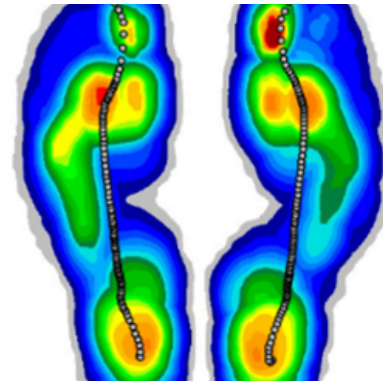
During a six-minute walk, your child will wear the machine like a backpack and then they are off to the races! The mask covers their nose and mouth but does not make breathing any more difficult.

Movement Analysis Core

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Foot Pressure Measurements

We will ask your child to stand still and walk on our pressure-sensing treadmill. It looks and feels like a regular treadmill, but it can measure pressure points under their feet.

This can help identify how weight is distributed and transferred during walking.



3D Motion Capture and EMG

Our team will place reflective markers and sensors over specific bones and muscles on your child's body. It's the same technology used to make some of your child's favorite animated movie characters and video games!

- Markers are used so that the cameras in our gait lab can record movement while walking
- Sensors record how active your child's muscles are
- Platforms recessed into the floor measure forces acting on the body as your child walks