Take an Interactive Tour Through the Motion Analysis Lab: See How You Can Use Technology to Improve Patient Outcomes!

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Introductions

Linda M. Riek, PT, DPT, PhD  Sue O’Brien, PT, PhD, NCS, CEEAA

Outline of Session (10:15-11:45)

- Introduction to entire group (20 minutes)
  - Objectives
  - Flow of session
  - Case study
- Gait Rite (35 minutes)
  - Benefits/Limitations
  - Alternatives
  - Demo
- MAL (35 minutes)
  - Plug-in Gait + Force Plates
  - Argonaut
  - EMG (ITA)
- Wrap Up (5 minutes)
Objectives

- Compare and contrast gait analysis systems or tools that can provide objective spatio-temporal gait data for detailed gait analysis. (CIR Systems, Inc. – GAITRite and Vicon Motion Systems, Ltd. – Plug-in Gait)
- Explore how games can be used to motivate your patient. Immersed in your own animated movie, select different characters ranging from astronauts and princesses in varying environments from Mars to castles. (Idoneus Digital – Argonaut)
- Observe how surface EMG and force plates can be used to provide biofeedback to optimize exercise programs. (Delsys, Inc. – Trigno Wireless EMG, Bertec Corp.)

“1 Minute” Gait Review

RLA - Stance

Weight acceptance = Initial Contact + Loading Response

Critical Events:
* Heel first contact
* Hip stability; controlled knee flexion and plantarflexion

Figure 15-12
RLA - Stance

- Single Limb Support = Midstance + Terminal Stance

Critical Events:
- Controlled tibial advancement (midstance)
- Controlled ankle dorsiflexion with heel rise; trailing limb (terminal stance)

![Figure 15-12](image)

RLA - Swing

- Swing Limb Advancement = Pre-swing + Initial swing + Mid swing + Terminal swing

Critical Events:
- Passive knee flexion; ankle PF (pre-swing), Hip flexion; knee flexion (initial swing)
- Further hip flexion and ankle DF (mid swing), Knee extension (terminal swing)

![Figure 15-12](image)

Gait Assessment - 6 Key Areas

1. Step Width
2. Step Length
3. Toe Load
4. Pelvic Rotation (Transverse Plane)
5. Knee Flexion
6. Trunk Rotation
Small Groups

Gait Rite
- Alternatives?
- Benefits?
- Cost?
- Collect Data/Print Out

Motion Analysis Lab
- Plug-in Gait
- Force Plates
- Argonaut
- EMG (ITA)