



Step by Step: Standardizing the Lower Extremity Physical Assessment



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Context and Overview

Our objective is to improve our previous Computerized Gait Analysis (CGA) online course, supported in a 2011 TLEF grant application, with a thorough needs assessment and backwards design approach.

This updated course will teach students a standardized cross-discipline approach to lower extremity physical assessment as defined by consensus-based evaluation at BC Children's Hospital (BCCH).

Project Goals

- Work with New Knowledge and Innovation at BCCH to:
1. Align learning objectives, assessments and activities with an instructional design storyboard template.
 2. Remove and replace Flash content with H5P; update plug-in tools; and create new media.
 3. Update and reach consensus with physiotherapists across all programs at BCCH to create a new online course with an interactive learning component.

Future Work

- We aim to continue our work by creating:
1. Additional case studies of children with pathological gait to our online CGA course.
 2. Evaluate the effectiveness in clinical knowledge translation with our 2 online courses compared to traditional in-person classroom methods via pre/post surveys.

Before

In the original course, students passively read through key definitions of pre-requisite material.

Physical Exam: Special Tests

Special tests performed in the gait lab include:

Ely Test - (Duncan-Ely test, Prone Rectus Test)

- a measurement of spasticity and/or contracture in rectus femoris

Thomas Test

- measurement of contracture/tightness of Psoas, rectus femoris, tensor fasciae lata

Ober Test

- measurement of tightness in tensor fasciae latae



Strategy 1:
Interactive Assessments

Checkpoint: Special Tests (Hip)

Drag the words into the correct boxes

_____ : measurement of spasticity and/or contracture in rectus femoris

_____ : measurement of contracture of psoas, rectus femoris, tensor fasciae lata

_____ : measurement of tightness in tensor fasciae latae

Ely Test
Ober Test
Thomas Test

Check

After

Now, students are prompted to review the key terms via an interactive activity and receive immediate feedback. The activity was made using H5P. This promotes active learning.

Before

Each assessment's instructions and video were shown separately. Students had to manually select each "tab".

Ely Test (Prone Rectus Test)

Movement or Technique

Movement or Technique

Start Position

Child prone, hips and knees in neutral position.

Stabilisation

Clinician stabilises pelvis with hand to maintain hip in maximal extension.

Procedure

- Clinician passively flexes knee on test leg.
- Spasticity is evident if there is catch in quadriceps with rapid knee flexion.
- R1 is degree of knee flexion at this time.
- Quads tightness is evident when hip begins to flex and buttock elevates off table with slow knee flexion.
- R2 is degree of knee flexion at this time.

Video

References



Strategy 2:
Clearly Segmented Content

Ely Test (Prone Rectus Test)

Start Position: Child prone, hips and knees in neutral (extended) position.

Stabilisation: Child's prone position stabilizes pelvis.

Procedure:

1. Clinician passively flexes knee on test leg.
2. Spasticity is evident if there is catch in quadriceps with rapid knee flexion.
3. R1 is degree of knee flexion at this time.
4. Quads tightness is evident when hip begins to flex (anterior pelvic tilt) and buttock elevates off table with slow knee flexion.
5. R2 is degree of knee flexion at this time.

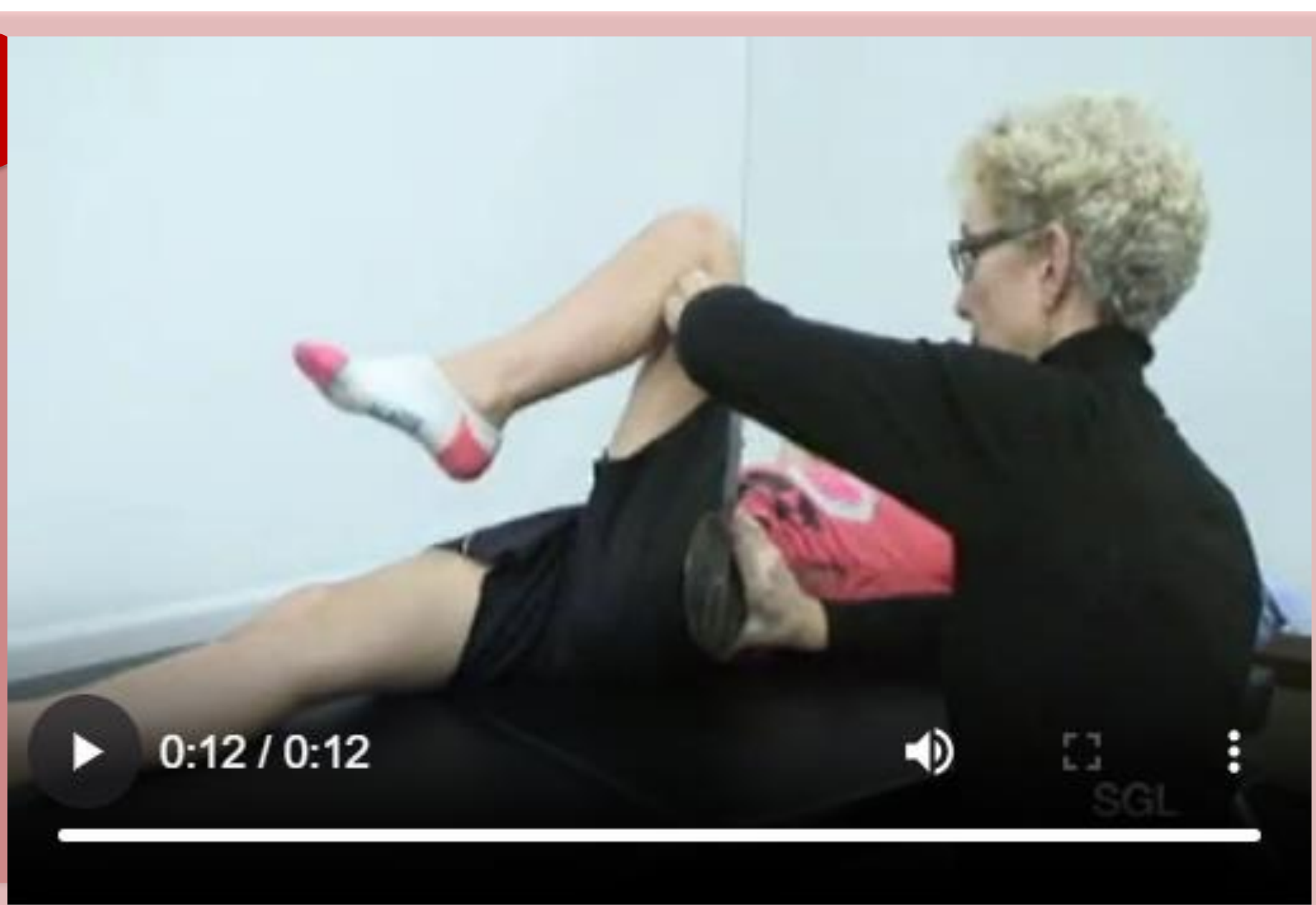
Purpose: 0

After

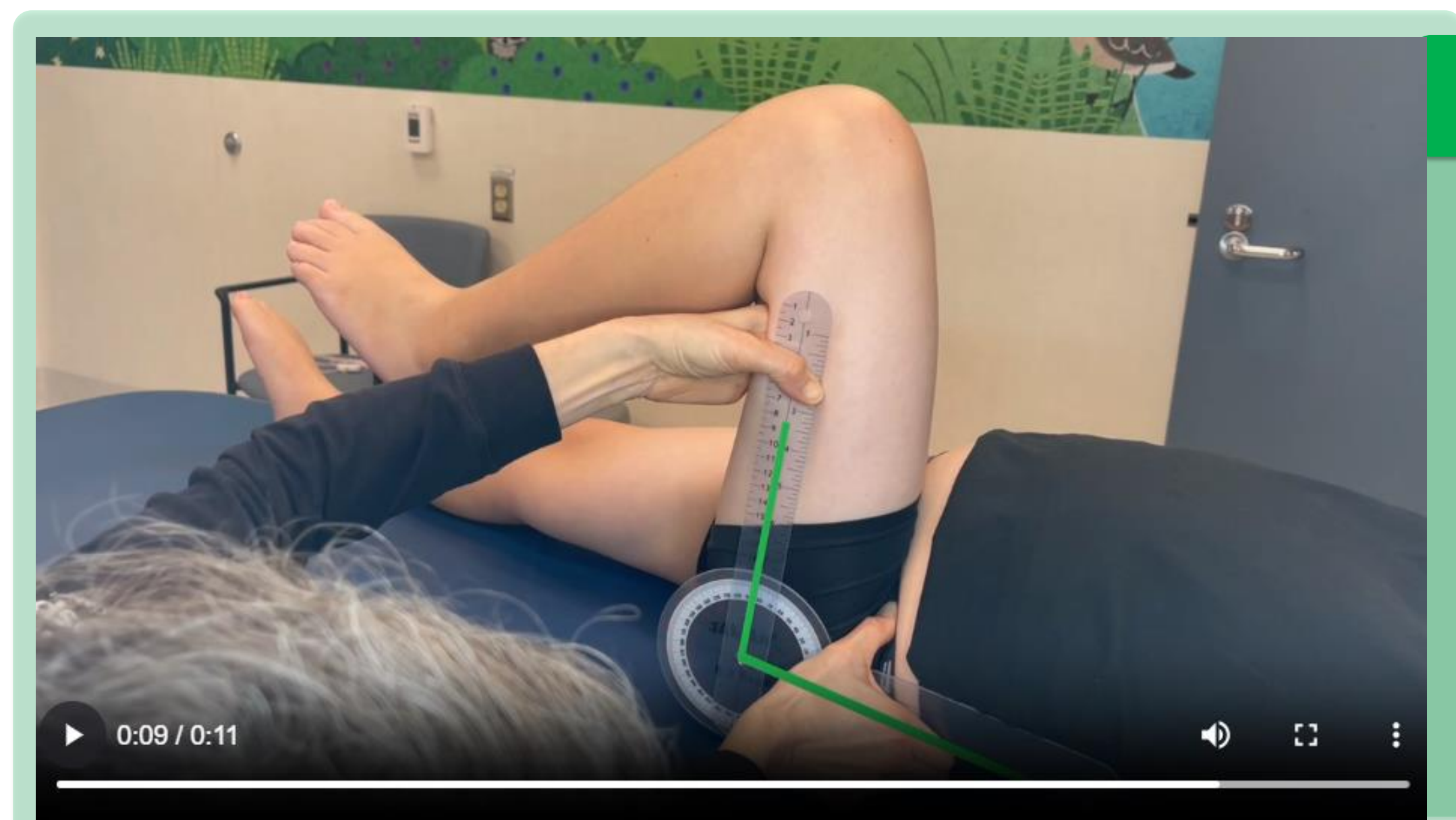
Video of each assessment is displayed along with its instructions. The new "home" button shows full assessment list. This allows for easier navigation and less cognitive overload.

Before

Video examples of each assessment were done on a healthy, typically developing child.



Strategy 3:
Annotated & Realistic Video Examples



After

Video examples of children with neuromuscular conditions, necessitating a lower extremity assessment. Videos are annotated with the goniometer angles measured by a physiotherapist.

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