

# "Walk This Sway" Gait Compromise

## Student Information Page 2C



**Problem Statement:** How do physical impairments affect gait?

### Background:

You have performed the *Gauge Your Gait Lab*, so you know that how a person walks is called gait. Not all people walk the same. While most differences in gait are small, sometimes physical impairments can cause changes large enough to be considered atypical. Many diseases and conditions can contribute to these physical impairments. In this lab, your task is to research some of those conditions, simulate them, and determine the effect they have on gait.

### Hypothesis:

Choose a physical impairment/condition and research the effects of this condition on gait and the positions of the lower limbs. **Write a hypothesis that predicts how this impairment might affect the gait cycle including stride length, cadence, and velocity.**

### Materials:

 (per group)

- 12 meters dark-colored butcher paper
- Shallow tray
- Stopwatch
- Calculator
- *Student Data Page* (per student)
- Talcum powder to fill shallow tray
- Masking tape
- Meter stick
- Internet access to conduct research
- 2 pieces graph paper

### Procedure:

1. Your group will choose a condition from the following list:
  - Parkinson's disease
  - Osteoarthritis
  - Stroke
  - Multiple sclerosis
  - Sports injuries such as Anterior Cruciate Ligament (ACL) tear, broken leg, sprained ankle
  - Rheumatoid Arthritis
  - Knee replacement
  - Cerebral palsy
  - Neuropathy
  - Broken leg
2. You and your group will research the condition you chose and complete the *Student Data Page* by answering the questions about how this disease/condition affects the gait cycle.
3. Be creative and work with your group to figure out a way to simulate the condition and perform the *Gauge Your Gait Lab* with your simulated impairment.
4. Have one student determine *cadence, velocity, and stride length*, as described in *Gauge Your Gait*. Record data. The same student will do the gait compromise and collect data.
5. Construct a graph comparing *stride length, cadence, and velocity* for the "control" and "test" data.
6. Prepare to report on disease/condition you researched and how it affects gait.
7. Complete the *Student Data Page*.