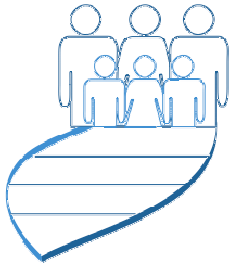


Life Sciences/HHMI

OutReach  
PROGRAM



## **Evolution, Adaptation and the Sneaker: A look at Walking, Running and Shoes**

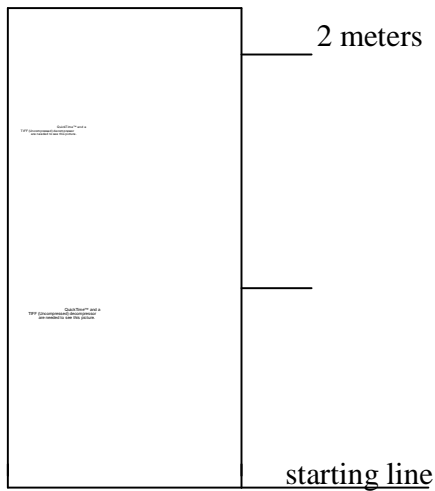
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**Objective:** An introduction Adaptation Lab for walking and running and the effects of various footwear on the gaits of contemporary *Homo sapiens*.

**Materials needed:** You and your partner need to bring in various different shoes to wear ~ sneakers, flip flops, high heels, slippers, boots; whatever shoes you have at home. You should have at least 4 different types of footwear (one pair must be sneakers.) You will also need your phone fully charged.

### **Procedure:**

Part I / Day 1– You and your lab partner need one 10-meter long paper from the paper rolls. Mark each meter along the side of the paper. Take off you socks and shoes. Head into the hallway outside the classroom bringing your paper and a meter stick. Coat the bottom of both feet with the ink. You will place this paper on the ground in the hallway and move along the paper barefoot at both the walk and the run. *You made need to re-ink your feet between the walk and the run.* Do your walking along the left hand side of the paper and your running along the right hand side. Remember to plan ahead as you will have only one trial for each. Your lab partner needs to take a video, **yes, use your phone**, of both the run and the walk. It is best to video the person walking and or running from the side view.



Record the following information about your stride at both the walk and the run.

- Number of strides in 10 meters
- Distance between right and left foot horizontally
- Distance between right and left foot vertically

Record any data you notice about the imprints left by the walk and the imprints left by the run.

**Create a data chart of the above information.**

Part II / Day 2 - You and your lab partner will walk and run 20 meters outside in each of the pairs of footwear that you bring. Your lab partner needs to take a video, **yes, use your phone**, of both the run and the walk in each pair of shoes. It is best to video the person walking and or running from the side view.

Record the following data on each pair of shoes.

- How did your arms move
- How did your head move
- How does your back feel (normal/stressed?)
- How do your toes, heel or ball of foot feels walking vs. running

Most data will require that you review your video several times.

**Create a data table comparing each pair of footwear.**

**Questions:**

1. On your paper of foot prints what were the major differences between running and walking?
2. Why are there differences between running and walking?
3. How did different shoes affect your walk?
4. How did different shoes affect your run?
5. What was the most comfortable combination of shoes and gait (run/walk)?
6. From an evolutionary perspective are shoes good or bad for us and WHY?
7. Why do we wear shoes?