Name:_____ Score: _____

Period:_____ Date: _____

What Running Shoe Should I Buy?

Buying a running shoe that is right for you depends on your biomechanics. There is so much marketing and distractions around running shoes and most of it does not pertain to your individual foot. In this lab you will analyze your foot position and joint ranges of motion while walking and jogging (barefoot/socks) in order to research which athletic shoe would aid and assist your walking/running gate the most.

Objective: Determine the objective of this lab. (Think – What is the effect of? What are you measuring, changing, observing or counting and to what effect?)

_____
_____
_____
_____
_____

Variables:

- **Dependent Variable(s)** - The variable which is measured in the experiment and which is studied in relation to other variables. Its value depends on the independent variable.

  _____

- **Independent Variable(s)** - Independent variables are the variables that the experimenter changes to test their dependent variable.

  _____

- **Controlled Variable(s)** - List as many variables as you can think of that would affect the dependent variable if not kept the same. Discuss your choice of variables, **why they would affect your results?**

Controlled Variable	How will you control the variable?	Why do you need to control this variable?

Materials: Cell phone video (Slo-Mo camera if possible), Measuring tape, masking tape, protractor. There is an awesome protractor app. (This is a minimal list of required materials, feel free to add to it.)

Procedure: You (and your partner if applicable) will be responsible for designing the procedure for this experiment. **Type/print out procedure on your computer for the final copy and attach to this document.**

- Some requirements while walking and jogging
    - Measuring the degree of your **dorsiflexion**, **plantar flexion**, and degree of **pronation/supination**. ***Minimum*** of 3 trials.
    - Provide photographic evidence (and print) of ***each*** of the above and a photo of your ankle joint

Data: Create an applicable data table to properly collect and organize the data collected as a product of your procedure. **Type/print out data table on your computer for the final copy and attach to this document.**

Everything below is completed based on your own personal data.

Analysis:

- Average degree of dorsiflexion (walking): _____
- Average degree of dorsiflexion (jogging): _____
- Average degree of plantar flexion (walking): _____
- Average degree of plantar flexion (jogging): _____
- Average degree of pronation/supination (walking): _____
- Average degree of pronation/supination (jogging): _____
- Evidence of pronation/supination while walking (if applicable)? Describe:
  _____
  _____
  _____
  _____
  _____
  _____
  _____
- Evidence of pronation/supination while jogging (if applicable)? Describe:
  _____
  _____
  _____
  _____
- _____

Photographic evidence

Photo of dorsiflexion (walking) with angle shown.

Photo of dorsiflexion (jogging) with angle shown.

Photo of plantar flexion (walking) with angle shown.

Photo of plantar flexion (jogging) with angle shown.

Photo of pronation (walking) with angle shown.

Research average walking and running ankle movement and foot placement in terms of dorsiflexion, plantar flexion, pronation and supination. Describe below and list your resource/s.

Summarize your ankle movement and foot placement while walking and running (over/under/normal pronation, midfoot strike (low dorsiflexion) extreme heel (high dorsiflexion)).

How does your angle of dorsiflexion and plantar flexion impact your decision on what type of running shoe to buy?

_____
_____
_____
_____
_____

With this information research running shoes that would be a good choice for you. Explain why you chose this shoe. Include information regarding your pronation/supination and dorsiflexion/plantar flexion (foot strike). If your pronation/supination changed from walking to jogging, you may require different running shoes compared to walking shoes.

- This should include an analysis of the shoe that explains what features it possess that aid your foot. Be thorough, a minimum of 3/4 page typed and a maximum of 1 ½ pages typed (12-point font, double spaced minimum). **Type/print out your response on your computer for the final copy and attach to this document.**
- The shoe you research should be correlated to your own personal data.

Resources:

http://www.runnersworld.com/tag/pronation

http://www.runnersworld.com/shoeadvisor

http://www.asics.com/gb/en-gb/running-advice/understanding-pronation-find-the-right-shoes-for-you

http://www.complex.com/sneakers/2014/07/10-great-running-shoes-pronators-summer