

# At Home Activities Worksheet

## What the Asymmetry?

*Play the video under this activity. During this video, three trials will be played. After each trial is played, answer the following questions.*

First Trial: From looking at this video, do you think the landing was symmetrical or asymmetrical? If it was asymmetrical, which foot landed the hardest?

The landing was asymmetrical, with Adam's left foot landing the hardest. As you can see from the loadsol data, the left foot in red produced a higher amount of force than the right foot blue.

Second Trial: From looking at this video, do you think the landing was symmetrical or asymmetrical? If it was asymmetrical, which foot landed the hardest?

The landing was asymmetrical, with Adam's right foot landing the hardest. As you can see from the loadsol data, the right foot in blue produced a higher amount of force than the left foot in red.

Third Trial: From looking at this video, do you think the landing was symmetrical or asymmetrical? If it was asymmetrical, which foot landed the hardest?

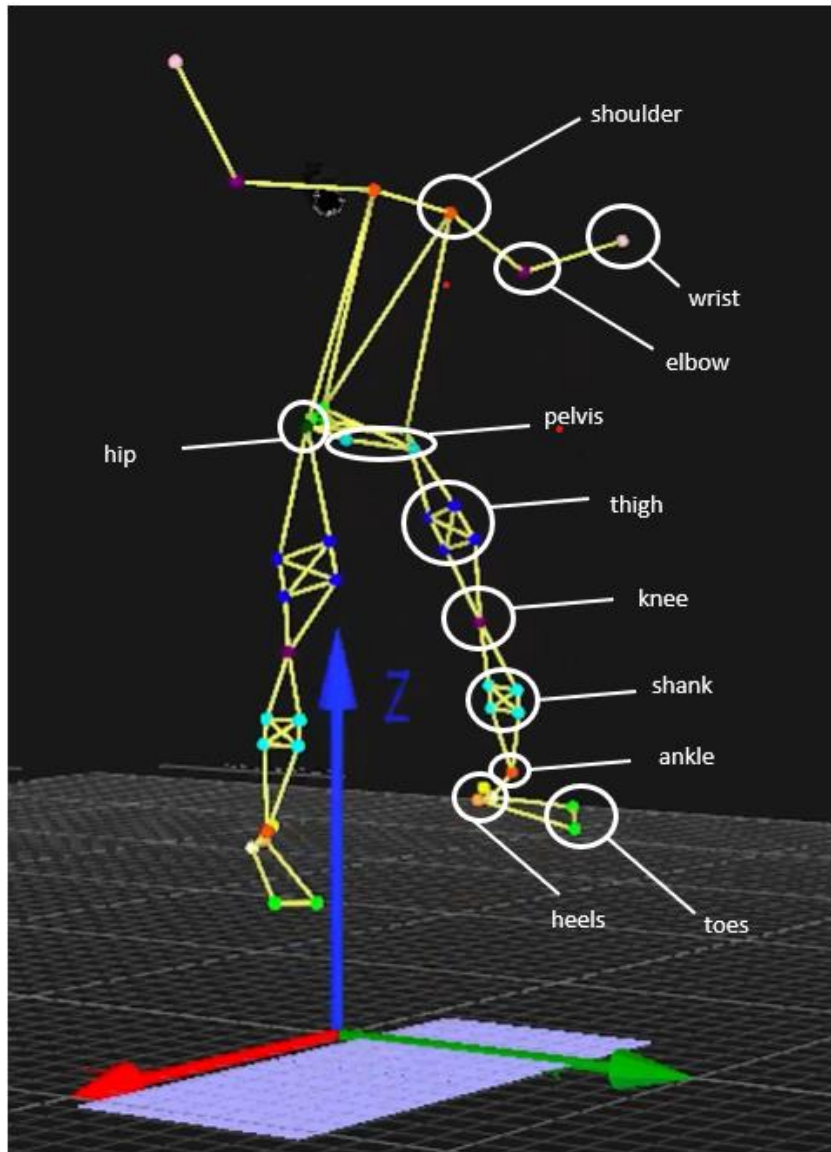
The landing was symmetrical. As you can see from the loadsol data, the left and right foot produced almost equal amounts of force.

# At Home Activities Worksheet

## Loading and Motion Capture during TikTok Dance

Play the first video under this activity.

Looking at the colored dots on the right side of the video, what body segments do you think each color corresponds to? (Hint: If you look closely at Adam on the left side of the video, you can see that he is wearing the markers! By looking at the markers on Adam, you can try to guess what body segments the colored markers correspond to. Use the space below to draw it out as well)



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Play the second video under this activity.

In this video, we have Adam and Jill dancing next to a real-time display of loadsol® data.

From the “What the Asymmetry” activity, you should be familiar with loading data. Red lines represent the left foot and blue lines represent the right foot. Based on this particular video, answer the following questions:

1. In the first three seconds of the video, the red and blue lines oscillated. When the red line went up, the blue line went down, and when the blue line went up, the red line went down. Based on Adam and Jill's dancing, what caused this to happen?

In this portion of the video, Adam and Jill are alternating lifting and setting down each foot where both feet are never touching the ground at once. When a foot is on the ground, force is applied to the loadsol which corresponds to the red and blue lines oscillating. When the red line goes up, the left foot is on the ground. When the blue line goes up, the right foot is on the ground.

2. In 0:03 - 0:11, which foot produced a higher amount of force? Why do you think this, based on the dancing and the loadsol® data?

In this portion of the video, the left foot produces the highest amount of force. From looking at the dancing, the right foot stays in place while the left foot is crossing over the right foot multiple times. Each time the left foot touches the ground, a force is produced.

3. In the last few seconds of the video, Adam and Jill jumped. Looking at the loading data, what lets us know that Adam and Jill jumped? Was the force high or low? Why?

We can tell that Adam and Jill jumped because the force produced when starting the jump was high. This force is high because a high amount of force is needed to exert a jump.

# At Home Activities Worksheet

## Loading during Exercise

*Play the first video under this activity.*

*In this video, Adam demonstrates three squats. As you can see in the video, a squat is where a person lowers their hips from a standing position and stands back up. Squats are an exercise used to increase strength in the lower body muscles.*

*When was the amount of force produced the highest? What was Adam doing when this occurred?*

**The amount of force is the highest when Adam is in the squat position.**

*Play the second video under this activity.*

*In this video, Adam demonstrates a drop vertical jump. As you can see in the video, a drop vertical jump is where a person jumps down from an elevated surface and then does a vertical jump from the ground. Drop vertical jumps are used in research to identify athletes at risk for knee injuries.*

*When was the amount of force produced the highest? What was Adam doing when this occurred?*

**The amount of force is the highest when Adam does a vertical jump from the ground.**

*Play the third video under this activity.*

*In this video, Adam demonstrates a stop jump. As you can see in the video, a stop jump is where a person starts to run, lands on two feet and jumps. A stop jump is commonly performed in basketball and volleyball.*

*When was the amount of force produced the highest? What was Adam doing when this occurred?*

**The amount of force is the highest when Adam does a vertical jump from the ground after landing on two feet from the run.**