Analyzing Hop Test Data
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Limb Symmetry

The way we track progress is we compare one side to the other and look at what we call a Limb Symmetry Index (LSI). In injured athletes that looks like this:

$$LSI = \frac{Injured\ Leg\ Performance}{Uninjured\ Leg\ Performance} \times 100$$

What you can do when graphing your data on a scatter plot is find that value for your whole data set by plotting it and finding the slope.

$$m = \frac{\Delta y}{\Delta x}$$

Slope is the change in rise (y) divided by the change in run (x)

So if we plot the left leg on the Y and the right leg on the X we'll get this:

$$y = mx + b \Longrightarrow (Left\ leg\ distance) = m(right\ leg\ distance)$$

This means that $m = \frac{\Delta left\ leg\ distance}{\Delta right\ leg\ distance}$ and the slope for a line between two points would be the average LSI of those two subjects.

How do we find this?

1. Gather your data. What you'll plot is those averages I alluded to in the hop test instructions.
2. Average the 3 trials on the right leg, this will be your x value.
3. Average the 3 trials on the left leg, this will be your y value.

Thought question: How symmetrical would you expect a "normal" kid to be able to perform? And what should the general trend of your scatter plot look like?

Allometric Scaling

The other way we are starting to look at these measurements is through what's called allometric scaling. That's a fancy way of saying we're comparing performance output (in this case how far we hopped) to a body measurement (in this case height). Go impress someone with your new buzzword.

We can look at this in a very similar way to limb symmetry. Just pick a leg and plot that as your y value and then plot your subject's height as the x value