Hypotheses for Research Questions

1) Does simply being deemed as **high risk** on the soft tissue watch list **predict HSI incidence**?

Even though being deemed high risk is based upon many known risk factors, we believe simply being deemed as high risk on the soft tissue watch list is not completely reliable to predict HSI incidence. It can definitely be a strong predictor of HSI incidents. As mentioned in much research, there are not just controllable but also uncontrollable factors at play, making it more difficult to predict HSI incidence. We believe that being deemed high risk, along with other factors, can significantly contribute to predicting HSI incidence.

Also wary of a high false positive rate in the high-risk category. We believe, on the big picture, with a focus on validating all risk categories, low-high is more beneficial than honing in on purely the high risk category for better overall and individual predictability.

2) If so, how do the components of the **watch list predict subsequent HSI injury risk**?

A history of previous ACL or HSI injuries, a greater percentage distance away from the positional norm in the weaker direction, a greater percent strength imbalance, and strength trend towards weaker will all indicate a higher subsequent HSI injury risk.

3) If the components of the **watch list are predictive of HSI**, can we establish **better thresholds** as being flagged?

If the components of the watch list are predictive of HSI, then we believe we can establish better thresholds for HSI.

Roadmap

Documentation Style: finished products of work uploaded as a PDF
Timeline: follow to best ability

Week 1
Tuesday
- orientation + setting up workspaces

Wednesday
- find research literature to help our understanding + summarize findings from these sources

Thursday
- finish up research + give hypotheses on research questions + look over/sort through datasets, make sense of all predictors, etc.

Week 2
Monday
- meeting 10 am + github tutorial + continue familiarizing ourselves with the data

Tuesday
- week 1 review Q's due + literature review + brainstorm how to determine accuracy of risk report + submit project roadmap and literature review to week 1 deliverables

Wednesday
- start cleaning and organizing data + transform variables if needed

Thursday
- meeting 10 am + continue data wrangling + explore distributions of individual predictors for better understanding

Week 3
Monday
- meeting 10 am + analyze the data to determine if players deemed high risk experienced injury on incident report

Tuesday
- reflect on hypothesis for question 1 + analyze the incident report for all athletes on the soft tissue watchlist

Wednesday
- continue to analyze the accuracy of risk assessments for athletes based on incident report

Thursday
- meeting 10 am + look into how previous injury status correlates to occurence of new hamstring injuries

Week 4
Monday

- meeting 10 am + look into how strength statistics correlate to incidence of hamstring injuries

Tuesday

- continue to look into the strength statistics + experiment with other statistics such as sprinting statistics

Wednesday

- analyze how changes to the thresholds of risk impact accuracy

Thursday

- meeting 10 am + continue to experiment with threshold changes + reflect on hypothesis for question 2 + peer/performance review

<u>Week 5</u>

Monday

- meeting 10 am + begin creating powerpoint presentation + begin creating draft of the written report + create meaningful visualizations for the data

Tuesday

- continue creating powerpoint presentation + continue drafting written report

Wednesday

- finish powerpoint presentation + finish written report

Thursday

- meeting 10 am + commit final changes to repository + push README replacement markdown file + present to stakeholders