Analysis of Fatigue in Canadian Women's Rugby 7's

- Team Name: Data Squad
- Team Members: Kirstin O'Brien, Fatima Taj, Antra Labroo, Amy Li & Muhammad Hamza Rashid

Process, Insights and Implications

Process:

1. Mean imputation for all missing data values
2. Joining tables using SQL queries
3. Analyzing data using Multinomial Model where Fatigue is regressed on various factors
4. Analyzing Binomial GLM where Game Outcome is regressed on Players, Fatigue and Speed

Insights:

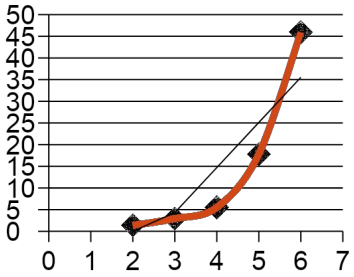
1. For **Multinomial Model** the following factors are significant at the 5% level: Irritability, Desire, Sleep Hours, Speed, Session Type: Game, Session Type: Mobility/Recovery, USG and acute chronic ratio
2. For **Binomial GLM** the following factors are significant at the 5% level: Players, Fatigue and two interactions between Fatigue*Speed and Speed*Player

Implications:

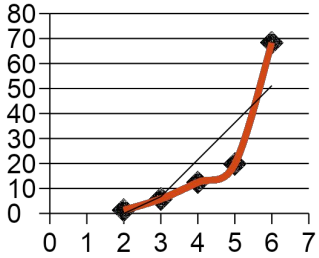
1. Fatigue can be calculated more accurately using only the significant factors from the Multinomial Model
2. Whether a game is lost or won is affected by the Fatigue and Player values. However, speed by itself does not impact the outcome of the game

Data Visualization: Log Odds Ratio of Several Factors for Fatigue

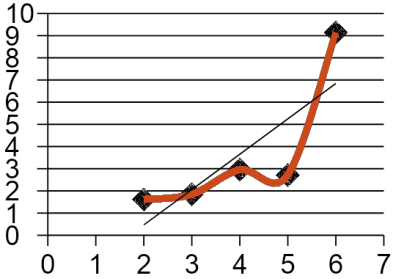
As Irritability↑ Fatigue↑



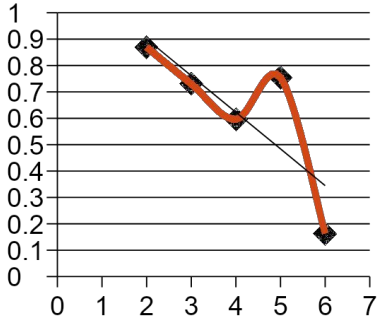
As Desire↑ Fatigue↑



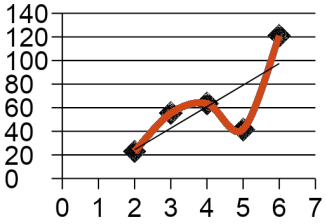
As sleep hours ↑ Fatigue↑



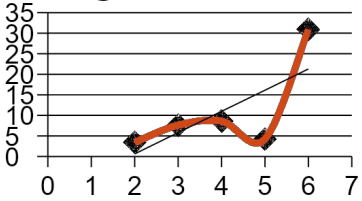
As speed ↑ Fatigue ↑



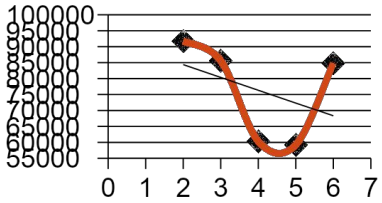
SessionType: Game vs Fatigue



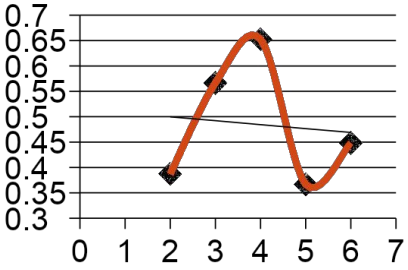
SessionType: Mobility/Recovery vs Fatigue



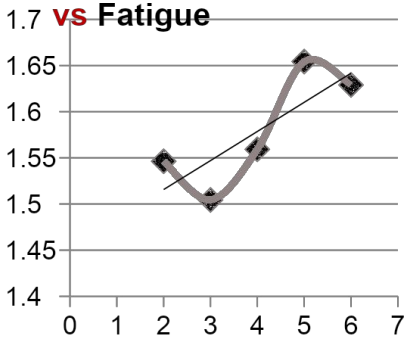
USG vs Fatigue



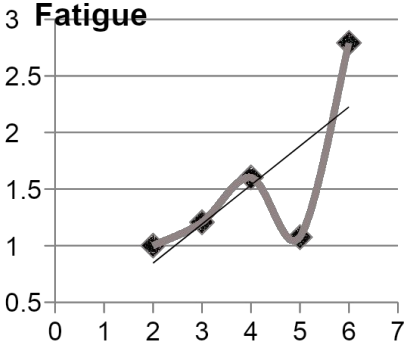
AcuteChronicRatio vs Fatigue



SessionType: Strength vs Fatigue



SessionType: Skills vs Fatigue



SessionType: Speed vs Fatigue