Evaluating current training decisions based on athletes' self-reports
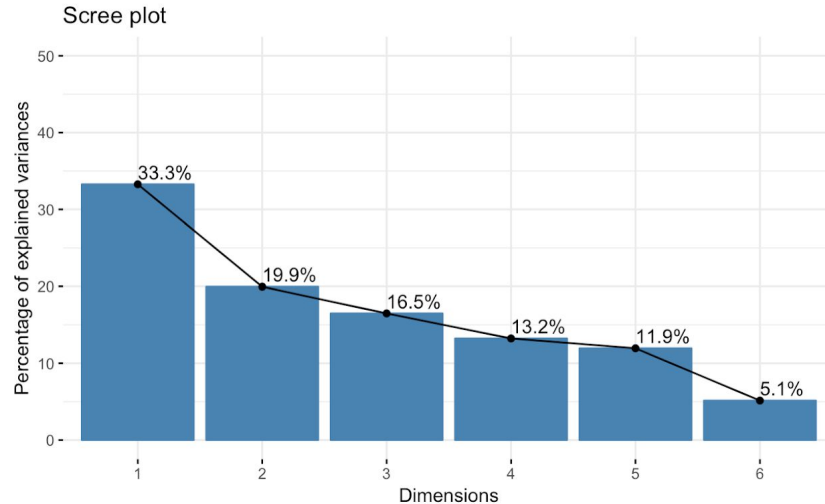
## Fibonachos from Mount Holyoke College

Goals / Motivation:

- Find the connection between wellness of each player with their performance in game and training workload

Data processing

- Standardize levels of wellness index based on each individual using Z-score
- Quantify athletes' performance in games using Principal Component Analysis

Scree plot

Percentage of explained variances vs Dimensions

- 1: 33.3%
- 2: 19.9%
- 3: 16.5%
- 4: 13.2%
- 5: 11.9%
- 6: 5.1%

Total movement magnitudes of each player in the Paris Tournament, using Dimension 1 (39% Speed, 22% AccelImpulse, 35% AccelLoad) and Dimension 2 (40% AccelY, 45% AccelZ)
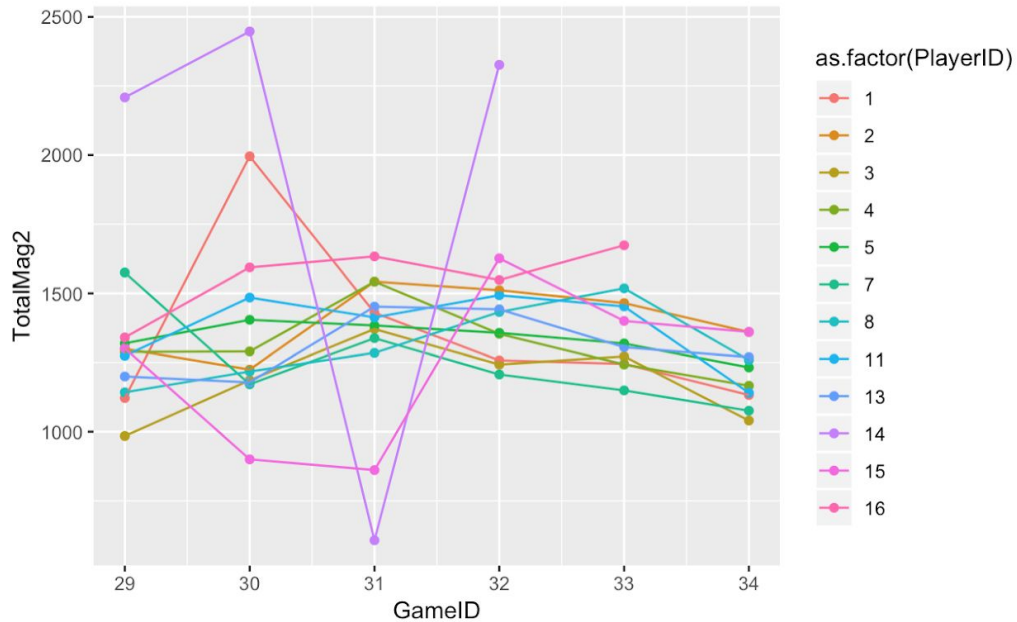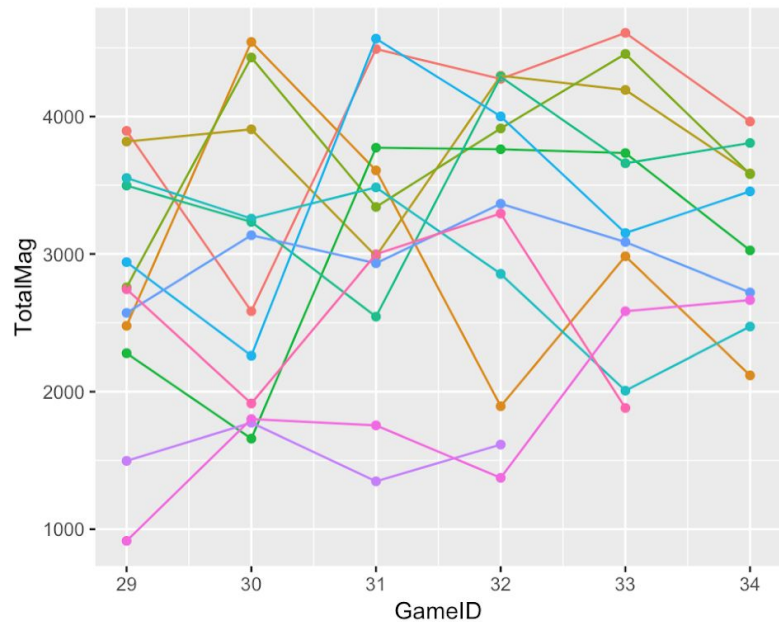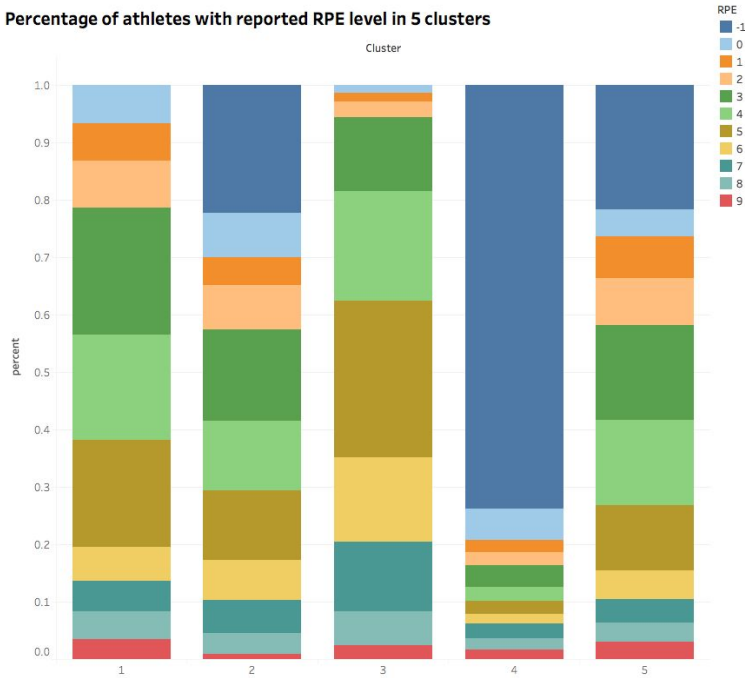

We find consistent moving patterns between some players in each of the match. For example, in the first Graph, Player 1, 5, 7, 16 move in consistent pattern together. This might imply about their roles or team strategy. In the second graph, we find most players have similar Y and Z axis movements. The magnitude slightly decrease by the end of the tournament.

Data Analysis

Find the connection between physical condition and training pattern using K-means clustering with k=5 chosen by the Elbow method.

Duration
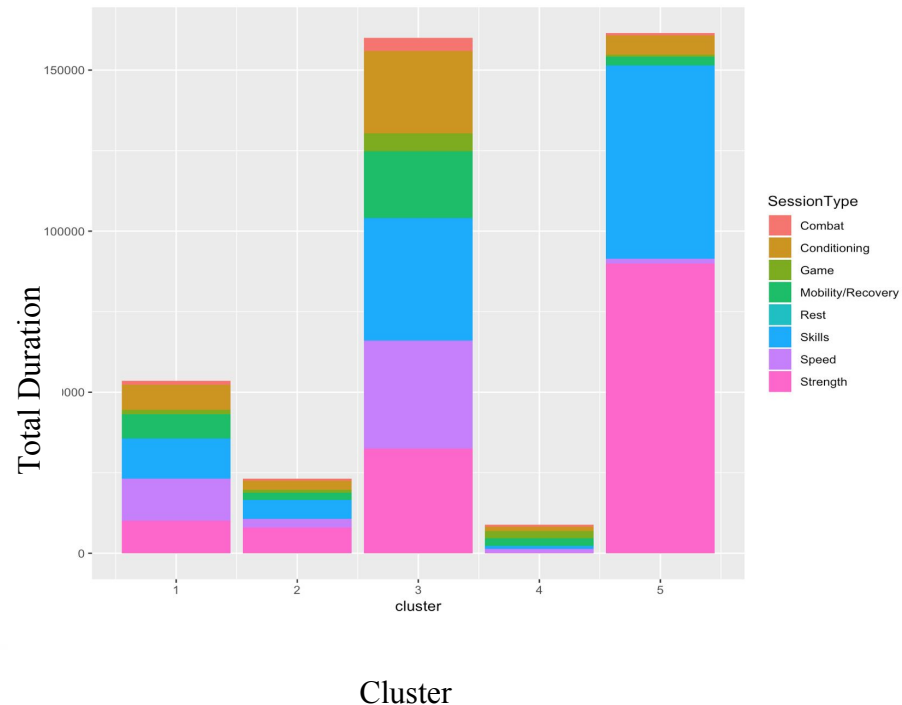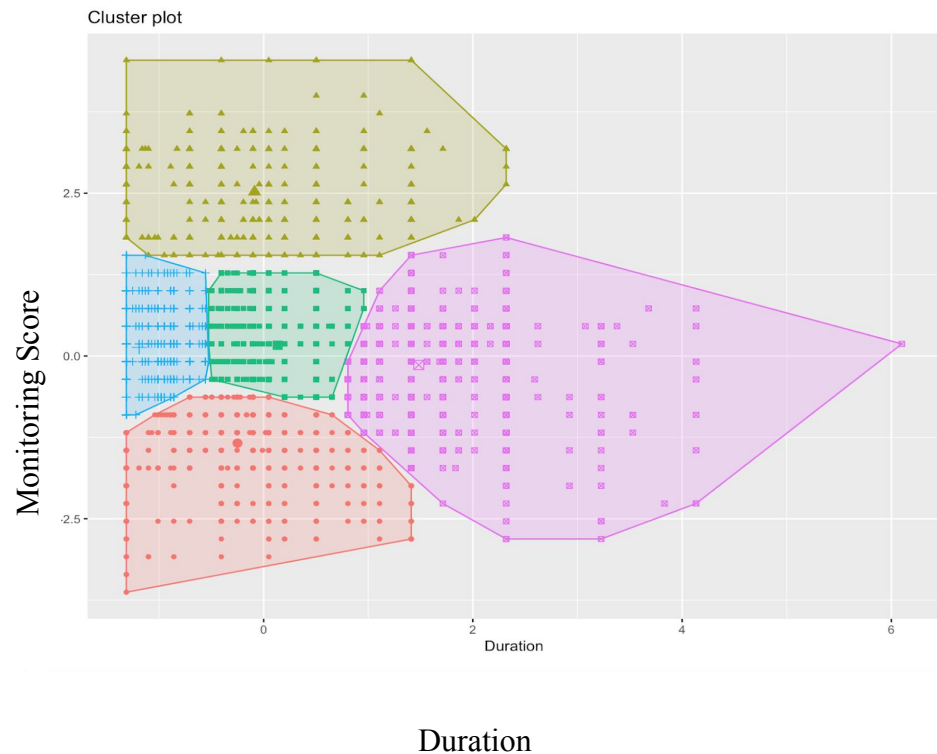
Cluster

Percentage of athletes with reported RPE level in 5 clusters

Evaluating atheletes' RPE with current training pattern

Summary:
- 40-60% reported RPE 3-5 in cluster 1, 2, 3, 5. About half of the responses from the players finds the training moderate to hard enough.
- Application: This might help coaches to use the Monitoring score from the survey to assign suitable training sessions and duration.

Limitations:
- Performance might be hard to quantify in 1 or 2 numbers.
- Evaluating athletes' RPE might not be an objective measurement. We could have used Acute Chronic Ratio if there were not many missing values.