Week 2 - Assignment Instructions

In week 2 we have looked at external sensors that can record measures like acceleration, velocity, distance, body position, GPS location, etc.  In the workbook, we have had a look at all of the session data from a Catapult Sports device worn by the UM Women’s Soccer Team in the 2019 season.  We have evaluated the “acute to chronic workload ratio” for several players on the team as well as the team as a whole.  In this workbook we used a common set of parameters for the acute to chronic workload ratio (7 day acute window; 28 day chronic window).

For this assessment we will use the same functions and methods to answer some new questions from the same dataset.  We will ignore the heart rate data for this week – as that will be a focus of our work next week.

**Scenario:**

The coaches have seen the workbook that we evaluated prior to this assessment and they have several requests for additional analyses.  First, they are interested in which players had the highest total playerloads across the season (several coaches are  betting that it will be a midfielder since they cover so much ground).  The coaches are also interested to know whether using the ACWR with different “windows” for the acute to chronic workloads will result in big differences in the overall ACWR results across the season.  They want to use a 3 day acute window with a 21-day chronic window.  This analysis will be interesting as the team tends to play 2 games during each weekend (Friday and Sunday) – and therefore the team starters have a very high playerload across these busy weekends (a 3-day acute window). Finally, the coaches agree with the removal of the 2 players that had very low participation during the season (as we performed in the workbook) – but also want you to remove all the goalkeepers from the dataset prior to performing the team calculations.

These are the steps that you need to take to complete the assignment:

1. Load the datafile (soccer.csv)

2. Make a new dataset (or dataframe) using only the “session” periods from the season

3. Create a variable for the “session duration” based on the “total player load” and the “player load per minute” columns.

4. Rank the team players by their cumulative playerload across the entire season

5. Determine the 10 highest sessions for playerload (by any player) and observe how many of these occurred on “game” days.  (See text file with schedule).

6. Remove the two players with the lowest cumulative player load (who we previously identified as missing many training sessions; players 98 and 62) as well as any other goalkeepers from the dataset (Players 89, 23 and 71)

7. Plot the ACWR (using the 3 day acute and 21-day chronic windows) for the player identified as having the highest cumulative player load in step 4 above.

8. Plot the ACWR (using the 3 day acute and 21-day chronic windows) for the entire team

9. Identify any dates that the team went above the 1.5 threshold for the ACWR (3:21)

10.  Identify the lowest (non-zero) cumulative team session duration (ie. what day did the team have the least number of minutes in practice).  When did this fall relative to the teams schedule? (see text file with schedule)