Activity 1.A: warm-up

Outcome: We want to get the distance covered by the goal keeper during a game, in different ranges of intensity (i.e., speed).

Data: https://github.com/komarjoh/ComplexSportsData
➔ Download the file "X_Y_final.csv"
➔ Connect to the Colab ComplexSportsData2023.ipynb
(alternatively you can do it with Excel)

1) The data contains the 2D (X and Y) location (in meters) of the players at every moment of the game.
2) We want to get the distance covered by the Goal Keeper while standing, walking, jogging and sprinting.
3) If possible, we also want the total number of sprints as well as the number of decelerations the Goal keeper performed during the game (when acceleration fell below -0.2 m.s^{-2}).
4) To detect the start and end of the stand, walk, jog, and sprint sections, the thresholds of Büchel et al. (2019) were applied. Therefore, we considered the following zones as standing from 0 to 0.2 m.s−1, walking from 0.2 to 2.0 m.s−1, jogging from 2.0 to 4.0 m.s−1, running from 4.0 to 5.5 m.s−1 and finally sprinting when the instantaneous speed was over 5.5 m.s−1.

Activity 1.B: some handball

Outcome: We want to capture the (physical) "cost" of substitute the goal keeper with an extra field player in handball.

Data: https://github.com/komarjoh/ComplexSportsData

➔ Download the file "X_Y_final.csv"
➔ Connect to the Colab ComplexSportsData2023.ipynb
(alternatively you can do it with Excel)

1) Same information as A.1, but for 2 different situations, *i*) the substitutions versus *ii*) the regular goal keeping activity.
2) Present the data "per game" and "per 10 minutes of play".

Büchel, D.; Jakobsmeyer, R.; Döring, M.; Adams, M.; Rückert, U.; Baumeister, J. Effect of playing position and time on-court on activity profiles in german elite team handball. *Int. J. Perform. Anal. Sport* **2019**, *19*, 832–844.