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Paper 1: A Machine Learning Approach to Assess Injury Risk in Elite Youth Football Players

The general topic of this paper is the assessment of injury risks in elite youth football (soccer) players using machine learning techniques. The specific behavior/action being studied is how preseason anthropometric, motor coordination, and physical performance measures can be used to predict injury risks and classify injury types (overuse vs. acute) in youth football players. The following quote from the paper describes the research question concisely: “The first aim was to use preseason test results to assess the accuracy of a machine learning model predicting injury during the season. The second aim was to apply a similar model to correctly classify different types of injuries, namely overuse and acute injuries.”

Some challenges that were faced during the study were that “only the first occurring injury of every player was considered in our analyses, because the motor performance measures potentially change after return from an injury” and that the authors “only tested the players at the start of the competitive seasons and then monitored injuries over the entire season [but] anthropometric and motor performance measures change over the course of the season due to training and natural development.”

The authors make the claim that their model can classify injuries as either overuse or acute with reasonably high accuracy. The evidence used in the study is preseason anthropometric, motor coordination, and physical performance data from 734 male youth football players during one competitive season, as well as the injuries (type, severity, and occurrence) among those athletes during the season. The statistical analysis used in this study includes precision, recall, and F1 score. A potential problem with this paper is that the study is conducted on Belgian youth football players, and it's unclear if the model would perform equally well in different countries, leagues, or age groups.