



Silicon Valley Exercise Analytics

Case Study - Werder Bremen soccer

SUMMARY

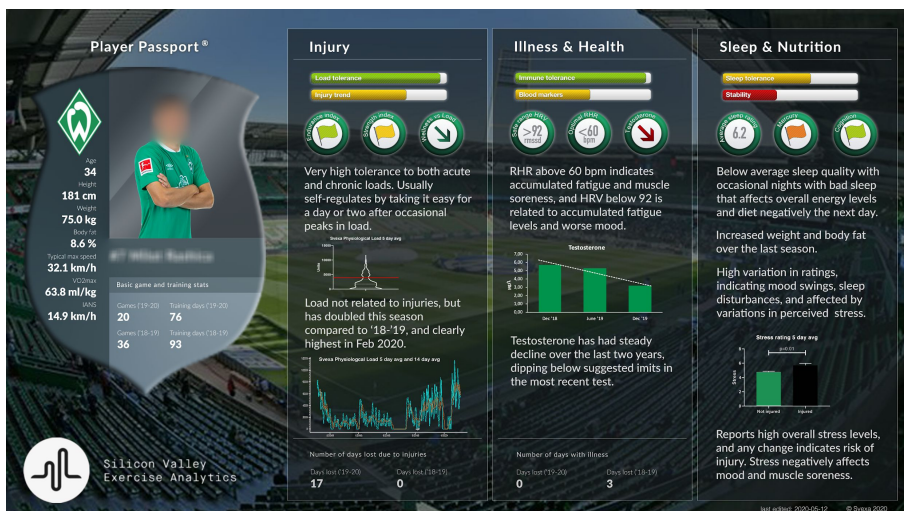
In early 2020, Svexa was selected as the winning pitch to the Werder Lab, the incubation program powered by Werder Bremen and betahaushX. In the following months, our team worked closely with members of the Werder Bremen performance and medical staff to develop improved methods for data collection and analysis, with a focus on optimizing player performance and avoiding injuries. We successfully delivered Player Passports to enable individualized training, highlighting that our unique combinations of available metrics could identify the majority of injury risks in time to avoid them.

THE CHALLENGE

Professional soccer coaches and their players face a challenge common to many elite athletes in modern times. Rather than difficulty gathering data to analyze their performance, they now face a tsunami of available data from a bewildering array of potential sources. Werder Bremen gathered movement data for every player using GPS tracking vests, as well as closely tracking player heart rate, sleep, weight training, nutrition and various biological markers. However, this data was presented in different formats to the coaching and performance staff, with little guidance on how to identify the critical metrics to drive actionable insights that could improve performance. Svexa tackled this in phases; first we reviewed the available data sources, suggesting improvements in collection methods and data delivery. Then we created an integrated dataset to enable analysis of the unique characteristics and critical metrics for each individual player. Finally, we demonstrated that with these metrics we could predict injuries before they occurred, enabling the team to keep its critical players on the field!

PLAYER PASSPORTS

These provide coaching staff with a powerful visual overview of an athlete's training history, highlighting their unique individual response patterns and evaluation of their most valuable metrics for recovery and performance. We delivered these for the whole Werder Bremen first squad, providing clear, actionable focus metrics that the staff can use to monitor each player.



An example Player Passport with mockup data*

*This does not represent an actual individual



SV WERDER BREMEN

One of the most storied clubs in Germany's Bundesliga, Werder hold the record for most seasons played and are third in the all-time table, behind Bayern Munich and Borussia Dortmund. Werder have been German champions four times, have won nine Bundesliga Cups, and the European Cup Winners' Cup once.



AXEL DÖRRFUSS,
HEAD OF PERFORMANCE
After many years of training top athletes, I am more than ever driven by two questions: How can we recognize and test talent, and how can we best support athletes on their way to high performance? Svexa's work in this area is truly groundbreaking, they delivered valuable insights that our coaches could work with.

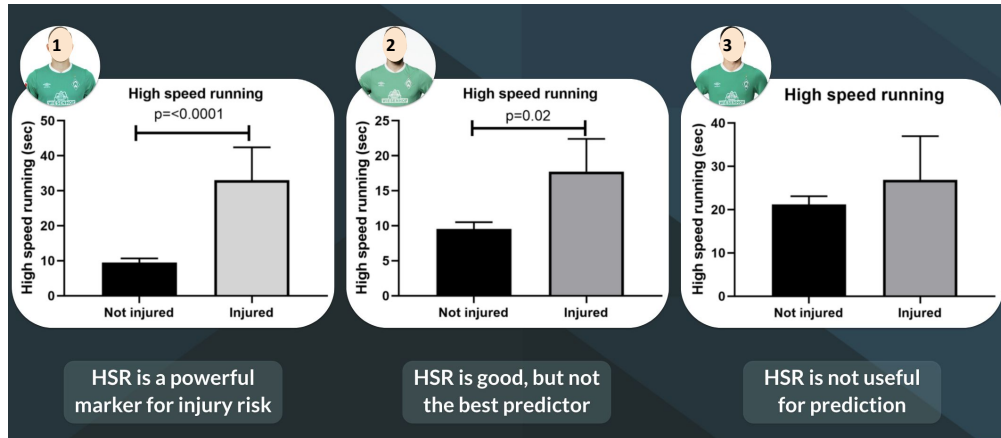


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IDENTIFYING THE BEST PREDICTORS OF INJURY

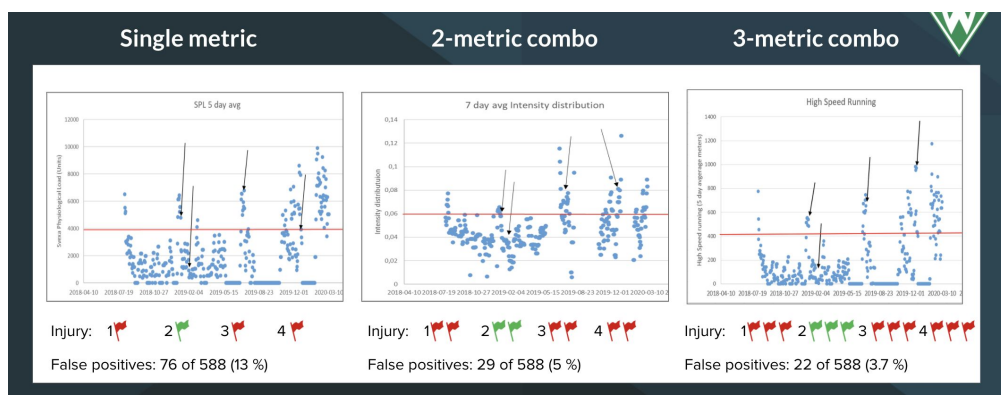
Avoiding future injuries is of course a critical goal for any soccer coach, so we studied historic injuries to identify the relative strength of each metric as a predictor of injury. As with all our analyses, this was performed separately for each individual player, clearly demonstrating that while one metric might be a good predictor of injury for one player, it may be completely irrelevant for another player.



Example - High Speed Running training load is a good predictor of injury for Player 1, but a poor predictor for Player 3

COMBINING METRICS TO ADD PREDICTIVE POWER

While a single metric may be a useful predictor of injury for an individual player, it could also result in a lot of 'false positive' identification of injury risk, and the coach would not want to continually pull players from training each time they reached a particular load threshold. By combining metrics, we developed more powerful predictors of injury that could identify most injuries with a minimal rate of false positives. This way, the coach can keep training the players hard and know that a Svexa 'injury warning is not to be taken lightly!



Example - Combining 3 metrics identified 3 of 4 historic injuries for this player, with a false positive rate of less than 4%

CONCLUSION - through our work with Werder Bremen, we demonstrated that our Player Passports could provide actionable 'focus metrics' for each individual player, and we validated that our analytics could predict injuries with a high degree of accuracy while minimizing false positives. The Werder Bremen performance and executive team see clear value in this work, and we hope to continue building on it by layering on our automated solutions in future seasons.