Swing+, Power+, and Contact+: Composite Metrics for Evaluating Hitter Performance in Major League Baseball

Introduction

Major League Baseball's decision to begin publicly tracking swing speed at the 2023 All-Star break introduced a new dimension to player evaluation. While exit velocity and launch angle have been widely analyzed for years, swing speed remains an underexplored statistic despite its potential to reshape how hitters are assessed. This research addresses the question: how can swing-level data, particularly bat speed, be transformed into actionable metrics that better capture offensive value? By focusing on swing mechanics rather than only outcomes, I aim to create tools that complement existing analytics and provide managers, analysts, and front offices with a richer understanding of hitter performance. The broader significance of this work lies in reframing the evaluation process around how a swing is executed, not just the results of contact.

Methods

I developed three composite indices using Statcast swing-level data from the 2023 and 2024 seasons: *Swing+*, *Power+*, and *Contact+*. These metrics integrate bat speed, swing length, squared-up rate, blast rate, launch angle, and whiff rate. Each variable was standardized and weighted based on correlations with offensive outcomes to create interpretable measures that resemble the familiar plus-stat framework. *Swing+* summarizes overall swing quality, *Power+* isolates power generation, and *Contact+* evaluates contact efficiency. Statistical analysis included correlation with benchmarks such as weighted runs created plus (wRC+), isolated power (ISO), and batting average. To highlight practical application, I also conducted case studies of specific hitters and constructed team-level examples that show how these metrics can shape lineup optimization.

Results

The results show that *Swing+* correlates 0.586 with wRC+, *Power+* correlates 0.649 with ISO and 0.631 with wRC+, and *Contact+* correlates 0.32 with batting average. These findings indicate that swing mechanics, particularly bat speed and blast rate, are strong predictors of offensive productivity. Case studies highlight the unique insights offered by the metrics. Kyle Schwarber ranked sixth in *Swing+* despite a modest WAR, illustrating the offensive value of elite swing quality, while Anthony Volpe's low *Swing+* revealed inefficiencies that traditional statistics overlook. On a team scale, the metrics were used to recommend a restructured 2024 Chicago White Sox lineup, balancing power-oriented and contact-oriented hitters to project improved run production. These applications underscore how swing-level measures can complement traditional outcome-based evaluation.

Conclusion

This research demonstrates that incorporating bat speed into composite metrics provides a more complete picture of hitter performance. *Swing+*, *Power+*, and *Contact+* highlight strengths and weaknesses that traditional statistics often obscure, offering a framework for player evaluation,

roster construction, and player development. By centering swing mechanics, these metrics align with MLB's recent data expansion and provide interpretable tools for decision-makers across front offices and coaching staffs. As swing speed continues to be tracked across future seasons, these measures can be refined, extended to pitchers' analyses, and integrated into player development systems. The overall takeaway is that swing quality is not just a descriptive curiosity but a measurable, predictive input that can reshape how offensive value is quantified in Major League Baseball.