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Optimizing Your Lineup By The Book

By Sky Kalkman | Updated Oct 9, 2012, 12:08pm EDT

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Bumping this amazing and still-relevant piece by my predecessor/friend/mentor, Sky Kalkman, for the 2012 post-season. It's a great reminder about basic lineup optimization, that it's overrated anyway, and the three and eight holes aren't exactly what you think. I hope you're enjoying it now as much as I did when I first read it. -jbopp

As teams begin to pare down their rosters towards the magical 25 number, spring training conversation will shift to debating each team's ideal batting order. Because we care, BtB would like to remind everyone that lineups are pretty overrated. Believe it or not, the difference between an optimized lineup and a typical, mildly foolish one you'll see MLB teams use is only about one win over 162 games. It's obviously worth getting right, but not any more than realizing Troy Percival shouldn't be your closer or Joba Chamberlain belongs in the rotation.

That being said, in order to put the best lineup together possible, there are some tips to follow, as Tom Tango, Mitchel Lichtman, and Andy Dolphin showed via extensive research in their book, **The Book**. By lineup position...

Lead-Off

The old-school book says to put a speedy guy up top. Power isn't important, and OBP is nice, but comes second to speed.

The Book says OBP is king. The lead-off hitter comes to bat only 36% of the time with a runner on base, versus 44% of the time for the next lowest spot in the lineup, so why waste homeruns? The lead-off hitter also comes to the plate the most times per game, so why give away outs? As for speed, stealing bases is most valuable in front of singles hitters, and since the top of the order is going to be full of power hitters, they're not as important. The lead-off hitter is one of the best three hitters on the team, the guy without homerun power. Speed is nice, as this batter will have plenty of chances to run the bases with good hitters behind him.

The Two Hole

The old-school book says to put a bat-control guy here. Not a great hitter, but someone who can move the lead-off hitter over for one of the next two hitters to drive in.

The Books says the #2 hitter comes to bat in situations about as important as the #3 hitter, but more often. That means the #2 hitter should be better than the #3 guy, and one of the best three hitters overall. And since he bats with the bases empty more often than the hitters behind him, he should be a high-OBP player. Doesn't sound like someone who should be sacrificing, does it?

The Third Spot

The old-school book says to put your best high-average hitter here. The lead-off hitter should already be in scoring position and a hit drives him in. Wham, bam, thank you ma'am.

The Book says the #3 hitter comes to the plate with, on average, fewer runners on base than the #4 or #5 hitters. So why focus on putting a guy who can knock in runs in the #3 spot, when the two spots after him can benefit from it more? Surprisingly, because he comes to bat so often with two outs and no runners on base, the #3 hitter isn't nearly as important as we think. This is a spot to fill after more important spots are taken care of.

Cleanup

The old-school book says to put your big power bat here, probably a guy with a low batting average, who will hit the big multi-run homeruns.

The Book says the #4 hitter comes to bat in the most important situations out of all nine spots, but is equal in importance to the #2 hole once you consider the #2 guy receives more plate appearances. The cleanup hitter is the best hitter on the team with power.

The Number Five Guy

The old-school book says the number five guy is a wannabe cleanup hitter.

The Book says the #5 guy can provide more value than the #3 guy with singles, doubles, triples, and walks, and avoiding outs, although the #3 guy holds an advantage with homeruns. After positions #1, #2, and #4 are filled, put your next best hitter here, unless he lives and dies with the long ball.

Spots Six Through Nine

The old-school book says the rest of the lineup should be written in based on decreasing talent. Hitting ninth is an insult.

The Book basically agrees, with a caveat. Stolen bases are most valuable ahead of high-contact singles hitters, who are more likely to hit at the bottom of the lineup. So a base-stealing threat who doesn't deserve a spot higher in the lineup is optimized in the #6 hole, followed by the singles hitters.

That Whole Hitting The Pitcher Eighth Thing

The **Cardinals** and **Brewers** have hit the pitcher eighth in the past, and it's actually a smart, albeit insignificant, strategy. Yes, giving an awful hitter more plate appearances by hitting him higher in the lineup is costly, but the benefit of having a better number nine hitter interacting with the top of the lineup is worth the trade-off, by about two runs per season. By putting a decent hitter at the bottom of the order, the top spots in the lineup will have more runners on base to advance with walks and hits and drive in with hits.

This strategy isn't as worthwhile in the American League, because even the worst position player will be on base significantly more often than a pitcher when the top of the order comes around. Only bat the worst hitter eighth when he's significantly worse than anybody else -- maybe someone like Adam Everett or Tony Pena Jr.

Final Thoughts

Another way to look at things is to order the batting slots by the leveraged value of the out. In plain English (sort of), we want to know how costly making an out is by each lineup position, based on the base-out situations they most often find themselves in, and then weighted by how often each lineup spot comes to the plate. Here's how the lineup spots rank in the importance of avoiding outs:

#1, #4, #2, #5, #3, #6, #7, #8, #9

So, you want your best three hitters to hit in the #1, #4, and #2 spots. Distribute them so OBP is higher in the order and SLG is lower. Then place your fourth and fifth best hitters, with the #5 spot usually seeing the better hitter, unless he's a high-homerun guy. Then place your four remaining hitters in decreasing order of overall hitting ability, with basestealers ahead of singles hitters. Finally, stop talking like the lineup is a make-or-break decision.

For all the nitty gritty details, I highly recommend getting yourself a copy of **The Book**, which goes into even greater detail about the strategy of lineup construction, including platoons, separating lefties in the lineup, strikeouts, avoiding GIDPs, and preventing the pitcher from hitting.

*This story was originally published by **Sky Kalkman** on Mar 17, 2009.*