

U.S. NEWS

THE NUMBERS | By Jo Craven McGinty

Watching Your Weight Before Hitting Plate



At a recent New York Mets game, nearly every member of the team who

stepped up to the plate first slipped a power sleeve onto his bat in the on-deck circle and took a few practice swings. Many of their opponents did the same.

Warning up with the 24-ounce weight is supposed to increase bat speed in a sport where a split second can mean the difference between a hit and a whiff.

But swinging a loaded bat like Mike Trout or a bunch of bats at once like Babe Ruth or a sledgehammer like Willie Stargell or a steel rod like Frank Thomas or, really, anything other than a normal game bat, probably isn't helping a batter's swing, and may be hurting it.

Studies conducted over several decades have concluded that the ritual popular among professionals and emulated by amateurs doesn't increase bat speed. It may actually slow it down.

"The best is your own bat," said Coop DeKenne, a hitting consultant who began researching bat speed in the 1980s. Baseball players covet a

fast bat because the added speed gives them more time to decide whether to swing or take, and on contact, it makes for a more powerful hit.

A fastball thrown at 90 miles per hour can reach home plate in about 0.42 seconds, according to research by Dr. DeKenne and David J. Szymanski, an exercise physiologist at Louisiana Tech University who focuses on how to enhance baseball performance. A breaking ball can get there in about 0.47 seconds.

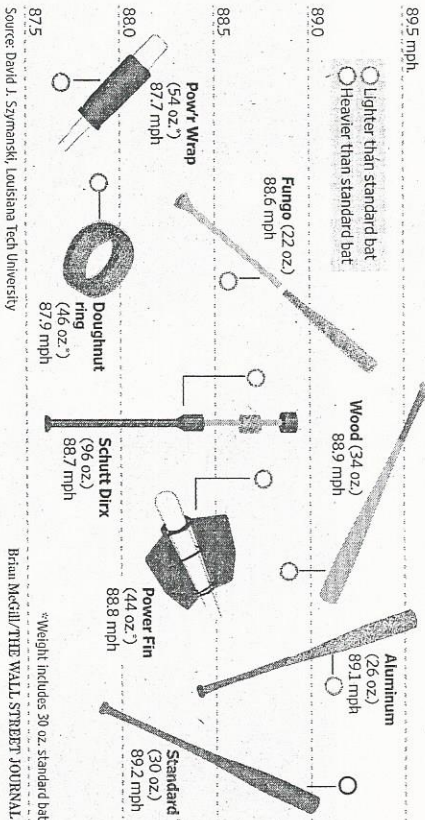
In that moment, the batter must identify the pitch, gauge the ball's velocity and pinpoint its location. The more time there is to figure all that out, the better.

In the "The Physics of Baseball," a book first published in 1990, Robert Adair reported that an 85-mph fastball hit solidly on the sweet spot by a bat swung 70 mph will travel 400 feet. But if it's struck by the same bat at 80 mph, it will travel 450 feet.

The average bat speed for professional baseball players is 75-90 mph, according to Zepp, a company that makes sensors to track bat swings. The average for high-school and college players is 65-80

Getting Up to Speed

A study of 22 college baseball players found they didn't quicken their swing at the plate after warming up with a heavier or lighter bat. Their bat speeds after warming up with each device:



mph. And the average for youths is 40-70 mph.

There are some caveats. Most of the batting studies involved high-school, college or recreational players, not professional athletes. Sample sizes were often small, ranging from as few as seven to as many as 60 players. And swings were measured in a laboratory setting rather than during live hitting, when adrenaline or a batter's other warm-up routines

could influence performance.

"With 20 college-baseball players from one university, I found no difference," said Dr. Szymanski, who referred to the players he studied with 10 differently weighted bats. "Their performance was statistically unchanged."

Other studies, notably those by Dr. DeKenne, have found that warming up with an overloaded bat, especially with a doughnut, slows down batters.

"The doughnut is the worst," said Dr. DeKenne, who tested one weighing 28 ounces. "It changes the balance point in the bat."

The weight may alter the batter's swing, especially in younger players who are still developing strength and mechanics.

Sport Science, a television series where athletes and scientists explore the biomechanics of different sports activities, tested the effect

with a college player in 2008. Without any added weight, the batter averaged 69 mph on 10 swings and routinely connected with the bat's sweet spot on balls pitched from a machine. After warming up with a doughnut, the batter's speed decreased to 68.3 mph on average, and on each swing, the ball missed the bat's sweet spot by several inches.

The experience of a lone batter in a single test can't be generalized to others, but the results resembled other studies.

Dr. Szymanski, who has coached college baseball and now coaches his children's youth-league teams, said his advice to young players is to swing their regular game bat in the on-deck circle.

But he acknowledged what other studies have shown: Batters believe swinging a weighted bat makes them faster, even if it doesn't, and successful professionals aren't likely to change their routines.

"People are always looking for an edge," Dr. Szymanski said, "but just because a professional athlete does something doesn't mean it's good or helpful or right."