

Studies link fatigue and sleep to MLB performance and career longevity

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Two new studies show that fatigue may impair strike-zone judgment during the 162 game Major League Baseball season, and a MLB player's sleepiness can predict his longevity in the league.

One study found that MLB players' strike-zone judgment was worse in September than in April in 24 of 30 teams. When averaged across all teams, strike-zone judgment was significantly worse in September compared with April. The statistical model demonstrated strong [predictive value](#) through the season.

"Plate discipline - as measured by a hitter's tendency to swing at pitches outside of the strike zone - got progressively worse over the course of a [Major League Baseball](#) season, and this decline followed a linear pattern that could be predicted by data from the six previous seasons," said principal investigator Scott Kutscher, MD, assistant professor of sleep and neurology at Vanderbilt University Medical Center in Nashville, Tenn. "We theorize that this decline is tied to fatigue that develops over the course of the season due to a combination of frequency of travel and paucity of days off."

Data analysis tracked the frequency with which MLB batters swung at pitches outside of the strike zone during the 2012 season. Data were sorted by month for all 30 teams and compared between the first and last month of the season. Data for each team also were compared to a [statistical model](#), based on data from the 2006 to 2011 seasons, which predicts a linear decline in strike-zone judgment per month.

Kutscher noted that the results are strikingly consistent and seem to contradict the [conventional wisdom](#) that plate discipline should improve during the season through frequent practice and repetition.

"Teams on the East or West Coast, with good or bad records, they all follow the same pattern of worsening plate discipline," he said. "This study suggests hitters always demonstrate the best judgment when at bat in the first month of the season."

He added that teams may be able to gain a competitive edge by focusing on fatigue management.

"A team that recognizes this trend and takes steps to slow or reverse it - by enacting fatigue-mitigating strategies, especially in the middle and late season, for example - can gain a large competitive advantage over their opponent," he said. "This may have already occurred, as the San Francisco Giants - an outlier in the study in that their plate discipline improved during the 2012 season - went on to win the World Series."

The research abstract was published recently in an online supplement of the journal *SLEEP*, and Kutscher will present the findings Tuesday, June 4, in Baltimore, Md., at SLEEP 2013, the 27th annual meeting of the Associated Professional Sleep Societies LLC.

Another study found a significant and profound relationship between the sleepiness of a MLB player and his longevity in the league. As baseline self-reported scores of sleepiness on the Epworth Sleepiness Scale increased, the likelihood that a player would be in the league three seasons later decreased linearly. For example, 72 percent of players with a baseline ESS score of 5 were still in the league at the follow-up point, compared with only 39 percent of players with an ESS score of 10 and 14 percent of players with an ESS score of 15.

"We were shocked by how linear the relationship was," said principal investigator W. Christopher Winter, MD, medical director of the Martha Jefferson Hospital Sleep Medicine Center in Charlottesville, Va. "It is a great reminder that sleepiness impairs performance. From a sports perspective, this is incredibly important. What this study shows is that we can use the science of sleep to predict sports performance."

Prior to the 2010 season, ESS data were collected from a random selection of 80 MLB players representing three teams. This study group doubled the sample size of Winter's pilot study, which he presented last June at SLEEP 2012. Player status three seasons later was determined on Dec. 16, 2012. A player who was demoted to a lower league, unsigned, or no longer playing was deemed "inactive."

Winter added that teams easily could implement sleepiness screening as part of their player evaluation system.

"I can envision simple questions about sleep being a part of the battery of tests professional organizations use to evaluate prospects," he said.

He also noted that players and their teams could benefit tremendously if a [sleep](#) specialist diagnoses and treats the condition causing a player to experience excessive daytime [sleepiness](#).

"That player may suddenly become far more valuable," Winter said.

More information: The research abstract was published recently in an online supplement of the journal *SLEEP*, and Winter will present the findings Monday, June 3, in Baltimore, Md., at SLEEP 2013, the 27th annual meeting of the Associated Professional Sleep Societies LLC.

Provided by American Academy of Sleep Medicine

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