

# Circadian timing may give edge to West Coast NFL teams in night games

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A new analysis of National Football League results suggests that the body's natural circadian timing gives a performance advantage to West Coast teams when they play East Coast teams at night.

"Over the past 40 years, even after accounting for the quality of the teams, West Coast NFL teams have had a significant [athletic performance](#) advantage over East Coast teams when playing games starting after 8 p.m. Eastern time," said lead author and board-certified [sleep](#) medicine physician Dr. Roger S. Smith. "Both the power and the persistent nature of this sleep-related athletic advantage were surprising."

The study by Harvard and Stanford researchers analyzed all NFL games from 1970 to 2011 that started after 8 p.m. EST and involved East Coast versus West Coast teams. There were 106 games that met inclusion criteria. An additional 293 daytime games involving the same match-ups were analyzed as a control group.

Data analysis showed a strong advantage for West Coast teams even after adjusting for the Las Vegas point spread, which takes into account factors such as the quality of the teams, injuries, and home-field advantage. During night games the West Coast teams beat the point spread in 66 percent of the games, and did so by an average of 5.26 points. For daytime games there was no significant advantage for West or East Coast teams.

"This study is a reminder that the body has an intricate timing system

that regulates both sleep and aspects of human performance," said American Academy of Sleep Medicine President Dr. M. Safwan Badr. "We function best when we maintain a daily routine that promotes healthy sleep, which is critical for daytime alertness, performance and public safety."

The results are published in the December issue of the journal *Sleep*.

According to the authors, biological rhythms can determine specific times at which peak performance is likely to occur. Previous studies have shown that elements of athletic performance peak in the late afternoon based on intrinsic circadian factors. Therefore, these night games may provide West Coast teams with an athletic advantage by allowing their players to compete at a body clock time that is closer to their athletic peak than their opponents.

"Applying principles of sleep physiology to competitive sports has the clear potential to yield a significant and natural athletic performance advantage," said Smith. "So if you are an athlete looking for a natural performance advantage, or if you just want to improve your health, talk with your doctor about your sleep."

**More information:** "The Impact of Circadian Misalignment on Athletic Performance in Professional Football Players," *Sleep*, 2013. [journalsleep.org/ViewAbstract.aspx?pid=29237](http://journalsleep.org/ViewAbstract.aspx?pid=29237)

Provided by American Academy of Sleep Medicine

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