Karli Buchanan

Mile High Advantage

Does altitude improve home field advantage in baseball? The Colorado Rockies are at the highest altitude so I wanted to prove they have the greatest home field advantage.

I hypothesized that the higher a team's home field is, the greater the improvement from the overall to home statistics. To solve this, I found and compared the home and overall statistics including batting average (BA), earned run average (ERA), winning percentage, and extra base hit per at bat percentage (EBH/AB percentage) for every Major League Baseball team.

I performed a retrospective analysis of baseball statistics from 2002-2012. I compared population home (0.543) and overall (0.500) winning percentages which confirmed home field advantage. There's a low Margin of Error (MOE) showing accurate data. Similar calculations were made using BA, ERA, and EBH/AB percentage for the population, Rockies and Mariners.

I did a case control study using the Colorado Rockies and the Seattle Mariners. The two had nearly identical overall win-loss records. The Rockies performed better at their home than the Mariners did at their home including BA, EBH/AB percentage and winning percentage. When comparing the two to each other, data was highly accurate, with a low MOE but it was not statistically significant.

Next, a stratified sample based on altitude was compared to the population. The statistics improved with altitude, except ERA. This appeared to show home field advantage with altitude. However, the data wasn't statistically significant. A high p-value confirmed the null hypothesis and rejected the alternative hypothesis.