

Relationship Between Pitching a Complete Game and Spending Time on the Disabled List for Major League Baseball Pitchers: Response

Authors' Response:

We appreciate Dr Binney's letter to the editor regarding our study, "Relationship Between Pitching a Complete Game and Spending Time on the Disabled List for Major League Baseball Pitchers,"¹ as it provides us with the opportunity to clarify our manuscript.

First, our hypothesis did not mention a 9-inning game. A complete game indicates that the pitcher threw every inning in the game, which can be >9 innings, without having anyone relieve him. It is a simple point but one that should be recognized.

As Dr Binney points out, within our study, an insufficient number of controls were available for the entirety of the complete game/disabled list (CG/DL) group; thus, only those CG/DL patients with an available control were included. This matching was performed on the basis of innings pitched, to control for workload. While Dr Binney suggests that doing so created a selection bias within the CG/DL group, this selection bias was purposeful, as it controls for workload; that is, increased workload can create increased DL risk. Failure to control for this variable would leave residual confounding between groups that could influence our comparison. While it did prevent us from using the full study group, which reduced our sample size, answering our question required this compromise to be made and was acknowledged within the limitations of the study.

Dr Binney also suggests that we selected a control group based on the dependent variable because the CG group would tend to pitch deeper into games. However, the majority of the CG pitchers (78%) threw only 1 CG per season. Thus, given that a CG is a rare occurrence—even for those who managed to pitch a CG—the actual influence of this issue on our analysis is minimal.

The remainder of Dr Binney's concerns can be addressed by elaborating on our manuscript. Specifically, we compared pitcher-seasons with pitcher-seasons, as discussed within the last paragraph of the Results section, in which

the index year for controls and the comparative year in the CG group were compared. Thus, the 20% and 74% were for the index year in the controls and the index year in the CG group, respectively; that is, pitcher-seasons were compared with pitcher-seasons, and 1-year risk was compared with 1-year risk.

As mentioned in the Discussion section, the main finding from this study was not that CG players are more likely to be on the DL; the main finding was that higher-volume pitchers are more likely to spend time on the DL than lower-volume pitchers and that further work is required to determine whether an inning threshold exists where pitchers are more likely to sustain an injury and spend time on the DL. Thus, we agree that "baseball organizations should not use this study as evidence that throwing a CG places pitchers at greater risk for injury." We instead respectfully suggest that the findings of retrospective database studies are useful for hypothesis generation in subsequent prospective clinical studies, the findings of which can then change practice.

We appreciate the author's comments and the opportunity to clarify these points.

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REFERENCE

1. Erickson BJ, Chalmers PN, Romeo AA, Ahmad CS. Relationship between pitching a complete game and spending time on the disabled list for Major League Baseball pitchers. *Orthop J Sports Med.* 2018; 6(3):2325967118761354.