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Traumatic brain injury and its effect on performance measures of Major League Soccer players

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PURPOSE

The purpose of our study was to determine if performance was affected by TBI that occurred while competing in Major League Soccer (MLS).

Hypotheses:

1) Players who suffered a TBI will have a decrease in individual performance measures when compared to performance measures prior to TBI.
2) Players who suffered a TBI would have lower career performance measures than players that did not suffer TBI

METHODS

To be eligible, the player must be identified as an MLS player and had career performance measures listed on www.mlssoccer.com, played at least three seasons in the MLS, played a field position and, listed as inactive. The eligible players were separated into two groups, TBI or non-TBI. The TBI group suffered at least one TBI, minimally played one entire season prior to their TBI and one year post TBI. Group placement occurred from random selection of eligible players and searching Google. If a TBI was discovered, the year of TBI and associated game performance measures were documented. However, if a TBI was not identified after eight search pages, the player was placed in the non-TBI group.

Of the 2214 total listed players, 288 were eligible for the study. Our sample consisted of 110 field players that competed in MLS between 1996-2014.
We analyzed the following performance measures: total number of years pro, total number of seasons, total number of games played, total games started, total minutes, total goals, total assists, total shots, and total shots on goal.

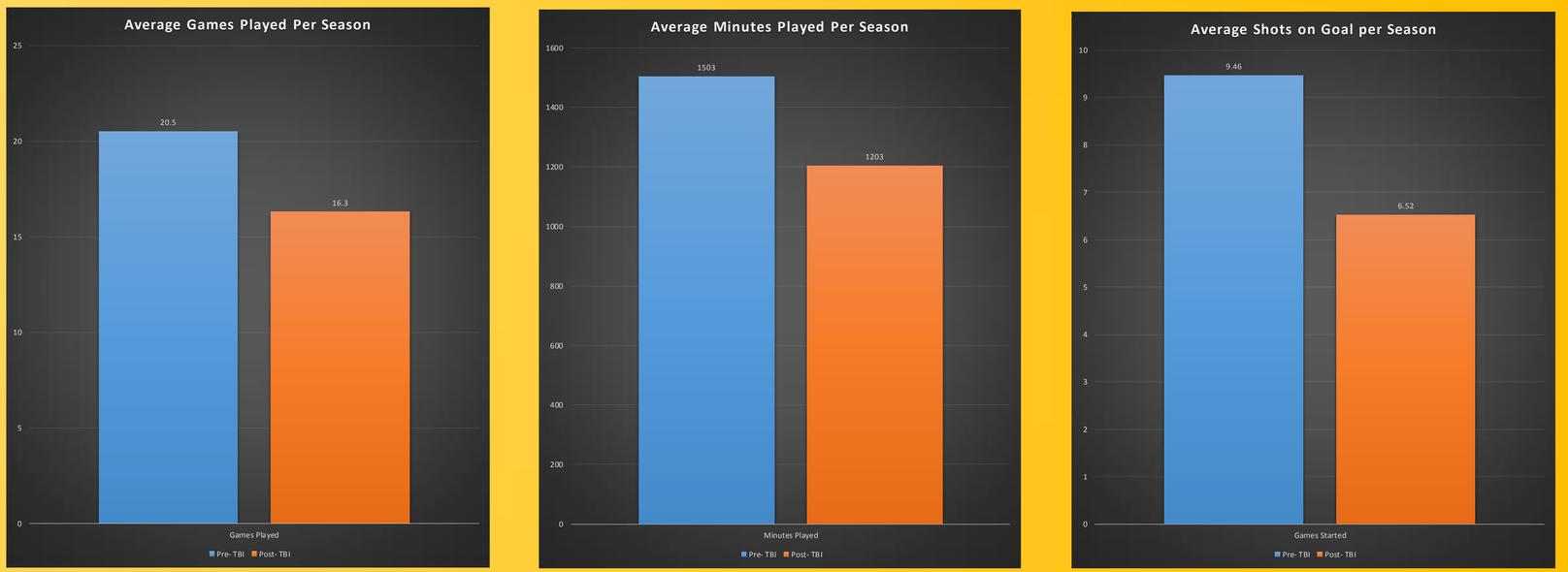

Fig. 1 Comparisons of the average games played, started, and minutes played for pre- and post- TBI

STATISTICAL ANALYSIS

A paired *t* test was used to compare the TBI cohort before and after TBI to evaluate the effects on individual game performance measures. The overall career performance measures of players who suffered a TBI to the overall career performance measures of players that did not suffer a TBI was compared using Kruskal-Wallace One-way Analysis of Variance.

RESULTS

Of the 110 athletes, 73 were placed in the non-TBI group and 37 in the TBI group. Comparisons of individual performance measures from before to after TBI, the seasons after TBI resulted in the player competing in less games (P=0.01), having fewer shots on goal (P=0.02), and playing fewer minutes (P=0.04).
Comparisons of career performance measures between both groups showed that the total number shots decreased (P=0.03) for the TBI group.

CONCLUSION

Both of our hypotheses were supported. Major League Soccer players who suffered a TBI played in fewer games, had fewer shots on goal, and had a reduced number of minutes per season after TBI than they did before TBI. Furthermore, over the course of their career, athletes that suffered a TBI had fewer shots per season.