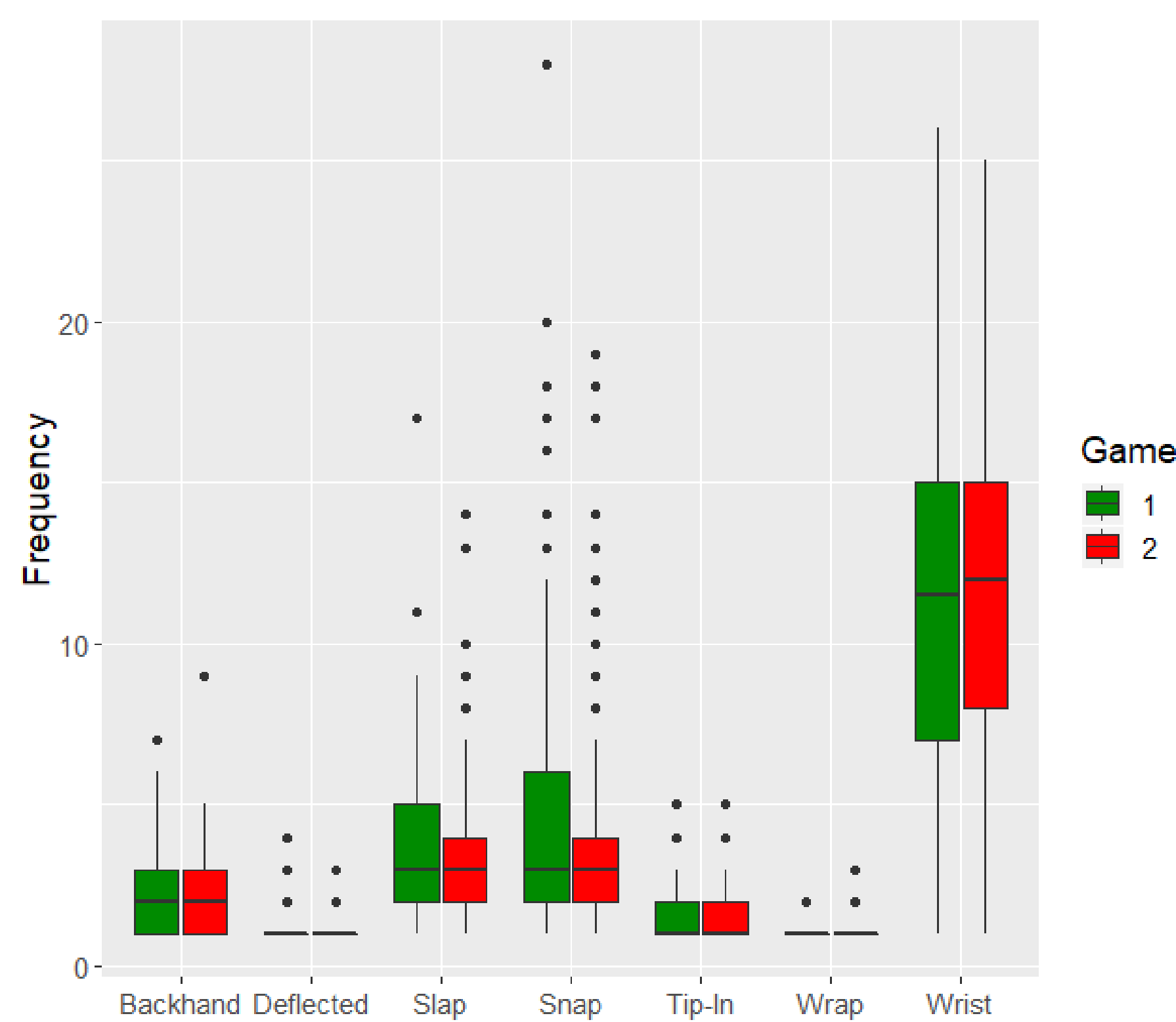
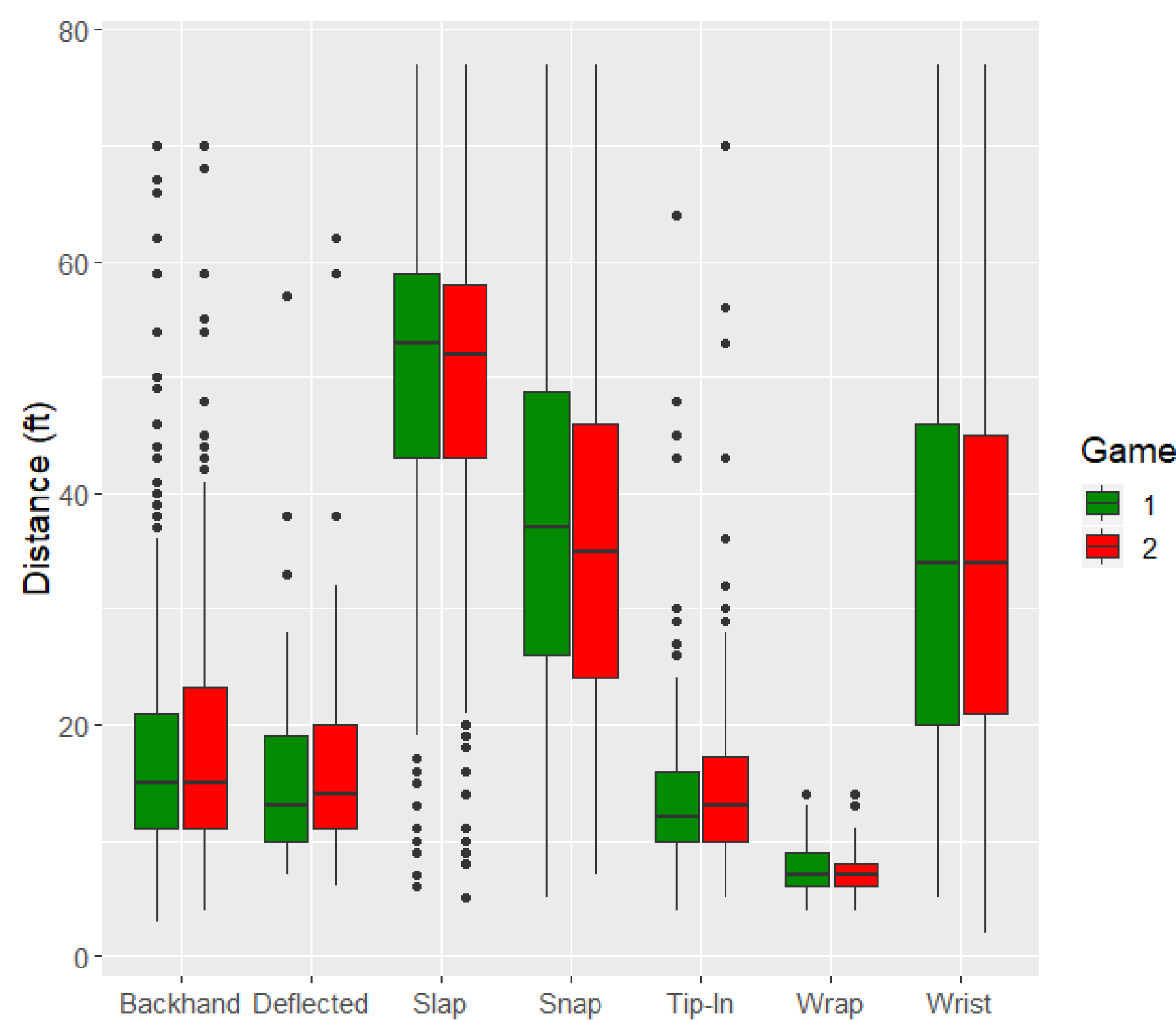


Introduction

Previous research shows differences between teams in the frequency of back-to-back away (BTB) games played in a season. Fatigue associated with these BTB games resulted in fewer goals scored by the fatigued team but did not result in more goals allowed by the fatigued team, in spite of allowing more shots on goal. Therefore, the purpose of this study was to determine if these findings could be explained by differences in shot quality through the analysis of shot distance and shot type frequency.



Shot distance (top) and shot frequency plots for the team playing back-to-back away games.

RESULTS

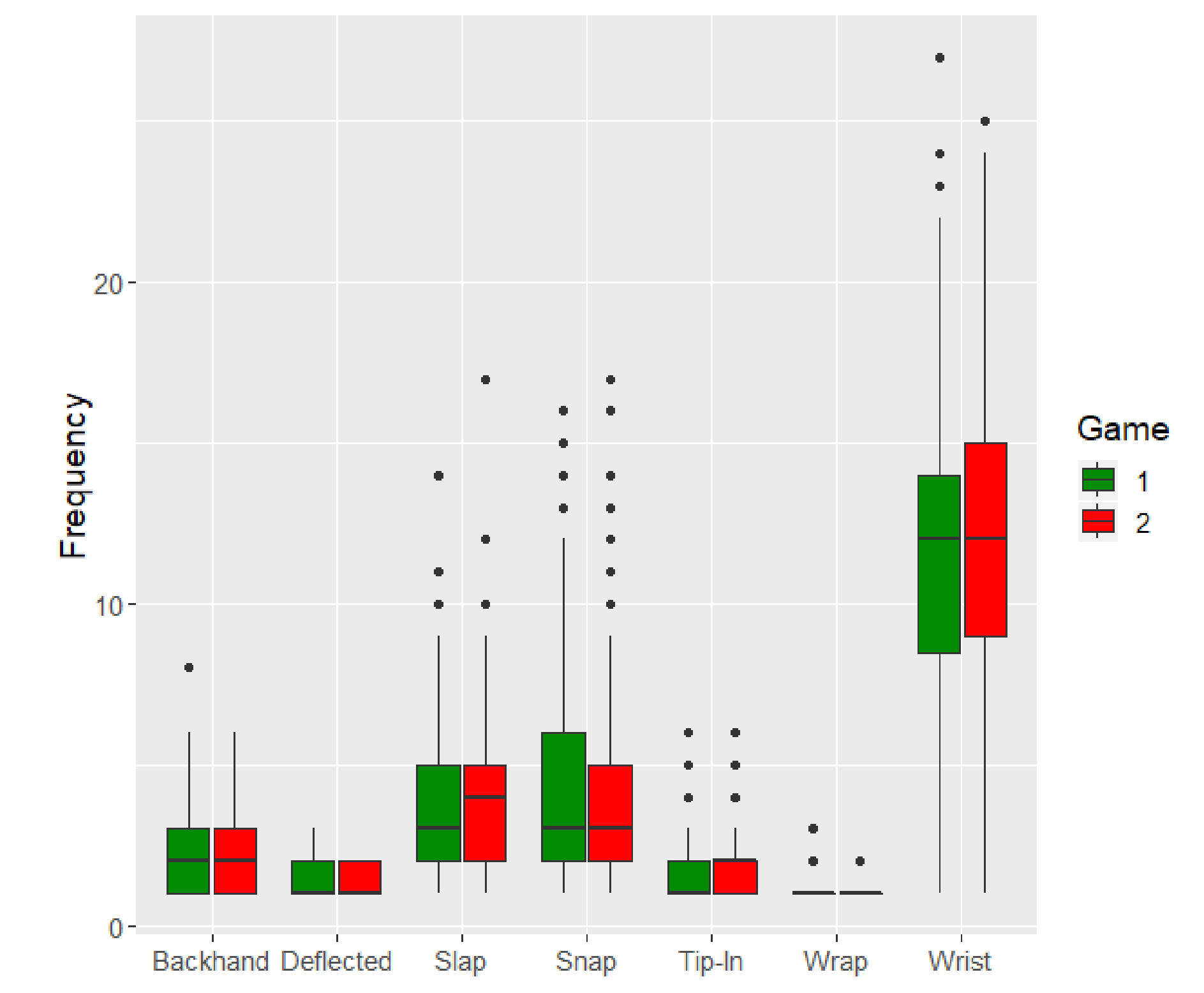
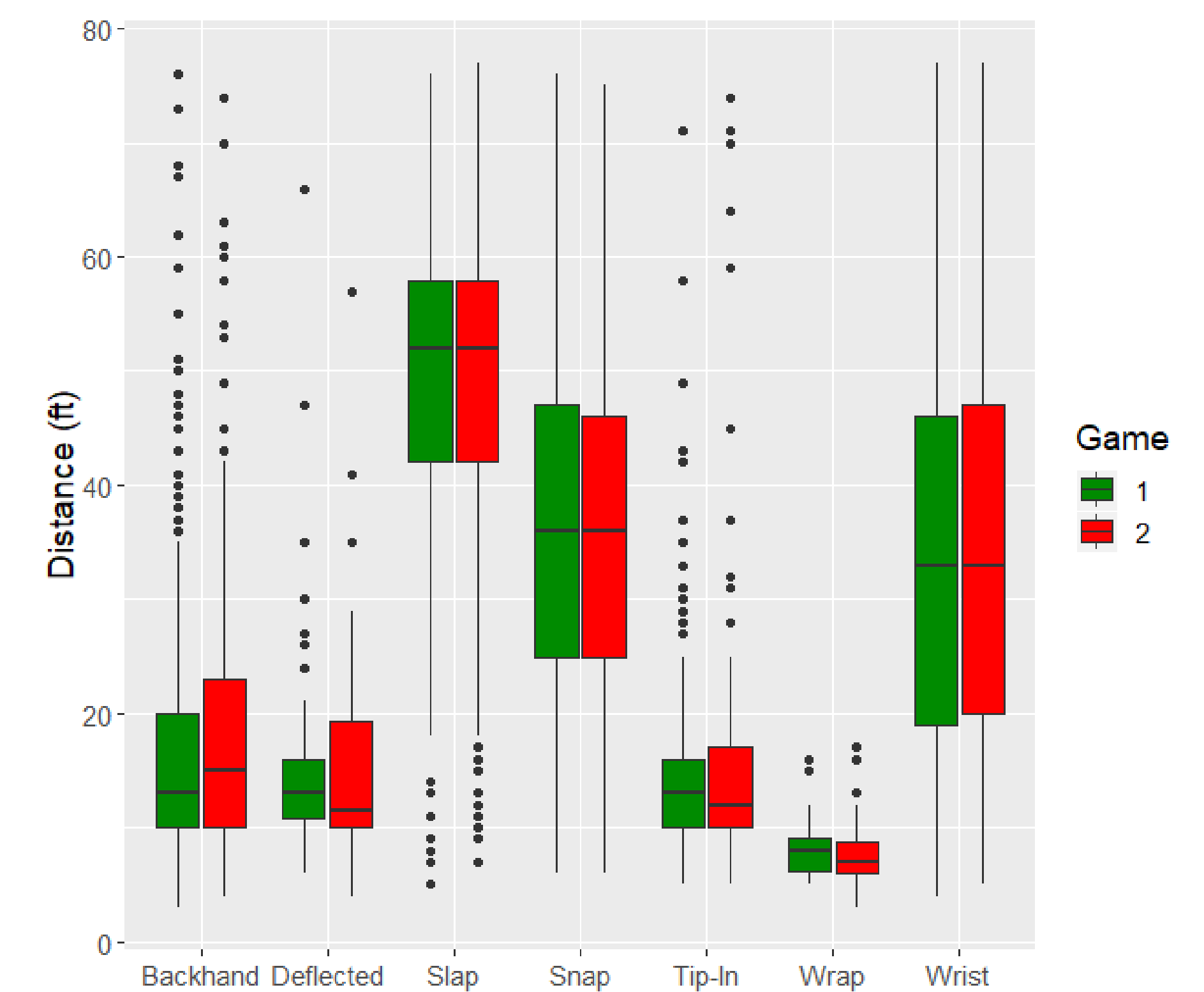
186 pairs of BTB games were identified. For shot distance of BTB teams, there was no significant interaction between game number and shot type ($p=0.71$) or main effect of game number ($p=0.81$). Similarly, for BTB team opponents' shot distance, there was no significant interaction between game number and shot type ($p=0.67$) or main effect of game number ($p=.97$). For shot frequency of BTB teams, there was no significant interaction between game number and shot type ($p=0.46$). For BTB team opponents' shot frequency, there was no significant interaction between game number and shot type ($p=0.57$).

METHODS

The R package, `nhlscrap`, was used to acquire the 2015-2016 National Hockey League play-by-play database. First, the database was filtered for all regular-season, full-strength events with no pulled goalies. Next, all back-to-back games were identified and coded as being either away-away, home-home, home-away, and away-home. Only away-away back-to-back games were analyzed. Finally, the data were filtered to identify all offensive-zone shots on goal, capturing game number (1 or 2), shot distance (feet from goal), and shot type (wrist, backhand, slap, snap, wrap, tip-in, and deflection). All metrics were analyzed using mixed models, with random effects for the fatigued team. Models predicted either shot frequency or shot distance from the main effects of and interaction between fixed effects variables (game number and shot type). These data were quantified for the team playing the BTB games (fatigued team) and their opponents. All models were fit using Gaussian distributions. Alpha was set at 0.05.

CONCLUSION

These data suggest the fatigue-induced decrease in game 2 goals scored cannot be explained by shot selection or distance. Furthermore, the greater number of saved shots by a fatigued team cannot be explained by a change in shot distance or type allowed. Therefore, future research should determine if teams save their better goalie for the second game of a BTB. Finally, researchers should determine what, if anything, can be done to mitigate team performance drop-offs between BTB away games.



Shot distance (top) and shot frequency plots for the opponents of the team playing back-to-back away games.