

# Be Big or Go Home: What Determines the Winner of Fights in Hockey?

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## Background

- Violence has always been an integral part of hockey culture in the USA, especially in the National Hockey League (NHL) (Bernstein, 2008).
- Out of the "Big 4" (National Basketball Association, National Football League, Major League Baseball, and NHL), the NHL is the only professional league that does not automatically eject players who engage in fights.
- The idea that winning fights boosts team morale enough to help them play better and consequently win the game is not supported by research (Leard & Doyle, 2010).
- Although it does not help teams win, fighting in the NHL has shown to be driven by clear decision-making and not frustration-induced aggression (Goldschmied & Espindola, 2013).
- Little research has been done on factors affecting the outcomes of hockey fights, although Deane et al (2012) found that body weight, not facial width-to-height ratio, was a strong predictor of fighting penalties.

## Current Study

- Most research on aggression in the sport of hockey focuses on what leads to engaging in fights or what engaging in fights leads to, but the present research sought to analyze the nature of the actual fights.
- We predicted that body weight was not only associated with increased likelihood of engaging in a fight (Deane et al 2012) but also with greater likelihood of winning a fight.
- We also analyzed how fans' various perceptions of hockey fights affected fan behavior.

## Methods

- Data were collected from over 1216 fights between 551 players from 31 NHL teams over 3 seasons (2016-2019).
- Player height, player weight, and game outcomes were sourced from the league's website: [www.NHL.com](http://www.NHL.com)
- Votes for each player was obtained from [www.HockeyFights.com](http://www.HockeyFights.com), an online fan-driven hockey fight website dedicated to the "appreciation, analysis, and discussion of hockey fights". Users can vote for which player (home or away) they thought won (or vote for a draw) and rate the "quality" of the fight overall.
- Fight outcome was determined by which player got the most votes on [www.hockeyfights.com](http://www.hockeyfights.com)
- Decisiveness of fight outcome was determined by the difference between votes that each player in the fight got on [www.hockeyfights.com](http://www.hockeyfights.com)

## Results

- A generalized estimating equation (GEE) was used to account for the associations between multiple observations in the dataset. Since some players participated in many fights (i.e., enforcers), a traditional regression method could not be used for the risk of violating the statistical assumption of independence of observations. Because of the nested design, we accounted for the identity of the home fighter in the analyses. The maximum number of fights in which one player was involved in was 28.
- We calculated generalized estimating equations (linear logistic) to evaluate the impact the difference in weight (home - away player) and height (home - away player) on fans' rating of who won the fight (Table 1).
- Only difference in weight emerged as a significant predictor but not difference in height.

Parameter	B	S.E.	Wald Chi-Square	Sig.
Difference in Weight	.75	.13	32.104	<.001
Difference in Height	.05	.05	1.000	.98
Intercept	5.49	2.41	5.175	.023

Table 1. Fight outcome based on height and weight differences between players

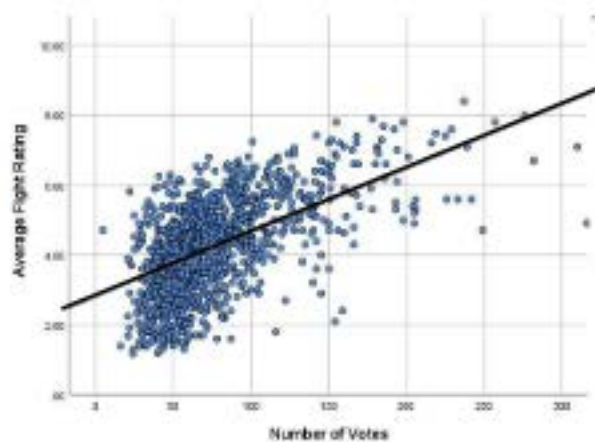


Figure 1. Fight ratings based on Number of votes on [www.hockeyfights.com](http://www.hockeyfights.com)

- A Pearson correlation shows a significant relationship between number of votes and fight rating:  $r(1,214) = .56, p < .001$  (Figure 1).

## Results (continued)

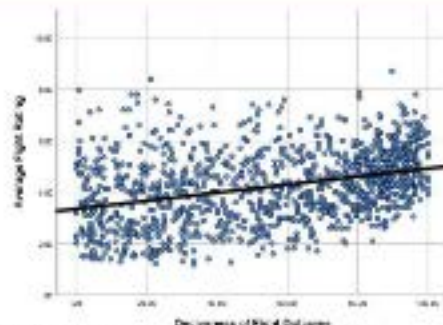


Figure 2. Fight ratings based on the decisiveness of fights

- A Pearson correlation shows a significant relationship between decisiveness of fight outcome and fight rating:  $r(1,214) = .35, p < .001$  (Figure 2).

## Discussion

- Body weight, was a robust predictor of aggression, as assessed by fighting penalties. We found that the heavier fighter was more likely to prevail (Deane et al., 2012). Height was not associated with greater fighting success.
- The relationship between fight ratings and number of votes showed that fans were more likely to vote on what they deemed as "better" or of higher quality physical altercations.
- When there was a clear winner in a fight, fans enjoyed the fight more. Usually audiences find "tighter" competitions more enjoyable (Dillmann, 1996) in allowing the suspense to be built but the relatively short duration of hockey fights may "require" a quick result to entertain the observers.

### Limitations

- The archival nature of our analysis did not allow to determine causality.

## Disclaimer

- While we study hockey fighting, we condemn the practice and lament the devastating effects it has on the players involved.

## References

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