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Exploring the Influence of Height and Weight on NHL Player Effectiveness and Decision-Making Using Python Programming

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Abstract

Throughout the history of the National Hockey League (NHL), the significance of height and weight in hockey has been a subject of much debate. At first, player personnel decision-makers within NHL franchises prioritized size as a crucial attribute for NHL success. Scouts, coaches, and general managers typically favored taller, heavier players, believing them to be more effective solely based on their physical stature than smaller, lighter players. However, there has been a noticeable shift in this perspective over time. As the game has trended towards emphasizing speed and skill, decision-makers have increasingly become more open to drafting and acquiring smaller, lighter players.

This study utilizes data from various sources, including biological information from the NHL website and microstat data from Corey Sznjader's All Three Zones projects. We utilize the Python programming language for conducting analysis and visualization. Its aim is to examine the correlation between height and weight and effectiveness in different aspects of hockey, such as hitting, entering the offensive zone with possession of the puck, creating scoring chances from offensive zone entries, and generating shots off the forecheck and rush.

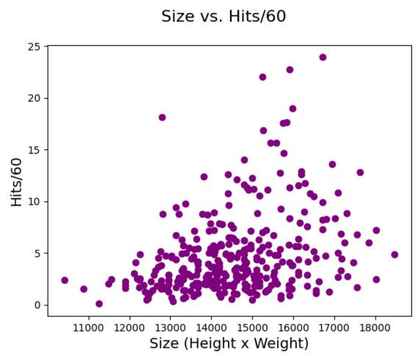
Through this project, we seek to uncover valuable insights into how height and weight influence the effectiveness of NHL hockey players across various facets of the game. These findings can assist decision-makers in drafting and player acquisition processes.

Introduction

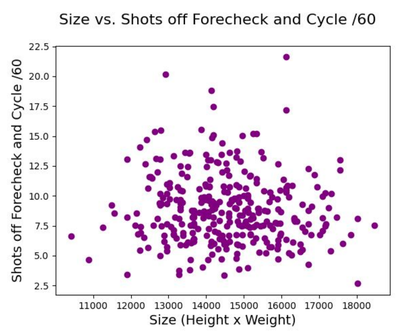
As aforementioned, since the beginning of professional hockey, there has been well-documented debates about the importance of size (height and weight) on effectiveness in various aspects of the game. Many scouts, coaches and general managers appear to act under the assumption that bigger players generate more of their offence on the forecheck and are more effective at hitting than smaller players. They tend to assume smaller players are effective transition attackers who perform better on the rush than bigger players. In this study, I wanted to see if these perceived associations were supported by statistical evidence.

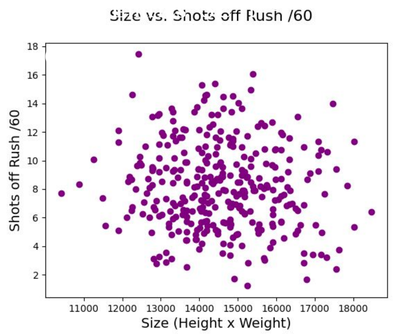
Result

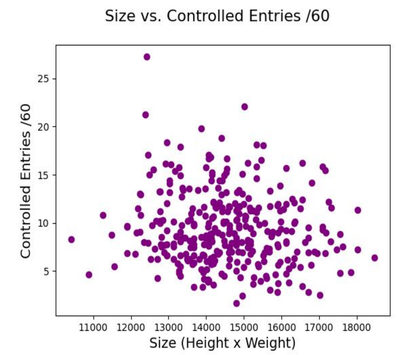
Despite perceived associations between size (height x weight) and effectiveness in hitting, entering the offensive zone with possession of the puck, creating scoring chances from offensive zone entries and generating shots off the forecheck and rush, the results of this study show that there is at best, very weak correlation between size and any of these areas. The most statistically significant correlation coefficient attained in this study was between size (height x weight) and hits/60, but even that r-value is very weak (r = |0.008|). The perceived associations about size are not supported by statistical evidence, rather they are likely a result of cognitive biases.

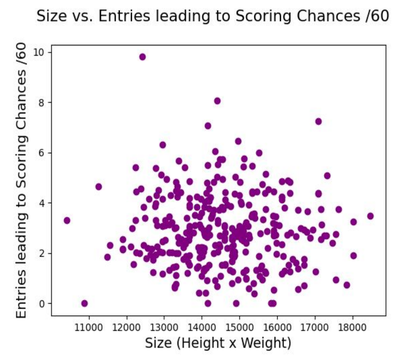


Correlation Coefficient Values
Size & Hits: (r = |0.008|)
Size & Fshots: (r = |-0.005|)
Size & Rshots: (r = |-0.002|)
Size & Ctrl Entries: (r = |-0.006|)









Conclusion

Therefore, in the case of NHL forwards, change in player size (height x weight) have minimal correlation with changed effectiveness in hitting, entering the offensive zone with possession, creating scoring chances from offensive zone entries and generating shots off the forecheck and rush. The results of this study do not mean that size is entirely irrelevant to decisions regarding player acquisition, but they do indicate that size is not a main determinant of player effectiveness in many of the areas where it has been perceived to be.

More than anything, this study shows that even decision-makers at the highest level of professional sports can be subject to cognitive biases and affirms the importance of implementing data analysis to ensure that our perceptions are well founded.

Future Work

This project serves as an effective starting point for evaluating the impact of height and weight on the effectiveness of NHL forwards; however, there are a number of ways to expand upon this project for future research:

- This project primarily evaluated the relationship between size (height x weight) and player effectiveness at a micro level. Future research could look at the correlation between size and metrics such as on-ice goals for percentage, on-ice expected goals for percentage and goals above replacement (GAR)
- It would also be interesting to conduct similar research with defencemen and goaltenders to see if height and weight are more impactful at different positions

Acknowledgement:

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References

https://www.nhl.com/stats/
https://www.allthreezones.com/