

# Proposal

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As college athletes prepare for the NFL combine at the start of the year, many rumors and speculations go around regarding who will be this year's number 1 pick at the NFL draft. A group of people including coaches, scouts, and general managers from the professional football teams all around the nation attend this mini-Olympic to see who has the most potential to complete the task given as a NFL player. With this level of media attention, players are almost forced to perform well at the Combine, and it is a known fact that there are various prep courses that insist they can improve one's performance. With all these matters in hand, the most important question everyone wants to ask is whether or not the Combine result is a good predictor of a player's success. In other words, a good performance at the Combine will probably boost the chance of one's being drafted by a team, but once he is in, how much of an impact the Combine has over his career is what this study intends to measure. The NFL Combine measures a variety of physical abilities. This research questions the overall usefulness of the event by focusing on both current and past players, who have performed at one of the NFL Combines since 1999. Various statistical methods including multivariate linear regression and machine learning techniques such as random forest will be applied to examine the relation between the Combine measurements and the draft order and also NFL performance. Since players in different positions have varying roles in the game, this study will be sub-categorized by positions. For example, quarterbacks would not necessarily have to be the fastest player on the team, while a deep threat wide receiver might be. Draft orders and stats for NFL performance would be the response variables in the model, while the Combine measurements including one's height and weight would be the explanatory variables. Measure for NFL performance will also vary by position. Average career passer rating would be an obvious choice as a performance measure for NFL quarterbacks. However, it is more complicated for other positions. Outstanding running backs could still have an average 'yards per attempt' if he has about 20 attempts per game. Details are to be carefully established later in the study.

Here are the sample plots just to give an intuitive idea of what this study intends to provide.

Importance of the Combine Results for HAV

