

Race Influences the Play Style of NFL Quarterbacks

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Abstract

The purpose of this study was to find a relationship between race, play style, and career length for NFL quarterbacks. Previous research has investigated how playstyle and race affect career length and found mixed results on the relationship between them. We hypothesized that the career length of black quarterbacks would differ from that of white quarterbacks. Second, we hypothesized that pro-style quarterbacks would have significantly longer careers than dual-threat quarterbacks. Third, we hypothesize that race will predict playstyle in the NFL. Two hundred and thirty-three NFL quarterbacks were classified as pro-style or dual threat, and their games played and years played were collected. We found that playstyle and race do not have a relationship with career length, although black quarterbacks and dual-threat quarterbacks have slightly shorter careers. Also, black athletes are more likely to be dual-threat, and white athletes are more likely to be pro-style. Our data suggest that race does influence playstyle, and this also might influence career length.

Introduction

Quarterback career lengths can be affected by race and play style. For example, Aaron Rodgers has played over 20 seasons as a pro-style quarterback in the NFL, which is a very long time (1). Since the average quarterback only plays three seasons, understanding who can play more seasons helps us understand football more (2). The two things that may affect a quarterback's career are play style and race (3,4). This is important because people involved in the sport need to know if racial bias is present to find better players by eliminating the bias. In our study, we collected data on quarterbacks' career lengths, play styles, and races to see if there is a relationship between them.

The quarterback's play style affects their longevity (3). Previous researchers compared two play styles a quarterback can have: pro-style and dual-threat. Usually, quarterbacks are coached to hide and avoid contact. This is called a pro-style player. When quarterbacks scramble or run out of the pocket, they put themselves in harm's way. This is referred to as a dual-threat quarterback. Researchers found that dual-threat quarterbacks have their best seasons rushing at younger ages because they can both run and throw. However, as they age, these players often run less and throw more. Also, quarterbacks with the longest career length are pro-style pocket passers. These are players who stay in the protection of the offensive line and tend not to run the ball. However, because the author did not find a relationship between a player's rushing yards and the number of game starts, they suggest it is difficult to say for sure that dual-threat quarterbacks have different careers than pro-style quarterbacks who are less mobile (3). This connects to the study that I am doing because a quarterback's play style can affect their career length.

Stereotypes about black athletes are common in America. Davis tells us that in the United States, many people mistakenly believe that there is a difference in genetics between black and white athletes and that black athletes are somehow more gifted and don't have to work as hard (5). Davis talks about the stereotype linked to race and gives an example of a famous sports commentator who said on national television in 1988, "The black is a better athlete, to begin with..." This was and still is a common belief that undermines the hard work of African Americans (5). Davis argues that the preconception of racially linked genetic traits producing success is racist and not true; it is a false belief in biological determinism. Further, the concept of race is not defined biologically, contrary to Western belief, and is instead based on culture and is not a factor that explains athleticism. This connects to my study because it shows that people have a common preconception that black athletes are better. Although this is not true, it may play into how long quarterbacks' career lengths are. Stereotypes might play a role in the position athletes play, as incorrect beliefs about race might narrow the options athletes have and implicitly encourage athletes to act in ways that make them more prone to injuries.

Other research suggests race plays a role in the stacking of NFL positions. Coleman and Scott looked on public websites to find information on career length games played and the race of the 2381 total NFL players (4). They included 391 quarterbacks and 1990 cornerbacks. They found that the cornerback position is still stacked in favor of black athletes due to the presence

of the black-athlete stereotype. Also, the quarterback position is still stacked with white athletes, but black athletes have had a rise in proportion over the past few years. There have been a lot of black players in the NFL gaining opportunities for high revenue and removing a lot of intellectual stereotypes attached to blacks (4). This information is important because if Coleman and Scott are right about the changing role of black stereotypes, we should see a difference in play style and career length. We should see white quarterbacks stay in the pocket and throw more. Furthermore, we should see black quarterbacks run much more and throw less. Therefore, black quarterbacks may have shorter careers than their white counterparts.

In 2010, the NFL reported on its race and gender diversity (6). This document talks about the percentages of race and gender in the NFL. This includes coaching staff, players, and associated members of the NFL. In the article, they also gave the NFL grades based on its diversity. The NFL got an A-grade for racial hiring and a C-grade for gender hiring. The article also gave spreadsheets with percentages of what positions had the most of what race. In 1998, 91% of quarterbacks were white, and 8% were black; in 2009, the numbers were 81% and 16%, respectively. This is important because, as the number of black quarterbacks increases, we want to see if career lengths also change and if it is unique to black or white players.

Exit discrimination is a form of bias where NFL players may be forced to leave the NFL based on personal characteristics like race (7). Groothuis et al. did a study to find out if this is happening in the NFL. They did a discrimination analysis of career length for defensive and offensive players based on race and performance. They did this by researching 6 different position groups and looking at their stats from the 2000-2008 season to measure each player's productivity. Sacks, tackles, and interceptions measured defensive players' productivity. Touchdowns and yards measured offensive players' productivity. They found little difference in games started between white and non-white players. Non-white players have more touches and total yards. Also, while player positions were stacked towards one race or another, overall, their careers were the same (7). Overall, they found the opposite of other researchers in other periods and sports, where less-skilled white players are kept on the roster due to fan pressure. This suggests that owners want to prioritize winning and keep talented players on the team regardless of race. This connects to my study because we see that there isn't a big difference in games started between races.

Overall, the research says that race may or may not be a factor in who gets to play and for how long (4,5). Furthermore, researchers say play style predicts career length, but racial stereotypes may affect players play style. This study contributes to the understanding of career length, playstyle and race. Researchers disagree on what factors affect career length. In our study, player data comes from (8,9) to identify each player's race, number of games played, and race. Then, each player's play style is determined by their passing yards compared to rushing yards. Then, put players in groups and compare the results.

We hypothesize that the career length of black quarterbacks will differ from that of white quarterbacks. This is because some research says that stereotypes about race affect how much value a player has to a team (4,7, 5). Second, we hypothesize that pocket passers will have significantly longer careers than dual-threat quarterbacks. Research says that dual-threat

quarterbacks have more risk of injury and shorter careers (3). Third, we hypothesize that race will predict playstyle in the NFL. This is because black athletes have a common stereotype of being more athletes, which could lead to them being more associated with dual-threat strategies (5,4, and 3).

Materials and Methods

The list of all quarterbacks came from Pro Football Reference (8). We used players who started their careers in 2000 or later and ended in 2023 or before. This resulted in a list of 233 NFL quarterbacks who played at least one game. We did not include athletes who played one game but had 0 passing and 0 rushing yards. For each player, we looked up their passing yards and rushing yards on ESPN (9), and then we looked up the total games played and the total years played on Pro Football Reference. Players' race was determined through a Google search of their name and "ethnicity" or "racial background."

In order to determine who is a dual-threat quarterback, first, we collected a list of dual-threat quarterbacks who are well-known by sports journalists to be considered dual-threat (10). We then divided their passing yards by their rushing yards to get a ratio. We determined that 15.1 yards passing to rushing is the definition of a dual-threat quarterback, as this was the highest score for the well-known dual-threat quarterbacks. Players with negative yardage were treated as positive yards. Also, players with a ratio of 0 were considered dual-threat as they did not have any passing yards. Ratios with a denominator of 0 meant they did not rush, so they were considered pro-style quarterbacks. This left a total of 76 dual-threat and 129 pro-style quarterbacks.

Player Name	The ratio of passing to rushing
Lamar Jackson	3.2
Roger Staubach	5.2
Colin Kaepernick	5.3
Josh Allen	6.4
Steve Young	7.8
Russell Wilson	8.4
Steve McNair	8.7
Donovan McNabb	10.8
Patrick Mahomes	14.4
John Elway	15.1

Table 1. Well-known dual-threat quarterbacks.

Our first hypothesis about the career lengths of black and white quarterbacks was analyzed using a t-test for independent samples. Our second hypothesis is about the career lengths of dual-threat and pro-style quarterbacks using a t-test for independent samples. Our third hypothesis is that race will predict play-style chi-squared tests for independence. All tests were run on vassarstat.net with a 0.05 threshold for significance.

Results

The purpose of this study is to determine if race affects a player's career length and also if a player's play style affects career length. We did this by collecting data on black and white quarterbacks and grouping them into groups based on their playing style. The average number of games played and the total number of years played is 21.8.

Our first hypothesis was that a player's career would differ based on race. A total of 205 athletes were included because they were either black or white. Three players were eliminated because they were Hispanic or of multiple races. A t-test for independent samples did not find a difference in career lengths by games ($t=0.37$, $p=0.71$, two-tail) or years ($t=0.88$, $p=0.37$, two-tail) played by race. The number of games played by black quarterbacks ($M=35.1$) and white quarterbacks ($M=38.7$) were similar, as were the number of years ($M=4.7$, $M=5.4$, **Figure 1**).

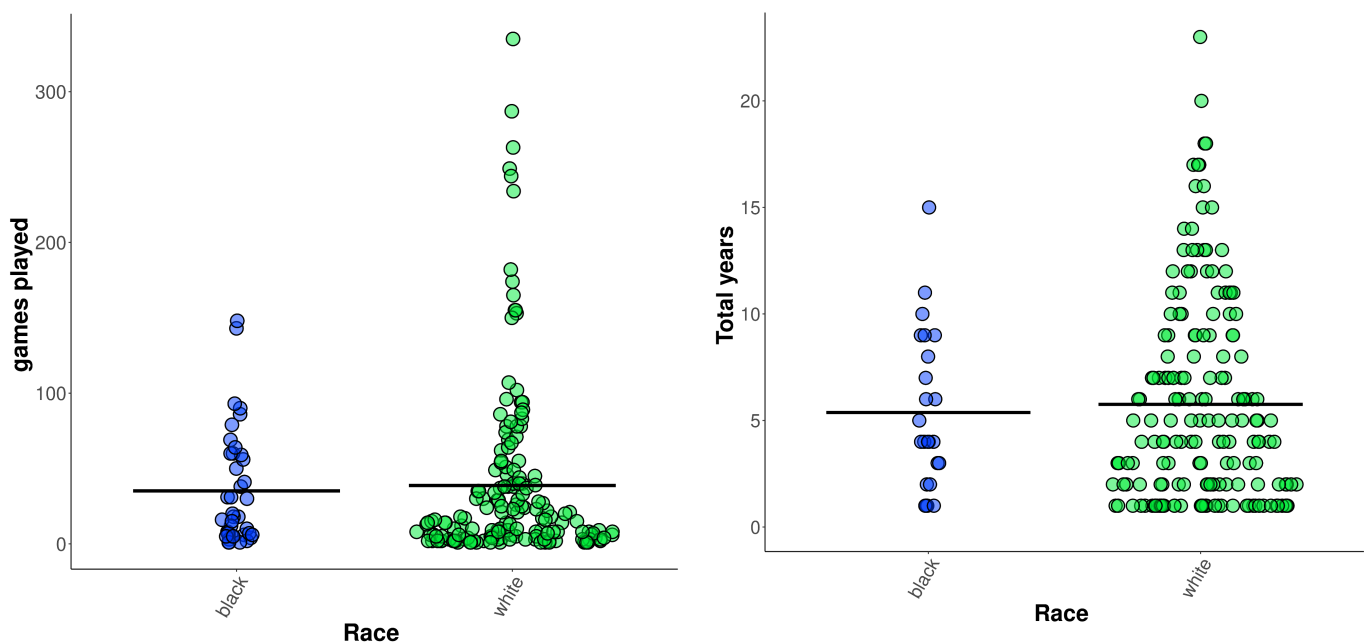


Figure 1. No difference in the career length of games played or years played by race. White ($n=178$) and black ($n=23$) NFL quarterbacks' data from ESPN was collected who began their career after 2000 and ended it by 2023. A t-test for independent samples found no difference in the career length of black quarterbacks (35.1 games, 4.7 years) and white quarterbacks (38.7 games, 5.4 years).

We hypothesized that players' play style would affect their career length. A total of 205 players are either dual-threat or pro-style. We used 15.1 as a cut-off to determine whether players were dual-threat or pro-style. A t-test for independent samples did not find a difference in games played by play style ($t=-1.08$, $p=0.14$, one-tail) or years played by race. The number of games played by dual-threat quarterbacks ($M=32.5$) and pro-style quarterbacks ($M=41.02$) was similar, as was the number of years ($M=5.0$, $M=5.9$ Figure 2).

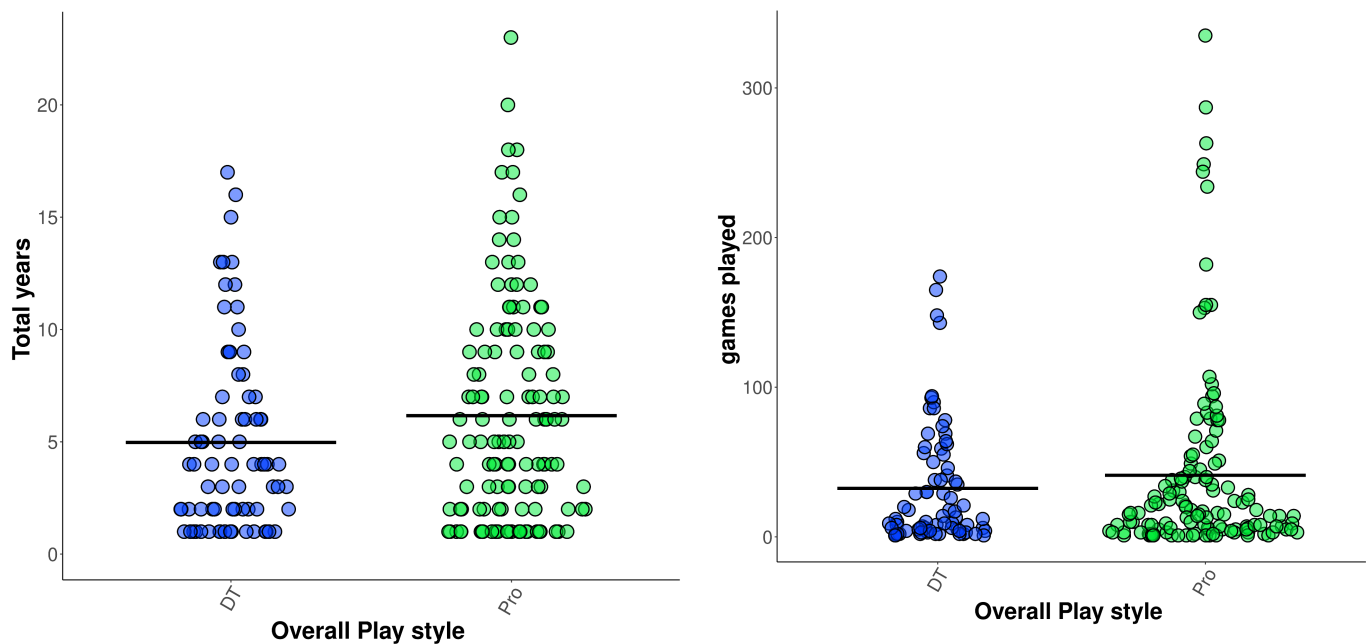


Figure 2. There is no difference in the career length of games played or years played by overall play style. Dual-threat ($n=76$) and pro-style ($n=129$) NFL quarterbacks' data from ESPN was collected from those who began their career after 2000 and ended it by 2023. A t-test for independent samples found no difference in the career length of dual-threat quarterbacks (32.5 games, 5.0 years) and pro-style quarterbacks (41.02 games, 5.9 years).

Third, we hypothesize that race will play a factor in play style. A chi-squared test for association found a relationship between race and style of a player ($\chi^2= 11.18$, $p=0.00083$, Table 1). Black players are more likely to be dual-threats, and white players are more likely to be pro-style. For black players, dual-threat quarterbacks are present 23 % more than they should be if race doesn't matter. White quarterbacks are 6% more likely to be pro-style quarterbacks. Race may play a factor, especially in black quarterbacks.

	Pro	Dual-Threat	Total
Black	16	24	40
White	111	51	162
Total	127	75	

Table 2. Results of players based on race and playstyle.

Discussion

In this study, we determined if players' play style and race affect career length. Our first hypothesis was that a player's career would differ based on race. This was partially supported because there was a trend towards white players having longer careers, but not enough to fully say that they have statistically significant career differences (**Figure 1**). Our second hypothesis is that players' play style will affect their career length. This was partially supported because there was a trend towards white athletes having longer careers but not enough to say it was supported. (**Figure 2**). Our third hypothesis was that race would play a factor in play style. This was supported because we found that black athletes are more likely to be a dual threat, and white athletes are more likely to be pro-style. (**Figure 3**).

Our results are partially consistent with other studies on quarterbacks' play style and longevity by Varshneya and Chinmay (3). Varshneya found that pro-style quarterbacks have longer careers, and dual-threat quarterbacks are more likely to have shorter careers (3). Our study found a trend towards pro-style quarterbacks having longer careers, but not enough to say for sure. These two studies strengthen the claim that pro-style quarterbacks are more likely to have longer careers compared to dual-threat quarterbacks, who are more likely to have shorter careers. This makes sense because quarterbacks who are dual threats are more likely to run and get hit or injured compared to quarterbacks who stay in the pocket for longer. If a player gets hit a lot or is injured, a coach will take the quarterback out and replace them with a backup. If the backup player starts to outperform the starter, the coach will bench or even cut the injured quarterback.

Our results are consistent with other studies on the role that races play in position by Colman and Scott (4). Colman and Scott found that race plays a role in the relationships between quarterbacks and cornerbacks (4). Our study found a relationship between race and playstyle, like black quarterbacks are more likely to be dual-threat. These two studies support the claim that race has an impact on athletes' playstyles. This makes sense because we see stereotypes in all aspects of life, and it's more common for black athletes to be more athletic. This common stereotype can lead coaches to encourage players to play a certain way, and players may look up to other players. Also, this can be a bad thing because if a white player is good at running, coaches may say he needs to stay in the pocket and pass. This means that some people miss out or may not even make it to the NFL because they don't fit the stereotype. Even a stereotype that seems positive, like black people are athletic because they're black, can discredit the athlete who worked for his athleticism.

Our results are also partially consistent with exit discrimination by Groothuis et al. (7). Groothuis states that race does not relate to why people leave the NFL (7). We found a trend towards race related to why people leave the NFL, but not enough to say for sure, due to the lack of significant differences in career length. Their study and ours, together, strongly support the idea that race doesn't relate to why people leave the NFL but may contribute in some way. This makes sense because if black athletes are more likely to be dual threats, and we know that dual-threat athletes tend to have shorter careers.

Our first limitation was the number of years we chose to do it. This made it hard to see the big picture because we only used recent years. Previous studies used more years and found a relationship between player style and career length (3), while we didn't. Another limitation was that we only included black and white players. Unfortunately, there are so few Hispanics and other races in the NFL that we can't include them in the study.

A future improvement could be using more years for research. We would need to research when the dual-threat style started to know how far back to go before 2000. Also, researchers could use different positions, like wide receivers, who also have different play styles. For example, some wide receivers like to go long, while others like to run short routes. This would help understand if race and play style are related across multiple positions. Finally, researchers could use different sports like basketball; athletes have different playstyles, which can be compared to football statistics.

According to our research, race and play style are related. Black athletes are more likely to be dual-threat, and white athletes are more likely to be pro-style. We found that career length isn't related to playstyle or race. Therefore, coaches and players should accept that these stereotypes are real, whether they believe it or not. Also, be careful of how coaches and athletes judge people based on this; you can miss out on talent because of these stereotypes. For example, if you see a black athlete who isn't a dual threat but a pro-style coach may skip over him because of the stereotypes, which is wrong and may result in a major loss to the team.

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