

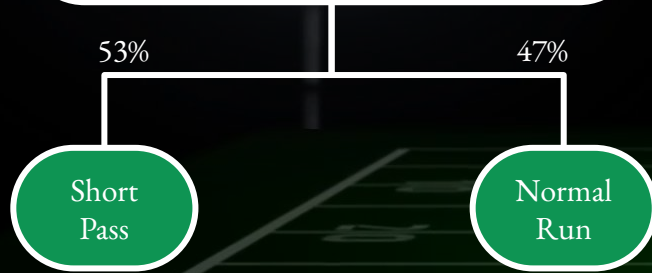
The background of the slide is a dark, atmospheric image of a college football field at night. Two bright stadium lights are visible at the top, casting a glow over the field. The field's yard lines and the 50-yard line marker are visible, receding into the distance. The overall tone is dark and professional.

A Guide to Aggressive Offensive Playing Strategies in College Football

Josh Davis, Jonathan Eman, Derek Liu and Daniel Nguyen

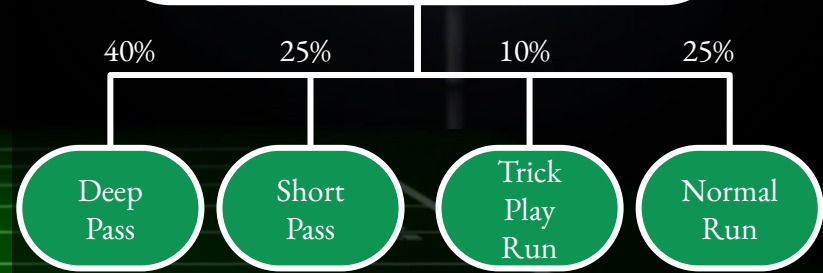
What is an Aggressive Offensive Strategy?

Non-Aggressive Strategy



- If the team is within 30 yards of their opponent's end zone, they will kick a field goal on 4th down.
- If the team is greater than 30 yards away, they will punt.
- Generally, a team playing non-aggressively will take longer to run plays (use more of the play clock), as they are trying to take as much time as possible off the clock.

Aggressive Strategy



- A pass is considered deep if the intended receiver is at least 20 yards from the line of scrimmage.
- Regardless of field position, go for it on 4th down.
- An aggressive play strategy is characterized by running plays quickly (using less of the play clock), in order to execute as many as possible in the time remaining and even attempt to run a play before the defensive team is ready.

Winning Percentage by Offensive Strategy

How much were they losing by?

When in the 4th quarter did
aggressive play start?

	1-3	4-7	8-14	>14
Never	46.75%	30.91%	11.39%	2.39%
2 mins, 30 sec left	47.76%	32.45%	12.30%	3.05%
5 mins left	48.81%	35.51%	13.59%	3.89%
7 mins, 30 sec left	49.11%	36.92%	16.25%	4.73%
10 mins left	47.11%	38.45%	18.00%	6.06%
12 mins, 30 sec left	45.80%	37.05%	18.91%	6.93%
Start of 4th quarter	45.65%	36.24%	20.49%	7.48%

*Winning percentages
determined by game
simulator modeled with
2019 College Football
data

Advice From the Data Analysts

General Takeaways

- **When you would only need one score to tie or take the lead:** starting to play aggressively too early can be detrimental.
 - It does not make sense to throw a 50 yard pass, or go for it on 4th and 10 at the beginning of the 4th quarter if you are only down by a field goal, as these plays can be very risky (the fact that the interception rate for deep passes is nearly triple the rate for regular passes is just one example of this). Start aggressive play more than halfway through the quarter if you only need a field goal, and slightly earlier (under 10 mins left) if you need a touchdown.
- **When it would require two scoring drives to tie or take the lead:** start playing aggressively early in the 4th quarter.
 - Scoring twice usually takes 3 or more drives, and it will be nearly impossible to have this many drives unless the team is scoring quickly as quickly as possible through an aggressive playing strategy.
- **When you are down by more than 2 touchdowns:** the same logic as above applies.
 - However, 15 minutes of aggressive play is likely not enough to drastically increase the team's likelihood of a comeback (suggested by the maximum win percentage of 7.48%). It would be reasonable for a team down by more than 2 touchdowns to consider employing an aggressive playing strategy towards the end of the 3rd quarter.

Advice From the Data Analysts

Applying the Results to Your Team's Strategy

- The data we built our game simulation from is from all college teams, and therefore the winning percentages should be interpreted in the context of the “average” team.
- Though our results provide a baseline for general strategy, coaches must analyze the implications with regard to their specific team, realizing that there are many other factors (like your own team's skill level, opponent skill level, etc.) that must be considered outside of what our results provide. For example:
 - As described previously, a significant portion of an aggressive play strategy is deep passes. If a team has a quarterback who is particularly bad at passing, there is likely no benefit to playing aggressively at all if the team is only down by 1-3 points. The difference in win percentages between the most effective and least effective strategies at this score differential is only 3.5%, so it is too risky to employ an aggressive strategy in this situation, because even a better quarterback would only increase the team's chance of winning by a small percentage.
 - If a team is choosing to adopt an aggressive strategy when down by a small margin, and they face a 4th and long situation at their opponent's 35 yard-line, it may make sense to kick a field goal if the team has a particularly strong field goal kicker, depending on the remaining.
- Adopting an aggressive play strategy does not mean that every play has to be “aggressive,” but there are general trends in play calling, as this guide outlines, that can be followed.