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How Being Aggressive Minimizes Mistakes

In the game of football, the turnover battle has long since been the strongest indicator of the difference between a team winning a game or coming up short. This sloppiness would be the lasting image in the minds of the fans and, even more so, management when it came time to make business decisions. Although this line of thinking is entirely wrong and shortsighted regarding the goal at hand, Ben Johnson is one of the strongest advocates for looking at things in a vacuum or through a mathematical lens in general. In one season, he has turned around the fortunes of an entire organization. Of course, it's not all on him, but the mindset he brings to the team certainly gives them an edge.

In one of his first media availabilities with the team he was asked about the importance of data analytics in the game. Johnson responded "The EPA in the passing game is really one the most critical factors in determining wins and losses. That's probably changed over the last five years or so. I would have said five years ago turnovers, takeaways, that was number one. From what I understand now, that EPA for the passing game has now surpassed that." There are many aspects of the quote that encapsulate his analytical mind, but before moving on to why he is right I want to explain EPA.

Expected Points Added or otherwise known as EPA, is a data point that has really made its way into the limelight in recent years as a great way to include context in quantifiable data. For example if a team were backed up on offense in a 3rd & 15, chose to forfeit the possession by running the ball, but gained 8-9 yards. Without context it would seem like a positive play, but in reality it is the same thing as if your quarterback had thrown a long interception because you're punting the ball away regardless. To add onto this example let's compare it to a 3rd & 4. If you were to run the ball such as in the first scenario, and gained those same 8-9 yards, the EPA

would be much higher because the run extended the drive on a crucial down. Taking scenario into account allows it to quantify the moment and how a team performs in these high leverage situations.

Back to Johnson's point about it being the biggest contributor to wins and losses, using the table below since 2016 Johnson is pretty evidently correct. EPA/play in general is the largest contributor with Passing EPA as a close second. What is even more intriguing is that the effect winning the ground game has on your EPA is minute in comparison to that through the air, which further amplifies this necessity to win the air. Regardless, we can make the statement that passing EPA is more important than turnovers pretty strongly.

What Correlates With Winning?

2016-2025

Stat	Correlation
epa_play	0.505
pass_epa	0.494
early_down_epa	0.386
turnovers	−0.381
yards_per_play	0.345
success_rate	0.311
rush_epa	0.179

Not every coach has the same mindset as Ben Johnson though, each of them have come from their own background affecting their line of thinking. Which is why this topic of turnovers

and how they have been overly scrutinized can be taken deeper. Ben Johnson preaches aggressiveness, speaking on how the highest rate of explosive plays happen out of structure but it's a double edged sword because that's also where mistakes happen. The reason he doesn't harp on these mistakes is for the same reason a 3rd & 4 run is worth more than the same play on 3rd & 14… the context is different.

If a quarterback makes the decision to push the ball downfield from his own territory, while that ball is in the air, without even knowing who is going to come down with it, the offense has the highest ceiling outcome. The best case scenario for the offense is that you complete the pass and gain a massive boost to passing EPA. The best case scenario for the defense is you intercept the ball in your own territory, giving your team the same field position or worse than a punt would have.

For example two weeks ago in the AFC Divisional Round, the quarterback for the Bills, Josh Allen threw a late interception to Broncos defensive back Ja'Quan McMillian. Despite the interception coming at possibly the most crucial part of the game it was a much more positive play than his previous interception because of not only it being 3rd & 11, but even more so, due the field position flip. This is where I would next like to take this, because all turnovers do not come the same; you expect there to be an intrinsic possibility of a reward with the risk you're taking by putting the ball in harm's way.

BUF	DEN	QUARTER	TIME	DOWN	DISTANCE	SPOT	OUTCOME	RECOVER	EPA
17	23	3rd	5:07	2nd	14	DEN 40	INTERCEPTION	DEN 38	-4.5
30	30	OT	7:55	3rd	11	BUF 37	INTERCEPTION	DEN 20	-1.2

A lot of the head coaches for the league's top quarterbacks understand this; they recognize that while there will be plays that make you want to rip out your hair, the great plays that come with it more often than not result in an overall net positive for your football team. The Eagles head coach, in particular, does not see it this way; he still values protecting the football at all costs even if it results in negative plays regardless. The reason for this is simply based on the outcome of their individual games.

Scenerio	Wins	Losses	Win %
Win Turnover Battle	42	2	.950
ZERO Giveaways	35	6	.850
1<= Takeaway	53	14	.790

Now the problem with this line of thinking is, firstly, that the value of a fumble in comparison to an interception is much different; secondly, that it has nothing to reference its importance to. Turnovers are a crucial part of winning football games but not the MOST crucial, which is what is being hammered home within this football team.

There's a famous quote from the 1960s that states, “Three things can happen when you pass the football, and two of them are bad.” This is in itself true; when you throw the football, you can either complete the pass, not complete the pass, or throw an interception. Once again what it doesn’t do is assign value to any of the outcomes. We discussed previously that winning through the air is of much higher value, so let's eliminate the run game just for sake of argument because it’s less important. That leaves us with our previous three outcomes plus two additional if you, in fact; hold on to the football which are a sack and, in some circumstances, a fumble.

This is where the line of thinking hits a pothole because there are rarely any glass-half-full sacks, and certainly, there are never any half-full fumbles. Even so, on average, sacks are worth much less in terms of EPA than an interception, so what is the problem?

EPA per Event: Interceptions, Sacks, and Sack Fumbles

Average EPA Lost per Play and Total Occurrences (2016–2025)

Season	EPA/Int	Total INTs	EPA/Sack	Sacks(No TO)	EPA/Sack Fumble	Sack Fumbles
2016	-4.362	436	-1.483	1080	-5.363	92
2017	-4.447	441	-1.488	1153	-5.597	91
2018	-4.457	435	-1.524	1223	-5.234	98
2019	-4.415	423	-1.514	1243	-5.634	98
2020	-4.547	416	-1.527	1098	-5.451	88
2021	-4.448	463	-1.588	1226	-5.326	89
2022	-4.376	436	-1.527	1270	-5.114	86
2023	-4.439	443	-1.547	1363	-5.363	96
2024	-4.379	405	-1.551	1313	-5.536	79
2025	-4.444	404	-1.509	1261	-5.457	84

The part that is often left unchecked is the fact that sacks occur much more often than interceptions. So, when you make the claim that sacks are, on average, worse, it sounds a little hard to believe. The reality is, when you account for this gap in occurrence and apply the ratio found to EPA/Sack, you will find that, at the rate at which sacks occur, they amount to relatively the same net loss of EPA as an interception.

EPA per Event: Interceptions, Sacks, and Sack Fumbles

Average EPA Lost per Play and Total Occurrences (2016–2025)

Season	EPA/Int	Total INTs	EPA/Sack	Sacks(No TO)	Conversion	EPA/Sack = INT
2016	-4.362	436	-1.483	1080	2.477064	-3.674235
2017	-4.447	441	-1.488	1153	2.614512	-3.890527
2018	-4.457	435	-1.524	1223	2.811494	-4.284505
2019	-4.415	423	-1.514	1243	2.938534	-4.447750
2020	-4.547	416	-1.527	1098	2.639423	-4.029971
2021	-4.448	463	-1.588	1226	2.647948	-4.205683
2022	-4.376	436	-1.527	1270	2.912844	-4.448458
2023	-4.439	443	-1.547	1363	3.076749	-4.759477
2024	-4.379	405	-1.551	1313	3.241975	-5.028865
2025	-4.444	404	-1.509	1261	3.121287	-4.711171

Now of course, this isn't even including the largest possible negative from a sack, which is a fumble. When including sacks involving a fumble, the EPA lost, when converted for rate of occurrence, it shows sacks have clearly been the more negative play.

EPA per Event: Interceptions and All Sacks

Average EPA Lost per Play and Total Occurrences (NFL 2016–2025)

Season	sacks	EPA/INT	Total INTs	EPA/Sack	Conversion	EPA/Sack=INT
2016	1172	-4.362	436	-1.788	2.688	-4.806
2017	1244	-4.447	441	-1.789	2.821	-5.045
2018	1321	-4.457	435	-1.799	3.037	-5.464
2019	1341	-4.415	423	-1.815	3.170	-5.753
2020	1186	-4.547	416	-1.818	2.851	-5.183
2021	1315	-4.448	463	-1.841	2.840	-5.229
2022	1356	-4.376	436	-1.755	3.110	-5.457
2023	1459	-4.439	443	-1.798	3.293	-5.922
2024	1392	-4.379	405	-1.777	3.437	-6.109
2025	1345	-4.444	404	-1.756	3.329	-5.846

Now, with all this said, that doesn't mean a team shouldn't worry about interceptions. The entire point here is there is a risk to throwing the football downfield, but the reward is almost always worth it. That also means, though, that there is a middle ground; as the

interception total creeps closer to the sack total, so does the amount of risk you have to play with until it's no longer the net positive play.

So for a team like the Eagles "Why don't they adjust?" is the obvious next question, and to that, your guess is as good as mine. The Eagles organization has all of the same data I presented and more at their disposal, and yet continue to limit themselves. Are there more factors than what I presented? Absolutely, but one thing is true, and that's innovation wins despite the contest. If you're open to new ideas and building upon your foundation with each additional data point, you give yourself the best chance of success.