Relevance of the Combine

Forecasting NFL Success

With Physical Attribute Tests

Revision 2.0

By Joe Landers

Friday, February 20, 2009

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Physical Attribute Testing and NFL Success

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The college football season's concluded, the showcase games are wrapping up, and we're rapidly approaching the part of the off-season where the sole focus is measuring each prospect's aptitude in each of the seven major physical attributes: short shuttle, long shuttle, three-cone, vertical jump, broad jump, 40-yard dash, and bench.

Going into this off-season of individual assessments, I want to be able to forecast which prospects will have the highest odds of success. Let's take Crabtree for example. I don't know if he's really the best receiver prospect out there or if he's tremendously over-valued at this point, but after he completes his tests, I'll have a much better idea. Here's how:

In this study, I take physical attribute data from 2,430 prospects that had recorded and published results between 2005 and 2008 and perform comparative analysis to correlate test results with real-world NFL success. While I could use my point-based model to determine a player's success, the easiest method to determine success for this study is to look at where a player spent most of his 2008 season: 1st string, 2nd string, rostered (3rd-4th string/PSq), cut, or never signed. I use two new statistics to forecast how future prospects will achieve similar success – Exceeded Peer Average (EPA) and Attribute Success Correlation (ASC).

Exceeded Peer Average (EPA)

The EPA study gives us the correlation between overall physical attribute testing performance and on-field success. It takes all seven physical attribute tests into account and tells us in how many categories a certain prospect performed better than his peers. One conclusion I can state right up front is that, as a collective representation of how a prospect's attributes compare to his peers, EPA is a better indicator of future success than any particular attribute test. ASC tables below will show why EPA is generally a better indicator of future success, but we'll also see which attributes are more important than others at each position.

We can see with the EPA model, for example, that 46.2% of the corners who Exceeded Peer Average in 6 categories were NFL starters in 2008. 76.9% of corners with an EPA of 6 were on Two-Deeps in 2008. 92.3% of EPA 6 CBs were still on rosters in 2008. All figures are incredibly impressive and compelling.

If I'm considering drafting Vontae Davis or Malcolm Jenkins in the first round, I sure would get a big nice warm fuzzy if they posted an EPA of 6. The difference between CBs with an EPA of 4 or 5 and those with an EPA of 6 is significant. See the table below:

CB	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	2	0%	**50%**	**100%**	**100%**	0%
6	13	**46%**	**77%**	**92%**	**100%**	0%
5	29	**24%**	**66%**	**69%**	**97%**	3%
4	44	**23%**	**43%**	**61%**	**95%**	5%
3	43	2%	19%	35%	**79%**	21%
2	40	10%	18%	40%	**83%**	18%
1	39	3%	10%	23%	**77%**	23%
0	27	0%	11%	26%	59%	**41%**
All	237	12%	30%	46%	84%	16%

For those with an EPA of 5, their starting percentage in the NFL drops from 46.2% (at EPA6) to 24.1% - nearly half as likely to start. For EPA4's, it's 23%. From EPA4 CBs down to EPA3 and below, it's a drastic drop-off for future starters – 2%, 10%, 3%, and 0%.

Attribute Success Correlation (ASC)

The ASC model aims to draw correlations (or dispel myths) between specific physical attribute tests and NFL success. For example, the average vertical jump for a corner from the last four years of Combines and Pro Days is 36.82 inches. 198 corners attended a camp as rookies over the last four years. Of those 198, only 108 were still on rosters in 2008. Of those 108, only 58 exceeded peer average (at the CB position) in the vertical jump.

Attribute Success Correlation	Vertical Jump - CBs (Avg 36.82)			Total
	% > EPA	> EPA	< EPA	
1st String %	55%	16	13	29
Two-Deep %	60%	43	29	72
On Roster %	54%	58	50	108
Made Camp %	46%	92	106	198
Never Signed %	31%	12	27	39
Total	44%	104	133	237

In otherwords, only 54% jumped higher than 36.82 at the Combine or at their Pro Day. The number is 55% for starters (16 out of 29 EPA'd in the vert) and 60% for those on the two-deep. It's fair to say there is only a minor correlation between doing better than your peers in the vertical jump and actual NFL success at the cornerback position. Is there a stronger correlation between 40 times and NFL success for corners? Bench? Broad jump? We'll find out.

What I'll do in this study is look at each position from an EPA and ASC perspective in an effort to allow us to better identify prospects in the 2009 NFL Draft who have the highest odds for success in the NFL.

EPA and ASC Cheat Sheet

The following table is the product of this study and one that no staff should go without. It illustrates the average at each position and how important each attribute is to forecasting NFL success. It should be a table referred to again and again.

Pos	Opt EPA	Short Shuttle		Long Shuttle		Three Cone		Vertical Jump		Broad Jump		40-yd Dash		Bench Reps	
		Avg	1st%	Avg	1st%	Avg	1st%	Avg	1st%	Avg	1st%	Avg	1st%	Avg	1st%
C	5	4.69	**89%**	n/a	n/a	7.78	44%	28.83	44%	100	44%	5.25	**78%**	25.62	**67%**
CB	6	4.21	**72%**	11.47	17%	6.98	**76%**	36.82	55%	122	**72%**	4.49	**83%**	14.18	48%
DE	6	4.46	57%	11.98	13%	7.37	57%	32.72	57%	113	57%	4.90	**65%**	23.74	43%
DT	6	4.61	57%	12.44	n/a	7.67	**65%**	30.10	43%	106	52%	5.11	61%	26.43	43%
FB	5	4.38	36%	12.05	18%	7.27	**64%**	32.93	36%	112	55%	4.74	27%	23.94	36%
LB	6	4.33	58%	11.82	20%	7.18	47%	34.73	51%	116	49%	4.70	**67%**	22.15	51%
OG	4	4.72	53%	n/a	n/a	7.84	**65%**	28.45	53%	101	47%	5.31	53%	25.34	41%
OT	5	4.74	37%	n/a	n/a	7.83	44%	29.24	46%	102	49%	5.27	**66%**	24.35	37%
QB	3	4.34	38%	11.65	0%	7.13	31%	31.87	31%	111	23%	4.81	0%	16.77	8%
RB	4	4.32	50%	11.73	25%	7.13	50%	34.90	50%	117	50%	4.57	**69%**	18.67	38%
S	1	4.25	46%	11.61	23%	7.04	46%	35.82	23%	119	29%	4.58	**74%**	16.33	31%
TE	5	4.38	47%	11.97	18%	7.19	47%	33.42	59%	113	59%	4.80	**76%**	20.46	53%
WR	6	4.26	39%	11.49	26%	7.01	57%	36.05	**83%**	121	**65%**	4.53	**83%**	15.14	26%

The elements reflected above are: 1) the optimal number of attributes in which a prospect needs to exceed peer average (Opt EPA) at each position, 2) the average test result at each position (Avg), and 3) the percent of prospects that exceeded peer average AND started in 2008 (1st%). The bolded percentages represent the top attributes for the respective position. For example, the 40 (83%), 3-cone (76%), Broad Jump (72%), and Short Shuttle (72%) are the four most important attributes to the cornerback (CB) position. Given a decent sample size, when 83% of the starters at any given position exceed peer average, it's highly likely that attribute is a requisite for success.

Looking at the above table, it's easy to see if you're looking for the ideal running back, he'll exceed peer average in four categories. 69% of starting running backs (from the '05-'08 pool), exceeded peer average in the 40-yard dash.

In the next phase of the study, we'll break down the source of all of the above numbers and provide more in-depth analysis by position – first by offense, then by defense.

OFFENSE

Wide Receiver

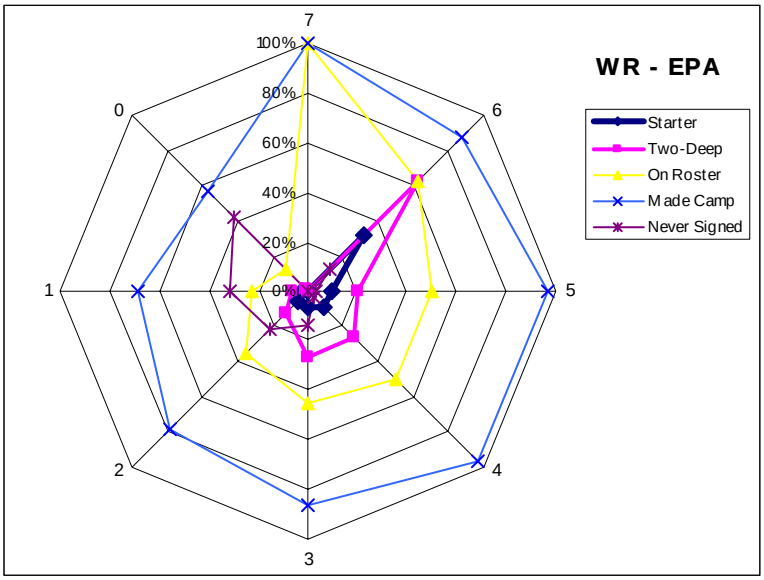
Exceeded Peer Average (EPA) - WRs

For a wide receiver to be successful it's important that he test out somewhere between an EPA of 6 and an EPA of 4. An EPA of 6 is optimal. Again, with EPA, we're not looking at specific attribute test results; we're looking at the whole view of the prospect and how physically superior he is compared to his peers in all categories combined.

WR	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	1	0%	0%	**100%**	**100%**	0%
6	16	**31%**	**63%**	**63%**	**88%**	13%
5	30	**10%**	**20%**	**50%**	**97%**	3%
4	58	9%	**26%**	**50%**	**97%**	3%
3	60	7%	**27%**	**45%**	**87%**	13%
2	70	6%	13%	36%	**79%**	21%
1	79	3%	6%	23%	68%	**32%**
0	51	0%	2%	12%	57%	**43%**
All	365	6%	17%	36%	79%	21%

As you can see above, of the 16 wide receiver prospects between 2005 and 2008 that exceeded their peer average in 6 categories, 31% (nearly a third) started in 2008 and 63% were on two-deeps. Both figures (31% 1stStr, 63% 2-dp) represent the highest propensity for any EPA level at the wide receiver position. For Crabtree, Maclin, or Percy to have their highest odds for success in the league, their physical attributes will need to test out such that they exceed their peer average in all but one category.

The adjacent radar chart corresponds directly to the above table. As you can see, WRs with an EPA of 6 experienced a much higher degree of success than those with an EPA of 0, 1, or 2. Those that came in between an EPA of 4 and 5 did well, but nowhere near as well as those with an EPA of 6.



Here are five examples of prospects between 2005 and 2008 that came into the league with an EPA of 6 and started in the 2008 season: Vincent Jackson,

Reggie Brown, Matt Jones, Domenik Hixon, and Donnie Avery. Notable 2008 starters who tested out with an EPA of 4 or 5: Santonio Holmes, Braylon Edwards, Mark Bradley, Mark Clayton, Roddy White, Dwayne Bowe, and Johnnie Lee Higgins. There are great 2008 starters who came in with an EPA of 3, 2, and 1 (none with 0), but the overall subset of other players with those EPAs (but aren't starting) is very large, thus, driving the odds for success down for anyone testing out with an EPA of 3 or lower.

Attribute Success Correlation (ASC) - WRs

Great, so we know that receivers who exceed their peer average in 6 of the physical attribute tests have the highest degree of success. Well, which attributes have the strongest correlation with NFL success? Vert? 40? Short-shuttle? In order, the most important attribute tests at the WR position are: 40, vert, broad, and 3-cone. Short shuttle, long shuttle, and bench may have some relevance, but much less so than the first four. All together, as noted above, odds are best when a WR EPAs in six categories. Four of those six certainly should be 40, vert, broad, and 3-cone. Of the remaining three, the one that appears less relevant than the rest is the Bench Press. 26% of 2008 starters EPA'd in the bench, but only 19% were on two-deeps, 15% on rosters, and 18% made camp – collectively, the lowest grouping of any particular attribute at the WR position.

40-Yard Dash – WR

The #1 indicator of future success, but certainly not to be considered alone. To be a safe bet, WRs need to exceed peer average in five other categories.

Attribute Success Correlation	40-yd Dash - WR (Avg 4.53)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	83%	19	4	23
Two-Deep	76%	47	15	62
On Roster	70%	92	39	131
Made Camp	55%	160	130	290
Never Signed	23%	17	58	75
All WR Prospects	48%	177	188	365

Jerome Mathis is the poster child illustrating why a 40 time alone should not govern a team's opinion of a wide receiver. Notable 2008 starter times: Braylon 4.49, Vincent Jackson and Roddy 4.46, Reggie Brown and Bowe 4.45, Mark Clayton 4.40, Santonio 4.35, and Johnnie Lee Higgins 4.34.

Vertical Jump – WR

Are you kidding me? 83% of starters EPA'd and two-thirds of two-deepers? Wow. The vert represents a very strong correlation.

Attribute Success Correlation	Vertical Jump - WR (Avg 36.05)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	83%	19	4	23
Two-Deep	66%	41	21	62
On Roster	50%	66	65	131
Made Camp	42%	121	169	290
Never Signed	24%	18	57	75
All WR Prospects	38%	139	226	365

You better have a higher than average vert if you plan on starting in the NFL. Notables: Roddy 41.0, Mark Bradley 39.5, Vincent Jackson 39.0, Hixon 38.5, Santonio 38.0, Avery, Braylon, and Bowe 37.5.

Broad Jump - WR

Why the broad jump physiologically translates to NFL success, I'm not sure I can say. What I can say is that two-thirds (65%) of the 2008 starters EPA'd in the broad as did two-thirds of the two-deepers in 2008.

Attribute Success Correlation	Broad Jump - WR (Avg 121/10'1")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	65%	15	8	23
Two-Deep	65%	40	22	62
On Roster	53%	70	61	131
Made Camp	45%	130	160	290
Never Signed	31%	23	52	75
All WR Prospects	42%	153	212	365

Notables: Mark Bradley 128, Santonio 126, and Bowe 125.

Three-Cone - WR

Standing on its own, the three-cone drill appears to have some degree of relevance to the wide receiver position. It's not strikingly convincing, but 13 of 23 WR starters Exceeded Peer Average in the 3-cone drill (57%).

Attribute Success Correlation	Three-Cone - WR (Avg 7.01)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	57%	13	10	23
Two-Deep	56%	35	27	62
On Roster	50%	65	66	131
Made Camp	45%	130	160	290
Never Signed	25%	19	56	75
All WR Prospects	41%	149	216	365

We can conclude that the 3-cone is more crucial than the short shuttle or long shuttle to success at WR. 57% of starters EPA'd in the 3-cone while only 39% did in the short shuttle and 26% did in the long shuttle.

Short Shuttle - WR

No direct relevance. In no way does a good short shuttle imply that a receiver will succeed in the NFL, but as we saw with the above EPA analysis, it certainly plays a role in the prospect's overall odds for success.

Attribute Success Correlation	ShortShuttle - WR (Avg 4.26)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	39%	9	14	23
Two-Deep	50%	31	31	62
On Roster	47%	61	70	131
Made Camp	46%	133	157	290
Never Signed	20%	15	60	75
All WR Prospects	41%	148	217	365

As you can see, in the 2008 season, there were 23 starting receivers in the NFL (1st String %) who tested out in the past four years as prospects (2005-2008). Of those 23, only 9 (39%) had a short shuttle time which was better than their peer average of 4.26. Having a better-than-average short shuttle isn't quite counter-productive, but it's certainly not a requisite for starting at the receiver position in the NFL. The only clear conclusion to draw from the Short Shuttle ASC table above is that a prospect's odds for even being signed to a camp drop dramatically (all the way to 20%) if he does not have a short shuttle which is better than the peer average at the WR position.

Long Shuttle - WR

The long shuttle is not relevant to the wide receiver position. When at least 3 times as many starters, two-deep players, and rostered guys came in with a long shuttle of 11.49 or above (worse than average), it's a clear sign that the long shuttle cannot be relied upon to foretell future success for wide receivers.

Attribute Success Correlation	Long Shuttle - WR (Avg 11.49)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	26%	6	17	23
Two-Deep	24%	15	47	62
On Roster	25%	33	98	131
Made Camp	18%	53	237	290
Never Signed	3%	2	73	75
All WR Prospects	15%	55	310	365

What we'll see throughout this study is that the long-shuttle is irrelevant to forecasting future success at almost every single position.

Bench Press – WR

No correlation. Irrelevant.

Attribute Success Correlation	Bench - WRs (Avg 15.14)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	26%	6	17	23
Two-Deep	19%	12	50	62
On Roster	15%	20	111	131
Made Camp	18%	53	237	290
Never Signed	13%	10	65	75
All WR Prospects	17%	63	302	365

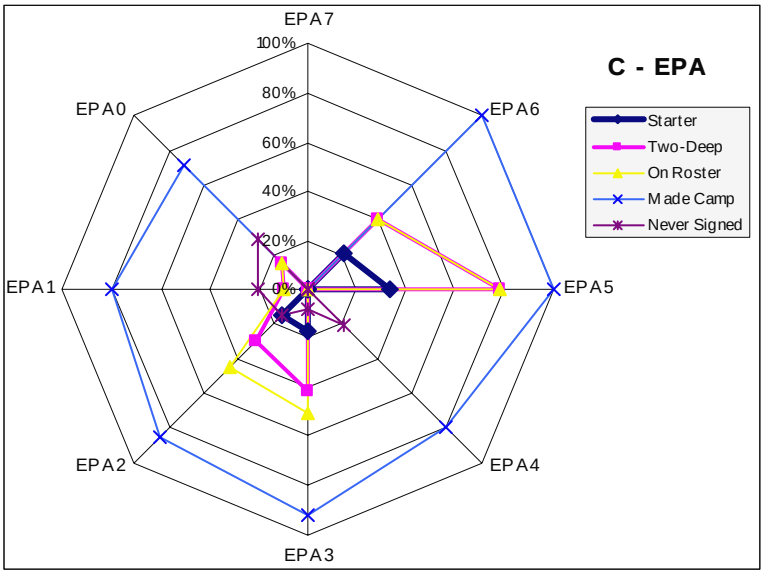
With starters EPA'g in the bench only 26% of the time and two-deepers 19%, rostered guys 15%, and campers 18%, bench is the least compelling of the seven attribute tests for the wide receiver position.

Center

Exceeded Peer Average (EPA) - Centers

Surprisingly, Center comes up as the #3 most predictable position on offense. Looking at the nine centers with an EPA of 5, 33% (3) were starters in 2008, 78% were on two-deeps, 78% were on rosters, and 100% made camp. (Zero of the EPA5 Centers were left out of a camp.)

C	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	5	**20%**	40%	40%	**100%**	0%
5	9	**33%**	**78%**	**78%**	**100%**	0%
4	5	0%	0%	0%	**80%**	20%
3	12	17%	42%	50%	**92%**	8%
2	20	15%	30%	45%	**85%**	15%
1	10	0%	10%	10%	**80%**	**20%**
0	7	0%	14%	14%	71%	**29%**
All	68	13%	32%	38%	87%	13%



The adjacent radar chart corresponds directly to the above table. Centers with an EPA of 2 to 6 have the highest degree of success. Come in lower than EPA2 and the odds for success go down significantly.

Three prospects between 2005 and 2008 came into the league with an EPA of 5 and started in the 2008 season: Eric Ghiaciuc, Ryan Kalil, and Chris Spencer. Jason Brown Exceeded Peer Average in 6 attributes while Nick Mangold and Samson Satele did so in 3.

Attribute Success Correlation (ASC) - Centers

Short shuttle, 40, and bench stack up as the three most important attributes to have at the center position. As long as center prospects exceed peer average in two of the other four attributes, they'll demonstrate enough prowess to be prime candidates to excel at the center position and succeed in the league. (Considering that no offensive linemen run the long shuttle, centers really only have six attributes in which they test.)

Short Shuttle – C

Perhaps it's because of a center's need to be able to move quickly in tight quarters or maybe it's because it's the smallest offensive line position. Whatever the reason, 8 of the 9 starting centers (89%) Exceeded Peer Average in the short shuttle. The Short Shuttle is the most telling attribute test for centers that tested as prospects between 2005 and 2008.

Attribute Success Correlation	ShortShuttle - C (Avg 4.69)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	89%	8	1	9
Two-Deep	82%	18	4	22
On Roster	69%	18	8	26
Made Camp	51%	30	29	59
Never Signed	0%	0	9	9
All C Prospects	44%	30	38	68

Notables: Eric Ghiaciuc 4.64, Chris Spencer 4.61, Jason Brown 4.52, Nick Mangold 4.36, Ryan Kalil 4.34, and Samson Satele 4.29.

40-Yard Dash – C

With the average tackle running a 5.27 and the average guard running a 5.31, the centers may be the fastest offensive linemen at 5.25, but they're far from gazelles. Having said that, by virtue of 78% of the starting centers running a 40 of 5.24 or lower, the 40 is clearly an indicator for future success for centers.

Attribute Success Correlation	40-yd Dash - C (Avg 5.25)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	78%	7	2	9
Two-Deep	55%	12	10	22
On Roster	58%	15	11	26
Made Camp	49%	29	30	59
Never Signed	33%	3	6	9
All C Prospects	47%	32	36	68

In late February, we'll hopefully see what Alex Mack, Max Unger, and Eric Wood can do under the gun. Notables who came out between 2005 and 2008: Chris Spencer 5.21, Jason Brown 5.17, Eric Ghiaciuc 5.09, and Ryan Kalil 4.96.

Bench Press – C

Two-thirds of the starting centers did 26 presses or more. Bench is the #3 indicator for centers.

Attribute Success Correlation	Bench - Cs (Avg 25.62)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	67%	6	3	9
Two-Deep	55%	12	10	22
On Roster	50%	13	13	26
Made Camp	46%	27	32	59
Never Signed	44%	4	5	9
All C Prospects	46%	31	37	68

Notables: Jason Brown and Chris Spencer 26, Eric Ghiaciuc 30, and Ryan Kalil 34.

Three-Cone – C

With only 44% of starters exceeding peer average, the 3-cone does not look overly critical in and of itself.

Attribute Success Correlation	Three-Cone - C (Avg 7.78)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	44%	4	5	9
Two-Deep	59%	13	9	22
On Roster	58%	15	11	26
Made Camp	46%	27	32	59
Never Signed	33%	3	6	9
All C Prospects	44%	30	38	68

Broad Jump - C

44% - nice to have as a piece of the puzzle, but not critical.

Attribute Success Correlation	Broad Jump - C (Avg 100/8'4")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	44%	4	5	9
Two-Deep	50%	11	11	22
On Roster	50%	13	13	26
Made Camp	46%	27	32	59
Never Signed	33%	3	6	9
All C Prospects	44%	30	38	68

Vertical Jump – C

44% - sum of the parts

Attribute Success Correlation	Vertical Jump - C (Avg 28.83)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	44%	4	5	9
Two-Deep	41%	9	13	22
On Roster	38%	10	16	26
Made Camp	44%	26	33	59
Never Signed	22%	2	7	9
All C Prospects	41%	28	40	68

Long Shuttle – C

No centers had recorded long shuttle times between 2005 and 2008.

Attribute Success Correlation	Long Shuttle - C (Avg n/a)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	0%	0	9	9
Two-Deep	0%	0	22	22
On Roster	0%	0	26	26
Made Camp	0%	0	59	59
Never Signed	0%	0	9	9
All C Prospects	0%	0	68	68

Offensive Guards

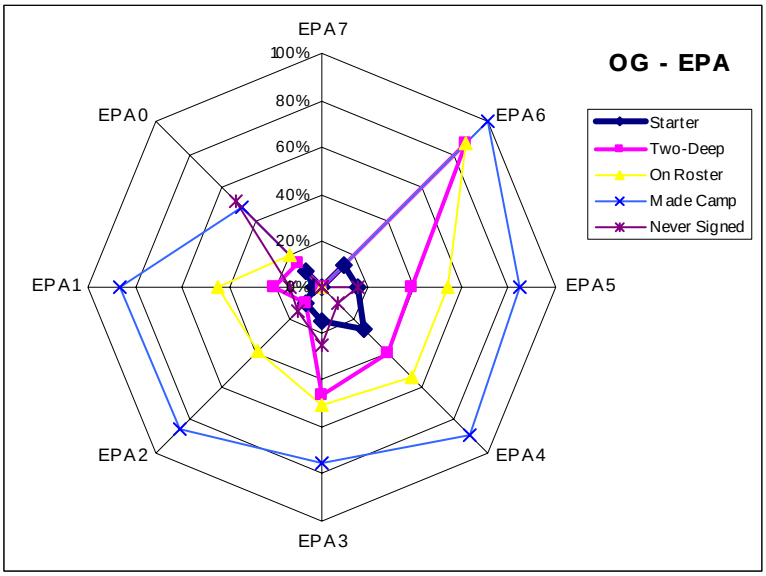
Exceeded Peer Average (EPA) – Offensive Guards

EPA4 is going to be the most optimal for Offensive Guards. 5 of the 20 guards who posted an EPA of 4 (25%) started in 2008.

OG	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	8	13%	**88%**	**88%**	**100%**	0%
5	13	**15%**	**38%**	**54%**	**85%**	15%
4	20	**25%**	**40%**	**55%**	**90%**	10%
3	28	14%	**46%**	**50%**	**75%**	25%
2	21	10%	10%	38%	**86%**	14%
1	29	3%	21%	45%	**86%**	14%
0	21	10%	14%	19%	48%	**52%**
All	140	29%	61%	73%	117%	18%

While only 1 out of 8 (13%) of the EPA6 guards started in 2008, 88% (7 out of 8) were 2nd stringers on two-deeps. Clearly, they are perceived to have the physical tools to perform and they're simply being groomed for starting roles.

The adjacent radar chart corresponds directly to the above table. Guards with an EPA of 3 to 6 have the highest degree of success. Come in lower than EPA3 and the odds for success go down significantly.



Five prospects between 2005 and 2008 came into the league with an EPA of 4 and started in the 2008 season: Logan Mankins, Shawn Murphy, Chris Kemoeatu, Rob Sims, and Chris Kuper. David Baas EPA'd in 6, Chris Myers and Chris Chester 5, and Ben Grubbs, Deuce Lutui, Jason Spitz, and Donald Thomas EPA'd in 3.

Attribute Success Correlation (ASC) - Guards

The Three-Cone drill is really the only attribute which is telling at the guard position: 65% of the 17 starters exceeded peer average in the three-cone drill. The rest, in order, are: Short Shuttle 53%, Vert 53%, 40 53%, Broad 47%, and Bench 41%. The Long Shuttle was not run by a Guard between 2005 and 2008.

Three-Cone – OG

Two-thirds of the starting guards ran a three-cone drill in times that exceeded the peer average of 7.84. It is the #1 attribute for guards.

Attribute Success Correlation	Three-Cone - OG (Avg 7.84)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	65%	11	6	17
Two-Deep	63%	29	17	46
On Roster	53%	34	30	64
Made Camp	48%	53	58	111
Never Signed	28%	8	21	29
All OG Prospects	44%	61	79	140

Notables: Ben Grubbs 7.70, Chris Kuper 7.59, Logan Mankins 7.54, Donald Thomas 7.45, and Chris Chester 7.31.

40-Yard Dash – OG

At 53%, the 40 should only be considered in conjunction with other drills.

Attribute Success Correlation	40-yd Dash - OG (Avg 5.31)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	53%	9	8	17
Two-Deep	59%	27	19	46
On Roster	52%	33	31	64
Made Camp	51%	57	54	111
Never Signed	34%	10	19	29
All OG Prospects	48%	67	73	140

Notables: Ike Ndukwe 5.23, Chris Myers 5.15, Shawn Murphy 5.14, Ben Grubbs and Chris Kuper 5.10, and Chris Chester 4.88.

Short Shuttle – OG

The short shuttle is tied for 2nd at 53% for guard top attributes.

Attribute Success Correlation	ShortShuttle - OG (Avg 4.72)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	53%	9	8	17
Two-Deep	59%	27	19	46
On Roster	50%	32	32	64
Made Camp	42%	47	64	111
Never Signed	24%	7	22	29
All OG Prospects	39%	54	86	140

Notables: Chris Kuper 4.60, Chris Kemoeatu 4.57, Jason Spitz 4.55, David Baas 4.48, and Shawn Murphy 4.44.

Vertical Jump – OG

Tied for 2nd at 53%.

Attribute Success Correlation	Vertical Jump - OG (Avg 28.45)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	53%	9	8	17
Two-Deep	54%	25	21	46
On Roster	48%	31	33	64
Made Camp	47%	52	59	111
Never Signed	31%	9	20	29
All OG Prospects	44%	61	79	140

Notables: Jason Spitz 28.5, David Baas and Donald Thomas 29.5, Chris Chester and Logan Mankins 31.5, and Deuce Lutui and Chris Myers 32.0.

Broad Jump - OG

47% - a piece of the pie not to be viewed alone.

Attribute Success Correlation	Broad Jump - OG (Avg 101/8'5")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	47%	8	9	17
Two-Deep	54%	25	21	46
On Roster	48%	31	33	64
Made Camp	40%	44	67	111
Never Signed	28%	8	21	29
All OG Prospects	37%	52	88	140

Bench Press – OG

41% - a piece of the puzzle.

Attribute Success Correlation	Bench - OGs (Avg 25.34)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	41%	7	10	17
Two-Deep	52%	24	22	46
On Roster	48%	31	33	64
Made Camp	41%	46	65	111
Never Signed	24%	7	22	29
All OG Prospects	38%	53	87	140

Long Shuttle – OG

No guards had recorded long shuttle times between 2005 and 2008.

Attribute Success Correlation	Long Shuttle - OG (Avg n/a)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	0%	0	17	17
Two-Deep	0%	0	46	46
On Roster	0%	0	64	64
Made Camp	0%	0	111	111
Never Signed	0%	0	29	29
All OG Prospects	0%	0	140	140

Offensive Tackles

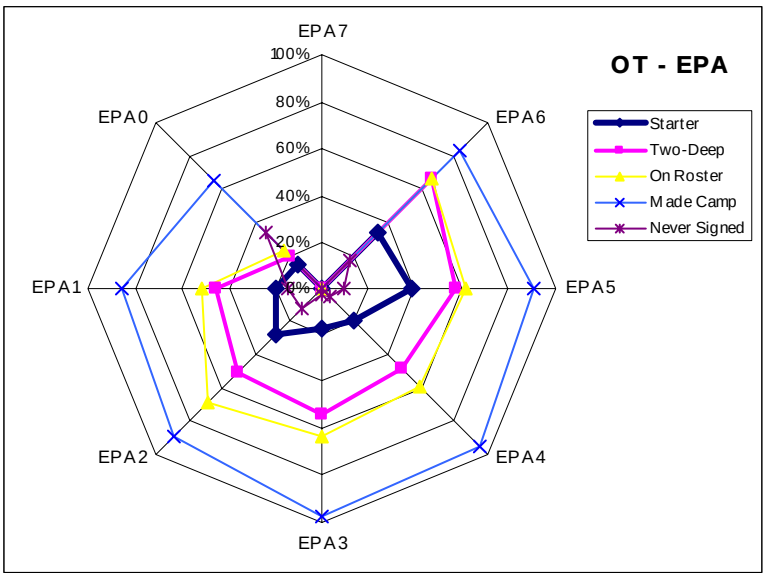
Exceeded Peer Average (EPA) – Offensive Tackles

The optimal EPA number of Offensive Tackles is 5. 38% of the 21 prospects who Exceeded Peer Average 5 times started in 2008. 57% were on two-deeps, 62% were on rosters, and 90% attended a camp.

OT	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	6	**33%**	**67%**	**67%**	**83%**	17%
5	21	**38%**	**57%**	**62%**	**90%**	10%
4	25	20%	**48%**	**60%**	**96%**	4%
3	41	17%	**54%**	**63%**	**98%**	2%
2	26	27%	**50%**	**69%**	**88%**	12%
1	35	20%	**46%**	51%	**86%**	14%
0	35	14%	20%	23%	66%	**34%**
All	189	22%	46%	54%	87%	13%

Get below an EPA of 5 and all prospects between EPA2 and EPA4 blend in together. It would appear that it's all a matter of what attributes they bring to the table, what a certain team needs, and how the prospect and the team fit together.

The adjacent radar chart corresponds directly to the above table. Tackles with an EPA of 5 to 6 have the highest degree of success. Those with an EPA of 4 or below don't have a dramatically lower chance of success, but it is noticeably lower.



Eight prospects between 2005 and 2008 came into the league with an EPA of 5 and started in the 2008 season: Jeromey Clary, Arron Sears, Eric Winston, Daryn Colledge, Davin Joseph, Duane Brown, Ryan Clady, and Andrew Whitworth. Joe Staley and Khalif Barnes Exceeded Peer Average in 6 attributes.

Attribute Success Correlation (ASC) - Tackles

Not only is there but one attribute which stands out for Offensive Tackles, but it is the only one which is even over 50%. While it is important that OTs exceed peer average in five of the six OT attributes (long shuttle excluded), the only one that appears to be preferred is the 40-yard dash at 66%.

40-Yard Dash – OT

Two-thirds of the 41 starting offensive tackles exceed peer average in the 40 and ran a 5.26 or better. It is the #1 attribute for OTs.

Attribute Success Correlation	40-yd Dash - OT (Avg 5.27)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	66%	27	14	41
Two-Deep	59%	51	36	87
On Roster	58%	59	43	102
Made Camp	48%	79	85	164
Never Signed	32%	8	17	25
All OT Prospects	46%	87	102	189

Maybe Andre Smith, Eugene Monroe, and Jason Smith don't have to run a 4.81 to be successful at tackle, but it would be a lot more comforting to see them run a 5.26 or better.

Notables: Jeremy Trueblood 5.25, Ryan Clady 5.23, Todd Herremans 5.22, Branden Albert 5.17, Marshal Yanda 5.15, Davin Joseph 5.09, Gosder Cherilus 5.03, Alex Barron and Eric Winston 4.94, Joe Thomas and Khalif Barnes 4.92, and Joe Staley 4.82.

Broad Jump - OT

It may be #2 at 49%, but it's not compulsory.

Attribute Success Correlation	Broad Jump - OT (Avg 102/8'6")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	49%	20	21	41
Two-Deep	49%	43	44	87
On Roster	48%	49	53	102
Made Camp	45%	73	91	164
Never Signed	16%	4	21	25
All OT Prospects	41%	77	112	189

Vertical Jump – OT

OTs are best advised to hit five of six attributes, but at 46%, the vert doesn't have to be one.

Attribute Success Correlation	Vertical Jump - OT (Avg 29.24)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	46%	19	22	41
Two-Deep	47%	41	46	87
On Roster	45%	46	56	102
Made Camp	43%	71	93	164
Never Signed	16%	4	21	25
All OT Prospects	40%	75	114	189

Three-Cone – OT

At 44%, the 3-cone is a nice to have, but still just a piece of the pie.

Attribute Success Correlation	Three-Cone - OT (Avg 7.83)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	44%	18	23	41
Two-Deep	45%	39	48	87
On Roster	48%	49	53	102
Made Camp	41%	68	96	164
Never Signed	20%	5	20	25
All OT Prospects	39%	73	116	189

Short Shuttle – OT

With 37%, the short shuttle cannot stand on its own.

Attribute Success Correlation	ShortShuttle - OT (Avg 4.74)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	37%	15	26	41
Two-Deep	39%	34	53	87
On Roster	42%	43	59	102
Made Camp	38%	63	101	164
Never Signed	20%	5	20	25
All OT Prospects	36%	68	121	189

Bench Press – OT

At 37%, the bench is just a piece.

Attribute Success Correlation	Bench - OTs (Avg 24.35)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	37%	15	26	41
Two-Deep	38%	33	54	87
On Roster	34%	35	67	102
Made Camp	38%	63	101	164
Never Signed	32%	8	17	25
All OT Prospects	38%	71	118	189

Long Shuttle – OT

No tackles had recorded long shuttle times between 2005 and 2008.

Attribute Success Correlation	Long Shuttle - OT (Avg n/a)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	0%	0	41	41
Two-Deep	0%	0	87	87
On Roster	0%	0	102	102
Made Camp	0%	0	164	164
Never Signed	0%	0	25	25
All OT Prospects	0%	0	189	189

Running Back

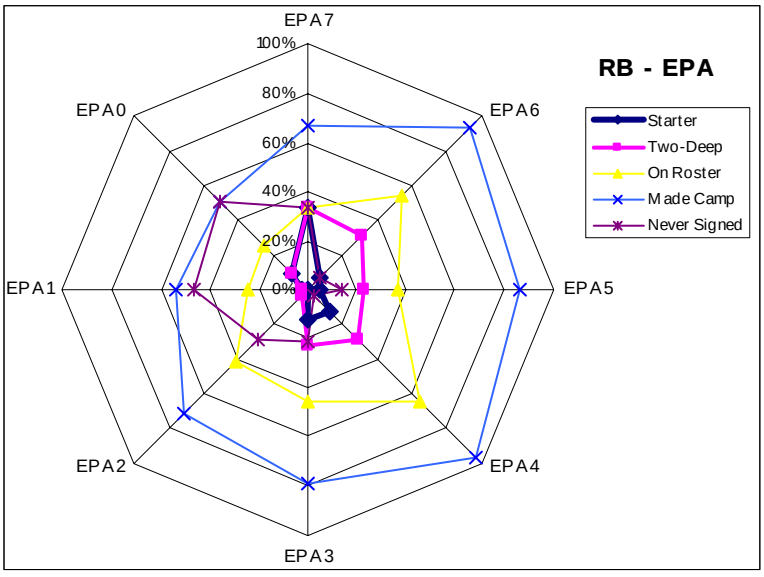
Exceeded Peer Average (EPA) - RBs

The optimal EPA count for a running back is four. At four, there have been 31 prospects (2005-2008) and 13% of them have turned out starters, 29% on two-deeps, 65% rostered, and 97% made camps. (The delta between making a camp and being rostered is the count of players who were cut after attending a camp.)

RB	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	3	**33%**	**33%**	**33%**	67%	33%
6	13	8%	**31%**	**54%**	**92%**	8%
5	22	5%	**23%**	**36%**	**86%**	14%
4	31	13%	**29%**	**65%**	**97%**	3%
3	48	13%	**23%**	**46%**	**79%**	21%
2	34	0%	3%	**41%**	71%	29%
1	37	3%	3%	24%	54%	**46%**
0	20	10%	10%	25%	50%	**50%**
All	208	8%	16%	41%	75%	25%

On the surface, EPA7 looks to be the most compelling - 33% turned out to be starters. With a prospect count of 3, the 33% associated with the Starter% and Two-Deep% is not reliable. Anywhere in between an EPA of 3 and an EPA of 6 looks to be sufficient, but those with EPA4 do have the best odds across the board.

The adjacent radar chart corresponds directly to the above table. RBs with an EPA of 3 to 6 have the highest degree of success (see the dark blue "Starter" line). Come in lower than EPA3 and the odds for success go down significantly.



Four prospects between 2005 and 2008 came into the league with an EPA of 4 and started in the 2008 season: Marshawn Lynch, Brandon Jacobs, Steve Slaton, and Laurence Maroney. Matt Forte was an EPA5, DeAngelo Williams exceeded in 6 categories (EPA6), and the following six players were all EPA3's: Adrian Peterson, Joseph Addai, Ryan Grant, Ronnie Brown, Frank Gore, and Selvin Young. When you hear that Marion Barber was one of the three prospects to Exceed Peer Average in all seven categories (EPA7), you may feel inclined to jump at Javon Ringer, for example, if he exceeds in all seven attributes. Think again. EPA7 is no

guarantee of success. Marion's the only guy to be on a two-deep out of the three EPA7's. The other two? Alvin Pearman and Chris Bruhn. Be just as impressed by the EPA3's, 4's, 5's, and 6's as you are with a guy that may exceed in all seven attributes.

Attribute Success Correlation (ASC) - RBs

For Running Backs, the 40 is the most compelling attribute If I'm going to justify spending a top-20 pick on Knowshon, Chris Wells, or LeSean, I'd sure feel a lot better about the decision if they would EPA in those four attributes.

40-Yard Dash – RB

Since the 40 gets so much attention, it's worth noting that it's not crucial that a RB runs a 4.24 like Chris Johnson. After all, they'd need to have the same size, elusiveness, and experience that Chris does. Witness Brian Calhoun (4.38) and Danny Woodhead (4.39). Sure, they have both dealt with injuries, but their size-deficiency may lend to injuries thus negating the speed benefit. It is #1, but pairing the 40 speed with three other attributes in which they EPA is vital.

Attribute Success Correlation	40-yd Dash - RB (Avg 4.57)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	69%	11	5	16
Two-Deep	86%	30	5	35
On Roster	70%	60	26	86
Made Camp	57%	89	66	155
Never Signed	26%	14	39	53
All RB Prospects	50%	103	105	208

It's a nice bonus to have 4.33 McFadden speed or 4.35 Reggie Bush speed, but it's not a mandate. Marion Barber ran a 4.50, Forte, Lynch, and Slaton all ran 4.46's, and Brandon Jacobs ran a 4.56.

Broad Jump - RB

It's nice to see an RB hit 129 (10'9") like DeAngelo, but it's not a requisite.

Attribute Success Correlation	Broad Jump - RB (Avg 117/9'9")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	50%	8	8	16
Two-Deep	51%	18	17	35
On Roster	47%	40	46	86
Made Camp	46%	72	83	155
Never Signed	26%	14	39	53
All RB Prospects	41%	86	122	208

Vertical Jump – RB

Running back prospects don't need to tap 40 inches, they just need to come in over 34.90 and it's a good sign.

Attribute Success Correlation	Vertical Jump - RB (Avg 34.90)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	50%	8	8	16
Two-Deep	51%	18	17	35
On Roster	47%	40	46	86
Made Camp	52%	80	75	155
Never Signed	26%	14	39	53
All RB Prospects	45%	94	114	208

Three-Cone – RB

It's one of the four vital attribute tests for running back. No need to come in at 6.51 like Jackie Battle, just come in under 7.13. Notables: Marion Barber 7.12, Ronnie Brown 7.12, Ryan Grant 7.10, Marshawn 7.05, Gore 6.95, Forte 6.84, Slaton 6.74, and DeAngelo 6.57.

Attribute Success Correlation	Three-Cone - RB (Avg 7.13)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	50%	8	8	16
Two-Deep	57%	20	15	35
On Roster	56%	48	38	86
Made Camp	54%	84	71	155
Never Signed	26%	14	39	53
All RB Prospects	47%	98	110	208

Short Shuttle – RB

50% of starter's EPA'g is good enough to tie for 2nd, but not overly compelling.

Attribute Success Correlation	ShortShuttle - RB (Avg 4.32)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	50%	8	8	16
Two-Deep	60%	21	14	35
On Roster	50%	43	43	86
Made Camp	52%	81	74	155
Never Signed	25%	13	40	53
All RB Prospects	45%	94	114	208

Bench Press – RB

At any other position, 69% of 2008 starters exceeding peer average in this attribute test would represent a very compelling figure. It would be a clear indicator of future success.

Attribute Success Correlation	Bench - RBs (Avg 18.67)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	38%	6	10	16
Two-Deep	43%	15	20	35
On Roster	35%	30	56	86
Made Camp	35%	55	100	155
Never Signed	45%	24	29	53
All RB Prospects	38%	79	129	208

At running back, a 69% bench ASC figure comes in 5th place behind the top 4. It's important at RB, but not nearly as critical as the top-4.

Long Shuttle – RB

25% is far from compelling.

Attribute Success Correlation	Long Shuttle - RB (Avg 11.73)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	25%	4	12	16
Two-Deep	23%	8	27	35
On Roster	13%	11	75	86
Made Camp	14%	22	133	155
Never Signed	11%	6	47	53
All RB Prospects	13%	28	180	208

Tight Ends

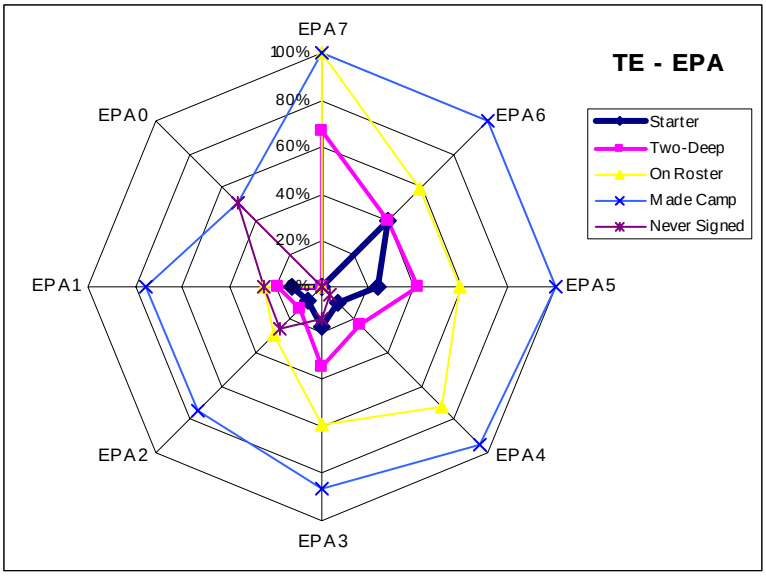
Exceeded Peer Average (EPA) – Tight Ends

The optimal EPA number of Tight Ends is 5. Of the 138 tight end prospects, 17 exceeded peer average five times. Four of the 17 (24%) started in 2008. Of the EPA5's, 41% were on two-deeps, 59% were on rosters, and 10% attended a camp.

TE	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	3	0%	**67%**	**100%**	**100%**	0%
6	5	**40%**	**40%**	**60%**	**100%**	0%
5	17	**24%**	**41%**	**59%**	**100%**	0%
4	22	9%	23%	**73%**	**95%**	5%
3	29	17%	34%	**59%**	**86%**	14%
2	24	8%	13%	29%	75%	25%
1	16	13%	19%	25%	75%	25%
0	22	0%	0%	0%	50%	**50%**
All	138	12%	23%	43%	81%	19%

There's no real cohesive pattern in terms of EPA for tight ends. The only EPA count any prospect (or team) really wants to avoid is EPA0. Exceed peer average zero times and not only will you not be starting, but you won't be on a two-deep or a roster.

The adjacent radar chart corresponds directly to the above table. Tight Ends with an EPA of 3 to 6 have the highest degree of success. 13 of the 17 starting tight ends had an EPA between 3 and 6.



Five prospects came into the league between 2005 and 2008 with an EPA between 4 and 6 and started in the 2008 season: Kevin Boss, Jeff King, Owen Daniels, Zach Miller, and Vernon Davis.

Attribute Success Correlation (ASC) – Tight Ends

Not only is there but one attribute which stands out for Offensive Tackles, but it is the only one which is even over 50%. While it is important that OTs exceed peer average in five of the six OT attributes (long shuttle excluded), the only one that appears to be preferred is the 40-yard dash at 66%.

40-Yard Dash – TE

Two-thirds of the 17 starting tight ends exceed peer average in the 40 and ran a 4.79 or better. It is the #1 attribute for Tight Ends.

Attribute Success Correlation	40-yd Dash - TE (Avg 4.80)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	76%	13	4	17
Two-Deep	82%	27	6	33
On Roster	74%	46	16	62
Made Camp	58%	66	48	114
Never Signed	23%	6	20	26
All TE Prospects	51%	72	68	140

Notables: Heath Miller 4.79, Zach Miller and Anthony Fasano 4.72, Owen Daniels 4.65, Leonard Pope 4.62, and Vernon Davis 4.38.

Broad Jump - TE

The broad jump is tied for #2 with the vert at 59%.

Attribute Success Correlation	Broad Jump - TE (Avg 113/9'5")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	59%	10	7	17
Two-Deep	58%	19	14	33
On Roster	62%	37	23	60
Made Camp	52%	58	54	112
Never Signed	19%	5	21	26
All TE Prospects	46%	63	75	138

Notables: Owen Daniels 114, Zach Miller 115, Leonard Pope 118, Kevin Boss 120, and Vernon Davis 128.

Vertical Jump – TE

Tied with the broad jump for #2 at 59%.

Attribute Success Correlation	Vertical Jump - TE (Avg 33.42)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	59%	10	7	17
Two-Deep	58%	19	14	33
On Roster	50%	30	30	60
Made Camp	43%	48	64	112
Never Signed	19%	5	21	26
All TE Prospects	38%	53	85	138

Notables: Jeff King 34.0, Kevin Boss 35.0, John Carlson 35.5, Marcedes Lewis 37.0, and Vernon Davis 42.0.

Bench Press – TE

Over average, but not compelling at 53%.

Attribute Success Correlation	Bench - TEs (Avg 20.46)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	53%	9	8	17
Two-Deep	48%	16	17	33
On Roster	47%	28	32	60
Made Camp	39%	44	68	112
Never Signed	12%	3	23	26
All TE Prospects	34%	47	91	138

Notables: Marcedes Lewis 22, Jeff King 24, Alex Smith 28, and Vernon Davis 33.

Short Shuttle – TE

47% means the short shuttle doesn't stand on its own.

Attribute Success Correlation	ShortShuttle - TE (Avg 4.38)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	47%	8	9	17
Two-Deep	55%	18	15	33
On Roster	55%	33	27	60
Made Camp	47%	53	59	112
Never Signed	23%	6	20	26
All TE Prospects	43%	59	79	138

Notables: Zach Miller 4.36, John Carlson 4.28, Vernon Davis 4.17, Owen Daniels 4.10, and Jeff King 4.09.

Three-Cone – TE

47% - tied for 5th with short shuttle.

Attribute Success Correlation	Three-Cone - TE (Avg 7.19)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	47%	8	9	17
Two-Deep	45%	15	18	33
On Roster	53%	32	28	60
Made Camp	46%	52	60	112
Never Signed	27%	7	19	26
All TE Prospects	43%	59	79	138

Notables: Zach Miller 7.01, Vernon Davis 7.00, Jeff King 6.99, Kevin Boss 6.96, Anthony Fasano 6.94, and Owen Daniels 6.87.

Long Shuttle – TE

The long shuttle was only run by 16% of the tight ends (22).

Attribute Success Correlation	Long Shuttle - TE (Avg 11.97)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	18%	3	14	17
Two-Deep	21%	7	26	33
On Roster	27%	16	44	60
Made Camp	20%	22	90	112
Never Signed	0%	0	26	26
All TE Prospects	16%	22	116	138

Fullbacks

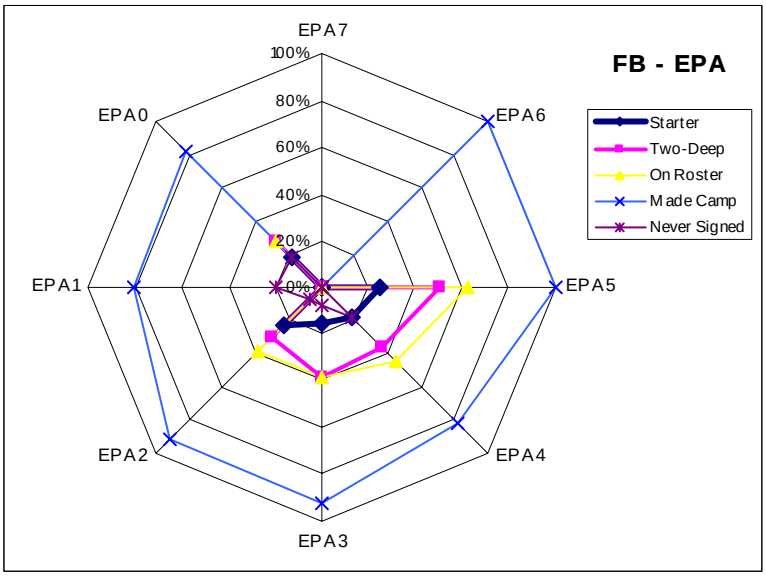
Exceeded Peer Average (EPA) – Fullbacks

Like Tight End, no EPA is overly compelling, but 5 sticks out the most. Only 68 fullbacks tested out between 2005 and 2008. Of those 68, 8 exceeded peer average five times. Of the EPA5's, 25% (2) were starting in 2008, 50% were on two-deeps, 63% on rosters, and 100% attended a camp.

FB	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	2	0%	0%	0%	**100%**	0%
5	8	**25%**	**50%**	**63%**	**100%**	0%
4	11	**18%**	**36%**	**45%**	**82%**	18%
3	13	**15%**	**38%**	**38%**	**92%**	8%
2	13	**23%**	**31%**	**38%**	**92%**	8%
1	10	**0%**	0%	0%	**80%**	**20%**
0	11	**18%**	27%	27%	**82%**	**18%**
All	68	16%	29%	34%	88%	12%

There is no real discernible EPA pattern for fullbacks other than that no fullbacks over EPA5 (6 or 7) were on rosters in 2008. One reason that fullbacks may be so elusive is because so many of them are converted after they get into the league – Oliver Hoyte, Boomer Grigsby, Spencer Larsen, Daniel Coats, Michael Robinson, etc.

The adjacent radar chart corresponds directly to the above table. Fullbacks with an EPA of 2 to 5 have the highest degree of success. 9 of the 11 starting fullbacks had an EPA between 2 and 5.



Six prospects came into the league between 2005 and 2008 with an EPA between 3 and 5 and started in the 2008 season: Jerome Felton, Peyton Hillis, Brian Leonard, Jacob Hester, Madison Hedgecock, Le'Ron McClain, and Naufahu Tahi. Michael Robinson and Daniel Coats were fullback converts who also EPA'd in the 3-5 range.

Attribute Success Correlation (ASC) – Fullbacks

Only two attributes rise above 50% at the fullback position – Three-Cone (64%) and Broad Jump (55%). In order, the other top attributes are: Short (36%), Bench (36%), Vert (36%), 40 (27%), and Long (18%).

Three-Cone – FB

At 64%, the three-cone drill is the #1 attribute for fullbacks.

Attribute Success Correlation	Three-Cone - FB (Avg 7.27)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	64%	7	4	11
Two-Deep	60%	12	8	20
On Roster	57%	13	10	23
Made Camp	45%	27	33	60
Never Signed	13%	1	7	8
All FB Prospects	41%	28	40	68

Notables: Naufahu Tahi 7.27, Jerome Felton 7.17, Le'Ron McClain 7.08, Brian Leonard 6.88, and Jacob Hester 6.85.

Broad Jump - FB

The broad jump is the only other attribute over 50% - it's at 55%.

Attribute Success Correlation	Broad Jump - FB (Avg 112/9'4")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	55%	6	5	11
Two-Deep	45%	9	11	20
On Roster	48%	11	12	23
Made Camp	40%	24	36	60
Never Signed	25%	2	6	8
All FB Prospects	38%	26	42	68

Notables: Jerome Felton and Le'Ron McClain 115, and Brian Leonard 122.

Short Shuttle – FB

36% - one piece, not important by itself.

Attribute Success Correlation	ShortShuttle - FB (Avg 4.38)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	36%	4	7	11
Two-Deep	55%	11	9	20
On Roster	57%	13	10	23
Made Camp	47%	28	32	60
Never Signed	25%	2	6	8
All FB Prospects	44%	30	38	68

Notables: Jerome Felton 4.33, Madison Hedgecock 4.26, Jacob Hester 4.24, and Peyton Hillis 4.24.

Bench Press – FB

36% - just a piece of the puzzle.

Attribute Success Correlation	Bench - FB (Avg 23.94)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	36%	4	7	11
Two-Deep	35%	7	13	20
On Roster	39%	9	14	23
Made Camp	37%	22	38	60
Never Signed	38%	3	5	8
All FB Prospects	37%	25	43	68

Notables: Peyton Hillis 26, Madison Hedgecock 29, and Jerome Felton 30.

Vertical Jump – FB

36% - not compelling.

Attribute Success Correlation	Vertical Jump - FB (Avg 32.93)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	36%	4	7	11
Two-Deep	35%	7	13	20
On Roster	35%	8	15	23
Made Camp	37%	22	38	60
Never Signed	50%	4	4	8
All FB Prospects	38%	26	42	68

Notables: Naufahu Tahi 33.5, Peyton Hillis 35.0, and Jerome Felton 36.0.

40-Yard Dash – FB

At 27%, the 40 is nowhere near as important at fullback than at other positions. 38% of the fullbacks who exceeded peer average at the 40 were never even signed.

Attribute Success Correlation	40-yd Dash - FB (Avg 4.74)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	27%	3	8	11
Two-Deep	45%	9	11	20
On Roster	52%	12	11	23
Made Camp	42%	25	35	60
Never Signed	38%	3	5	8
All FB Prospects	41%	28	40	68

Notables: Jacob Hester 4.60 and Peyton Hillis 4.58.

Long Shuttle – FB

Like most positions, less than 20% (12%) even ran the long shuttle.

Attribute Success Correlation	Long Shuttle - FB (Avg 12.05)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	18%	2	9	11
Two-Deep	20%	4	16	20
On Roster	17%	4	19	23
Made Camp	13%	8	52	60
Never Signed	0%	0	8	8
All FB Prospects	12%	8	60	68

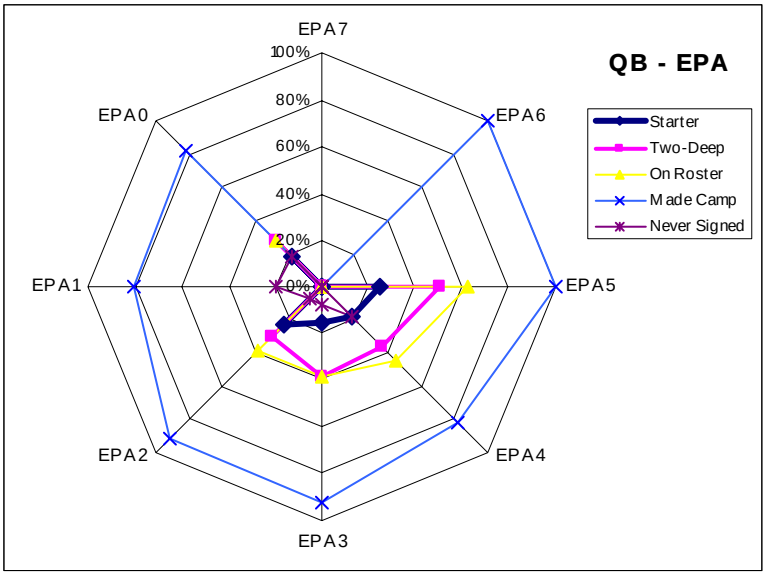
Quarterbacks

Exceeded Peer Average (EPA) – Quarterbacks

Attribute testing is virtually useless and counterintuitive for Quarterbacks. It remains the toughest and most elusive position at which to predict success. The EPA and ASC models get us no closer to understanding what makes college quarterbacks successful in the NFL. For the sake of being thorough and full disclosure, the Quarterback tables are below.

QB	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	0	0%	0%	0%	0%	0%
5	2	0%	0%	0%	**100%**	0%
4	14	**7%**	**21%**	36%	**71%**	**29%**
3	19	**11%**	**11%**	26%	**89%**	11%
2	31	**6%**	**13%**	26%	**90%**	10%
1	21	**10%**	**24%**	**43%**	**81%**	19%
0	50	**10%**	**26%**	**44%**	**84%**	16%
All	137	9%	20%	36%	85%	15%

When the two highest success rates come with the 71 Quarterbacks who Exceeded Peer Average between one and zero times, it's clear that EPA is not helpful with Quarterbacks. The adjacent radar chart corresponds directly to the above table.



It's the only EPA chart we see in the study where the prospects with EPA0 and EPA1 are some of the most successful.

Seven prospects came into the league between 2005 and 2008 with an EPA between 0 and 1 and started in 2008: Aaron Rodgers, Tyler Thigpen, Derek Anderson, JaMarcus Russell, Trent Edwards, Kyle Orton, and Matt Ryan.

I wouldn't believe a soul who told me that JaMarcus Russell can't bench more than 16 reps (the QB average is 16.77) or that Tyler Thigpen can't run better than a 4.81 40 (also the QB avg). The only conclusion to make here is that so many of the Quarterback prospects choose to run all their drills in private workouts where the attribute test results aren't made public. Even so, if every QB performed every drill, we'd likely be no closer to understanding what makes a college QB translate successfully to the NFL.

Attribute Success Correlation (ASC) – Quarterbacks

There isn't one single QB attribute in which 50% or more of the starters exceeded peer average in that particular attribute. In order, the QB attributes are: Short Shuttle (38%), Three-Cone (31%), Vert (31%), Broad (23%), Bench (8%), 40 (0%), and Long Shuttle (0%). It's not that Quarterbacks don't have to be athletic, it's simply that there's no correlation between attribute testing (Wonderlic included, according to Berri and Simmons) and NFL success.

Short Shuttle – QB

At 38%, it's #1, but altogether apparently irrelevant.

Attribute Success Correlation	ShortShuttle - QB (Avg 4.34)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	38%	5	8	13
Two-Deep	33%	9	18	27
On Roster	37%	18	31	49
Made Camp	40%	46	70	116
Never Signed	29%	6	15	21
All QB Prospects	38%	52	85	137

Notables: Jason Campbell 4.32, Joe Flacco 4.27, and Matt Cassel 4.08.

Three-Cone – QB

Two-thirds of the starting QBs did NOT exceed peer average in the three-cone drill.

Attribute Success Correlation	Three-Cone - QB (Avg 7.13)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	31%	4	9	13
Two-Deep	33%	9	18	27
On Roster	35%	17	32	49
Made Camp	42%	49	67	116
Never Signed	14%	3	18	21
All QB Prospects	38%	52	85	137

Notables: Tyler Thigpen 7.11, Jay Cutler 7.10, and Joe Flacco 6.82.

Vertical Jump – QB

One-third of the starters exceeded peer average.

Attribute Success Correlation	Vertical Jump - QB (Avg 31.87)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	31%	4	9	13
Two-Deep	22%	6	21	27
On Roster	22%	11	38	49
Made Camp	31%	36	80	116
Never Signed	38%	8	13	21
All QB Prospects	32%	44	93	137

Notables: Matt Cassel 34.0, Aaron Rodgers 34.5, and Jason Campbell 38.0.

Broad Jump - QB

23% and almost irrelevant.

Attribute Success Correlation	Broad Jump - QB (Avg 111/9'3")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	23%	3	10	13
Two-Deep	22%	6	21	27
On Roster	24%	12	37	49
Made Camp	29%	34	82	116
Never Signed	33%	7	14	21
All QB Prospects	30%	41	96	137

Notables: Matt Cassel 115 and Jason Campbell 116.

Bench Press – QB

8% and almost completely off the map.

Attribute Success Correlation	Bench - QBs (Avg 16.77)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	8%	1	12	13
Two-Deep	4%	1	26	27
On Roster	4%	2	47	49
Made Camp	5%	6	110	116
Never Signed	38%	8	13	21
All QB Prospects	10%	14	123	137

Notables: Jay Cutler 23.

40-Yard Dash – QB

Only one of the 137 Quarterback prospects ran a recorded 40 between 2005 and 2008 – Matt Bohnet of Eastern Michigan. He was cut.

Attribute Success Correlation	40-yd Dash - QB (Avg 4.81)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	0%	0	13	13
Two-Deep	0%	0	27	27
On Roster	0%	0	49	49
Made Camp	1%	1	115	116
Never Signed	0%	0	21	21
All QB Prospects	1%	1	136	137

Notables: Matt Bohnet 4.44.

Long Shuttle – QB

Only two QBs ran the long shuttle between 2005 and 2008.

Attribute Success Correlation	Long Shuttle - QB (Avg 11.65)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	0%	0	13	13
Two-Deep	0%	0	27	27
On Roster	0%	0	49	49
Made Camp	2%	2	114	116
Never Signed	0%	0	21	21
All QB Prospects	1%	2	135	137

Notables: Darian Durant 11.48 and James Kilian 11.24.

DEFENSE

Cornerback

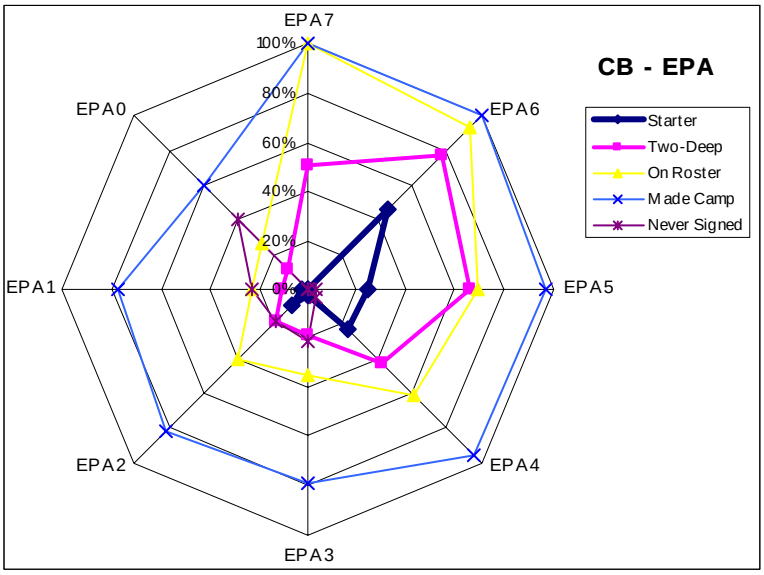
Exceeded Peer Average (EPA) - CBs

The optimal EPA count for a cornerback is six. An astonishing 46% of EPA6 corners were starters in 2008 and 77% were on two-deeps.

CB	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	2	0%	**50%**	**100%**	**100%**	0%
6	13	**46%**	**77%**	**92%**	**100%**	0%
5	29	**24%**	**66%**	**69%**	**97%**	3%
4	44	**23%**	**43%**	**61%**	**95%**	5%
3	43	2%	19%	35%	**79%**	21%
2	40	10%	18%	40%	**83%**	18%
1	39	3%	10%	23%	**77%**	23%
0	27	0%	11%	26%	59%	**41%**
All	237	12%	30%	46%	84%	16%

One would think if a prospect exceeds peer average in every single attribute that it would be a good sign. Antwaun Molden and Karl Paymah both exceeded peer average in all seven – Paymah's been a career nickelback and while Molden may have a bright future, he was far from having the rookie season that McKelvin, Rodgers-Cromartie, Flowers, or Carr had in 2008.

The adjacent radar chart corresponds directly to the above table. Corners with an EPA of 5 to 6 have the highest degree of success. Come in lower than EPA4 and the odds for success go down significantly.



Six prospects between 2005 and 2008 came into the league with an EPA of 6 and started in the 2008 season: Carlos Rogers, Ellis Hobbs, Darrelle Revis, Leon Hall, Antrel Rolle and Dominique Rodgers-Cromartie. Chris Houston, Fabian Washington, Domonique Foxworth, Brandon McDonald, Brandon Carr, and Marlin Jackson all were EPA5's and started in 2008.

Attribute Success Correlation (ASC) - CBs

The cornerback ASC numbers are fairly predictable and intuitive. While it's not crucial to run a 4.28 40, the 40-yd dash is the #1 most important attribute

for cornerbacks. After the 40, the top-4 are rounded out by the 3-cone, short shuttle, and broad jump. 237 cornerbacks performed tests which allow us to arrive a these numbers. Of the 237 who tested between 2005 and 2008, 29 were starting corners in 2008. These are their attribute details:

40-Yard Dash – CB

83% of starting corners exceeded their peer average in the 40 (<4.49); 78% of the guys on two-deeps did as well. The 40 is the #1 attribute for corners.

Attribute Success Correlation	40-yd Dash - CB (Avg 4.49)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	83%	24	5	29
Two-Deep	78%	56	16	72
On Roster	70%	76	33	109
Made Camp	57%	112	86	198
Never Signed	21%	8	31	39
All CB Prospects	51%	120	117	237

Notable corner 40 times: Brandon McDonald 4.47, Marlin Jackson 4.46, Brandon Carr and Carlos Rogers 4.44, Darrelle Revis and Leon Hall 4.39, Ellis Hobbs 4.38, Dominique Rodgers-Cromartie 4.33, and Chris Houston 4.32.

Three-Cone – CB

With three out of four starting corners exceeding peer average in the three-cone (76%), it's virtually a requisite to becoming a good corner.

Attribute Success Correlation	Three-Cone - CB (Avg 6.98)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	76%	22	7	29
Two-Deep	67%	48	24	72
On Roster	60%	65	44	109
Made Camp	48%	95	103	198
Never Signed	28%	11	28	39
All CB Prospects	45%	106	131	237

Notables: Marlin Jackson 6.96, Chris Houston 6.94, Brandon McDonald 6.91, Brandon Carr 6.80, Ellis Hobbs 6.70, Darrelle Revis 6.56, and Leon Hall 6.50.

Short Shuttle – CB

Like the 3-cone, quick re-direction and movement in tight quarters are vital for a corner. 72% of starters exceeded peer average.

Attribute Success Correlation	ShortShuttle - CB (Avg 4.21)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	72%	21	8	29
Two-Deep	67%	48	24	72
On Roster	55%	60	49	109
Made Camp	49%	98	100	198
Never Signed	26%	10	29	39
All CB Prospects	46%	108	129	237

Notables: Rodgers-Cromartie 4.14, Chris Houston 4.12, Ellis Hobbs 4.08, Marlin Jackson 4.04, and Carlos Rogers 3.84. Rogers' 3.84 is tied with Marquice Cole for the best short shuttle time since the 2005 class came out.

Broad Jump - CB

72% of the starting corners exceeded peer average in the broad jump – 10'2" or more.

Attribute Success Correlation	Broad Jump - CB (Avg 122/10'2")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	72%	21	8	29
Two-Deep	65%	47	25	72
On Roster	58%	63	46	109
Made Camp	47%	94	104	198
Never Signed	23%	9	30	39
All CB Prospects	43%	103	134	237

Notables: Chris Houston 122, Darrelle Revis 125, Fabian Washington 129, and Ellis Hobbs 133.

Vertical Jump – CB

Anecdotally, I thought the vertical jump would be much more important for corners. However, only 55% of the starting corners (16 of 29) actually exceeded peer average in the vert.

Attribute Success Correlation	Vertical Jump - CB (Avg 36.82)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	55%	16	13	29
Two-Deep	60%	43	29	72
On Roster	54%	59	50	109
Made Camp	46%	92	106	198
Never Signed	31%	12	27	39
All CB Prospects	44%	104	133	237

Notables: Leon Hall 37.5, Darrelle Revis 38.0, Carlos Rogers 40.5, and Ellis Hobbs 42.0. The best vert since 2005 has been Arizona State's Chris McKenzie at 45.0. Last seen in Houston, he's not in the league now. It's important that corners exceed their peer average, but they don't need to jump through the roof.

Bench Press – CB

48% makes the bench a "sum of the parts" type of attribute and not one that is vital in and of itself.

Attribute Success Correlation	Bench - CBs (Avg 14.18)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	48%	14	15	29
Two-Deep	42%	30	42	72
On Roster	39%	43	66	109
Made Camp	37%	73	125	198
Never Signed	31%	12	27	39
All CB Prospects	36%	85	152	237

Notables: Carlos Rogers and Leon Hall 15, Brandon McDonald 17, Fabian Washington 18, and Chris Houston 27.

Long Shuttle – CB

Absolutely not vital. A nice to have, not a must.

Attribute Success Correlation	Long Shuttle - CB (Avg 11.47)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	17%	5	24	29
Two-Deep	18%	13	59	72
On Roster	18%	20	89	109
Made Camp	17%	34	164	198
Never Signed	3%	1	38	39
All CB Prospects	15%	35	202	237

Notables: DRC 11.06 and Ellis Hobbs 10.98.

Defensive Tackle

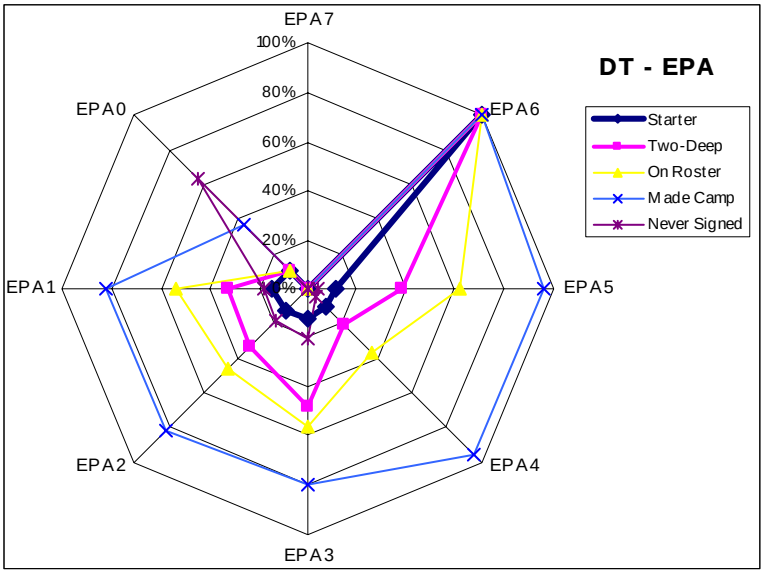
Exceeded Peer Average (EPA) - DTs

The magic EPA number for DTs is 6. There have only been five who have exceeded peer average in 6 categories since 2005 (out of 155 who have tested), but all five of those DTs were starters in 2008. When all other EPA counts fall in the 11%-14% range, 100% is pretty compelling.

DT	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	5	**100%**	**100%**	**100%**	**100%**	0%
5	26	12%	**38%**	**62%**	**96%**	4%
4	19	11%	**21%**	**37%**	**95%**	5%
3	25	12%	**48%**	**56%**	**80%**	20%
2	33	12%	**33%**	**45%**	**82%**	18%
1	28	14%	**32%**	**54%**	**82%**	18%
0	19	11%	11%	11%	37%	**63%**
All	155	15%	34%	48%	81%	19%

Coming in between EPA3 and EPA5 is respectable considering the two-deep and roster percentages. EPA3 has 48% 2-dp and 56% rostered. EPA5 has 38% 2-dp and 62% rostered. However, the starter percentages are nothing to write home about. 70 DTs registered an EPA between 3 and 5 from 2005 to 2008. Out of those 70 EPA3-5, only 8 started in 2008. 8 out of 70 or 5 out of 5? The sample size of 5 is small, but still quite compelling.

The adjacent radar chart corresponds directly to the above table. Defensive Tackles with an EPA of 3 to 6 have the highest degree of success. Come in lower than EPA3 and the odds for success go down significantly.



Five prospects between 2005 and 2008 came into the league with an EPA of 6 and started in the 2008 season: Brodrick Bunkley, Barry Cofield, Jovan Haye, Kedric Golston, and Adam Carriker. Mike Patterson, Amobi Okoye, and Jay Ratliff all exceeded peer average five times (EPA5), Travis Johnson and Turk McBride were EPA4s, and Kyle Williams, Keyunta Dawson, and Marcus Harrison (CHI) were all EPA3s.

Attribute Success Correlation (ASC) - DTs

The Defensive Tackle attribute correlations are not what most people would expect. Brute strength and quickness would seem to be hallmarks of the DT position, but based on how starters tested out in each of these attributes, this is the attribute order of importance for DTs: 3-cone, 40, Short Shuttle, Broad Jump, Vert, and then Bench. With no long shuttle result having been recorded by a DT since 2005, that leaves six attributes. With EPA6's starting 100% of the time, needing to exceed peer average in every DT attribute is a must. It's clear that thorough athleticism is required for these big guys to succeed in the league these days. Maybe the DT position is evolving into one where quickness is more highly valued than strength.

Three-Cone – DT

With nearly two-thirds of the starting tackles exceeding peer average in the three-cone drill, tight quarters quickness is the #1 most critical attribute for defensive tackles.

Attribute Success Correlation	Three-Cone - DT (Avg 7.67)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	65%	15	8	23
Two-Deep	55%	29	24	53
On Roster	51%	38	36	74
Made Camp	47%	59	66	125
Never Signed	30%	9	21	30
All DT Prospects	44%	68	87	155

Notables: Mike Patterson 7.62, Kedric Golston 7.61, Amobi Okoye 7.46, Jovan Haye 7.40, Jay Ratliff 7.19, and Adam Carriker 7.06. Carriker's 7.06 is the fastest three-cone any DT has run between 2005 and 2008.

40-Yard Dash – DT

Who would intuitively think that the 40-yard dash is important at a position that might average 10 yards per play? Whatever the gut may say, reality says that 61% of starting DTs exceeded peer average in the 40-yard dash and ran the 40 in less than 5.11.

Attribute Success Correlation	40-yd Dash - DT (Avg 5.11)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	61%	14	9	23
Two-Deep	60%	32	21	53
On Roster	57%	42	32	74
Made Camp	54%	68	57	125
Never Signed	27%	8	22	30
All DT Prospects	49%	76	79	155

Notables: Sedrick Ellis 5.06, Kyle Williams 4.99, Jonathan Babineaux 4.87, Jovan Haye 4.74, and Keyunta Dawson 4.72.

Short Shuttle – DT

At 57%, the short shuttle doesn't stand out, but still more than half of the starting DTs exceeded peer average.

Attribute Success Correlation	ShortShuttle - DT (Avg 4.61)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	57%	13	10	23
Two-Deep	53%	28	25	53
On Roster	49%	36	38	74
Made Camp	49%	61	64	125
Never Signed	17%	5	25	30
All DT Prospects	43%	66	89	155

Notables: Jay Ratliff 4.52, Kedric Golston 4.45, Jovan Haye 4.38, Brodrick Bunkley 4.16, and Turk McBride 4.12. McBride's 4.12 is the fastest short shuttle run by a DT between 2005 and 2008.

Broad Jump - DT

At only 52%, the broad jump is an attribute which matters when viewed in conjunction with the other five key DT attributes, but not alone.

Attribute Success Correlation	Broad Jump - DT (Avg 106/8'10")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	52%	12	11	23
Two-Deep	55%	29	24	53
On Roster	54%	40	34	74
Made Camp	50%	62	63	125
Never Signed	23%	7	23	30
All DT Prospects	45%	69	86	155

Vertical Jump – DT

Not terribly important all by itself at 43%.

Attribute Success Correlation	Vertical Jump - DT (Avg 30.10)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	43%	10	13	23
Two-Deep	45%	24	29	53
On Roster	49%	36	38	74
Made Camp	50%	63	62	125
Never Signed	17%	5	25	30
All DT Prospects	44%	68	87	155

Bench Press – DT

With the average DT size being 6'2"/305, size certainly is no less valued than 10 years ago, but maybe bench strength is not as critical as it once was. Only 43% of starting DTs exceeded peer average on the bench.

Attribute Success Correlation	Bench - DTs (Avg 26.43)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	43%	10	13	23
Two-Deep	40%	21	32	53
On Roster	45%	33	41	74
Made Camp	41%	51	74	125
Never Signed	23%	7	23	30
All DT Prospects	37%	58	97	155

However, as we know, exceeding peer average in every single attribute is vital to future success at the DT position. Considering that Brodrick Bunkley's 44 reps are the most for any DT between 2005 and 2008 and Tank Tyler's 42 are the 2nd most (and both started in 2008), it's not a stretch to say that strength is a key to success. It's just that the bench is not something the majority of starters have excelled at in recent years.

Long Shuttle – DT

Not one of the 155 DTs who tested between 2005 and 2008 ran the long shuttle.

Attribute Success Correlation	Long Shuttle - DT (Avg n/a)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	0%	0	23	23
Two-Deep	0%	0	53	53
On Roster	0%	0	74	74
Made Camp	0%	0	125	125
Never Signed	0%	0	30	30
All DT Prospects	0%	0	155	155

Defensive End

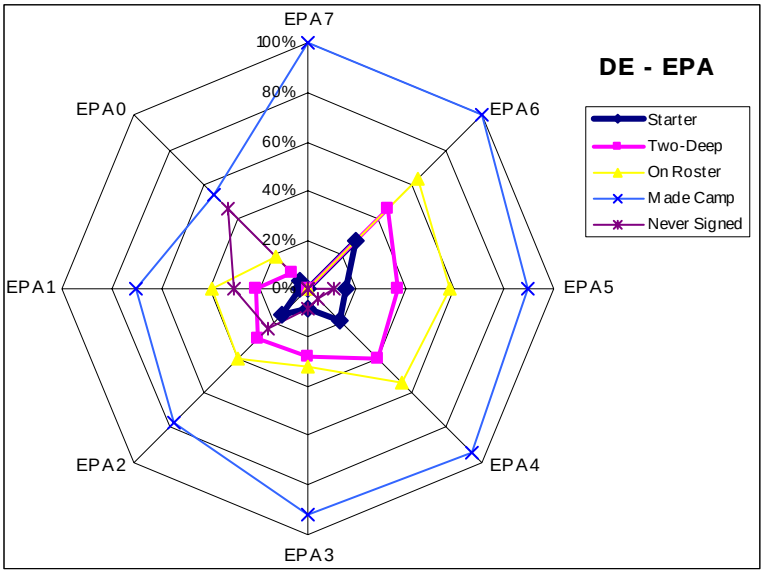
Exceeded Peer Average (EPA) - DEs

The optimal EPA number for DEs is 6. None of the defensive end numbers are terribly convincing, but based on the below table, it's easy to see that DEs with an EPA between 4 and 6 are going to have the highest odds for success.

DE	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	1	0%	0%	0%	**100%**	0%
6	11	**27%**	**45%**	**64%**	**100%**	0%
5	19	**16%**	**37%**	**58%**	**89%**	11%
4	37	**19%**	**41%**	**54%**	**95%**	5%
3	25	8%	28%	32%	**92%**	8%
2	39	15%	28%	41%	**77%**	23%
1	33	3%	21%	39%	**70%**	30%
0	22	5%	9%	18%	55%	**45%**
All	187	12%	29%	42%	81%	19%

Combined, 13 out of 23 starters tested out with an EPA between 4 and 6 – that's 56%.

The adjacent radar chart corresponds directly to the above table. Defensive Ends with an EPA of 4 to 6 have the highest degree of success. Come in lower than EPA4 and the odds for success go down significantly.



Three prospects between 2005 and 2008 came into the league with an EPA of 6 and started in the 2008 season: Mario Williams, Justin Tuck, and Mark Anderson. Gaines Adams, Trent Cole, and Chris Long all exceeded peer average five times (EPA5). Some of the more notable EPA4's were Tamba Hali, Ray Edwards, Luis Castillo, and Mike Montgomery.

Attribute Success Correlation (ASC) - DEs

One attribute really sticks out at 65% of starters exceeding the peer average while four other attributes all come in at 57%. In order, the DE top attributes are: 40 (65%), Broad (57%), Vert (57%), Short Shuttle (57%), 3-Cone (57%), Bench (43%), and Long Shuttle (13%).

40-Yard Dash – DE

Two-thirds of the 23 starting defensive ends exceeded peer average when they performed their attribute tests. Considering that the number is consistent from 1st String to Two-Deep, to On Roster, and Made Camp, it's clear that 40 is the #1 attribute for defensive ends who are going to succeed in the league.

Attribute Success Correlation	40-yd Dash - DE (Avg 4.90)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	65%	15	8	23
Two-Deep	69%	37	17	54
On Roster	68%	54	25	79
Made Camp	63%	96	56	152
Never Signed	34%	12	23	35
All DE Prospects	58%	108	79	187

Notables: Tamba Hali 4.87, Elvis Dumervil and Chris Long 4.75, Justin Tuck 4.71, Mario Williams 4.66, and Gaines Adams 4.64.

Broad Jump - DE

The broad jump is tied with the vert, short shuttle, and 3-cone as the 2nd most important attribute for DEs – all came in at 57%.

Attribute Success Correlation	Broad Jump - DE (Avg 113/9'5")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	57%	13	10	23
Two-Deep	54%	29	25	54
On Roster	53%	42	37	79
Made Camp	47%	71	81	152
Never Signed	26%	9	26	35
All DE Prospects	43%	80	107	187

Notables: Kendall Langford 113, Justin Tuck and Mario Williams 118, Mathis Kiwanuka 120, Chris Long and Trent Cole 124, and Mark Anderson 127. Anderson's 127 is the best for DEs from 2005 to 2008.

Vertical Jump – DE

Tied for #2. Vital for batting down passes at the line, not so much for defending the fade in the corner of the end zone.

Attribute Success Correlation	Vertical Jump - DE (Avg 32.72)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	57%	13	10	23
Two-Deep	54%	29	25	54
On Roster	51%	40	39	79
Made Camp	47%	72	80	152
Never Signed	29%	10	25	35
All DE Prospects	44%	82	105	187

Notables: Jay Richardson 33.0, Chris Long 34.0, Luis Castillo 34.5, Trent Cole 37.0, Justin Tuck 38.5, Mario Williams 40.5, and Mark Anderson 42.0. Anderson's 42.0 is the best vert for a defensive end between 2005 and 2008.

Short Shuttle – DE

Tied for #2 with broad, vert, and three-cone at 57%.

Attribute Success Correlation	ShortShuttle - DE (Avg 4.46)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	57%	13	10	23
Two-Deep	50%	27	27	54
On Roster	46%	36	43	79
Made Camp	46%	70	82	152
Never Signed	14%	5	30	35
All DE Prospects	40%	75	112	187

Notables: Marcus Spears 4.44, Gaines Adams and Mario Williams 4.36, Mike Montgomery 4.33, Tamba Hali 4.31, Justin Tuck 4.29, Mark Anderson 4.22, and Chris Long 4.21.

Three-Cone – DE

Tied for the #2 DE attribute at 57%.

Attribute Success Correlation	Three-Cone - DE (Avg 7.37)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	57%	13	10	23
Two-Deep	46%	25	29	54
On Roster	46%	36	43	79
Made Camp	47%	72	80	152
Never Signed	20%	7	28	35
All DE Prospects	42%	79	108	187

Notables: Justin Tuck 7.31, Tamba Hali 7.28, Jay Richardson 7.26, Marcus Spears 7.21, Mario Williams 7.19, Trent Cole 7.03, Chris Long 7.02, Mark Anderson 6.95, and Jamaal Anderson 6.88.

Bench Press – DE

Bench prowess is apparently not as prevalent on the defensive line as many people might think. Between 2005 and 2008, 342 defensive linemen performed attribute tests. 46 have gone on to start (23 DEs and 23 DTs). For both DTs and DEs, 43% of the starters exceeded peer average in the bench. It's important, but only as a piece of the pie – not in and of itself.

Attribute Success Correlation	Bench - DEs (Avg 23.74)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	43%	10	13	23
Two-Deep	43%	23	31	54
On Roster	42%	33	46	79
Made Camp	40%	61	91	152
Never Signed	26%	9	26	35
All DE Prospects	37%	70	117	187

Notables: Justin Tuck and Kendall Langford 24, Mike Montgomery 26, Elvis Dumervil and Ray Edwards 30, Luis Castillo 32, and Mario Williams 35.

Long Shuttle – DE

Only 8 of the 187 defensive end prospects between 2005 and 2008 actually tested out in the long shuttle. Oddly enough, three of those eight were starters in 2008 and another two were 2nd stringers.

Attribute Success Correlation	Long Shuttle - DE (Avg 11.98)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	13%	3	20	23
Two-Deep	9%	5	49	54
On Roster	6%	5	74	79
Made Camp	5%	8	144	152
Never Signed	0%	0	35	35
All DE Prospects	4%	8	179	187

Linebacker

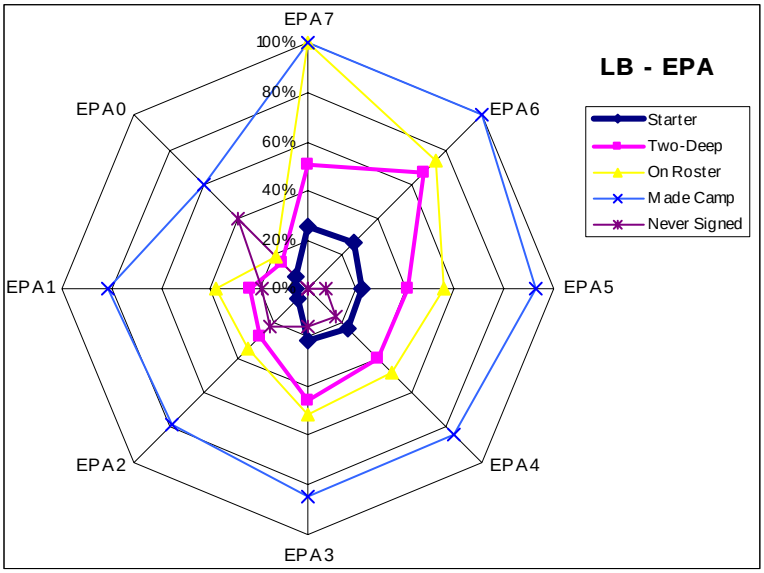
Exceeded Peer Average (EPA) - LBs

The optimal EPA number for LBs is 6. The starter percentage is similar to all EPAs between 3 and 7, but the two-deep (67%) and rostered (73%) percentages put EPA6 at #1 for linebackers.

LB	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	4	**25%**	**50%**	**100%**	**100%**	0%
6	15	**27%**	**67%**	**73%**	**100%**	0%
5	27	**22%**	**41%**	**56%**	**93%**	7%
4	44	**23%**	**41%**	**48%**	**84%**	16%
3	66	**21%**	**45%**	**52%**	**85%**	15%
2	73	5%	27%	34%	**78%**	22%
1	59	5%	24%	37%	**81%**	19%
0	42	7%	14%	19%	60%	**40%**

Coming in between EPA3 and EPA7 is respectable. 156 linebacker prospects exceeded peer average between 3 and 7 times. Of those 156, 35 started in 2008 (22.4%). 174 linebacker prospects EPA'd 2 or less times. Of those 174, only 10 started in 2008 (5.7%). It's key that linebackers come in with physical prowess in at least three attributes, but the distinction between any of the 156 between EPA3 and EPA7 is marginal. It's where they fit the best.

The adjacent radar chart corresponds directly to the above table. Linebackers with an EPA of 3 to 7 have the highest degree of success. As stated above, come in lower than EPA3 and the odds for success go down dramatically.



Four prospects between 2005 and 2008 came into the league with an EPA of 6 and started in the 2008 season: A.J. Hawk, Demarcus Ware, Chris Gocong, and Manny Lawson. Posluszny, Merriman, Thomas Davis, Pat Thomas, and Bryan Kehl all exceeded peer average five times (EPA5). Willis, Wimbley, Beason, Sims, L.Hill, K.Morrison, D.Johnson, C.Crowder, Stewart Bradley, and Keith Rivers all exceeded peer average four times. EPA3s: Howard, Ruud, Boley, McIntosh, D.Harris, Ellison, Tatupu, Poppinga, Greenway, Session, R.Brown, Woodley, Mayo, and Lofton. Of note, Justin Durant was the only linebacker out of 330 ('05-'08) who exceeded peer average in ALL seven attributes. He contributed sporadically in 2007 and ascended to a starting role in 2008 for Jacksonville.

Attribute Success Correlation (ASC) - LBs

The 40 gets beat up a lot for getting too much attention. If what we've seen so far in the study is any indication, the 40 might not get enough attention. By itself, it's not an indicator of future success, but if a prospect is above average in multiple attributes and has a pretty good 40, his odds for success increase significantly. Linebacker is no different. The 40 is the #1 indicator for future success as 67% of the 2008 starters exceeded peer average in the 40. In order, the other top LB attributes are: Short Shuttle (58%), Bench (51%), Vert (51%), Broad (49%), 3-cone (47%), and Long Shuttle (20%).

40-Yard Dash – LB

With Patrick Willis running a 4.37 and Thomas Howard a 4.42 and both starting right off the bat, it's hard to ignore the value that speed added to each of their games. Having said that, one-third of the 2008 starting linebackers performed under peer average in the 40. It's important, but only as a piece of the puzzle – not a lone determinant.

Attribute Success Correlation	40-yd Dash - LB (Avg 4.70)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	67%	30	15	45
Two-Deep	62%	69	42	111
On Roster	60%	84	56	140
Made Camp	51%	135	132	267
Never Signed	19%	12	51	63
All LB Prospects	45%	147	183	330

Notables: Curtis Lofton 4.68, Shawne Merriman 4.64, Jon Beason 4.62, David Harris 4.59, Paul Posluszny 4.58, Keith Rivers 4.56, Jerod Mayo 4.54, Derrick Johnson 4.52, A.J. Hawk 4.46, Thomas Howard 4.42, and Patrick Willis 4.37.

Short Shuttle – LB

At 58%, the short shuttle is #2 linebacker attribute.

Attribute Success Correlation	ShortShuttle - LB (Avg 4.333)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	58%	26	19	45
Two-Deep	50%	56	55	111
On Roster	51%	72	68	140
Made Camp	45%	119	148	267
Never Signed	29%	18	45	63
All LB Prospects	42%	137	193	330

Notables: Jon Beason 4.33, David Harris and Kirk Morrison 4.29, Channing Crowder 4.27, Shawne Merriman 4.21, Paul Posluszny 4.20, Michael Boley 4.12, Justin Durant 4.09, Chris Gocong 4.08, Demarcus Ware 4.07, A.J. Hawk 3.96, and Derrick Johnson 3.93.

Bench Press – LB

At 51%, the Bench is tied for #3 for linebackers.

Attribute Success Correlation	Bench - LBs (Avg 22.15)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	51%	23	22	45
Two-Deep	44%	49	62	111
On Roster	46%	65	75	140
Made Camp	40%	107	160	267
Never Signed	27%	17	46	63
All LB Prospects	38%	124	206	330

Notables: Lofa Tatupu and David Harris 23, Kirk Morrison and Shawne Merriman 25, Demarcus Ware 27, Stewart Bradley 28, LaMarr Woodley 29, and Chris Gocong 36.

Vertical Jump – LB

Tied for #3 at 51%.

Attribute Success Correlation	Vertical Jump - LB (Avg 34.73)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	51%	23	22	45
Two-Deep	42%	47	64	111
On Roster	39%	55	85	140
Made Camp	38%	101	166	267
Never Signed	27%	17	46	63
All LB Prospects	36%	118	212	330

Notables: Lofa Tatupu 35.0, Justin Durant and Curtis Lofton 36.0, Ware and Wimbley 38.5, Patrick Willis 39.0, Merriman and Hawk 40.0, Jerod Mayo 40.5, Gocong and Rivers 42.0, and Roger McIntosh 42.5.

Broad Jump - LB

At only 49%, it's a piece of the pie and doesn't stand alone.

Attribute Success Correlation	Broad Jump - LB (Avg 116/9'8")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	49%	22	23	45
Two-Deep	49%	54	57	111
On Roster	46%	64	76	140
Made Camp	41%	110	157	267
Never Signed	33%	21	42	63
All LB Prospects	40%	131	199	330

Three-Cone – LB

47% not compelling by itself.

Attribute Success Correlation	Three-Cone - LB (Avg 7.18)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	47%	21	24	45
Two-Deep	46%	51	60	111
On Roster	46%	65	75	140
Made Camp	43%	115	152	267
Never Signed	37%	23	40	63
All LB Prospects	42%	138	192	330

Long Shuttle – LB

Roughly 11% of the 330 linebacker prospects have run the long shuttle. Of the 37 who have exceeded peer average, 9 started in 2008. It's not terribly important, but not to be ignored if a prospect runs faster than an 11.82.

Attribute Success Correlation	Long Shuttle - LB (Avg 11.82)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	20%	9	36	45
Two-Deep	17%	19	92	111
On Roster	16%	22	118	140
Made Camp	13%	34	233	267
Never Signed	5%	3	60	63
All LB Prospects	11%	37	293	330

Safety

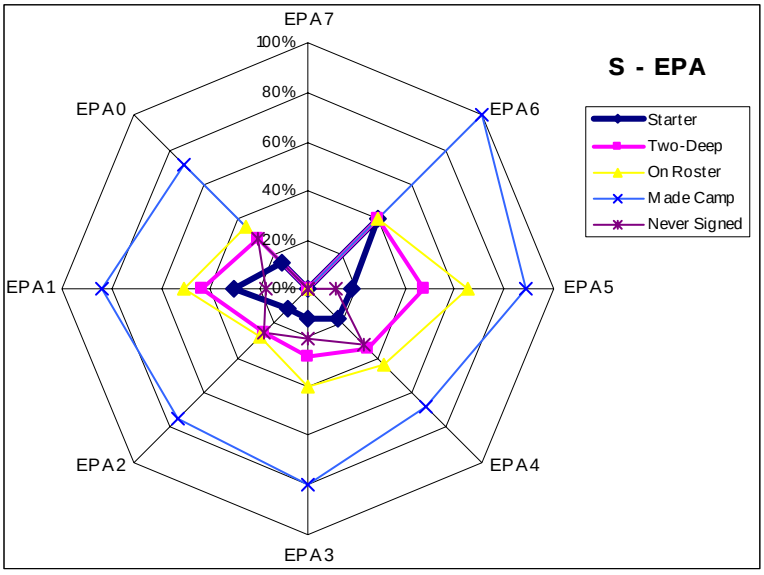
Exceeded Peer Average (EPA) - Safeties

The optimal EPA number for Safeties is 1. One? Safeties who exceed peer average in one category are as successful as those who exceed in four, five, and six categories? Absolutely. 30% of the EPA1 safeties started in 2008.

S	Prospect Count	Starter	Two-Deep	On Roster	Made Camp	Never Signed
7	0	0%	0%	0%	0%	0%
6	5	**40%**	**40%**	**40%**	**100%**	0%
5	17	**18%**	**47%**	**65%**	**88%**	12%
4	41	**17%**	**34%**	**44%**	**68%**	32%
3	58	**12%**	**28%**	**40%**	**79%**	21%
2	43	**12%**	**26%**	**28%**	**74%**	26%
1	30	**30%**	**43%**	**50%**	**83%**	17%
0	14	**14%**	**29%**	**36%**	**71%**	29%
All	208	17%	33%	41%	77%	23%

With safety, it's all a matter of fit. See below to find out if there is one attribute a safety must exceed at to have a 30% chance to start.

The adjacent radar chart corresponds directly to the above table. As you can see, the odds for success are as high with EPA1 safeties as with any others.



Nine safety prospects between 2005 and 2008 came into the league with an EPA of 1 and started in the 2008 season: Brodney Pool, LaRon Landry, Donte Whitner, O.J. Atogwe, Antoine Bethea, Ko Simpson, Chinedum Ndukwe, Charles Godfrey, and Dawan Landry.

Attribute Success Correlation (ASC) - Safeties

Remember the bit about the 40 getting beat up a lot for getting too much attention. Well, here's another position at which the 40 is the #1 attribute. 74% of prospects who exceeded peer average in the 40 were starting in 2008. The three-cone and short shuttle are tied at #2 and they're only at 46%. It's not even close. The last four are all under 33%: Bench 31%, Broad 29%, Vert 23%, and Long Shuttle 23%. If William Moore or Louis Delmas are really going to make noise in the league in 2009, they'd be best advised to bring a 40 that clocks in under 4.58.

40-Yard Dash – Safety

At 74% for starters, 70% for two-deepers, and 69% for rostered safeties, the 40 is by far and away the most important attribute at the position. If a safety prospect is looking for just one attribute to exceed peer average, pick the 40.

Attribute Success Correlation	40-yd Dash - S (Avg 4.58)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	74%	26	9	35
Two-Deep	70%	48	21	69
On Roster	69%	59	27	86
Made Camp	59%	95	66	161
Never Signed	19%	9	38	47
All S Prospects	50%	104	104	208

Notables: Kerry Rhodes 4.56, Chris Harris 4.55, Atari Bigby and Michael Johnson 4.53, Roman Harper 4.50, Eric Weddle 4.48, Brandon Meriweather 4.47, Ko Simpson 4.45, Antoine Bethea 4.39, Nick Collins and Donte Whitner 4.38, and LaRon Landry and Reggie Nelson 4.35.

Three-Cone – Safety

46% isn't compelling by itself.

Attribute Success Correlation	Three-Cone - S (Avg 7.04)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	46%	16	19	35
Two-Deep	49%	34	35	69
On Roster	52%	45	41	86
Made Camp	45%	72	89	161
Never Signed	30%	14	33	47
All S Prospects	41%	86	122	208

Short Shuttle – Safety

46% does not stand alone.

Attribute Success Correlation	ShortShuttle - S (Avg 4.25)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	46%	16	19	35
Two-Deep	45%	31	38	69
On Roster	48%	41	45	86
Made Camp	48%	77	84	161
Never Signed	23%	11	36	47
All S Prospects	42%	88	120	208

Bench Press – Safety

31%? Hardly compelling.

Attribute Success Correlation	Bench - S (Avg 16.33)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	31%	11	24	35
Two-Deep	32%	22	47	69
On Roster	34%	29	57	86
Made Camp	35%	56	105	161
Never Signed	62%	29	18	47
All S Prospects	41%	85	123	208

Broad Jump - Safety

29% - not critical.

Attribute Success Correlation	Broad Jump - S (Avg 119/9'11")			Total
	% EPA	# EPA	# Ovr Avg	
1st String	29%	10	25	35
Two-Deep	30%	21	48	69
On Roster	34%	29	57	86
Made Camp	34%	55	106	161
Never Signed	57%	27	20	47
All S Prospects	39%	82	126	208

Vertical Jump – Safety

23% - nice to have.

Attribute Success Correlation	Vertical Jump - S (Avg 35.82)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	23%	8	27	35
Two-Deep	30%	21	48	69
On Roster	29%	25	61	86
Made Camp	37%	59	102	161
Never Signed	68%	32	15	47
All S Prospects	44%	91	117	208

Long Shuttle – Safety

It's run by more safeties than any other position, but at 23%, it's still hardly compelling as a must-have attribute.

Attribute Success Correlation	Long Shuttle - S (Avg 11.61)			Total
	% EPA	# EPA	# Ovr Avg	
1st String	23%	8	27	35
Two-Deep	20%	14	55	69
On Roster	22%	19	67	86
Made Camp	19%	30	131	161
Never Signed	6%	3	44	47
All S Prospects	16%	33	175	208

CONCLUSIONS

Wide Receiver – Exceed the peer average in the 40 (4.53), Vert (36.05), and at least two other attributes and their odds for success will be very good. 83% of WR prospects that EPA'd in the 40 and Vert started in 2008.

Center – Exceed the peer average in the Short Shuttle (4.69), Vert (5.25), and three other attributes and odds for starting go up significantly. 89% of Center prospects who EPA'd in the Short Shuttle started in 2008. 78% who EPA'd in the Vert started.

Offensive Guard – Exceed peer average in the Three-Cone (7.84) and three other attribute tests to get the best chance to start. Two-thirds of OG prospects (11/17) that EPA'd in the Three-Cone started in 2008.

Offensive Tackle – Exceed peer average in the 40 (5.27) and four other attribute tests to get the best chance to start. Two-thirds of OT prospects (27/41) that EPA'd in the 40 started in 2008.

Running Back – Exceed peer average in the 40 (4.57) and three other attribute tests. Two-thirds of RB prospects (11/16) that EPA'd in the 40 started in 2008.

Tight End – Exceed peer average in the 40 (4.80) and four other attribute tests to get the best chance to start. Three-fourths of TE prospects (13/17) EPA'd in the 40 and started in 2008.

Fullback – Exceed peer average in the Three-Cone (7.27) and four other attribute tests to get the best chance to start. Two-thirds of FB prospects (7/11) that EPA'd in the Three-Cone started in 2008.

Quarterback – Have Quarterback prospects walk a straight line for 20 yards with their left fingertip on their nose, use the results to predict success, and you'll be as accurate as using the seven main physical attribute tests.

Cornerback – Exceed peer average in the 40 (4.49), Three-Cone (6.98), Short Shuttle (4.21), Broad Jump (10'2"), and two other categories to secure the have chance to succeed in the NFL. 83% of CB prospects (24/29) that EPA'd in the 40 started in 2008. 76% (22/29) who EPA'd in the Three-Cone started in 2008. 72% (21/29) who EPA'd in the Short Shuttle and Broad Jump started in 2008.

Defensive Tackle – Exceed peer average in five attributes and the odds for starting are 100%. Make one of those five attributes the Three-Cone drill (7.67) and exceed in four others.

Defensive End – Exceed peer average in the 40 (4.90) and five other attribute tests. Two-thirds of DE prospects (15/23) that EPA'd in the 40 started in 2008.

Linebacker – Exceed peer average in the 40 (4.70) and five other attribute tests. Two-thirds of LB prospects (30/45) that EPA'd in the 40 started in 2008.

Safety - Exceed peer average in the 40 (4.58). Two-thirds of S prospects (26/35) that EPA'd in the 40 started in 2008.

REFERENCES

- All Pro Day data came from Gil Brandt's Pro Day Workout Updates as posted on NFL.com from February to April of 2005, 2006, 2007, and 2008.
- Combine data came from NFL.com, NFLCombine.net, and OurLads.
- All data for 1st String%, Two-Deep%, and Roster% came from OurLads.com.
- All data for players that attended a camp, but were later cut (and not re-signed) came from regional newspaper sources, NFL team sites, and major media outlets.