

The Evolution of Kicking

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Kicking remains the most fundamental and important skill in football, with a well-executed kick under the pressure of the modern game a sight to behold. With an estimated 446 different types of kick, from a statistical viewpoint, it is little wonder clubs are going to extraordinary lengths to develop and improve kicking techniques...

The following episode of Time On discusses the evolution of kicking including examples of some of the remarkable kicks seen in 2011:

The Evolution of Kicking

Kicking, a fundamental of the game, has been undergoing a silent, hidden revolution, one that's gathering pace. Saying someone is a 'good' kick or a 'poor' kick is no longer an easy call, as the fundamentals that define players as good kickers have evolved, and the range of kicks an AFL player is expected to master has grown, and will continue to do so.

Even the most up-to-date historian might wonder at some of these: the hit-up kick, the switch kick, the dribble kick, the kick to advantage, the goal kick, the kick-in, the one-step kick, the kick around corners (all versions), the short, fast, low kick, the weighted kick, and static and dynamic field kicking.

The ever-decreasing number of lairs in our game might also try the torpedo, for fun as much as effectiveness to think for a century we survived moving from the mongrel punt to the place kick to the drop kick to the flat punt through to the drop punt, with the torpedo punt and banana kick thrown in for variety.

As with many parts of life, kickers face the paradox of choice. That is why decision-making separates the AFL-standard kickers from those a step below. Classic left-footer, Geelong's Josh Hunt, says the demands on the man with ball in hand have become huge: "In the last three or four years, it's become a lot harder."

Harder to choose, harder to execute, harder to deliver to faster runners, running towards the kicker, away, or across the field. Wait, there's more. Zoning – combined with the players' ability to chew up space to either put pressure on the kicker or cut off the kick – has made pin-pointing a target like threading the eye of a needle.

Think about this for a moment. During summer when kicking back was the only kick on most of our minds, statistical provider Champion Data fed hundreds of variables into a model that takes into account pressure, the intended target, the kick's direction, the foot used and

degree of difficulty, to develop a measure that would give clubs the type of drilled-down information they now demand about the kick.

During that process, Champion Data came up with the hardest kick in football – the long kick into the forward 50 to a stationary target with an expected ‘hit-rate’ of just 22.2 per cent – as well as a hit-rate figure that will in the future give us a much more accurate reflection of a player’s kicking ability.

There are now 446 different kicks in a game, from a statistical viewpoint.

“The kick inside 50, where there is no one else there and you kick it over his head and not make him stop, is one of the nicer looking kicks going around,” says Hunt. “You really have to take in a lot. You’ve got the wind and then the distance and then how far you have to kick it to not make him stop. If players can hit that one regularly, that makes them a really good kick.”

Making players really good kicks is now one of the industry’s objectives. In 2009, clubs provided feedback to the AFL that they were sick of refining paddocks full of kickers who could not hit a freight train from a level crossing.

They wanted players to be better kicks before they arrived at a club. And then, they wanted them to improve from there. Kicking experts narrowed the elements of what a player needed to get right to kick well. A kicking test was introduced to the NAB AFL Draft Combine and coach education workshops began. And the importance of play or street footy, as some coaches call it, was recognised.

A laboratory in the bowels of Victoria University’s biomechanics department shows how far the examination of kicking has come. Melbourne kicking coach and, it’s fair to say, one of the art’s gurus, Kevin Ball, is measuring the technique of Demon rookie Michael Evans.

The setting is like a film or television studio, with reflectors and lights and sports science students fluffing around an uncertain looking Evans, who is wired up to a range of computers tracking his technique. Also being measured is a force plate that takes the weight of his support leg as he roosts the ball into a net.

Ball can measure such aspects as balance and how force relates to performance. He can also examine the technique of the player and ensure any tinkering he endeavours to make stays within the bounds of the player’s physiological (and it must be said psychological) make-up.

Ball is an expert, but he is careful when applying his knowledge to such an ancient skill. As the former hockey player’s understanding of kicking has grown and evolved, **he is now able to make a huge difference without necessarily making huge overhauls to a player’s technique, which remains an individual thing.**

Ball assesses both the ball drop and the impact, as the two elements are interconnected, one flowing through to the other. He knows that 10 people will have 10 different styles according to their physiology, but what needs to be right every time with all players is that moment when the ball hits the boot.

Coaches such as Ball are successful because they not only understand kicking, they can assess how to get the best out of each individual by applying their knowledge according to the needs of the player, rather than applying rigid rules on how to kick.

The point of impact is where all kicking coaches start from, before working backwards. That's quite a shift.

Forget about how to hold the ball – as a 1947 video recently unearthed focused on. Forget about the way the ball is held as most backyard experts do, although it still remains an important element in development terms. Forget about standing with your child and worrying about the way he or she looks when they kick.

Better to throw youngsters an empty milk bottle or let them play with a round ball or a Sherrin, getting touch and feel and the correct transfer of weight.

You can worry about the rest later, says AFL Victoria's high performance manager Anton Grbac. Coaches know not everyone can attain the mechanical perfection of Collingwood's Alan Didak. But they can be nearly as effective.

Grbac was part of a working group that designed the three non-negotiables that good kicks display:

- 1. The manipulation of the ball so it is in place for impact.**
- 2. An impact line, in which the knee, ankle, toe and the apex of the ball all form one line.**
- 3. Correct transfer of weight from front to back.**

"If the impact is consistent and there is a healthy (retention) rate, then leave it alone. The way he (the kicker) is getting there is his choice and depends on his comfort level," Grbac says.

So what if a player such as St Kilda's Brendon Goddard wobbles the ball out wide when kicking on the run if all the essential elements fall into line when he makes impact? The Saints star is a good kicker because he has the elements in place.

Better understanding of what constitutes an effective kicker is good news for unfairly maligned kickers such as Collingwood's Ben Johnson, who are more substance than style. Johnson was in the top 15 AFL kicks last season and has a retention rate above 80 per cent in 2011. But in the early part of his career, the perception that the master of the lateral step was a bad kick took root because of the way he looked.

Luckily, those around him were smart enough to look deeper to understand the truth of his effectiveness. "Everybody within the club knew that my kicking was fine and so did the coach, so that was all that mattered," Johnson says.

Recognising individual differences is critical. During the game, everything needs to happen in an instant, so Hunt says players practise "loading up their technique quickly", similar to a batsman getting their feet moving when facing fast bowling.

The quicker a kicker is in position, the better he is placed to make decisions, so instinct is essential. One millisecond can make a huge difference when a player is assessing his options.

“You need something that is going to catch your eye and, if there is someone free, you need to back your first option because, if you think ‘No, yes, no, yes’, the opportunity is gone,” Hunt says.

Sports scientists use wordy phrases such as perceptual and cognitive function or advanced cue utilisation (that is basically about the rate someone sees what is about to unfold) when presenting research to peers to describe what Hunt is facing.

The trick for the scientists and coaches is to apply such knowledge so players improve in the areas they need to on the track and by observation. Every kick – in a game and training – is recorded using video and the types of kicks players are rehearsing and their effectiveness is assessed.

Some clubs look at each player on their list and identify the specific kick they are likely to be required to execute in a game and develop training programs that mimic and rehearse those kicks.

Building understanding about what is required to benefit the team is essential. Kicking is not so much Boom, Crash, Opera as having to hit up targets 25, 30, or 40m away with precision.

Brisbane Lion Daniel Rich admits that one trap he sometimes falls into is trying to kick the ball too hard. That might look dynamic, but is no fun for the leading forward.

Hunt finesses his kicks more now than when he first entered the AFL. He recognises the importance of placing the ball on a plate for the receiver rather than drilling a bullet at them, although that kick remains in his arsenal.

“The art of the kick is now a question of, ‘How do I manipulate the trajectory? How do I manipulate the distance?’ It’s more a manipulation skill, not just a power skill,” Grbac says.

For Hunt, such capacity came with loving kicking the ball while growing up. It’s what the experts now see as critical, those early days when ‘spontaneous play’ provides the touch and technique suitable to the individual.

When the players become full-time professionals, they are constantly mucking around with footballs and become masters at manipulating them. Collingwood’s Leon Davis rarely has a football out of his hands. He once described picking up a footy as a habit as familiar as putting on his clothes.

Hawthorn’s Shaun Burgoyne, who recently toe-poked a high ball to himself before turning around and kicking a goal, says players muck around with the ball like hipsters muck around with a hacky sack. “It’s just kicking it around, just practising with different kicks,” he says.

Hunt's comments confirm the play versus technique argument: "I didn't really concentrate on technique, it was more just repetition," he says.

All kickers rely on more than just their own technique. Movement around them is essential. That's why kicking can't be assessed in isolation. The familiarity of teammates and skill of the receiver is vital.

"You could be the best kick in the League, but if you don't have targets to kick it to in the AFL these days, you are going to have someone chasing you down, pressuring you, either tackling or forcing you to kick," Johnson says. "If you don't have options to kick to, that is an ineffective kick and that can make you look bad."

However, Fremantle assistant and senior development coach Simon Lloyd says players such as Matthew Pavlich use their kicks to force teammates to move to where they want them to be, so they receive the ball in the best position possible. "You don't see many players who can do that," Lloyd says.

"The great kickers force the receiver to go where the ball is," Grbac says.

Suffice to say, the issue is a lot more complicated now than when former Swans star, raking left-footer Mark Browning, made his name as a good kick in the 1970s and 1980s. Then, the only instruction Browning followed was to kick it long, a memory that makes him laugh.

Now, as a talent spotter, Browning's greatest challenge is encouraging youngsters to have the confidence to execute the hit-up kick. "That's the one they struggle with," he says.

Browning says identifying players who can kick is only one part of the equation. Talented kickers can take time physically and mentally to adjust to the AFL. Clubs may want better kicks but talent spotters say they still need patience with some players.

Grbac describes the physical maturation as the need to gain "football legs". Strength through the core will allow players the space to set up and execute. They also need the strength and feel to guide the ball down to their foot.

Often, better decisions come with maturity, too. "Young players seem to think they have to thread the eye of a needle with every kick," Grbac says.

A key aspect of coaching is to recognise a player's limitations and provide instructions accordingly. Aiming for a small gradient of improvement makes it easier to entrench a skill and then develop it.

However, in the quick decision-making world of the AFL, time is not a luxury kickers and kicking coaches have. Many players are drilled to take the easiest option, with improvement to follow. A positive mindset can make all the difference, too. The good kickers want the ball in their hands, whether in the intensity of a game or during the week when the spotlight is off.

Geelong's Paul Chapman is renowned for his capacity to deliver in the big moments, but you can bet it was putting himself in the uncomfortable situation time after time that made him feel strong when the moment arrived.

Even his new coach Chris Scott was moved to remark on his ability, after the Cats' round four win against the Swans. "Chapman is such a beautiful kick even from outside 50 with a wet ball," he says.

Even in the world of hyperbole that football has become, Scott's use of the word beautiful is not misplaced. A well-executed kick is something to behold, a combination of power, timing and decision-making in the heat of battle.

As the range grows and understanding deepens and players need to provide a 'wow' factor as pressure on them increases, the thrills for the watchers will only grow.

Grbac says coaches are allowing players to express themselves with kicks and we are seeing the results. "If you want the 'wow' factor, you have to create an environment where you don't place constraints or expectations on the outcome," he says.

Various kicks and the great exponents:

- The hit-up kick: Nick Dal Santo
- The switch kick: Sam Fisher
- The dribble kick: Stephen Milne
- The kick to advantage: Matthew Pavlich
- The goal kick: Liam Jurrah
- The kick-in: Josh Drummond
- The one-step kick: Alan Didak
- The kick around corners: Cyril Rioli
- The short, fast low kick: Josh Hunt
- The weighted kick: Stephen Hill
- Static and dynamic field kicking: Paul Chapman
- The torpedo: Dustin Fletcher

Remarkable kicks seen in 2011

1. Fremantle's Stephen Hill to Chris Mayne in the last quarter in round two against Geelong. Under pressure, Hill hit Mayne on the chest with a 40m drop punt as Mayne was running at full tilt away from the ball, with Geelong defenders chasing him.
2. Collingwood's Scott Pendlebury to Dayne Beams in the third term of round two against North Melbourne. Pendlebury was in traffic running into Collingwood's forward line and had already prepared to handball with the ball resting on his right hand. He dropped the ball anyway, using his control to kick it on the outside of his foot and altered its direction, hitting Beams in space.
3. Hawthorn's Shaun Burgoyne's toe-poke to himself in the last quarter in round two against Melbourne. Cyril Rioli kicked the ball in high from a centre clearance and Burgoyne used his left foot to trap the ball while holding off defender James Frawley.
4. Port Adelaide's Daniel Motlop's flick off the ground to Steven Salopek in the fourth quarter in round four against Adelaide. Motlop was on the boundary and, instead of picking up the ball, used his foot to flick the ball up to Salopek, received the handball back and then dribble kicked the ball through for a behind.
5. Gold Coast's Danny Stanley's mid-air kick that went through for a goal in the third quarter in round four against Melbourne. Stanley was caught behind his opponent in the forward pocket, spoiled the contest then kicked the ball out of mid-air through for a goal.

The future

Official AFL statistician Champion Data is developing a system that will measure a player's kicking efficiency by focusing on their hit rate.

The formula is complicated but uses a range of parameters categorised, for example, by distance (long/short) direction (forwards, lateral, backwards), intent (on lead/open/one target/contest) and pressure (set/none/implied/physical) to name just a few.

Trawling through match vision, Champion Data arrives at an 'Expected Hit-Rate' figure for each type of kick (there are 446 different types of kicks possible from a statistical viewpoint) and the average hit-rate a player is expected to attain based on the difficulty of kicks he has attempted.

The rating a player receives is the difference between the actual hit-rate and expected hit-rate. Players will therefore be able to receive an overall rating and a rating for types of kicks.

A simple example shows how it works.

Imagine the kick being measured is a long forward kick to a lead in the attacking midfield under implied pressure.

It has been attempted 23 times in the AFL and 10 have hit their target, so the expected hit rate is 10/23 or 43.5 per cent.

If a player takes this kick once and hits the target, his hit-rate would be 100 per cent, which means 100 minus 43.5 would give him a rating of +56.5. Every kick by the player is rated in such a fashion, then divided by the number of kicks to come up with an overall rating. If his kick had missed, he would have started with a -43.5 rating.

It is detailed and all the punter needs to worry about is that the end result is more sophisticated and likely to more accurately reflect the game's best kickers than ever before.

An early indicator

After four rounds (with the sample size still too small for Champion Data to make any conclusive assertions) some insight is being gained.

Of the players who have had 10 or more shots at goal, Melbourne's Liam Jurrah has been the best.

From his 15 shots at goal, he has kicked 12.3. The expected hit-rate of these 15 shots is 48 per cent, given the degree of difficulty. Jurrah has hit 80 per cent, giving him a +32 rating.