

# How Klopp is boosting players'

### Liverpool are masters of the set piece after tapping into neuroscience, says Paul Joyce

On what had become a difficult evening in the San Siro, Liverpool turned to a familiar source of inspiration to break Inter Milan's spirit.

Yet this was not just about the precision of Andrew Robertson's left foot or the clever headed flick from Roberto Firmino that followed, but the growing importance of set pieces to a team intent on chasing history across four competitions.

The same method had breached Burnley's resistance on Sunday, when Fabinho profited from Sadio Mané's touch at a corner to score at the second attempt. At first glance it appeared a scruffy, somewhat fortuitous goal.

To view the midfielder's intervention purely in those terms would overlook, however, the science behind what was a landmark strike for Jürgen Klopp's side. Excluding penalties, 14 of Liverpool's 61 league goals this term have come from set pieces, which is more than any other top-flight side. It is also one more than the tally they recorded over the whole of last season.

In the Champions League they also top the charts with five goals from set pieces, two more than a cluster of teams in second place. These are totals that have not been achieved by chance but, rather, by design.

The delivery of Trent Alexander-Arnold and Robertson, the aerial prowess of Diogo Jota and Virgil van Dijk, among others, and the work of the assistant manager, Peter Krauwietz, alongside the club's analysts mean Liverpool boast natural attributes that already make their skill at dead-ball situations the envy of their rivals.

Still, fuelled by the manager's curiosity, they have continued to improve in this aspect. When Liverpool's extensive pre-season preparations moved from Austria to the French town of Évian-les-Bains in the summer, they were joined by the German company neuroll, which helps professional athletes to develop their mental strength.

Pepijn Lijnders, Klopp's assistant, said that to make progress as a team they wanted to finesse their work from "direct free kicks, wide free kicks, penalties and corners". He and Klopp believed that neuroll, founded by Dr Niklas Häusler and Patrick Häntschke, a former academy player at the German side Energie Cottbus, would give fresh stimulus to "accuracy training".

The work of neuroll does not pretend to reinvent football. Every team in the Premier League practises free kicks, so neuroll enhances the groundwork Liverpool have already established by focusing on adding a layer of efficiency; the aim is to ensure players are "in the zone". This



in effect means running on automatic rather than having to think about what they are attempting to do.

During pre-season Alexander-Arnold, Mohamed Salah, James Milner and Harvey Elliott wore headsets with electrodes attached. This allowed neuroll to ascertain whether a player was in the zone or not, and how intensely. Follow-up sessions have continued.

The electrodes measure the live electrical activity of the brain. As part of neuroll's funding by the EU and German government, they did a neuroscientific study to identify which part of the brain's electrical activity is the most important to look at and what exact time frames and aspects of a set piece must be used for the analysis and training. Through this, they can identify correctly whether a player is in the zone or not.

"This is a highly individualised process," Dr Häusler told *The Times*. "But since we look at the live brain activation during our set-piece training, we can see when and how greatly the player is in the zone or what might make him fall out of it."

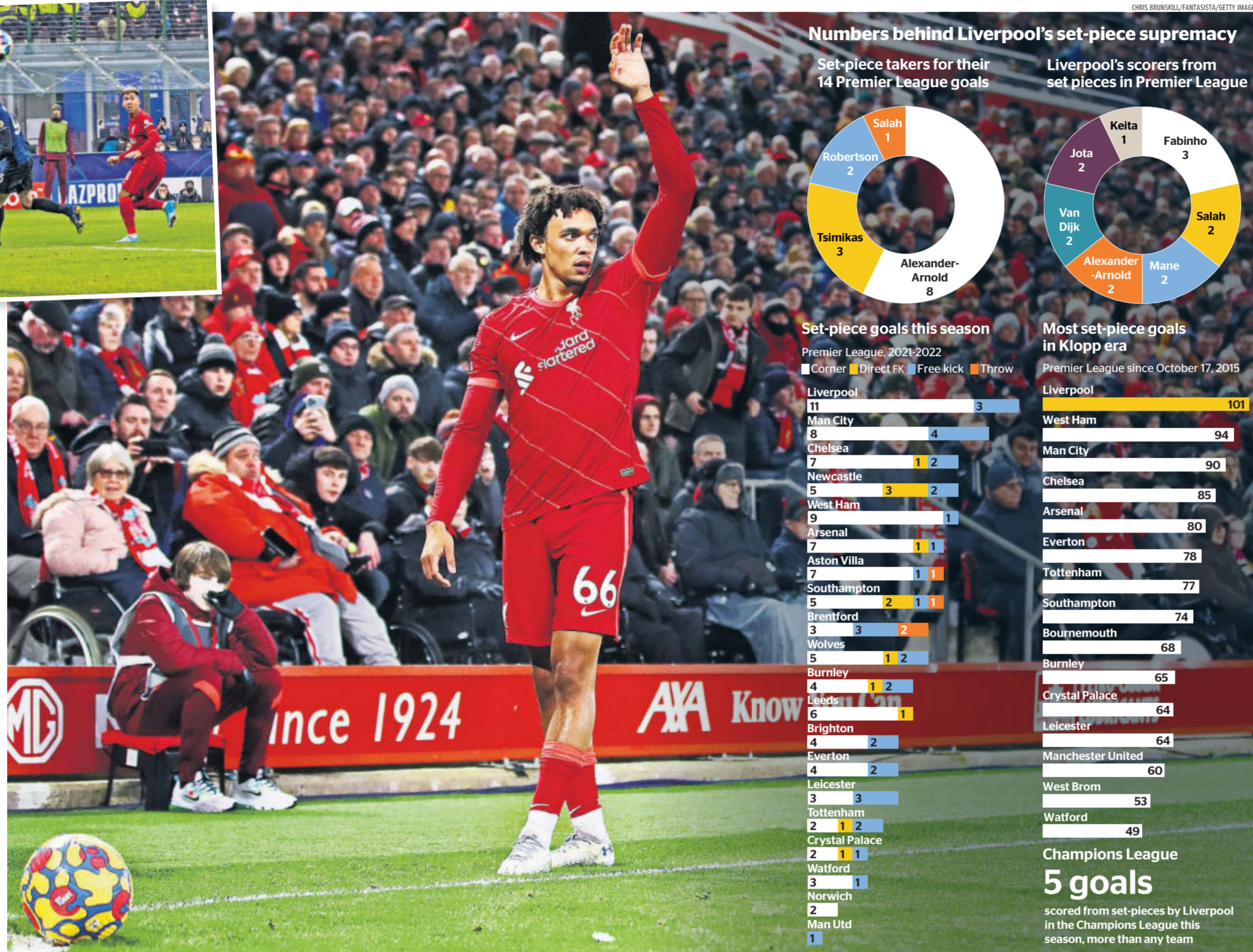
"In addition, we use our self-developed analysis following each training session to create an individual brain index with which the player can optimally learn session by session.

"Through these steps, and together with proper neuropsychological coaching, the player ends up knowing in very high detail what aspects help, or do not actually help, him to get into the zone.

"For example, one individual might need to look at only one focus point, such as the ball or the target, very intensely. Another might have to switch the focus point between the ball and target frequently to help him get into the zone.

"These are just two of many examples, but it does not stop here. While one individual might be very good at getting into the zone quickly, another might have a harder time to get in.

"However, the latter person might then be better at staying in the zone longer and not falling out as quickly. The importance is not to judge anything as good or bad, but to let every player get to know himself better. Knowing ourselves in more detail makes it possible for us to optimise our mental processes and develop the best and most stable routine."



Alexander-Arnold delivers the corner that led to Fabinho's goal against Burnley and, inset, Firmino heads in at the San Siro

More evidence of how Liverpool constantly seek to tweak routines came in Klopp's admission that he has encouraged Fabinho to go forward at set pieces in recent weeks — and the Brazil player has responded with a flurry of goals. At Turf Moor there was an acceptance that Alexander-Arnold's corner was a little low and that Mané's intervention was vital.

However, Alexander-Arnold's relaxed state ensured that he was able to find his team-mate while ignoring the obvious distractions around him, such as the barracking from Burnley fans and the howling wind and swirling rain. The partnership between Liverpool and science is proving beneficial.

"Beneficial" is an understatement in my opinion," Lijnders said. "When Niklas texted me last week, 'Thanks for your trust and belief, I just responded: I want to win!'"

"It's the best way to train pure accuracy and pure focus. We focus a lot already on 'the assist' in the game,

and with them we can really work on it. We want to create set pieces by shooting a lot, we want to use them, and most importantly we want to make them decisive. It's a part of the game we believe in as much development as possible. I'm happy we made this step with them."

**“**We saw brain training wasn't being used in sport and knew Klopp was the right man to call

As well as free kicks and corners, Liverpool have worked with neuroll to improve their penalty taking. The club expect more Champions League ties to be decided by spot kicks after Uefa scrapped the away goals rule in knockout ties. Confidentiality prevents neuroll

from going into too much detail on its processes, but the spike in interest in the company shows how football's frontiers are expanding for those, such as Klopp and Lijnders, willing to be open-minded.

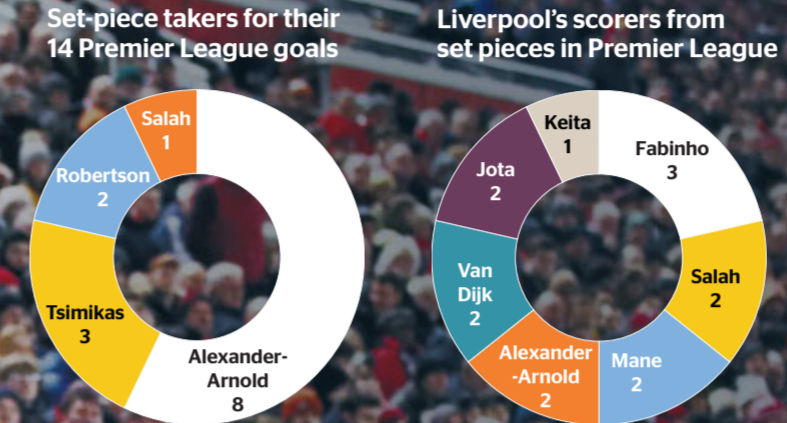
The willingness of Liverpool to embrace innovation has been highlighted by the recruitment of the throw-in coach Thomas Gronnemark, working with the club for a fourth season, and the use of the German surfer Sebastian Steudtner, who offered tips on staying calm under pressure.

Liverpool's desire to harness marginal gains meant they had been looking to tap into the field of neuroscience previously, only for the pandemic to check their plans to work with the company.

"Everyone in our team has played and watched sports all our lives," Häusler said. "We knew the importance of the brain in relation to optimal performance and realised right away that we had developed

# brain power

### Numbers behind Liverpool's set-piece supremacy



### Set-piece goals this season



Diogo Jota is wearing a protective boot as he battles to overcome an ankle injury and put himself in contention for Liverpool's Carabao Cup final clash with Chelsea.

something very special. How the brain learns using rewards and losses, and how it works in relation to risk, had been the topic of my previous research, so I was always wondering how to use this expertise in professional sports as efficiently as possible.

"Because if you think about it, a lot of aspects that fascinate us in sports have to do with rewards, losses and risk. The key moment then came when Patrick told me that in the world of professional sports, this kind of knowledge and brain training coming directly from neuroscience has not been used thus far.

"Once I saw this with my own eyes and we had the results of our study, we both had a gut feeling that Jürgen was the right person to get in touch with."

Scrutiny often falls on Liverpool's cutting edge in front of goal, yet the thirst for silverware means their ruthlessness goes far beyond their finishing.

# 'Our fantastic referees need this technology as soon as possible'

### CONTINUED FROM BACK

afford it. We have a fantastic group of referees, but without technological support you cannot see every single decision and you want those game-changing decisions to be as close to 100 per cent as possible."

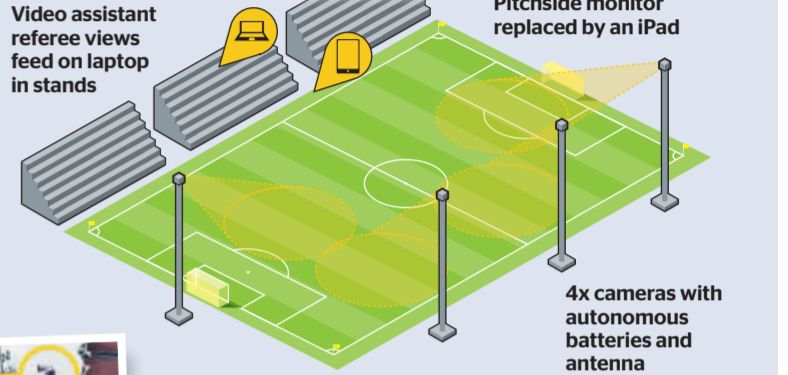
There have been several decisions in the WSL this season that have led to calls for VAR to be introduced. Emma Hayes, the Chelsea manager, said in September that those in women's football were made to feel like "second-class citizens" because of the absence of the technology.

The EFL has also expressed its interest to the PGMOL and is exploring options. The timescales involved mean that it would be a challenge to bring even VAR-light to the Sky Bet Championship or WSL for next season as there are not enough trained officials and it would need a full season of non-live training for new personnel to become proficient.

The WSL and EFL would also be able to decide whether there should be a central

### How VAR-light might work

The technology company Dartfish have developed this scaled-back version of VAR which can be set up at any ground. Four cameras, which can be installed in 45 minutes, are stationed around the pitch and send a feed to a video assistant referee sitting up in the stands. The VAR monitor seen on the touchline at Premier League grounds is replaced by an iPad.



Cameras are erected on tripods before the match and send a feed to a laptop for the video assistant referee sitting up in the stands.

The number of cameras is the main factor affecting the cost of the system so there may be a dilemma for the EFL in terms of which system to choose, given that eight camera angles are already available to broadcasters providing live coverage of Championship matches.

## Rooney given FA warning

### Graham Hill

Wayne Rooney has been warned by the FA after stating in an interview to promote his Amazon documentary that he "wanted to hurt someone" while playing for Manchester United against Chelsea in 2006.

Rooney, now the manager of Derby County, said that he had changed to longer studs for the game and the match featured a strong challenge by Rooney on Chelsea's John Terry. But, when he was asked for an explanation by the FA last week, Rooney said it was more like "a feeling".

But he said that after speaking to the FA the matter won't be taken further. "I gave my response and they've given me a warning — that's it, the matter has been put to bed, we're moving on from that," Rooney said.

"The comments were reported by someone and the FA have to look into it. But now it's done. You can clearly see me and John have gone for a tackle, that was it. It's how I was feeling at that time in my life, rather than something I was acting upon."

The issue has been concluded before tomorrow's home game against Derby's relegation rivals Peterborough. There was also some better news for Rooney, with the club's administrators writing to all three of the parties interested in taking over, inviting them to submit

## Cooper's eight-game ban

The Barrow manager, Mark Cooper, has been given an eight-match touchline ban for making a reference to gender during an exchange with an assistant referee, Helen Edwards. The alleged incident took place against Exeter on August 17. Cooper denied the allegations but an independent panel found them to be proven.

## Molineux to host England

### Tomás Hill López-Menchero

Molineux will host England's men's team for the first time since 1956 after it was announced that Gareth Southgate's side will play two Uefa Nations League matches there in June.

England face Italy on Saturday, June 11 and Hungary three days later at the home of Wolverhampton Wanderers, with the first match to be played behind closed doors because of a Uefa sanction resulting from the chaotic scenes that preceded the Euro 2020 final at Wembley last summer.

The FA was also fined £84,560 and given a further one-game suspended ban on supporters after hundreds of fans without tickets forced their way into the stadium for the final against Italy.

The men's team have played in a variety of locations, including Sunderland, Manchester, Leeds and Middlesbrough in recent years, but this will be their first appearance at Molineux since a 5-2 win over Denmark in a World Cup qualifying match 66 years ago.

England's women will play Germany at Molineux on Wednesday in the Arnold Clark Cup, an invitational tournament that includes Spain and Canada.

England's Nations League campaign starts with a visit to Hungary on June 4.

## Lampard open to having director of football at Everton

Frank Lampard is open to working with a director of football at Everton providing he has a say in any appointment and there is no conflict on transfers (Richard Tanner writes).

Everton's board are conducting a "strategic review" of the director of football position, having sacked Marcel Brands in November.

Brands, as well as his predecessor in the job, Steve Walsh, were both criticised for some of Everton's incoming transfers but Lampard said: "Many clubs do have a director of football and the key for me is communication — that everything is aligned and you are working in the same direction."

