Contested Aerial Opportunities: The Measurement Gap at the Centre of Football's Set-Piece Revolution

Set pieces now account for one in four Premier League goals. The foundational metric used to assess aerial ability — the 'aerial duel' — systematically undercounts the very contests that decide them. We propose a revised framework.

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KEY FINDING

> The industry-standard 'aerial duel' metric records a contest only when both players leave the ground. This definition excludes a category of aerial competition — grounded contests involving positional dominance, pinning, and momentum manipulation — that is consequential for territorial control, second-ball outcomes, and set-piece effectiveness. In a single-match case study, this exclusion accounted for **80%** of contested aerial situations. As set-piece goals reach record levels across European football, the gap between what clubs invest in and what the data measures has never been wider. We propose **Contested Aerial Opportunity (CAO)** as a more complete measurement framework.

01

The Convergence

Set-piece investment meets measurement deficit

Two developments have reshaped European football in the 2025–26 season. The first is structural: set pieces now produce a historically unprecedented share of goals. In the Premier League, non-penalty set-piece goals account for approximately **25%** of all goals scored — up from **20.6%** the previous season and **19.8%** the season before that [1]. Corner goals arrive at a rate of one every two matches, up from one every three last season. Arsenal have scored **16** goals from corners alone, equalling the all-time Premier League record with nine fixtures remaining [2].

The second development is organisational. At least ten Premier League clubs now employ dedicated set-piece coaches [3]. The role barely existed a decade ago. Brentford, the club most associated with set-piece innovation, promoted their set-piece coach Keith Andrews to head coach this season. At the 2026 MIT Sloan Sports Analytics Conference, Brentford owner Matthew Benham described the cultural resistance to set-piece drilling — players who preferred traditional training over the repetition and slow walkthroughs that effective set-piece execution requires — and noted that Brentford has paid players bonuses specifically tied to set-piece production [4]. The set-piece coaching pipeline that Benham pioneered at FC Midtjylland in 2014–15, where the Danish club scored 39% of their goals from dead-ball situations en route to a first league title, has proliferated across European football [5].

These two developments converge on a problem that has received insufficient attention: the foundational metric used to evaluate aerial ability — the statistic on which set-piece player assessment, squad composition, and defensive planning all depend — does not measure what it claims to measure.

02

What the Standard Metric Misses

Provider definitions diverge — and all exclude grounded contests

According to Opta's public definition, an aerial duel is recorded when two players "challenge in the air against each other" [6]. However, Opta's internal data collection specification — the operational guidance their annotators work from — reveals a more specific boundary: an aerial duel requires "either both jumping or only one jumping and the other contesting the header by making it difficult to win — and one player has to win the contest with a header" [7]. The critical word is *header*. Situations where the ball is controlled with the chest, shoulder, or body — or where positional dominance wins first contact without a heading motion — fall outside the metric even when only one player needs to jump.

This is not merely an Opta convention. The major data providers each draw the boundary differently, but none captures the full range of aerial competition:

PROVIDER	DEFINITION	BOUNDARY	WHAT FALLS OUTSIDE
Opta (public)	"Two players challenge in the air"	Both players airborne	Grounded contests, positional dominance
Opta (internal)	Both jumping or one jumping + header contest	Heading action required	Chest/body control, non-heading first contact
Wyscout	"Two+ players from opposing teams jump to compete"	Jumping required	All grounded aerial contests, positional dominance
Sportmonks	"Usually involves jumping or aerial manoeuvre"	Hedged — "usually"	Acknowledges boundary is fuzzy
StatsBomb / HOPS	Header Oriented Performance System	Headers explicitly	All non-heading aerial competition
CAO (proposed)	Both players in proximity competing for an air ball	Proximity + aerial ball	Requires proximity threshold judgment

The inconsistency across providers is itself evidence of an unsettled measurement question. If the category boundary were obvious, the definitions would converge. They have not. Each provider has drawn a different line around what constitutes an aerial contest, and every line excludes situations where players compete for aerial balls through means other than jumping and heading.

> Not all aerial balls are duelled for in the air. In many situations, players engage with aerial balls without leaving the ground — and no major data provider accounts for this. The metric measures heading contests, not aerial contests.

03

Proposed Framework

Contested Aerial Opportunity (CAO)

We define a **Contested Aerial Opportunity (CAO)** as any situation where two players are in contact or close proximity while competing for an air ball — regardless of whether either player leaves the ground, and regardless of which body part makes first contact. The reference points are the ball and the spatial relationship between the competing players, not the physical method of engagement.

A player who wins first contact with the ball — with any part of their body — is credited with a CAO won. This preserves an observable, binary criterion (first contact) while broadening the measurement surface to capture the full range of aerial competition.

A CAO is classified as **uncontested** when a player receives an aerial ball with no opponent in proximity. This distinction matters: the ratio of contested to uncontested aerial opportunities in a match reveals how often a team's aerial targets face genuine opposition, which is a more useful indicator of aerial dominance than the raw win count alone.

04

Evidence: Martinez vs. Welbeck

Manchester United vs. Brighton, 7 August 2022

The original analysis underlying this framework was published in August 2022, examining Lisandro Martinez's aerial involvement during Manchester United vs. Brighton (7 August 2022) [8]. Brighton's game plan in that match explicitly targeted United's left side with long balls aimed at Danny Welbeck, creating repeated aerial contests between the two players. Brighton midfielder Adam Lallana confirmed the tactical intent post-match:

> *With their new signing [Martinez], we know the Premier League's difficult so we thought we'd ask him questions early on. We landed on second balls, gained good territory and attacked the ball well in numbers.*
>
> Adam Lallana, post-match interview, 7 August 2022

Brighton's strategy was visible in the match data: passes were disproportionately directed toward the left side of United's defence, with Robert Sánchez's goal kicks serving as the primary delivery mechanism.

5	1	0
first half	of 5 (20%)	standard metric
CAO CONTESTED	CAO WON	AERIAL DUELS RECORDED

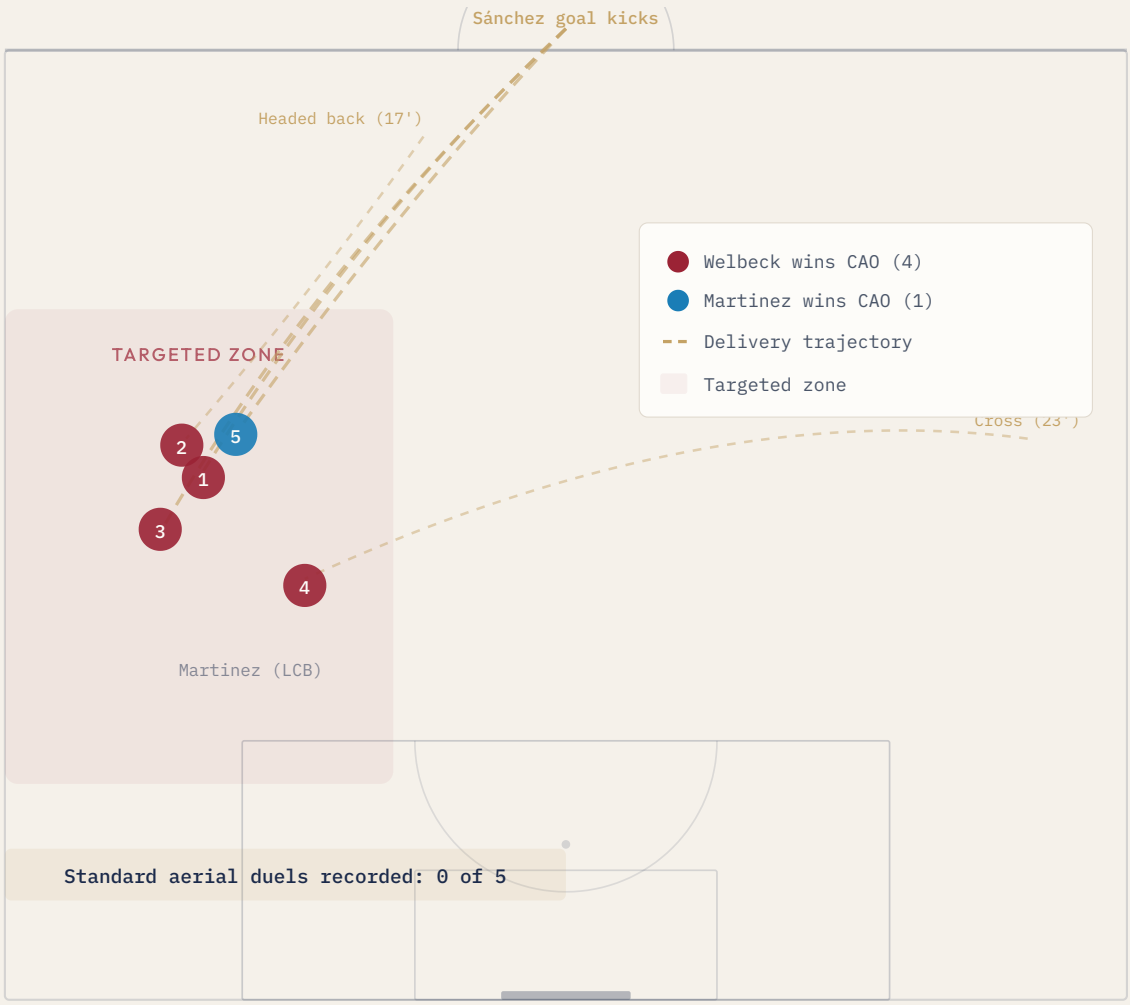

Fig. 1. Brighton repeatedly targeted the same corridor — and the standard metric recorded none of it. Schematic half-pitch showing all five contested aerial opportunities between Martinez and Welbeck in the first half. Delivery trajectories are approximate, derived from match video analysis. Four of five deliveries originated from goal kicks or clearances directed at United's left channel. Source: match video analysis, Manchester United vs. Brighton, 7 August 2022 [8].

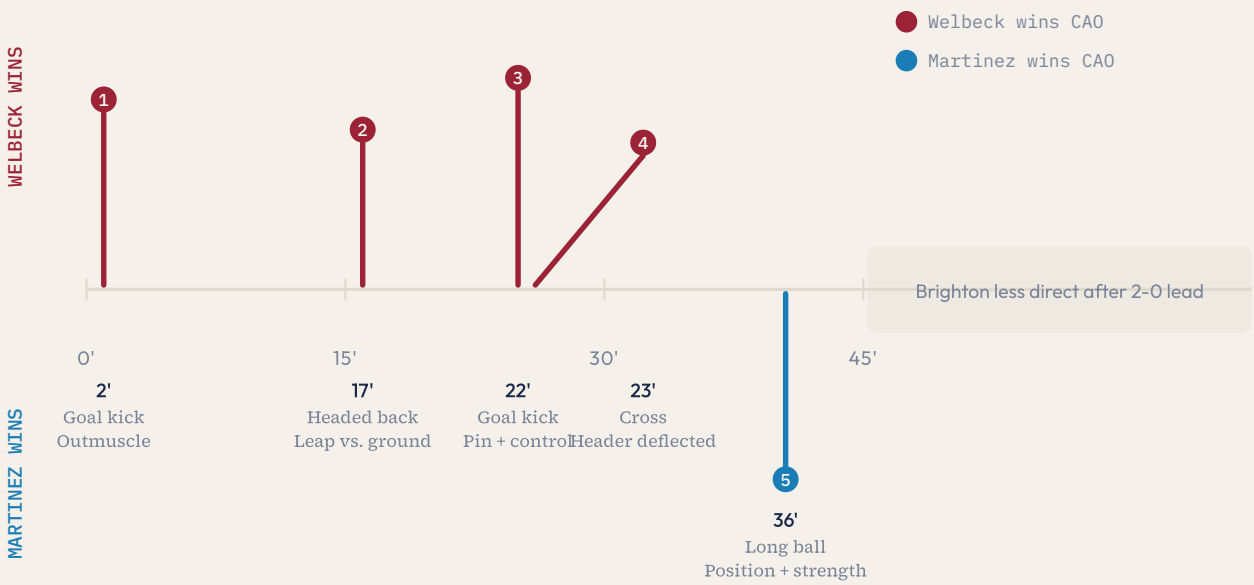

Fig. 2. Welbeck dominated 80% of aerial contests invisible to the standard metric. Chronological sequence of all five contested aerial opportunities across the first half. Delivery type and contest method annotated per situation. Source: match video analysis [8].

The tactical consequence was significant. Welbeck's dominance in these unrecorded contests allowed Brighton to gain sustained territorial control in United's defensive third. An analyst relying on the aerial duel metric would have concluded that Martinez had no aerial involvement in these sequences — a conclusion that was materially wrong.

The five situations illustrate the diversity of aerial competition the standard metric misses. In minutes 2 and 22, Sánchez's goal kicks created contests where Welbeck outmuscled or pinned Martinez without either player jumping — sequences that registered only as completed passes for Sánchez. In minute 17, the ball bounced and Welbeck leapt while Martinez stayed grounded; no contest recorded. In minute 23, both players competed for a cross; Welbeck's header deflected off Martinez's head, recorded as a blocked shot rather than an aerial contest. Only by minute 36 did Martinez win first contact — but even this went unrecorded in aerial statistics.

Why This Case Study Still Matters in 2026

This match was played before the current set-piece revolution reached its present intensity. Brighton's use of targeted long balls to exploit a specific aerial mismatch was standard direct-play tactics. What has changed is that the entire league now optimises for exactly this kind of play. When clubs invest in dedicated set-piece coaches, drill corner routines, and assess signing targets on their aerial profiles, they rely on a measurement infrastructure that systematically undercounts the aerial competitions that set-piece situations produce.

If five out of five contested aerial situations in a single half between two players escaped the metric in 2022, the scale of unmeasured aerial competition across a full season of set-piece-intensive football is substantial.

05

The Set-Piece Economy and Its Measurement Deficit

Investment, literature, and downstream effects

The 2025–26 season has produced what amounts to an aerial arms race. The Premier League's shift toward more direct play — more long balls, more long throws, fewer short corners, more goal kicks sent into the opposition half — has created a competitive environment where aerial competition is more frequent and more consequential than at any point in the data analytics era [1].

Arsenal's dominance from corners under set-piece coach Nicolas Jover has become a defining feature of the title race. Brentford's model has proliferated across the league and beyond. At MIT Sloan, Benham drew an analogy to the NFL playbook — a reference point that underscores how seriously elite clubs now treat set-piece preparation — and noted that the historical resistance to structured dead-ball drilling came from player culture rather than tactical ignorance [4].

This investment operates on an assumption: that the available data can accurately assess which players are effective in aerial situations and which are not. The CAO framework reveals that the assumption is wrong. The standard aerial duel metric structurally undercounts aerial competition in precisely the situations set-piece coaches care about most — contested deliveries into the box, second-ball battles after initial contact, and the positional wrestling that determines who reaches the ball first.

Recent evidence from within the data industry itself supports this assessment. Hudl StatsBomb's updated HOPS model — the most sophisticated aerial evaluation system in the industry — found that Brentford and Newcastle, two of the Premier League's most effective set-piece teams this season, rank 12th and 13th respectively in Aerial Unit Rating. StatsBomb's own conclusion: tactical positioning, delivery quality, and movement patterns are "far more influential than aerial dominance" in the current set-piece model [9]. If the things that matter most for set-piece effectiveness are not captured by aerial duel statistics, the metric is measuring the wrong dimension of the problem — even according to the provider that has built the most advanced model on top of it.

> **The industry is investing more resources than ever in aerial set-piece preparation while relying on a foundational metric that systematically underrepresents aerial competition. The investment has outpaced the measurement.**

The Existing Literature Refines — but Does Not Interrogate — the Definition

Recent academic and industry work on aerial ability has focused on improving the evaluation of players *within* the existing measurement framework — not on questioning whether the framework captures all aerial competition. Kim and Kim (2024) developed a height-adjusted Elo rating model for aerial duels, demonstrating that standard success-rate rankings diverge significantly from ability rankings when opponent strength is accounted for [10]. Opta's own Bradley-Terry model (2020) produces similar re-rankings [6]. Soccerment's AERO metric (2023) separates offensive and defensive aerial ratings, finding that the median win rate differs substantially between the two contexts [11].

These are useful refinements. But they all operate on data generated by the existing definition. None addresses the upstream question: does the definition itself capture all aerial competition? If the measurement boundary excludes a category of consequential aerial contests — as this analysis demonstrates — then any model built on that data inherits a structural blind spot, regardless of its mathematical sophistication.

Mackenzie and Cushion (2013) identified this general problem in their critical review of performance analysis in football, arguing that definitions and classifications of variables used in PA research are insufficiently interrogated for reliability and validity [12]. The aerial duel metric is an instance of the pattern they describe: a variable whose definition was adopted by the practitioner community and then propagated through composite metrics without its measurement boundary being revisited.

Downstream Effects on Composite Metrics

Many second-order metrics in football analytics are built on foundational measurements like aerial duels. Expected goals from set-piece situations, defensive contribution composites, and scouting models that weight aerial ability are all downstream of this measurement gap. If the foundational metric systematically undercounts aerial competition, the composites inherit the error — and any recruitment or tactical decision built on those composites carries a hidden bias toward players who win heading contests specifically, rather than players who win aerial situations generally.

This matters acutely for positions where grounded aerial competition is frequent. Centre-backs who neutralise aerial threats through positional intelligence and ground-level wrestling will be systematically undervalued by any model that relies on aerial duel statistics. Target forwards who excel at pin-and-control receiving will register fewer aerial wins than their actual aerial contribution warrants.

06

The Pre-Contact Phase

The unmeasured dimension of football actions

The CAO framework is an instance of a broader analytical dimension STATSWING treats as foundational: the **pre-contact phase**. The outcome of many aerial situations — and many football actions more broadly — is determined before the primary action occurs. Positioning before the ball arrives, momentum manipulation through body contact, and the spatial negotiation between two players competing for the same delivery are all consequential and largely unmeasured.

STATSWING's analytical framework treats mechanics — the physical execution underlying technique — as the most reliable predictor of skill transfer between playing environments. The pre-contact phase is where mechanical advantages are established and where system-independent traits are most visible. A player who consistently establishes superior position before the ball arrives demonstrates a transferable skill that operates regardless of tactical system. A player whose aerial numbers depend on service quality and system-dependent delivery patterns presents a riskier recruitment proposition.

We assess that systematic measurement of pre-contact dynamics would materially improve scouting accuracy for defenders, target forwards, and any player whose aerial contribution is central to their value. This is a research priority for STATSWING's analytical work in the current cycle.

METHODOLOGICAL NOTE

The primary limitation of the CAO metric is the subjectivity of the proximity threshold. In this analysis, we defined proximity as any situation where both players made or could have made physical contact while the ball was in the air or arriving. For consistent application at scale, we propose a standardised threshold of ≤1.5 metres between competing players at the moment of ball arrival. Future work should test this threshold against a larger sample and assess inter-rater reliability across multiple analysts. The case study presented here is deliberately single-match — it demonstrates the existence and nature of the measurement gap, not its league-wide magnitude. Quantifying the gap across a full season is a priority for subsequent research.

DATA SOURCES AND REPRODUCIBILITY

The case study is based on video analysis of Manchester United vs. Brighton & Hove Albion, Premier League, 7 August 2022. Aerial duel statistics were cross-referenced against Opta data via FBref and verified against additional data providers at the time of original analysis. The original match-level breakdown, including frame-by-frame documentation of all five contested situations, was published in August 2022 [8]. Season-level set-piece statistics are drawn from Opta via The Analyst and publicly reported Premier League data [1][2]. Provider definitions were sourced from published glossaries and API documentation [6][7][13][14]. The CAO framework, the proximity threshold proposal, and the pre-contact phase concept are proprietary analytical contributions of STATSWING.

AERIAL ANALYSIS | METRIC DESIGN | PRE-CONTACT PHASE | SET-PIECE STRATEGY | SCOUTING METHODOLOGY

IMPLICATIONS BY AUDIENCE

For scouts and analysts

When evaluating aerial ability — particularly for centre-backs and target forwards — supplement standard aerial duel statistics with direct observation of contested aerial opportunities. A player with unremarkable aerial duel numbers may be highly effective in grounded contests that no current data provider captures. Conversely, a player with strong aerial duel numbers may be effective only in heading contests, which is a narrower skill than total aerial dominance. The distinction matters most when assessing players for environments that rely on direct play or set-piece delivery into contested areas.

For data providers

The inconsistency across provider definitions — Opta's jumping/heading requirement, Wyscout's jumping criterion, Sportmonks's hedged language — indicates an unsettled measurement standard. Consider expanding the aerial duel definition to include grounded contests, or introducing CAO as a supplementary metric. The proximity threshold (≤1.5m at ball arrival) provides a starting point for standardisation. As set-piece analytics becomes a commercial growth area, the value of a more complete aerial measurement framework increases proportionally.

For recruitment departments

Any scouting model that weights aerial ability using standard aerial duel statistics carries a hidden bias: it favours players who win heading contests over players who win aerial situations through positioning, strength, or ground-level technique. In a transfer market increasingly shaped by set-piece requirements — where clubs explicitly seek aerial threats and aerial defenders — this bias can produce systematically misdirected recruitment spend. Validate aerial assessments with video review of contested situations, not statistics alone.

For set-piece coaches

Aerial coaching should include grounded contest techniques — pinning, positional dominance before delivery, and momentum manipulation — alongside traditional heading and jumping. The evidence suggests these techniques are tactically consequential and currently underrepresented in both training and measurement. If the standard metric does not capture them, they are unlikely to be systematically coached for. This is a coaching gap that mirrors the measurement gap.

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