

PART 2 OF THE HITTING SPECTRUM SERIES

THE STEEPS

When a Hitter's Swing Becomes Too Vertical to Navigate

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Every power hitter is climbing the same mountain. More launch angle, more elevation, more fly balls that clear the fence. The view from up there looks like home runs. Most of them don't realize the terrain has gotten too steep to navigate until they're sliding back down.

Rhys Hoskins is striking out at 30.9% and whiffing on 54.3% of offspeed pitches. Nick Castellanos is posting a .239 wOBA despite a 37.3% hard hit rate. Cal Raleigh has one of the steepest attack angles in baseball and is running 0.032 below his expected output. Jimmy Crooks leads all of baseball with a Steeps Score of 86.1 while hitting .240 with a 51.4% hard hit rate that should be producing far more than it is.

These are not contact problems. The tools are there. The exit velocity is real. The hard hit rate confirms it. The production is missing because the swing plane has gotten too vertical to make consistent contact on the pitches that matter most.

This is The Steeps. And nobody is talking about it.

THE CLIMB

The launch angle revolution changed baseball. Between 2015 and 2022, the sport collectively figured out that fly balls and line drives produce more runs than ground balls, and hitters began optimizing their swing planes accordingly. Coaching staffs started teaching uppercut paths. Players started working on attack angle in the cage. The numbers responded.

But like every optimization, it had a ceiling. And like every ceiling in baseball, some hitters hit it without realizing it was there.

Here is what happens. A hitter discovers that an upward swing path produces better outcomes. His brain reinforces that path through thousands of repetitions. The attack angle gets steeper. The launch angle climbs. The home run rate improves. So far so good.

Then something shifts. The swing plane that produces optimal contact on a 95 MPH fastball at the belt is the same swing plane that misses a changeup dropping to the knees by two feet. The brain has optimized for one pitch type at the cost of another. Pitchers notice. The sequencing changes. Establish the fastball high, bury the offspeed low. The hitter keeps swinging on his ideal plane and keeps missing the pitches that dropped through the zone while he was swinging above them.

The correct response to a pitch that drops is to stay through the zone longer. Not to swing steeper. But a swing plane grooved across thousands of repetitions does not adjust easily. The brain keeps returning to the path that felt right against the fastball. The offspeed keeps winning.

This is the behavioral drift theorized at the heart of The Steeps. Just as the working theory for Contact Cliff hitters is that their hands subconsciously learn they don't need full commitment to make contact, the parallel theory for Steeps hitters is that their brain subconsciously steepens the plane because elevation produced better outcomes before it didn't. Both would be the brain optimizing for one variable at the expense of the overall production profile. Both produce a collapse that the sport tends to misattribute to other causes. Neither mechanism is something we can observe directly — what's measurable is the downstream signature, not the learning process itself.

The Steeps has a specific, measurable signature that distinguishes it from other production problems.

High attack angle relative to league average. The league average attack angle is 9.02 degrees. Steeps hitters consistently run 12 to 17 degrees or higher. Hoskins sits at 16.1 degrees. Jimmy Crooks at 15.7 degrees. Cal Raleigh at 16.2 degrees. Nick Castellanos at 15.5 degrees. These are not outliers from a single bad season. They are sustained mechanical signatures that show up year after year.

High whiff rate and K rate with healthy hard hit rate. This is the paradox that makes The Steeps hard to diagnose. The hitter is making hard contact when he does connect, confirming the power tools are real. But the steep plane creates a massive hole below the hands where offspeed and breaking balls can live. The whiff rate climbs. The K rate follows. The exit velocity on contact stays respectable, which convinces coaches the problem is approach rather than mechanics.

Production running below expected output. A hitter with a 50% hard hit rate should be producing elite numbers. When the wOBA is running 0.040 to 0.080 below xwOBA for a sustained period, the contact quality is there but something is suppressing the results. In most cases that something is the steep plane creating enough misses that the hard contact is not accumulating into counting stats.

The launch angle tell. The most visible symptom is a climbing launch angle over multiple seasons. Hoskins went from 20.8 degrees in 2024 to 23.3 in 2025 to 29.1 in 2026. That three-year trajectory of steepening is not random variance. It is the swing plane responding to reinforcement and going further in the direction that felt successful until it went too far.

THE CASES

Rhys Hoskins is the confirmed Steeps case that opens the pattern. His attack angle of 16.1 degrees is well above league average. His whiff rate on offspeed pitches in 2026 is 54.3%. His contact point by pitch type tells the story precisely: 27.6 inches on four-seam fastballs, compact and controlled. 42.6 inches on sweepers, reaching far out front. 44.6 inches on curveballs. The

steep swing plane that works on elevated fastballs is producing enormous contact point spread against pitches that move differently. His launch angle on fastballs is 31.7 degrees, getting under velocity with a plane designed for breaking balls that drop. He has a hole in his swing that the data measures to the inch.

Jimmy Crooks leads baseball with a Steeps Score of 86.1. His hard hit rate of 51.4% is elite. His ISO of .091 is not. That gap between hard contact quality and power production is the Steeps signature: tools present, plane too steep to translate them into consistent results.

Nick Castellanos is the most surprising name. A veteran hitter with career experience and an established profile, his attack angle has climbed to 15.5 degrees and his whiff rate to 33.5%. He is running 0.046 below expected. The steep plane is quietly hollowing out production that his hard contact numbers suggest should be there.

Cal Raleigh has the steepest attack angle of any starting catcher in baseball at 16.2 degrees. His 31.9% whiff rate combined with a 30.9% hard hit rate suggests a hitter whose power tools are real but whose plane is creating contact failures on pitches below the zone that a catcher's batting profile receives constantly.

Jarred Kelenic is the most complex case because he appears on both The Steeps and the Contact Cliff spin/break suppression list. He is being beaten two ways simultaneously. His 39.2% whiff rate and 36.2% K rate confirm steep plane contact failures. His -0.070 wOBA gap, the largest in the dataset, confirms the production suppression is more severe than any single mechanism explains. Two separate problems compounding each other.

THE MECHANISM

The Steeps and the Contact Cliff are mirror images of the same underlying phenomenon: behavioral drift driven by neuromuscular reinforcement of a successful pattern until that pattern overshoots.

Contact Cliff hitters optimized for contact. Their hands got too good at finding the ball. The swing decelerated. Power drained.

Steeps hitters optimized for elevation. Their swing plane got too vertical. Offspeed contact failed. Production drained.

Both collapses look like different problems from the outside. Coaches diagnose the Contact Cliff as aging or mechanical decline. They diagnose The Steeps as approach problems or pitch recognition failures. Neither framework names the behavioral drift that is actually driving both.

The distinction matters for the fix. A Contact Cliff hitter needs environmental constraints that prevent barrel manipulation: move forward in the box, compress the decision window, force commitment. A Steeps hitter needs swing plane correction that flattens the path through the zone: stay through the ball longer, work on pitch recognition specifically against offspeed, and in some cases adjust position to account for pitch movement.

The box position angle for Steeps hitters is more nuanced than for cliff hitters. The working theory for Contact Cliff cases is that moving forward compresses the time pitchers have to execute their pitch sequence, though that's still an untested hypothesis rather than a proven fix (see The Contact Cliff for the current state of that evidence). For some Steeps hitters, moving forward might marginally help by catching breaking balls before they fully drop, on the same unproven logic. But the primary intervention is mechanical either way: the plane needs to flatten before the position change would matter much.

THE ALGORITHM

The Steeps Score is built from four inputs measured against the 2026 MLB qualified hitter baseline.

Swing plane steepness measures attack angle above league average. The league average attack angle is 9.02 degrees. Every degree above that accumulates toward the score up to a maximum of 25 points.

Contact failure measures the combination of whiff rate and K rate above league average. Both rising together confirm that the steep plane is creating systematic contact failures, not isolated bad luck.

Production gap measures actual wOBA running below expected wOBA. A hitter whose hard contact is not translating into production has something suppressing results. When combined with a high attack angle and contact failure score, the production gap confirms The Steeps as the mechanism.

Attack quality measures the rate of swings in the ideal attack angle window. A hitter consistently outside that window regardless of pitch type is showing a fixed steep plane rather than a situational adjustment.

Applied to all 496 qualified 2026 hitters, the algorithm identifies 18 urgent cases where tools are present and production is failing, 14 monitoring cases where the pattern is forming, and assigns low scores to elite hitters whose steep planes are producing rather than failing — consistent with the framework's design, though that consistency check is closer to confirming the score behaves as intended than to independent proof it's identifying something real.

The productive steep hitters are the most important calibration check regardless. Aaron Judge scores 60.5 on The Steeps with a steep attack angle and high K/whiff rates. But his wOBA of .386 is elite. The algorithm scores him as aggressive but productive rather than trapped in The Steeps, exactly as the framework is designed to. The flag is monitor closely rather than urgent because his production has not yet failed. The same distinction applies to Zach Neto at 75.0 who scores high on the raw components but is producing at .337 wOBA.

The Steeps is not a penalty for having a steep swing. It is a flag for when that steep swing stops producing despite healthy underlying tools.

THE INVERSE

The Contact Cliff and The Steeps are the two failure modes that bracket the ideal hitter profile.

Contact Cliff hitters are too flat. Too controlled. Their hands find the ball on every pitch, including the ones they should miss, and the accumulated weak contact drains their production while their surface metrics stay clean until the collapse is already underway.

Steeps hitters are too vertical. Too aggressive about elevation. Their swing plane produces elite exit velocity on the pitches it was designed for and catastrophic misses on the pitches that exploit the hole beneath it.

The sport has spent the last decade coaching hitters toward more launch angle. The Contact Cliff is partly a reaction to that coaching, with contact-first hitters learning to steer the barrel rather than commit to a power path. The Steeps is partly a direct product of that coaching, with power hitters taking the launch angle message too far until the plane stops being navigable.

Both failure modes are behavioral. Both are driven by the brain reinforcing what worked. Both produce a production collapse that looks like something else from the outside.

The fix for each is different. But identifying which problem a hitter has requires a framework that the sport currently does not have. The Contact Cliff algorithm and The Steeps algorithm together provide that framework for the first time.

THE MISSING DIAGNOSIS

Baseball has no systematic way to distinguish a Contact Cliff decline from a Steeps decline from a legitimate aging or injury-driven decline. All three can produce similar surface symptoms: falling batting average, rising strikeout rate, declining power. The differences are in the underlying mechanics.

A Contact Cliff hitter shows declining bat speed, rising contact rate, and a widening deceleration gap on slow pitches. The hands are more active than they should be.

A Steeps hitter shows a rising attack angle, climbing whiff rate on specific pitch types, and healthy exit velocity on contact. The swing plane is more vertical than it should be.

An aging or injury decline shows across the board deterioration with no specific mechanical fingerprint. Bat speed drops, exit velocity drops, contact rate drops simultaneously.

These three profiles require three different interventions. Treating a Steeps hitter as if he has the Contact Cliff makes the problem worse. Moving him forward in the box to compress his decision

window does not flatten a swing plane that needs to be flatter. Moving a Contact Cliff hitter back in the box to give him more time compounds the behavioral drift the forward fix was designed to prevent.

The sport currently has no public framework for making this distinction. Both algorithms, the Contact Cliff Score and The Steeps Score, are built from publicly available Statcast data that every team already has access to. The framework is new. The data was always there.

The question is whether anyone was asking the right questions to find it.

THE MISSING COORDINATE, REVISITED

The Contact Cliff piece introduced the concept of the missing coordinate: a batter's position in the box is not tracked as a prescriptive variable despite four years of public stance data sitting at Baseball Savant.

The Steeps adds a second missing coordinate: attack angle prescription. Statcast tracks every hitter's attack angle on every swing. The rate of ideal attack angle is a published metric. The league knows which hitters are swinging at 16 degrees and which are swinging at 8 degrees. Nobody has built a systematic framework for telling a hitter what his optimal attack angle should be given his pitch mix, his contact point profile, and his production gap.

A golfer gets fitted for the right shaft flex, the right loft angle, and the right lie angle. The entire fitting is built around optimizing the attack angle of the club through the impact zone for that specific golfer's mechanics. That fitting is considered foundational. No serious golfer skips it.

Baseball has the data to do the same for every hitter in the league. The attack angle is measured. The ideal range is published. The production gap from being outside it is calculable. And yet every hitter shows up to spring training and swings at whatever angle feels right.

The sport measures everything except the two things that could change all of it: where the hitter stands, and the angle at which his bat travels through the zone.

One of those measurements now exists publicly. The other is sitting in the same dataset waiting for someone to build the prescription around it.

The sport measures everything except the things that could change all of it.

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