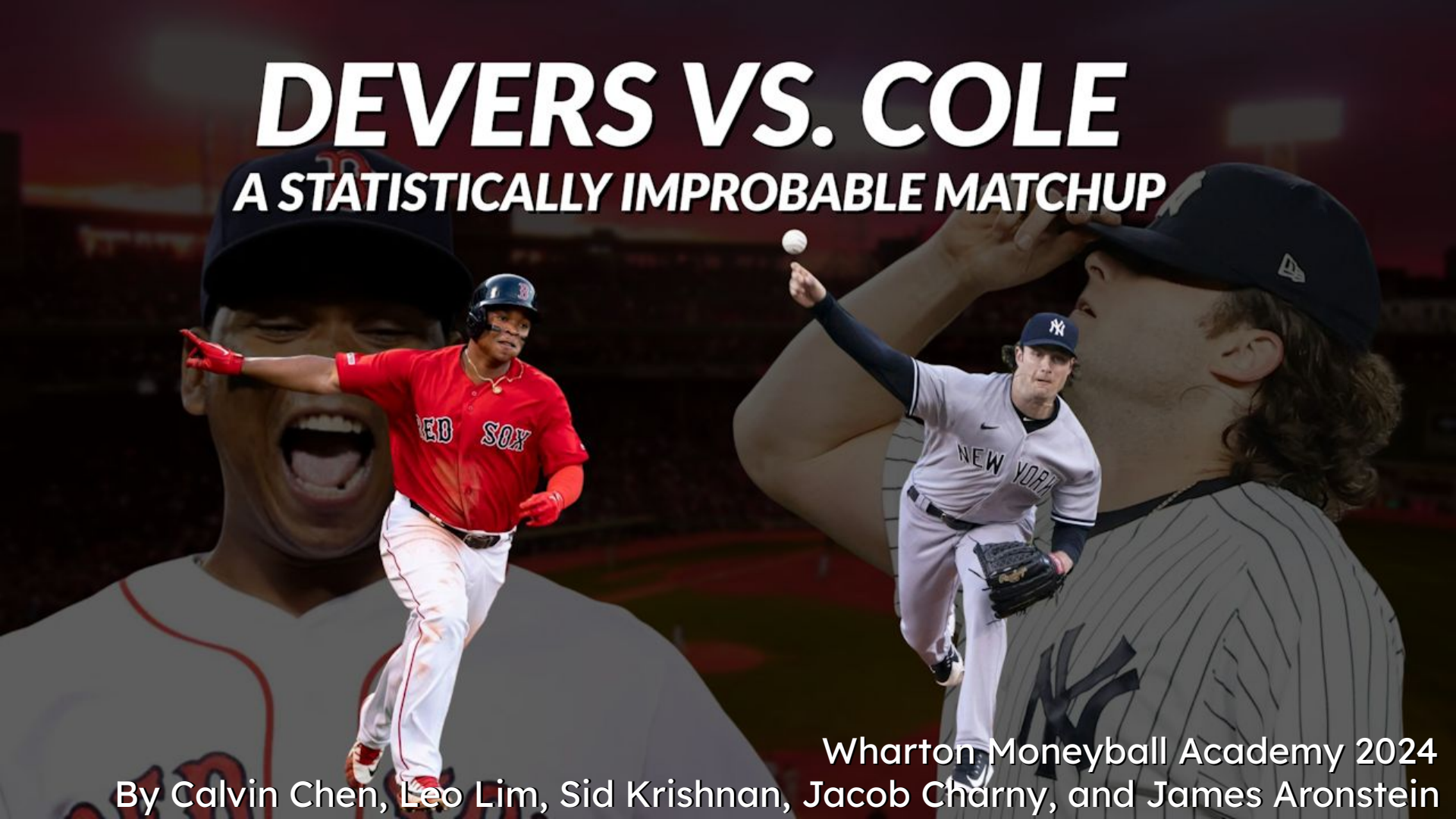
DEVERS VS. COLE

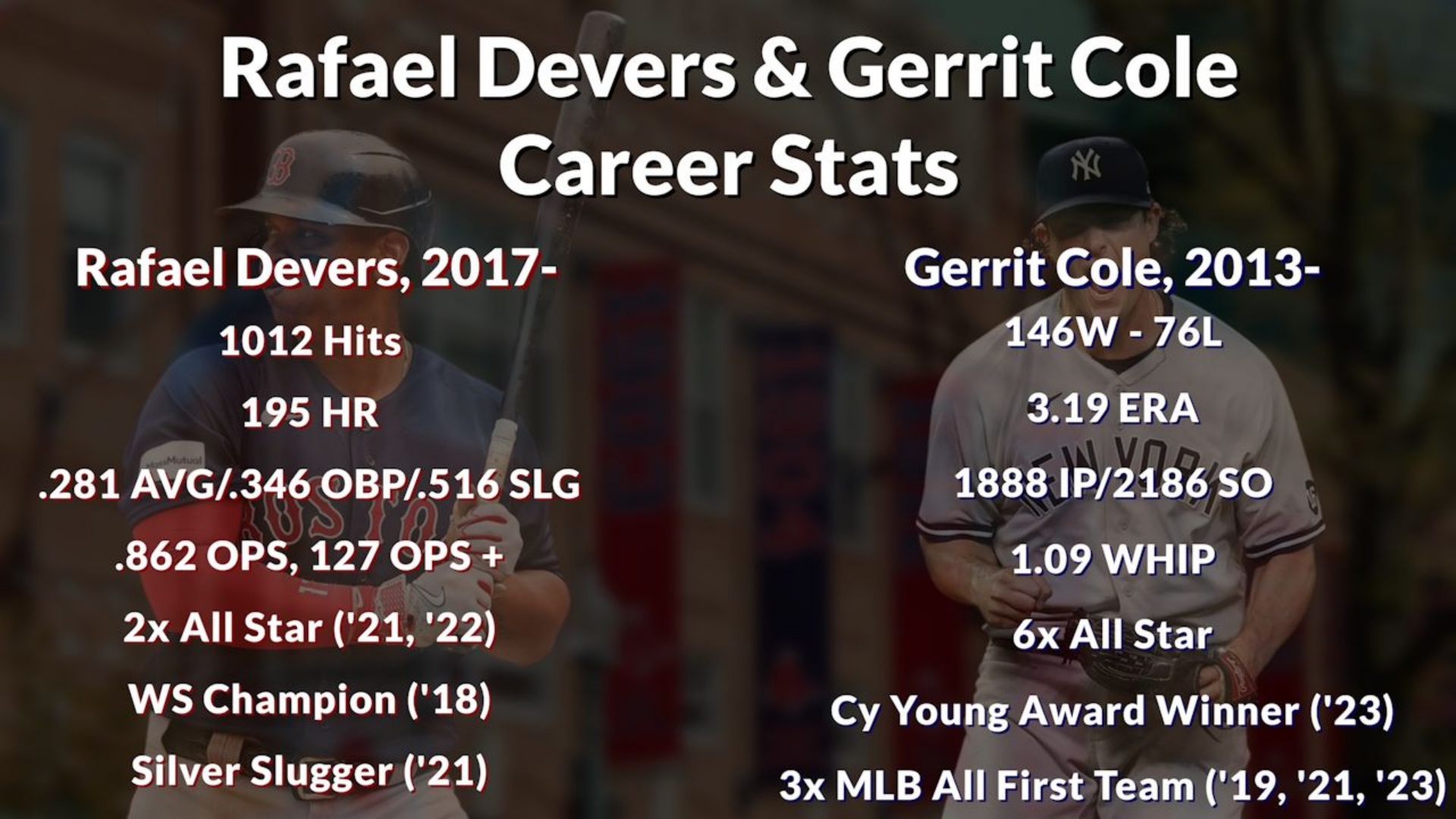
A STATISTICALLY IMPROBABLE MATCHUP



Wharton Moneyball Academy 2024

By Calvin Chen, Leo Lim, Sid Krishnan, Jacob Charny, and James Aronstein

Rafael Devers & Gerrit Cole Career Stats



Rafael Devers, 2017-

1012 Hits

195 HR

.281 AVG/.346 OBP/.516 SLG

.862 OPS, 127 OPS +

2x All Star ('21, '22)

WS Champion ('18)

Silver Slugger ('21)

Gerrit Cole, 2013-

146W - 76L

3.19 ERA

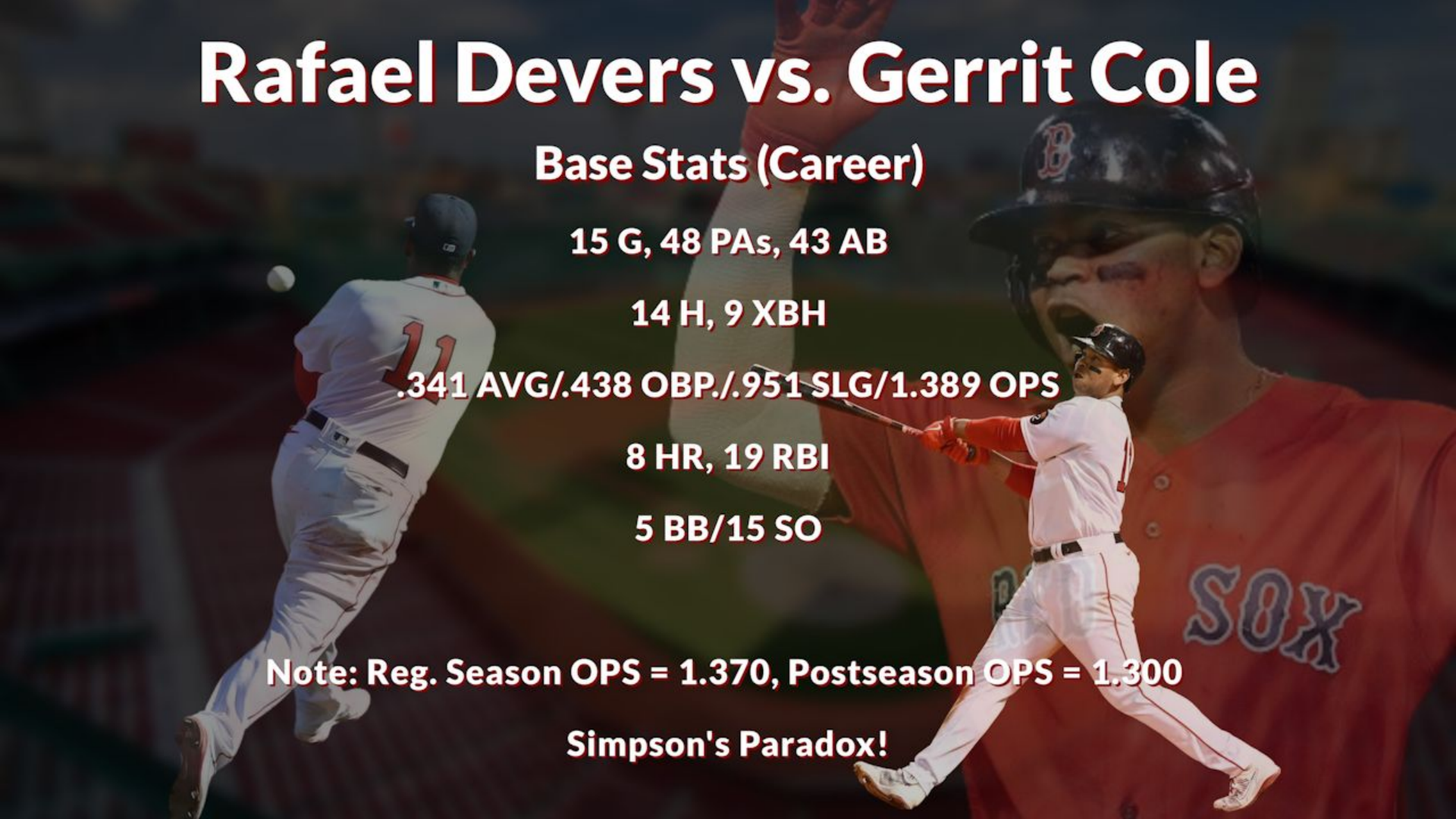
1888 IP/2186 SO

1.09 WHIP

6x All Star

Cy Young Award Winner ('23)

3x MLB All First Team ('19, '21, '23)



Rafael Devers vs. Gerrit Cole

Base Stats (Career)

15 G, 48 PAs, 43 AB

14 H, 9 XBH

.341 AVG/.438 OBP./.951 SLG/1.389 OPS

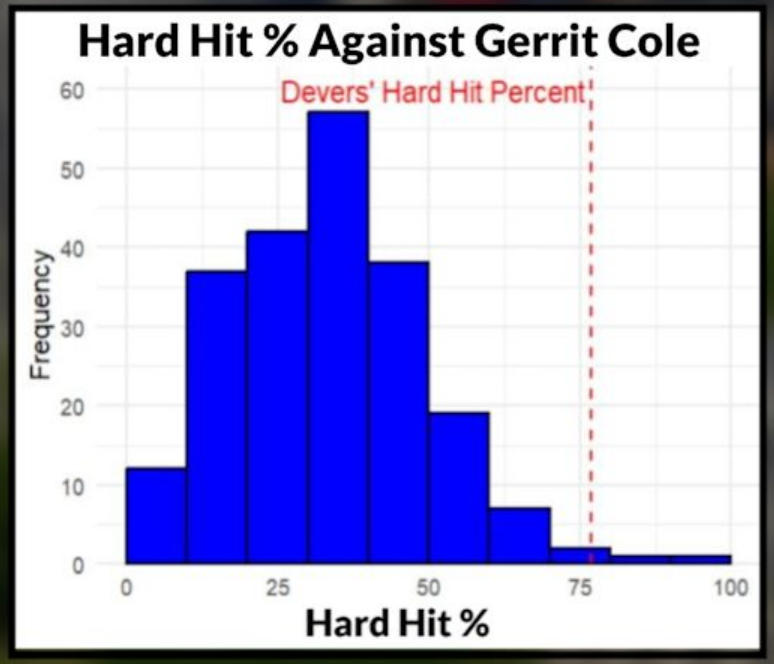
8 HR, 19 RBI

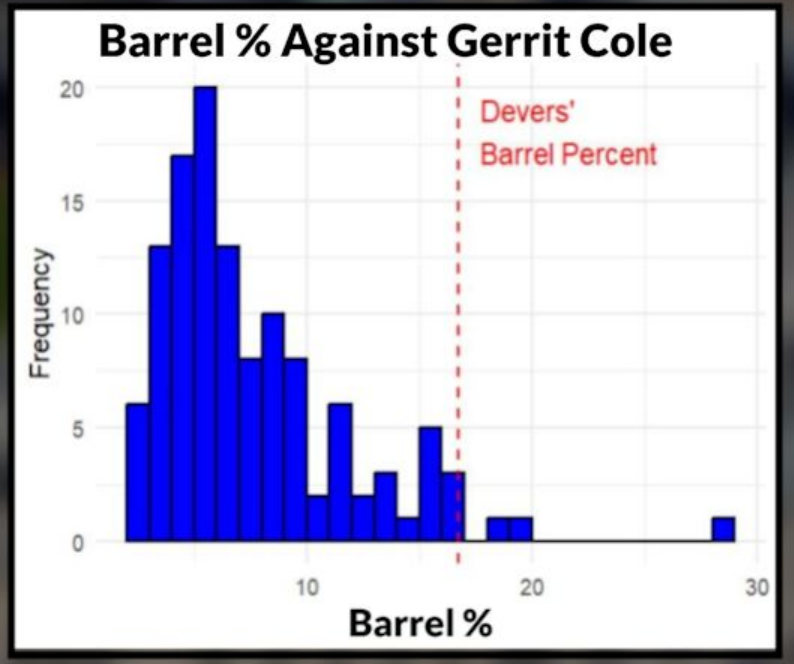
5 BB/15 SO

Note: Reg. Season OPS = 1.370, Postseason OPS = 1.300

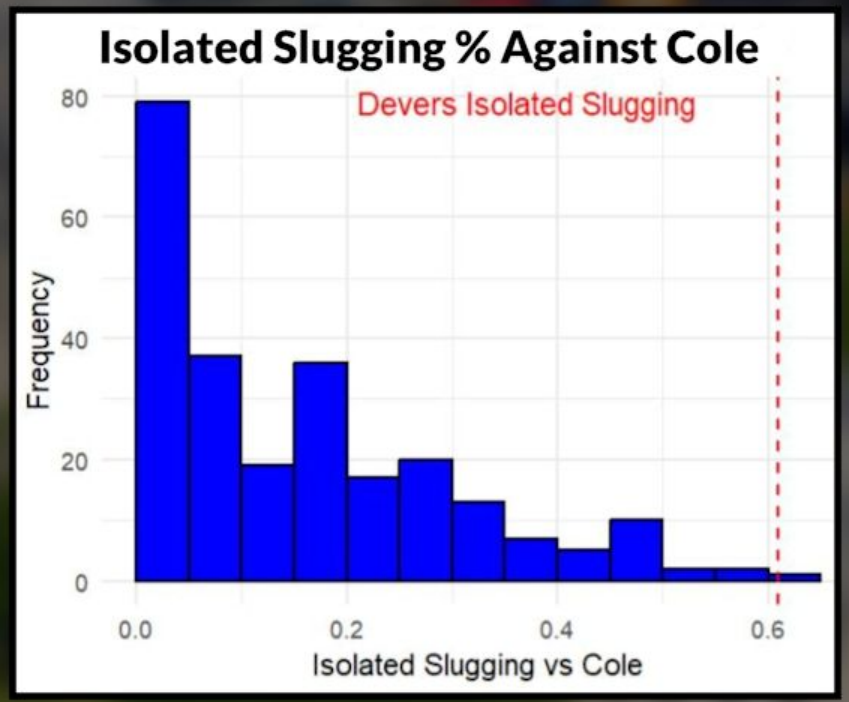
Simpson's Paradox!

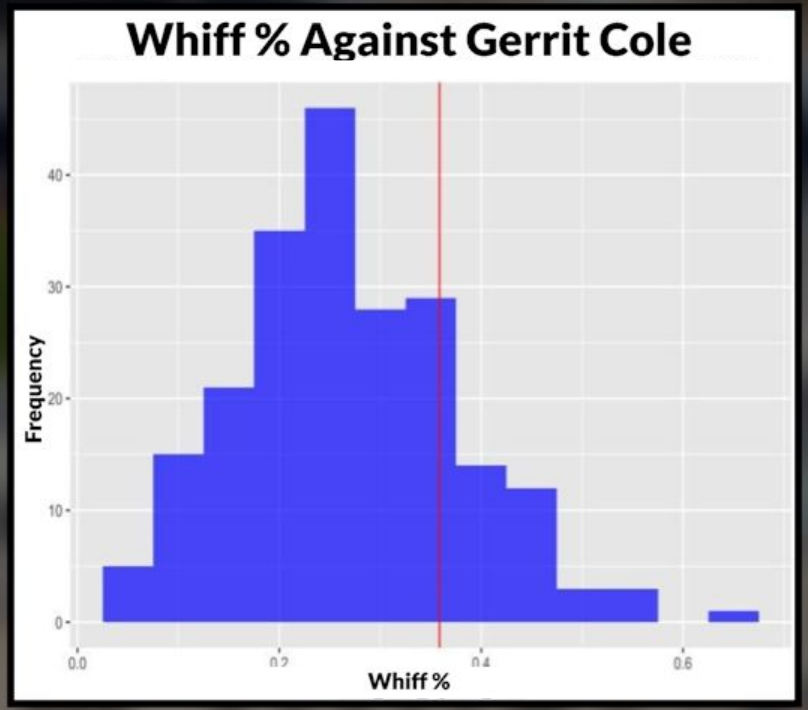
Advanced Stats





Advanced Stats





Aaron Boone’s Take

Null Hypothesis:

Devers' success against Cole is unsustainable, and largely due to luck.

Alternative Hypothesis:

Devers' Success Against Cole is grounded in skill, and is sustainable.

Permutation Test: Set Up

Players in Sample must:

Hit left-handed

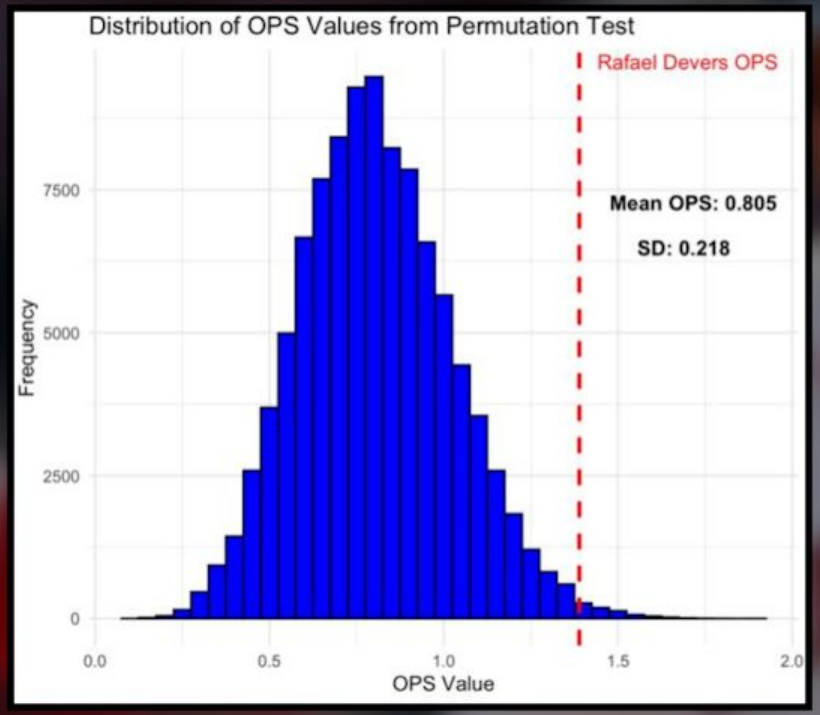
Have 502 PA vs. Righties Since 2013

Be in the 95th percentile of OPS against righties (.857)

Have 5 PAs against Gerrit Cole

Note: Devers OPS against righies of .908 falls into the 97.8th percentile

Permutation Test: Results (48 PA)



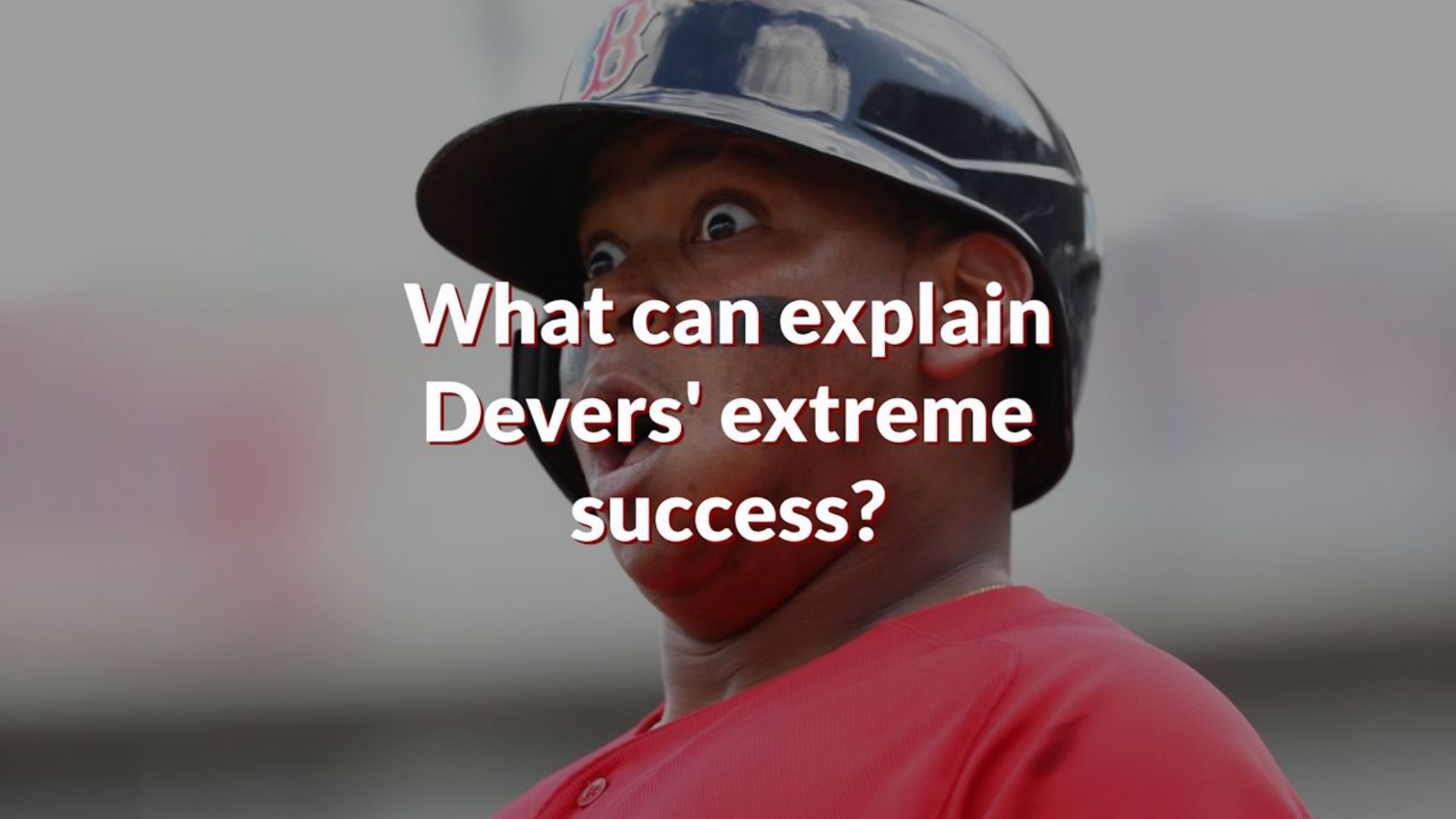
Mean OPS: .805

SD: 0.218

Devers' OPS: 1.389

Devers' Z Score: 2.679

P Value: 0.0075 or 0.75%


What can explain Devers' extreme success?

Devers vs. Cole's Fastball

50.2% usage

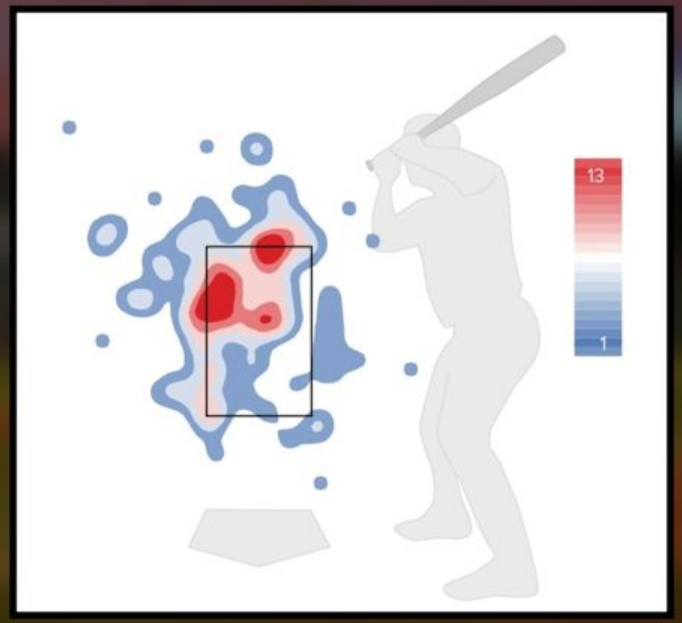
.316 AVG/.409 OBP /.947 SLG /1.356 OPS

6 hits against the fastball

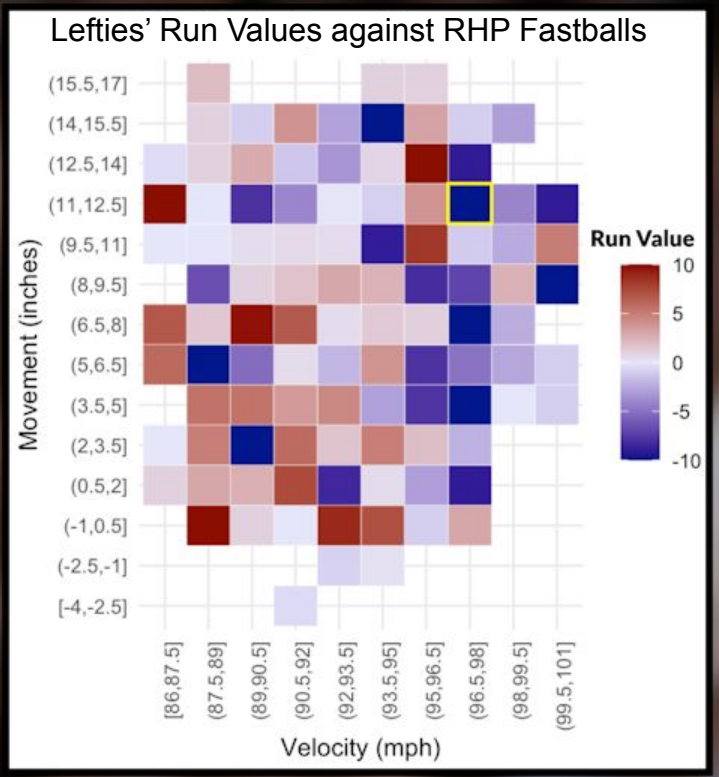
AVG Exit Velocity: 103.4mph

Hard hit percent of 88.9%

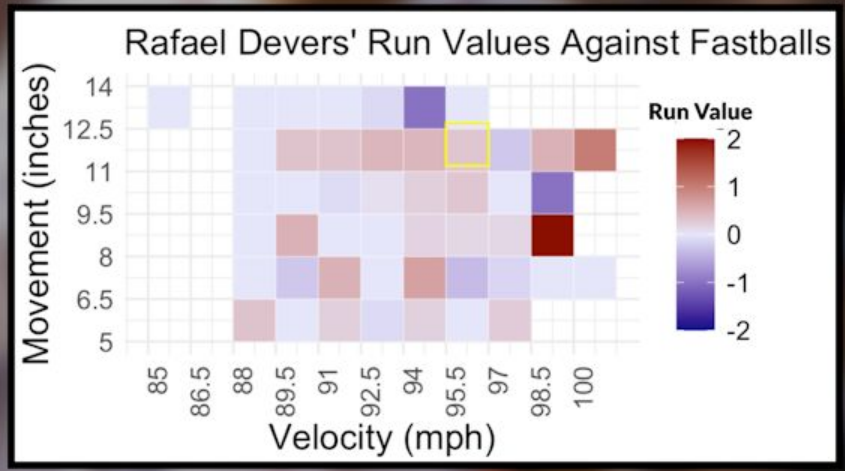
4 homers vs fastball



☐ = Cole's Bin



Devers Punishes Cole's Fastball



Devers vs. Cole's Changeup

17.1% usage

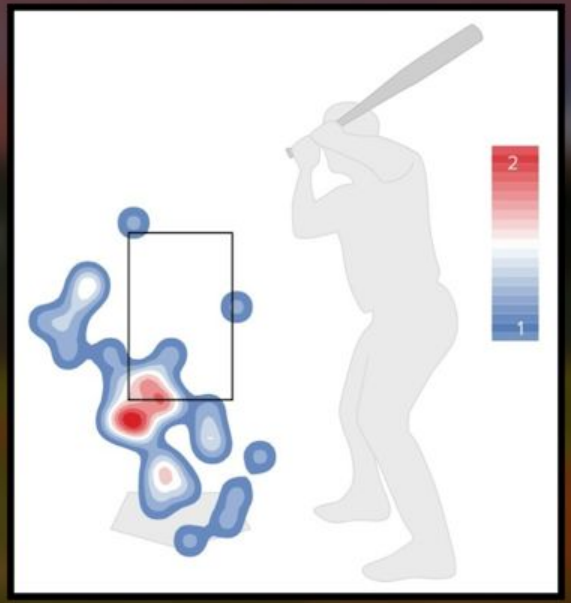
.556 AVG/.600 OBP /1.667 SLG /2.267 OPS

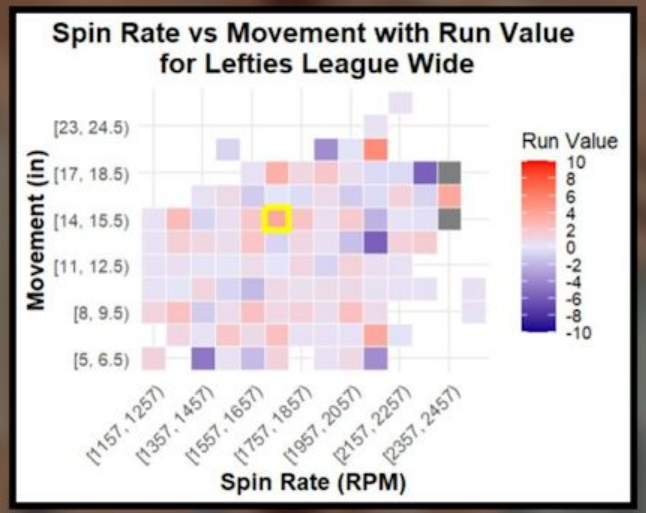
5 hits against the changeup

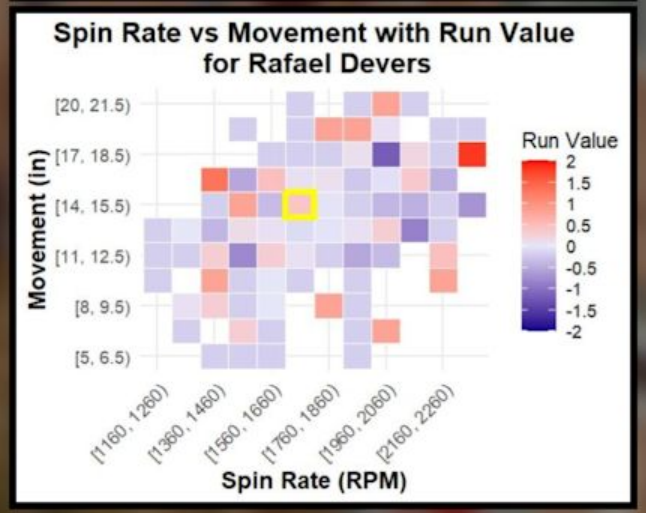
AVG Exit Velocity: 97.3mph

Hard hit percent of 66.7%

3 homers vs changeup



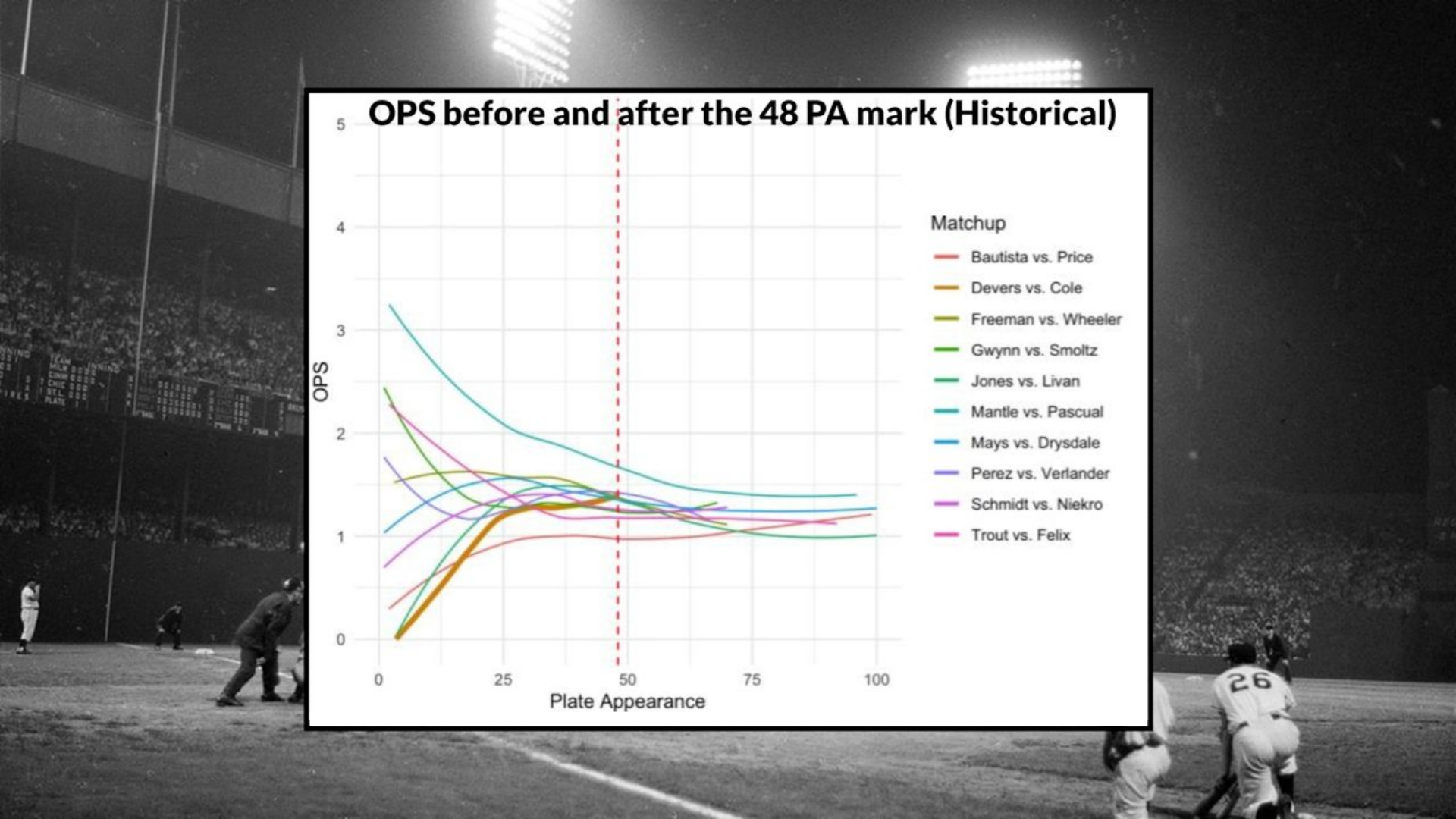




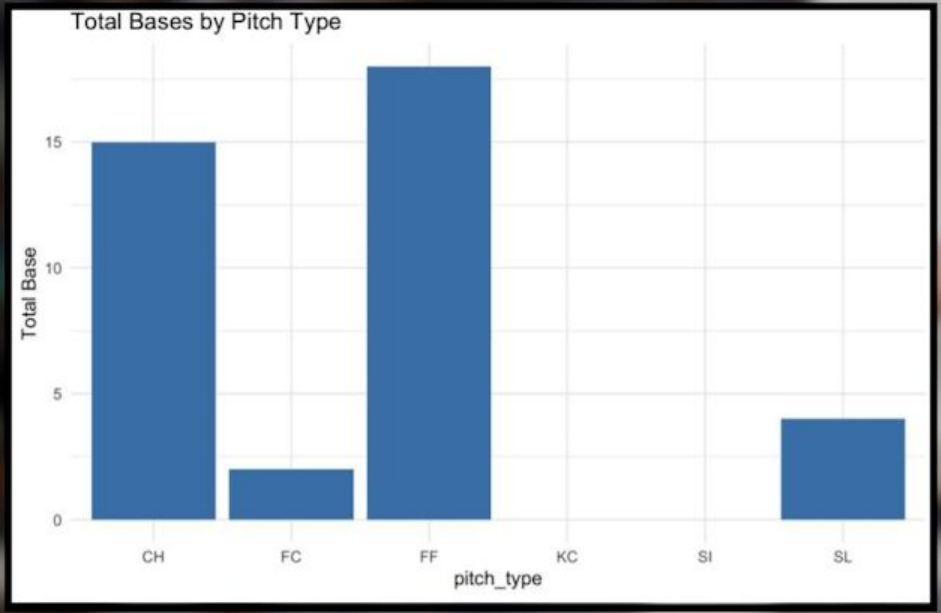
Devers vs. Cole's Changeup

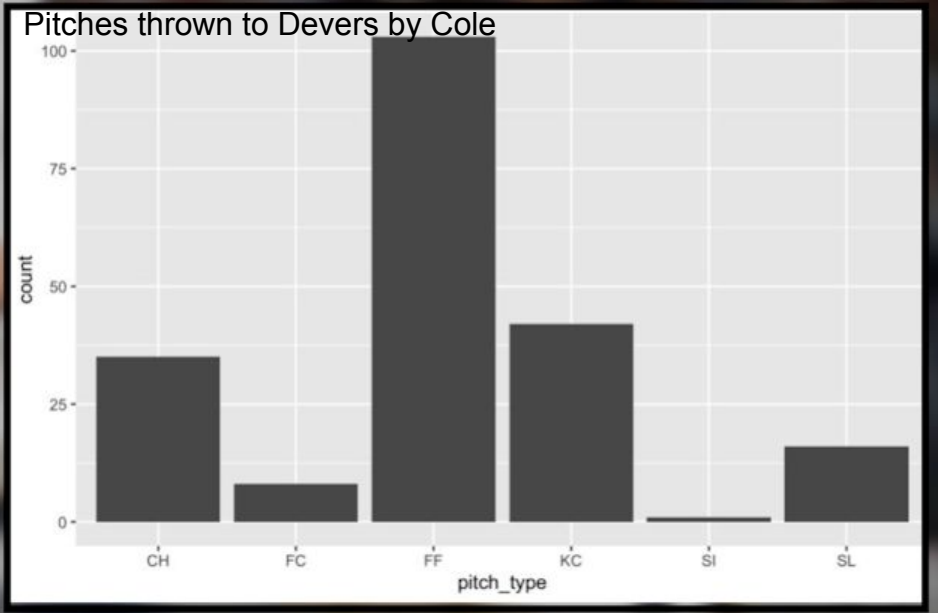
Note:

- Cole's Changeup Run Value (isolated from bin-mates): -6
- Devers Run Value against Cole's changeup (isolated from bin-mates): 6


OPS before and after the 48 PA mark (Historical)
OPS
Plate Appearance
0
1
2
3
4
5
0
25
50
75
100
Matchup
Bautista vs. Price
Devers vs. Cole
Freeman vs. Wheeler
Gwynn vs. Smoltz
Jones vs. Livan
Mantle vs. Pascual
Mays vs. Drysdale
Perez vs. Verlander
Schmidt vs. Niekro
Trout vs. Felix

What Should Cole Do?





Conclusion

Low p-value

Devers excels against Cole's fastball and changeup

Cole should look to attack Devers with his knuckle-curve

Historically, in similar examples, the hitters' OPS's have not regressed


Questions?