Introducing the New Era of Pitching Statistics

Part 1: Fixing ERA

For too long have we used ERA to determine a pitcher's success on the season. It's time to usher in its replacements.

Note: All Statistics were gathered from Baseball Savant unless otherwise stated.

By: Jarrett Karnibad | October 13, 2025

The days of using outdated statistics such as ERA and WHIP as the standard for pitcher's graphics and statistics are officially numbered. In this article, I will explain why ERA is an outdated stat that does not show the full picture of a pitcher's effectiveness and success. For those that do not know what ERA stands for or how it is measured, it is an acronym for Earned Runs Average. The way to calculate a pitcher's ERA is by dividing their Earned Runs Allowed by their Number of Innings Pitched, and then multiplying that result by 9. The reason it is multiplied by 9, is because a baseball game is 9 innings. And thus, if a pitcher were to pitch all 9 innings, their ERA is representative of how many runs they would allow on average. The main problem with ERA is that it is no longer indicative of the current landscape of baseball.

Going back 20 years to 1995, the league leaders for complete games were Greg Maddux (ATL), and Jack McDowell (NYY). They threw 10 and 8 complete games respectively. Going back 40 years to 1975, the league leaders for complete games were Andy Messersmith (LAD) and Catfish Hunter (NYY), and they threw 19 and **30** complete games respectively!

Coming back to the present, the league leaders for complete games this past season in 2025 were Nick Lodolo (CIN) in the National League, and Tanner Bibee (CLE) and Framber Valdez (HOU) tied in the American League. All three of those pitchers lead their respective leagues in complete games with 2. They each threw 2 complete games, and were the league leaders![1]

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[1] Baseball Reference: Yearly League Leaders & Records for Complete Games

That is the reason why ERA is not a good stat to measure today's pitchers: because it is so rare that a pitcher actually pitches 9 innings. That's not even mentioning the abundance of relief pitchers and closers who often come in and only pitch 1 inning. Edwin Diaz (NYM) and Aroldis Chapman (BOS) are not going to ever pitch 9 innings, so why should their "Earned Run Average" be measured on that scale.

Thus, I have created a pair of much better and more applicable statistics: ERIP and ERG. These two stats tell a far more complete and accurate story about what to expect from a pitcher. The first, ERIP, stands for Earned Runs per Innings Pitched. This statistic is calculated the same way as ERA except without multiplying by 9: simply earned runs divided by innings pitched. This stat is far more telling for relievers who often only pitch 1 inning at a time. If a pitcher has an ERA of 4.50, that does not really help viewers or fans have an idea of how many runs he will give up this inning. However, that same pitcher would have an ERIP of 0.50, which is far easier to understand. That pitcher gives up, on average, half of a run per inning, or one run every two innings.

	Relief Pitchers	ERIP
1	Aroldis Chapman	0.130
2	Edwin Díaz	0.187
3	Abner Uribe	0.188
4	Andrés Muñoz	0.193
5	Randy Rodríguez	0.197
	Minimum: 50 innings	

	Starting Pitchers	ERIP
1	Paul Skenes	0.218
2	Tarik Skubal	0.246
3	Hunter Brown	0.270
4	Yoshinobu Yamamoto	0.276
5	Cristopher Sánchez	0.285
	Qualified Starters: 162 innings	

As promised, the ERIP is a far more accurate depiction of a pitcher's success. Instead of seeing that Edwin Diaz has a 1.63 ERA, and not knowing what that actually means in the big picture, it is far easier to understand that Diaz gives up 0.187 runs per inning he pitches. The same principle applies to starting pitchers. Paul Skenes (PIT) gives up 0.218 runs per inning he pitches. One interesting note, Nathan Eovaldi (TEX) was not a qualified starter because he did not pitch 162 innings on the season, however his ERIP was 0.192 which ranked 4th among all pitchers, and 1st among Starting Pitchers.

ERG stands for Earned Runs per Game, and can be calculated by dividing earned runs by the number of games a pitcher appears in. This stat initially was calculated using the same principle as ERA: earned runs divided by innings pitched, except instead of multiplying by 9, it was multiplied by innings pitched per game. When calculating like this, the innings pitched cancel each other out, and the formula simply becomes earned runs divided by games pitched. This allows people to understand, on average, how many earned runs a pitcher will allow when they enter the game. Relievers will usually have lower ERG's than starting pitchers since they pitch less innings per game.

For example, Edwin Diaz pitches 1.038 innings per game. Paul Skenes pitches 5.865 innings per game. Therefore it is only natural that Edwin Diaz would give up far less runs per game than Paul Skenes. The same principle applies to relievers and starters of similar skill level and success. Paul Skenes, and other top-end starters, have a lower ERG than many relievers.

	Relief Pitchers	ERG
1	Aroldis Chapman	0.119
2	Abner Uribe	0.187
3	Andrés Muñoz	0.188
4	Edwin Díaz	0.194
5	Tyler Rogers	0.198
	Minimum: 50 innings	

	Starting Pitchers	ERG
1	Paul Skenes	1.281
2	Tarik Skubal	1.548
3	Freddy Peralta	1.576
4	Yoshinobu Yamamoto	1.600
5	Hunter Brown	1.613
	Qualified Starters: 162 innings	

As shown above, relief pitchers have far lower ERG's because they pitch less innings and usually give up less runs per game than starters. Four of the top five relief pitchers in ERG are closers, with Tyler Rogers, and his funky delivery, being the only non-closer in the mix. As for the starters, it is incredibly impressive that Paul Skenes and company all give up less than two earned runs per game when they are all expected to pitch at least 5-6 innings per game.

This is Part 1 of a two-part series on improving pitching statistics to both help fans understand baseball, and baseball statistics, at a deeper level, and also bring baseball statistics into the modern era of today's game. Both ERIP and ERG are different ways to view a pitcher's success, and are far more applicable to the modern pitching landscape than ERA. In the next article, I will detail the problems with WHIP, and introduce its replacements.