BMP 2025

BASE MOVEMENT PERCENTAGE

BMP or Base Movement Percentage is a revolutionary new method of calculating the productivity of a baseball player. The BMP rating of a batter or a pitcher is a simple and clear measurement of a player's productivity. The batter's fundamental job is to move the runners and the pitcher's job is to keep runners from advancing. BMP captures this fundamental principle into a single statistic that can be used to evaluate a baseball player's performance as measured by total base movement.

Currently, the baseball world is loaded with several forms of statistics that need to be sorted through to understand the actual effectiveness of a batter or a pitcher. Statistics for batters include batting average, slugging percentage, on-base percentage, batting average with runners in scoring position, runs batted in, and OPS. Each of these statistics focus on a certain aspect of a player's effectiveness.

Batting average is the traditional method of rating a hitter's performance. It is a good indicator of a batter's ability to get a hit. Batting average is essentially a hits vs. outs ratio equal to hits divided by at-bats. Since there was some debate over what counts as an at-bat, the early baseball statisticians decided that the fairest thing to do was to subtract sacrifices, walks, and hit-by-pitch from the total plate appearances and create what is forevermore known as "at-bats". We all need to remind ourselves that at-bats is not really the number of times a hitter was at the plate and that plate appearances is the true number of "at bats".

With batting average originally established as the dominant batting statistic, baseball enthusiasts needed more statistics to deal with other batting skills. Why shouldn't a batter get more credit for an extra base hit? What about getting credit for walks? Credit for extra base hits was easy to solve with the advent of slugging percentage. Simply divide total bases by at-bats. On-base percentage gave batters credit for walks in addition to hits. As time went by, more statistics continued to be created to rate a batter's production under certain conditions. One of these statistics is the batting average with runners in scoring position. The number of hits divided by at-bats only when runners are on second or third base is thought to be a measure of a hitter's effectiveness in critical situations. The multiplicity of statistics does add to the fun of the game. Players can compete for "crowns" in several categories and the race for these crowns does add interest.

With today's computers and databases, almost any statistic can be calculated. The introduction of Sabermetrics created many specific statistics that were developed to help teams make decisions on which players to acquire. These statistics are highly useful to MLB teams but are not typically relevant to the average fan.

Although the multiple statistics are valid and useful, there is still a desire to have one single statistic that measures the overall productivity of a baseball player. However, comparison between players remains difficult. An observer must take into account all statistics to come up with an accurate gauge of a player's performance. There is much disagreement over which capabilities are more important.

Some time ago baseball added a batting statistic called OPS. This is simply equal to slugging percentage (SLG) plus on-base percentage (OBP). This was a simple attempt to create an overall performance rating by combining slugging percentage and on-base percentage. OPS stands for On-base Plus Slugging. OPS is relatable to the average baseball fan and has been fully adopted by Major League Baseball. Television broadcasts often show OPS along with other statistics when a batter comes to the plate.

The formula for OPS is:

$$\boxed{OPS = SLG + OBP}$$

Specifically:

$$\boxed{OPS = \frac{Total\ Bases}{AB} + \frac{Hits + Walks + HBP}{AB + Walks + HBP + SF}}$$

This allows relative comparisons between hitters but there are issues with how OPS is calculated. It is simply the crude addition of two fractions with different denominators. First of all, everyone knows you are not supposed to add mixed fractions. OPS assigns equal value to slugging percentage and on-base-percentage in an attempt to give equal weighting to sluggers and high average hitters. However, there is clearly overlap between slugging percentage and on-base percentage because hits are essentially counted in both numerators. Baseball fans can relate to OPS as a measure of productivity, but highly informed fans know that OPS is a rather sloppily derived statistic. Furthermore, OPS fails to account for steals, sacrifices, and hitting with runners on base. The creation of OPS demonstrates the desire for a single batting statistic but OPS itself falls short of the mark.

Recently we have seen the rise of the WAR (Wins above Replacement) statistic. This further demonstrates the desire of the baseball community for a single statistic. WAR is a simple statistic on the surface but it is an incredibly complex calculation developed by statisticians. The premise of WAR is to determine how many wins a player is worth when compared to a typical replacement player. WAR focuses on how many runs a player generates and translates that into the number of additional wins a player is worth. It can be applied to hitters and pitchers although the formula is different for each of these. WAR accounts for all aspects of the game including batting, running, and defense. It also adjusts for position, ballpark, and league. With WAR, players can be reasonably compared and the player with the highest wins above replacement could be considered better or more valuable. WAR is the product of massive statistical analysis and has much merit. It is quite useful for teams to evaluate players.

The main problem with WAR is that it is not intuitive to the average baseball fan and struggles to gain acceptance because it is far too complex and requires fans to accept that the statisticians have calculated it accurately. This is probably why WAR is not displayed on television broadcasts when a batter steps up to the plate. Furthermore, although WAR is based on detailed statistical analysis, the data going into the calculations is weighted. Different weightings are assigned to player positions and ball parks in an effort to level the playing field. Therefore, some players appear to be penalized for hitting in a hitter-friendly ball park or playing a position that has a lot of power hitters. Although WAR is a very good tool, it is not relatable to the average fan. Even baseball experts don’t agree that WAR is the single statistic to identify the best player. Players with the highest WAR can certainly make a good case but are not necessarily selected as the league MVP.

Pitching statistics are even more misleading than hitting statistics. Most of us have questioned the win-loss percentage. Everyone knows that a poor pitcher can have a great win-loss percentage if his team scores a lot of runs. A pitcher has absolutely no control of his team's hitting and the win-loss percentage is a poor indicator of pitcher effectiveness. In general, good pitchers will have a good win-loss percentage and poor pitchers will have a low win-loss percentage, but it is clearly the weakest indicator of a pitcher's skill.

Another statistic is opponent’s batting average against a pitcher. This is a reasonable statistic, yet it does not cover walks, sacrifices, and extra base hits. WHIP is a telling statistic that calculates hits and walks per inning pitched but does not account for extra base hits. On-base-percentage and OPS against a pitcher can be calculated as well but these have the same issues as a batter’s version. Earned Run Average (ERA) is one of the most telling statistics of how well a pitcher is limiting runs (which is the bottom line) but it also becomes misleading when applied to relief pitchers. Their Earned Run Averages appear to be low because the runs they allow to score are often charged to the previous pitcher. Baseball fans would like a single statistic that can summarize and allow comparisons to any pitcher's performance.

BASIC CONCEPT OF BMP

Base Movement Percentage (BMP) is the answer baseball fans have been looking for.
BMP is based on the principle that the batter's basic job is to move the runners around the bases.

One "Base Moved" is awarded for every player that advances one base.

BMP is simply the number of Total Bases Moved (TBM) divided by Plate Appearances (PA).

Basically, for a qualified plate appearance event, the batter will be credited with Bases Moved for himself plus any bases moved by runners already on base as well as any additional bases moved by the batter as a runner on subsequent plays.

BMP essentially captures total offensive production measured by base movement.

The basic formula for BMP is as follows:

$$\boxed{BMP = \frac{TBM}{PA}}$$

Where: TBM = Total Bases Moved PA = Plate Appearances

1 Base Moved is credited to the batter every time the batter causes one runner (including self) to advance one base. If the batter reaches base, he may add or subtract to his Bases Moved as a runner when there is no ball in play.

Negative Bases Moved are applied as a penalty in cases where the batter/runner causes runners previously on base to be eliminated.

Batters will only be credited Bases Moved for plate events that are caused by the batter. In general, the pitcher will essentially be assigned the same bases moved as the batter with a few exceptions that are the exclusive responsibility of the pitcher.

Total Bases Moved (TBM) consists of three categories:

$$\boxed{TBM = BBM + BRBM + RBM}$$

BBM	Batter Bases Moved	Number of bases moved by the batter himself
BRBM	Base Runner Bases Moved	Number of bases moved by runners already on base
RBM	Runner Bases Moved	Number of bases moved by the batter as a runner once on base

For further analysis, BMP can be broken down into its three components:

$$\boxed{BMP = BBMc + BRBMc + RBMc}$$

BBMc	BBM component
BRBMc	BRBM component
RBMc	RBM component

$$\boxed{BBMc = \frac{BBM}{PA}} \qquad \boxed{BRBMc = \frac{BRBM}{PA}} \qquad \boxed{BBMc = \frac{RBM}{PA}}$$

<u>BMP RULES</u>

<u>BASE HIT</u>

The batter is awarded one base moved for every base reached (BBM).

Single = 1 base moved
Double = 2 bases moved
Triple = 3 bases moved
Home Run = 4 bases moved

When runners are on base, the batter receives an additional base moved for every base moved by every runner on base (BRBM).

Some examples:

- If a runner advances from 1st to 2nd on the batter's single, the batter receives 1 base moved for the single and 1 base moved because the runner advanced 1 base for a total of 2 bases moved.
- If a batter advances from 1st to 3rd on a batter's single, then 3 bases moved are credited to the batter; one for the single and 2 for moving the runner 2 bases.
- A double with the bases loaded that scores all runners results in 2 bases moved for the hit, 1 for the runner scoring from 3rd, 2 for the runner scoring from 2nd, and 3 for the runner scoring from 1st for a total of 8 bases moved.
- The rule applies to home runs as well even though the runners would score no matter which base they were on. A home run with a runner on 1st nets 7 bases moved while a home run with a runner on 3rd nets only 5 bases moved. A Grand Slam Home run results in a total of 10 bases moved.

The batter inherently gets a higher BMP whenever hitting with runners on base or getting an extra base hit.

<u>WALK</u>

The batter is awarded one base moved for a walk, even if intentional.

Walk = 1 base moved

The batter is additionally awarded 1 base moved for every runner that is on base at the time of the walk.

<u>OUT</u>

There will be NO bases moved awarded to the batter for any OUT that does NOT move runners.

Out = 0 bases moved

OUT BY DOUBLE OR TRIPLE PLAY

The batter is penalized for hitting into a double play or a triple play. Basically, the batter is penalized for erasing the bases moved equivalent to the position of the runners that are forced out.

Hit into double play with man on 1st out = -1 base moved
Hit into double play with man on 2nd out = -2 bases moved
Hit into double play with man on 3rd out = -3 bases moved
Hit into triple play with men 1st/2nd out = -3 bases moved
Hit into triple play with men 1st/3rd out = -4 bases moved
Hit into triple play with men 2nd /3rd out = -5 bases moved

In situations where two players are out by double play, any other runner on base that advances will still credit the batter with bases moved

- A runner advancing from 2nd to 3rd during a 6-4-3 double play credits the batter with 1 base moved while the runner out at second penalizes the batter with -1 bases moved.

OUT BY SACRIFICE

The batter is awarded one base moved for each runner that is advanced by a sacrifice.
It does NOT matter where the sacrifice is technically as "Sacrifice Hit" or a "Sacrifice Fly"
The sacrifice must be an "officially scored" sacrifice to be awarded with bases moved

Sacrifice examples (officially scored as a sacrifice):

- A sacrifice fly that scores a runner from 3rd will credit the batter with 1 base moved.
- A sacrifice fly that scores a runner from 3rd and moves a runner from 2nd to 3rd will credit the batter with 2 bases moved
- A sacrifice bunt that moves runners from 1st to 2nd and from 2nd to 3rd will credit the batter with 2 bases moved.

Non-sacrifice example (not officially scored as a sacrifice):

- Fly ball out that advances a runner from 2nd to 3rd does not receive bases moved (this will not be officially scored as a sacrifice)

OUT BY FIELDER'S CHOICE

There are NO bases moved awarded for plays that are officially scored as a fielder's choice.

With a fielder's choice, the batter reaches base and the assumption is that the batter would be thrown out if the fielder had not decided to force out another base runner.
Even if there is a net gain in bases, the batter receives no credit as this is the defense's choice.

Fielder's Choice example:

- The batter hits a ground ball and the runner at first is forced out at 2nd base. The batter reaches 1st but does not receive bases moved

ERROR

There are no bases moved awarded for a batter who reaches base on a fielding error.
There are no bases moved awarded for runners who advance an additional base on a throwing error.

Error by defense	=	0 bases moved
Passed ball	=	0 bases moved

HIT BY PITCH

The batter receives NO credit when hit by a pitch. The batter did not earn this base.
The pitcher, however, is assigned the bases moved. This is treated as the responsibility of the pitcher.

Hit by Pitch	=	0 base moved (Batter)
	=	1 base moved (Pitcher)

The pitcher is additionally awarded 1 base moved for every runner that is on base at the time of the HPB.

BASE RUNNING WITH HITS

If the batter gets a base hit and is thrown out trying to extend the hit, he will be credited with the bases moved for the hit but will also be penalized for losing that base. The net result will be zero bases moved.

It the batter gets a base hit, any net gain in bases is always credited to the batter whether it is positive or negative. Runners get NO credit for any good or bad base running since the runners cannot clearly be assigned credit for the base running. For example, if a runner at 1st base is thrown out at third on a single by the batter, there is no penalty for the runner. In this case, the batter ends up with a single and one base moved but loses 1 bases moved for the runner at first being thrown out.

BASERUNNING WITH NO BALL IN PLAY (Steals/Pickoffs)

In cases where there is NO ball in play, the runner can add to or subtract from his bases moved (RBM). This base moved is awarded to the runner as part of his current plate appearance. The current batter is irrelevant. The batter/runner is credited with one base moved for every successful base stolen. If the runner is caught stealing or picked off then a penalty is assigned to erase his previous base position.

Stolen Base	=	1 base moved
Caught stealing 2nd	=	-1 base moved
Caught stealing 3rd	=	-2 bases moved
Caught stealing home	=	-3 bases moved
Picked off	=	Same as caught stealing

If a batter is thrown out trying to extend a hit, it will be officially scored as a hit plus caught stealing.

PITCHER'S RESPONSIBILITY (BALK, WILD PITCH, ERRANT PICKOFF ATTEMPT)

The batter/runner receives NO credit when runners advance on balks or wild pitches. The pitcher is charged bases moved for runners that advance in these situations.

Balk	=	0 bases moved (Batter)
Balk	=	1 base moved for each runner that advances (Pitcher)
Wild Pitch	=	0 bases moved (Batter)
Wild Pitch	=	1 base moved for each runner that advances (Pitcher)

INTERFERENCE

There are no bases moved awarded for a batter who reaches base on offensive or defensive interference.

Offensive Interference=	0 bases moved	(Treat this like an out)
Defensive Interference=	0 bases moved	(Treat this like an error)

PITCHER'S BMP

The pitcher is assigned the same number of bases moved as the batter faced except in case of pitcher mistakes (HBP, Wild Pitch, Balk, and pickoff error)

If a pitcher does not complete pitching to a batter for any reason, then that pitcher is not charged with any bases moved or plate appearances.

BMP will finally allow starting and relief pitchers to be compared more fairly. Relievers often have a lower ERA than starters because some of the runs they allow to score are charged to the starting pitcher who put the runners on base. The problem is that it is the reliever's job to stop runners who are on base from scoring! Giving up a single with the bases loaded often allows two runs to score. These runs are charged to the starting pitcher and the reliever is only charged with a single. This is unfairly unfavorable to relievers. BMP will penalize the relievers for allowing runners to move and their mistakes will no longer be covered up. With BMP starters and relievers can be directly compared!

SUMMARY OF BMP ASSIGNMENTS

		Bases Moved Assigned		
Event	**PA**	**Batter**	**Runner**	**Pitcher**
Single	1	x	0	x
Double	1	x	0	x
Triple	1	x	0	x
Home Run	1	x	0	x
Walk	1	x	0	x
Simple out	1	0	0	0
Sacrifice fly or hit	1	x	0	x
Fielder's Choice	1	0	0	0
Error	1	0	0	0
Double Play	1	x	0	x
Triple Play	1	x	0	x
Stolen Base	0	0	x	x
Caught Stealing	0	0	x	x
Pickoff	0	0	x	x
Hit by Pitch	1	0	0	x
Wild Pitch	0	0	0	x
Balk	0	0	0	x
Error pickoff attempt	0	0	0	x
Passed Ball	0	0	0	0

0 = Zero bases moved assigned
1 = One base moved assigned
x = Variable number of bases moved assigned

BMP FOR SELECTED BATTERS

BMP calculations cannot be made from standard MLB statistics. It requires play-by-play data to calculate. One needs to know what runners are on base when a batter comes to the plate and where these runners end up. BMP calculations for this analysis have been made using play-by-play data from Retrosheet.org which is publicly available. Many thanks to the Retrosheet people for diligently maintaining this database!

Now let's look at some well-known batters and evaluate their productivity using BMP. Fans would like to understand the differences in production between sluggers, high average hitters, all-around hitters, as well as prolific base stealers.

We will be looking at seasonal BMP for high profile MLB players in one of their best years. In this analysis, there is no attempt to determine who had the best BMP or who is the best hitter. The goal here is to compare and contrast the various factors that determine BMP. The batters selected for this analysis were selected from the following groups:

- Steroid Era Sluggers (1990s and 2000s)
- Legendary Sluggers (1920s and 1930s)
- Classic Sluggers (1960s and 1970s)
- Modern Era Sluggers (2020+)
- Base Stealers
- High Average Hitters

STEROID ERA SLUGGERS

The big 3 steroid era sluggers are Barry Bonds, Mark McGwire, and Sammy Sosa. McGwire and Sosa battled for the home run record in 1998 and were both eclipsed by Barry Bonds with a record setting year in 2001. Barry Bonds sits at the top of this list with huge performances in 2001, 2002, and 2004. As expected, Bonds has the highest BMP of this group with 1.267 BMP in 2001. This means he accounted for 1.267 bases moved every time he stepped up to the plate. It's that simple.

Steroid Era Sluggers																	
Player Information					MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Batter Name	Year	Avg	HR	RBI	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Barry Bonds	2001	0.328	73	137	0.863	0.515	1.379	11.9	1.267	664	841	69.9%	29.3%	0.8%	0.886	0.370	0.011
Barry Bonds	2004	0.362	45	101	0.812	0.609	1.422	10.6	1.263	617	779	68.7%	30.9%	0.4%	0.867	0.391	0.005
Barry Bonds	2002	0.370	46	110	0.799	0.582	1.381	11.8	1.224	612	749	69.4%	29.8%	0.8%	0.850	0.364	0.010
Mark McGwire	1998	0.299	70	147	0.752	0.470	1.222	7.5	1.125	681	766	71.1%	28.7%	0.1%	0.800	0.323	0.001
Sammy Sosa	1998	0.308	66	158	0.647	0.377	1.024	6.5	1.050	722	758	64.5%	34.7%	0.8%	0.677	0.364	0.008

His 1.267 BMP breaks down into the following components: BBMc = .886 BRBM = .370 RBM=.011
Looking at the BMP distribution, we can see that 69.9% of his bases moved came from bases moved as a batter (BBM), 29.3% from base runner's base movement (BRBM), and only 0.8% from his own baserunning (RBM).

It will become apparent from this analysis that BMP distribution as well as the magnitude of the BMP components are both factors in understanding the BMP rating. We will learn that ~70% BBM distribution is very high. This means that Bonds essentially got the lion's share of his BMP from his own bases moved and not so much from moving runners already on base. Basically, Bond's got a ton of solo home runs, hits, and walks without moving a lot runners on base. The BMP distribution and components will be significant as we evaluate and compare other batters in the coming sections. We will find that the BRBMc is the key component of BMP which is not effectively covered by SLG, OBP, and OPS statistics.

Barry Bond's BMP for 2001 is his best and is slightly higher than his 2004 BMP (1.267 vs 1.263). He had a slightly higher BBMc component in 2001(.886 vs .867) and a slightly higher BRBM component in 2004 (.391 vs .370) which basically offset each other. Although RBM components were both low, it was the higher RBM in 2001 (.011 vs .005) that resulted in a higher BMP in 2001. There was no significant difference in BMP distribution for Barry Bonds over the three years analyzed above.

Here we can begin to understand the differences between BMP, OPS, and WAR. Bonds had his highest OPS in 2004 at 1.422 which is recognized as the highest OPS in MLB history. This is largely driven by the incredibly high OBP (.609) in 2004. Basically, with OPS being a 50/50 split between SLG and OBP, we can see that his incredible number of walks in 2004 outweighed the incredible number of home runs in 2001. BMP and OPS do not agree on the best year. Digging in further, one realizes that OPS is closely aligned with the BBMc component of BMP and does not address the movement of runners on base (BRBMc) or the batter's baserunning production (RBMc). For this reason, BMP is a more complete valuation of a batter's production than OPS. Note that WAR is aligned with BMP also rating 2001 as Bond's best year but the average baseball fan has no idea how this number was derived.

Mark McGwire and Sammy Sosa also achieved a BMP better than 1.000 which is excellent. McGwire wins the contest in 1998 for BMP, OPS, and WAR. Although they both had similar averages, home runs, and RBIs, McGwire simply moved more bases due to a higher number of extra base hits as well as walks. Note that Sosa had a higher percentage of BRBM (34.7%) than McGwire meaning that he was effective with runners on base. Although Sosa had a higher BRBMc (.364 vs .323), the sheer magnitude of the BBMc for McGwire (.800 vs .677) was much larger resulting in a higher overall BMP.

Using BMP, we can conclude that Barry Bond's had the most productive year of this group with a BMP of 1.267 in 2001. This simply means that he was responsible for 1.264 bases moved for each plate appearance. There are no arbitrary or statistical weightings with BMP. His WAR in 2001 was also the highest at 11.9 meaning he was worth 11.9 wins above a replacement player. His highest OPS was 1.422 in 2004 but that number by itself doesn't define the production and is only useful in comparing to other batters.

LEGENDARY SLUGGERS

The legendary sluggers of the 1920s and 1930s had some impressive BMPs. This selected group features Babe Ruth, Lou Gehrig, Hack Wilson, and Jimmie Foxx. All of these legends hit for high average with high numbers of homeruns and RBIs. Ruth set home run records in 1920, 1921, and finally in 1927 with 60. Lou Gehrig and Hack Wilson were RBI machines with Wilson setting the record of 191 in 1930.

Legendary Sluggers																	
Player Information					MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Batter Name	Year	Avg	HR	RBI	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Babe Ruth	1921	0.378	59	168	0.846	0.512	1.359	12.8	1.367	693	947	63.5%	37.6%	-1.1%	0.867	0.514	-0.014
Lou Gehrig	1927	0.373	47	173	0.765	0.474	1.240	11.9	1.285	717	921	60.4%	40.4%	-0.8%	0.775	0.519	-0.010
Babe Ruth	1927	0.356	60	165	0.772	0.486	1.258	12.6	1.276	691	882	62.8%	37.4%	-0.2%	0.802	0.478	-0.003
Hack Wilson	1930	0.356	56	191	0.723	0.454	1.177	7.4	1.228	709	871	60.5%	40.2%	-0.7%	0.743	0.494	-0.008
Babe Ruth	1920	0.376	54	135	0.847	0.532	1.379	11.9	1.222	617	754	71.4%	31.7%	-3.1%	0.872	0.387	-0.037
Jimmie Foxx	1932	0.364	58	169	0.749	0.469	1.218	10.4	1.202	702	844	65.8%	35.4%	-1.2%	0.791	0.426	-0.014

Babe Ruth, as always, leads this discussion with 3 stellar seasons to evaluate. Ruth's BMP of 1.367 in 1921 is tops in this group. The sheer magnitude of high average, many home runs, many extra base hits, significant RBIs, and a large number of walks leads to an incredible BMP. Note that Ruth got over 37% of his TBM from base runner bases moved (BRBM) which indicates that his power hitting was often done with men on base. This would be expected based on the high number of RBIs that year. It is also worth noting that Ruth and the other legendary sluggers had negative RBM meaning they were not effective base runners and this actually lowered their BMP.

Now for a comparison of Ruth's top 3 years. On the surface, 1921 and 1927 have similar stats and similar BMP distribution but 1921 had a BMP 91 points higher than 1927. In this case, the 1921 season had higher BBMc (.867 vs .802) and higher BRBM (.514 vs .478) so Ruth was hitting on all cylinders in 1921.

The 1920 season had the third best BMP for Ruth with a BMP of 1.222. Although his 1920 SLG and OBP were both higher than 1921, his BMP was 145 points less. The simple reason was that Ruth's 1920 overall production was less because he produced less with runners on base than the other two years. His BRBM distribution was only 31% and the BRBMc was only .387. This is a clear example of how hitting with runners on base makes a significant difference.

Because Ruth had his highest SLG and OBP in 1920, this generated his highest OPS at 1.379. Here we can see clear differentiation between OPS and BMP. Out of the 3 sample seasons, OPS gives Ruth the best numbers in 1920 while BMP gives Ruth the worst numbers in 1920. This boils down to the fact that BMP accounts for BBMc, BRBMc, and RBMc while OPS only accounts for BBMc. In fact, OPS doesn't even derive its number cleanly since it counts hits twice in its calculation. So, in effect, OPS is an over emphasized BBMc. Therefore, BMP is a better representation of offensive production than OPS.

Comparing Ruth's top performance to Bond's top performance, we see that Ruth's 1921 season beats Bond's 2001 season by 100 points. Although Bond's has the highest BBMc with an amazing .886 (vs Ruth's .867), Ruth has a massively higher and BRBMc (.514 vs .370). Again, confirming the significance of moving runners on base.

The next 3 legendary batters; Gehrig, Wilson, and Foxx all rivaled Ruth for BMP but fell a bit short. In 1932 Jimmie Foxx had comparable home runs and RBIs to Ruth in 1921 and almost identical BMP distribution but the magnitude of his BBMc and BRBMc were lower. This is due to significantly less doubles and walks resulting a much lower (but impressive) BMP of 1.202.

Hack Wilson had an awesome year in 1930 with 56 home runs as he set the record for RBIs in a season with 191. Clearly, he produced with runners on base and sure enough his BRBM distribution was actually above 40%. However, the magnitude of his BBMc and BRBMc were simply lower and the high BRBM distribution was not enough to overcome Ruth with a BMP of 1.228.

Ironically, it was Lou Gehrig, Ruth's teammate, who came the closest with his performance in 1927. His BMP came in at 1.285. He even beat Ruth's 1927 BMP of 1.276. He essentially matched Ruth's 1921 batting average and RBI numbers while having less home runs and walks. Although his SLG and OBP were quite a bit lower than Ruth, his significant quantity of doubles along with his 40% BRBM distribution indicates that his power hitting was done with runners on base rewarding him with the 2nd highest BMP measured so far. It is also worth noting that his BRBMc of .519 is the highest in this analysis.

CLASSIC SLUGGERS

Some record-breaking slugging brought attention to home runs in the 1960s and 1970s. It started with the classic battle in 1961 between Mickey Mantle and Roger Maris as Maris broke Babe Ruth's single season home run record. During this period, we also saw the amazing Hank Aaron break Ruth's career home record in 1974.

Classic Sluggers																	
Player Information					MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Batter Name	Year	Avg	HR	RBI	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Mickey Mantle	1961	0.317	54	128	0.687	0.448	1.135	10.4	1.127	646	728	65.8%	33.1%	1.1%	0.741	0.373	0.012
Hank Aaron	1971	0.327	47	118	0.669	0.410	1.079	7.2	1.051	573	602	66.8%	33.2%	0.0%	0.702	0.349	0.000
Roger Maris	1961	0.269	61	141	0.620	0.372	0.993	6.9	0.974	698	680	67.6%	32.4%	0.0%	0.659	0.315	0.000

Let's start with the Maris-Mantle competition in 1961. These teammates battled for the home record and Maris pulled away setting a new single season home record of 61. Despite the home runs, Maris was only able to rack up a BMP of .974, surprisingly short of the magic 1.000 number. This is nowhere near the BMP of the sluggers reviewed so far. Basically, this was driven by a low batting average of .269 combined with minimal walks resulting in non-stellar OBP. It is clear that Maris was a one-dimensional batter who hit a lot of home runs and didn't generate much production with men on base.

Mickey Mantle, despite hitting less home runs, was clearly more productive than Maris with a BMP of 1.127, primarily driven by a better batting average, SLG, and OBP. Although they had similar distribution between BBM and BRBM, the magnitude of both these BMP components was higher for Mantle. Mantle's BMP of 1.127 had a BBMc component of .741 and a BRPMc component of .373. For Maris the BMP components were .659 and .315 respectively. So, in this case Mantle beat Maris with and without runners on base.

Hank Aaron had a long successful career and held the career home run record. He had one of his best years in 1971 with a BMP of 1.051 without stellar numbers for average, home runs, or RBIs. However, his overall productivity got him a BMP above 1.000. This is a good example of all-around play with power adding up.

MODERN ERA SLUGGERS

The home run races have recently heated up again culminating in Aaron Judge finally breaking Roger Maris' American League home run record with 62 homers in 2022. Despite the home run record, Judge barely managed to break the 1.000 barrier with a BMP of 1.045. For comparison, he did beat out Maris for overall production (BMP of 1.045 vs .974). Judge had a very high BBM distribution of 69% indicating that most of his slugging occurred without men on base. However, the sheer magnitude of his BBMc and BRBMc were higher than Maris.

Modern Era Sluggers																	
Player Information					MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Batter Name	Year	Avg	HR	RBI	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Aaron Judge	2024	0.322	58	144	0.701	0.458	1.159	10.8	1.161	704	817	64.3%	34.5%	1.2%	0.746	0.401	0.014
Shohei Ohtani	2024	0.310	54	130	0.646	0.390	1.036	9.2	1.057	731	773	63.6%	29.9%	6.5%	0.673	0.316	0.068
Aaron Judge	2022	0.311	62	131	0.686	0.425	1.111	10.5	1.045	696	727	69.1%	29.3%	1.7%	0.721	0.306	0.017

The 2024 season featured the contest between Aaron Judge and Shohei Ohtani. Judge improved his 2024 production from 2022 with a BMP of 1.161. Even with less home runs, his production increased due to a shift towards greater BRBM distribution (from 29% to 34%) which we have learned is often the key to better BMP. Ohtani had a magical season in 2024 as the first person to hit 50 home runs and steal 50 bases. One would think this might generate a very high BMP. Ohtani had a lower batting average, less home runs, and less RBIs than Judge and this translates into lower BBMc (.673 vs .746) and a lower BRBMc (.316 vs .401). The question is could Ohtani's bases stealing make up the difference? Ohtani's RBM distribution was 6.5% resulting in an RBMc component of .068 but this was not enough to make up the difference and Judge won the BMP battle handily 1.161 to 1.057.

BASE STEALERS

While we are on the topic of base stealing, let's take a quick look at the greatest base stealer of all time, Rickey Henderson. In 1982 Henderson stole an incredible number of bases and set the MLB record with 130 steals. Could a massive number of stolen bases lead to a high BMP? The answer turns out to be no. Although Henderson's RBM distribution was at 10.4%, his low BBMc and abysmal BRBMc could not be overcome resulting in a BMP of only .750. As we saw with Ohtani, a high RBM definitely adds to overall production but really can't outweigh BBMc and BRBMc. This is because RBM generally adds one bases moved at a time where BBM and BRBM can rack up multiple bases moved with every plate appearance.

Base Stealers																	
Player Information					MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Batter Name	Year	Avg	HR	RBI	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Rickey Henderson	1982	0.267	10	51	0.382	0.398	0.780	6.7	0.750	656	492	65.2%	24.4%	10.4%	0.489	0.183	0.078

HIGH AVERAGE HITTERS

Finally, we will look at some high average hitters and see if these high averages can generate significant BMP. Three of the best hitters of all time are Ted Williams, Joe DiMaggio, and Rogers Hornsby. Hornsby and Williams hit over .400 with DiMaggio in the .380s. In addition to high averages, these three players had some decent power and drove in a lot of runs with Hornsby and Williams being triple crown winners.

High Average Hitters																	
Player Information					MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Batter Name	Year	Avg	HR	RBI	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Ted Wiliams	1941	0.406	37	120	0.735	0.553	1.287	10.4	1.200	606	727	66.3%	34.4%	-0.7%	0.795	0.413	-0.008
Joe Dimaggio	1939	0.381	30	126	0.671	0.448	1.119	8.3	1.179	524	618	58.6%	41.4%	0.0%	0.691	0.489	0.000
Rogers Hornsby	1924	0.424	25	94	0.696	0.507	1.203	12.1	1.067	642	685	67.7%	34.7%	-2.5%	0.723	0.371	-0.026

Ted Williams tops this group with a BMP of 1.200 driven by a near .800 BBMc due to a higher SLG and OBP. DiMaggio comes in second on the strength of a high BRBMc distribution of 41.4% and a BRBMc of .489. Hornsby, although having the highest battering average and a solid BBMc, had a significantly lower BRBMc indicating a lot of good hitting without men on base.

They all cleared the 1.000 barrier for BMP so high average hitters can challenge the sluggers. However, we haven't seen a .400 hitter since Ted Williams in 1941 and the likelihood of high average hitters achieving 1.000 BMP in the future is low.

BMP SUMMARY - BATTERS

After reviewing various types of batters from different eras we found that power hitters lead the way with the best BMPs. The sheer magnitude of bases moved from home runs, extra base hits, and walks jack up the BMP. If this is done with men on base, then the bases moved and BMP rise dramatically.

BMP FOR SELECTED PITCHERS

Now let's turn our attention to some top pitchers and evaluate their performance using BMP. Unlike batters, we will be looking for the lowest BMP to understand a pitcher's effectiveness. It makes sense that a pitcher's performance is based on the ability to limit the batter's productivity. As with batters, we want to see how different types of pitchers compare. The pitchers for this analysis were selected from the following groups:

- Classic Finesse Pitchers
- Modern Finesse Pitchers
- Power Pitchers
- Old Time Pitchers
- Relief Pitchers

The pitchers selected are considered to be some of the best in baseball. Other great pitching performances do exist but are not analyzed here. As with the batters, this analysis makes no determination of who is the best pitcher.

CLASSIC FINESSE PITCHERS

The 1960s and 1970s featured some amazing pitchers with excellent control. These Cy Young Award winning pitchers all had ERAs below 2.00 and held batters to batting averages around .200 in the years selected for this analysis. These pitchers were also work horses each facing over 1000 batters in a season.

Classic Finesse Pitchers																
Player Information				MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Pitcher Name	Year	ERA	Avg	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Bob Gibson	1968	1.12	0.184	0.236	0.233	0.469	11.2	0.405	1161	470	68.7%	31.9%	-0.6%	0.278	0.129	-0.003
Sandy Koufax	1963	1.88	0.189	0.271	0.230	0.501	10.7	0.443	1116	494	69.0%	29.4%	1.6%	0.306	0.130	0.007
Steve Carlton	1972	1.97	0.207	0.291	0.257	0.548	12.1	0.467	1351	631	71.3%	29.0%	-0.3%	0.333	0.135	-0.001
Tom Seaver	1971	1.76	0.206	0.297	0.252	0.549	10.2	0.477	1103	526	70.0%	30.6%	-0.6%	0.334	0.146	-0.003
Denny McLain	1968	1.96	0.200	0.317	0.243	0.559	7.4	0.488	1288	628	71.8%	26.4%	1.8%	0.350	0.129	0.009

We'll take these in chronological order starting in 1963 with Sandy Koufax. Koufax held opposing batters to a batting average of .189 and achieved an impressive ERA of 1.88. For reference, his OPS was at .501 with an excellent WAR of 10.7. His BMP was .443 with 69% BBM, 29.4% BRBM, and 1.6% RBM distribution. As one might expect, unlike batters, a high BBM distribution and a low BRBM distribution is desirable for a pitcher. This indicates that most of the opposing hitter's damage is being done without runners on base.

We should probably set the BMP bar for an epic pitcher performance at .500. With Koufax setting the pace at .443, let's examine the amazing Cy Young winning performances for Bob Gibson and Denny McLain in 1968. McLain compiled and amazing 31-6 record facing nearly 1300 batters. His ERA of 1.96 and opposing batting average of .200 were top notch. Gibson, in the same year, compiled a 22-9 record with an unbelievable ERA of 1.12 and an opposing average of .184. OPS and WAR have Gibson rated much better than McLain and BMP analysis agrees in this case. Gibson achieved a BMP of .405 vs McLain with a BMP of .488.

As with batters, the BRBM is typically the most important factor in achieving a good BMP. In this case, both pitchers had excellent BRBM enabling low BMPs. In this case they both had identical BRBMc (.129) indicating that both performed equally well against batters with runners on base. However, Gibson had a ridiculously low BBMc of .278 and a negative RBMc which made the difference between these pitchers. Gibson's low BBMc is directly attributable to low SLG and OBP (especially with no runners on base) and his negative RBMc indicates that more runners were caught stealing than successfully stole bases.

Tom Seaver and Steve Carlton also battled for Cy Young Awards in the early 1970s. They both achieved sub .500 BMPs with very similar performances but did not approach Gibson's mark.

If we rank these five pitchers, we can see that BMP and OPS are fairly well aligned this time. Remember that OPS is somewhat representative of BBMc so this is not surprising since the BBM distributions are high. What is surprising is that Steve Carlton, with the third highest BMP, had the highest WAR with 12.1. We need to remember that OPS and BMP only measure the opposing batter's performance. WAR takes into account other factors such as the average performance of other pitchers in the same year. So, WAR may legitimately rank Steve Carlton higher than Bob Gibson but that is not apparent from the standard statistics.

<u>MODERN FINESSE PITCHERS</u>
Some of the top pitching performances in recent times are shown below. Again, we see world class ERA and opposing batting averages for all these pitchers. We also notice that the number of batters faced is less than earlier years as teams became more dependent on relief pitchers. Pedro Martinez had a stellar year in 2000 which is recognized as one of the all-time best pitching performances if you google it. With a BMP of .406, he narrowly loses out to Bob Gibson's 1968 performance by 1 point. Let's try to understand the reason why. Martinez had a much lower BRBM distribution than Gibson which gives Martinez a 29 point BRBMc advantage (.100 vs .129). From what we have seen so far, the BRBM usually makes the difference. But not this time. Martinez's BBMc component was 22 points higher (.300 vs .278) indicating that Martinez essentially gave up more extra base hits with no one on base. This nearly offset the BRBMc advantage. However, it's the RBMc that makes the difference with Gibson (-.003) beating Martinez (+.006) by 9 points. In this comparison, handling base stealers was the key factor.

Modern Finesse Pitchers																
Player Information				MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Pitcher Name	Year	ERA	Avg	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Greg Maddux	1995	1.63	0.197	0.258	0.224	0.482	9.7	0.401	784	314	70.1%	25.2%	4.8%	0.281	0.101	0.019
Pedro Martinez	2000	1.74	0.167	0.259	0.213	0.473	11.7	0.406	817	332	73.8%	24.7%	1.5%	0.300	0.100	0.006
Clayton Kershaw	2014	1.77	0.196	0.289	0.231	0.521	7.7	0.430	749	322	73.9%	28.3%	-2.2%	0.318	0.121	-0.009
Dwight Gooden	1985	1.53	0.201	0.270	0.254	0.524	12.2	0.431	1065	459	73.4%	26.8%	-0.2%	0.316	0.115	-0.001

Next, we analyze the 1995 performance of Greg Maddux. His ERA and opposing batting average are excellent, but they don't stand out against Martinez and Gibson. His OPS and WAR are not as good as Martinez and Gibson. However, unexpectedly, he ends of with the lowest BMP at .401. This one is not obvious and demonstrates the value of BMP analysis. The reason is that he simply didn't allow much base movement with or without men on base. He quietly kept his BBMc down to .281 and his BRBMc down to .101. These two components together set the baseline for an amazing BMP. Unfortunately, Maddux had a poor performance against base stealers with a 4.8% RBM% yielding a very high RBMc of .019. But even this poor RBMc did not knock him out of first place. This case is a very good example of how standard statistics don't capture the true base movement production that BMP does.

An excellent 1985 season for Dwight Gooden yielded an impressive BMP of .431. Clayton Kershaw, in 2014, also came close to the .400 barrier with a .430 BMP. Although his BBMc and BRBMc are nearly identical to Gooden, Kershaw got the lower BMP thanks to a -.009 RBM.

In this group we see more variation between OPS, WAR, and BMP. BMP has Maddox first, OPS has Martinez first, and WAR has Gooden first. We've already dismissed OPS as less-than-valid statistic, but the WAR numbers are interesting. Even though Gooden had the worst OPS and BMP, his WAR of 12.2 is very high. Based on pitcher's WAR formula, this is most likely due to weak competition among pitchers that season. This highlights that WAR can be relative to a season.

POWER PITCHERS

This analysis would not be complete without taking a look at some fireballers. The power pitchers in this section feature a high number of strikeouts which, one might think, could lead to some very good BMP numbers. Although these pitchers have excellent ERA and opposing batter averages, only Roger Clemens has a BMP below the .500 mark. Despite the strikeouts, these pitchers gave up a few more extra base hits and a few more walks than the finesse pitchers leading to BMPs nearly 100 points higher. Clemens leads this group with a .489 BMP. Clemens and Johnson had nearly identical BMP distribution with high BBM% and low BRBM% which naturally gave them the edge over Ryan and Feller. They both had impressive negative RBM%. Despite equal distribution, Clemens simply had lower magnitudes of BBMc and BRBMc to win this battle.

Power Pitchers

Player Information				MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Pitcher Name	Year	ERA	Avg	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Randy Johnson	2001	2.49	0.203	0.309	0.274	0.583	10.1	0.525	994	522	69.7%	31.0%	-0.8%	0.366	0.163	-0.004
Nolan Ryan	1973	2.87	0.203	0.303	0.302	0.605	7.7	0.594	1356	805	65.1%	32.3%	2.6%	0.387	0.192	0.015
Roger Clemens	1997	2.05	0.213	0.290	0.273	0.564	11.9	0.489	1044	511	70.1%	31.1%	-1.2%	0.343	0.152	-0.006
Bob Feller	1946	2.18	0.208	0.270	0.291	0.562	10.0	0.531	1236	656	64.6%	36.3%	-0.9%	0.343	0.193	-0.005

We can see that the best power pitching performances, although impressive, did not come close to challenging the finesse pitching performances previously reviewed.

OLD TIME PITCHERS

Data for old time pitchers is not available on Retrosheet before 1911 so we don't have information from many pitchers in that era. This was called the dead ball era where pitchers dominated until rule changes in 1920. Standout pitchers from the 2010s are Walter Johnson, Grover Alexander, and Christy Mathewson. These pitchers have standard statistics (ERA, Avg, OPS) on par with the best finesse pitchers and generally result in a similar range of BMP.

However, Walter Johnson's performance in 1913 stands out with a BMP of .368 beating all pitchers analyzed so far. It can be seen that his BBM distribution of 76.4% and BRBM distribution of 27% is the primary reason. Although his BBMc (.281) and his BRBMc (.099) is similar to Maddux, his insane RBMc of negative .013 creates a 32 point gap with Maddux. In this case, Johnson's control of base runners was the deciding factor. Grover Alexander comes in with a BMP of exactly .400. Although he matched Walter Johnson with BBMc and RBMc, his higher BRBMc resulted in a higher overall BMP.

Old Time Pitchers

Player Information				MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Pitcher Name	Year	ERA	Avg	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Walter Johnson	1913	1.14	0.191	0.252	0.221	0.473	15.2	0.368	1280	471	76.4%	27.0%	-3.4%	0.281	0.099	-0.013
Grover Alexander	1915	1.22	0.191	0.245	0.232	0.477	11.0	0.400	1435	574	69.5%	33.6%	-3.1%	0.278	0.134	-0.013
Walter Johnson	1915	1.55	0.214	0.257	0.259	0.516	11.6	0.439	1310	575	67.5%	37.4%	-4.9%	0.296	0.164	-0.021
Christy Mathewson	1913	2.12	0.252	0.332	0.264	0.596	7.9	0.485	1195	580	69.7%	35.5%	-5.2%	0.338	0.172	-0.025

RELIEF PITCHERS

Relief pitchers are generally not compared to starting pitchers since they pitch less innings per game and they pitch more often. Ultimately, they face significantly less batters in a season. They often inherit runners on base who are considered the responsibility of the previous pitcher. With BMP we can certainly compare relief pitchers against each other, but we can also compare them to starting pitchers. With BMP is doesn't matter who put the runners on base, the pitcher is responsible for the base movement of batters and the runners. With ERA, the relievers get off the hook for allowing previous runners to score. With BMP, the relievers do NOT get off the hook for previous runners advancing or scoring.

Let's start with the all-time saves leader, the great Mariano Rivera. Although not a memorable year, 2008 was probably his best performance. His ERA was only 1.40 and his opposing batting average was an amazing .165. BMP distribution was favorable with a low BRBM% although he gave up a lot of stolen bases with 5.1% RBM distribution. Despite having a high RBMc(.019), he had an excellent BRBMc (.108) and an unbelievable BBMc (.255). As a result, Rivera ends up with a sub-400 BMP of .382. His ability to limit batters with no one on base resulted in a ridiculously low BBMc and was the determining factor.

Relief Pitchers																
Player Information				MLB Statistics				BMP Statistics			BMP Distribution			BMP Components		
Pitcher Name	Year	ERA	Avg	Slg%	OBP	OPS	WAR	BMP	PA	TBM	BBM%	BRBM%	RBM%	BBMc	BRBMc	RBMc
Mariano Rivera	2008	1.40	0.165	0.233	0.189	0.422	4.3	0.382	259	99	66.7%	28.3%	5.1%	0.255	0.108	0.019
Dennis Eckersley	1989	1.56	0.162	0.258	0.175	0.432	2.6	0.432	206	89	61.8%	34.8%	3.4%	0.267	0.150	0.015
Trevor Hoffman	1998	1.48	0.165	0.229	0.232	0.461	4.1	0.489	274	134	59.0%	35.8%	5.2%	0.288	0.175	0.026
Rollie Fingers	1981	1.04	0.198	0.277	0.235	0.512	4.2	0.475	297	141	64.5%	34.0%	1.4%	0.306	0.162	0.007

Trevor Hoffman is another world class reliever who had a great year in 1998. On the surface, his MLB statistics were very similar to Rivera although OBP was a bit higher. Hoffman's BMP distribution was not as efficient as Rivera with a higher BRBM% and a low BBM%. Although Hoffman ends up with an impressive BMP of .489, he loses out to Rivera on all three BMP components.

Dennis Eckersley comes closest to Rivera with a BMP of .432 in 1989. MLB statistics would indicate this might be a close race, but a much higher BMBMc component for Eckersley widens the BMP gap in favor of Rivera.

Rollie Fingers, despite an incredible ERA of 1.04, failed to eclipse Rivera, Hoffman, and Eckersley and ended up with a BMP of .475. This is a good example of a relief pitcher allowing base movement but not getting penalized for the runs scored that were attributed to the previous pitcher.

BMP SUMMARY - PITCHERS

Of the pitchers examined, it can be seen that all categories can produce excellent BMP performances. Most pitchers analyzed beat the .500 mark with a couple stellar performances coming in below .400.

IMPLEMENTATION OF BMP

Baseball statistics are utilized during a baseball game and are available on sports websites.
The two statistics that currently attempt to capture a player's overall performance are OPS and WAR.

Now, WAR is a very valid statistic that can be used to help determine a player's overall performance and value to the team. It can legitimately be used for determining MVP awards. WAR does a good job of measuring a player's performance with respect to wins. However, as mentioned earlier, baseball fans just can't relate to WAR due to its complex formulas and weighting factors. This is why WAR is available on sports websites but not displayed on the television screen when a batter steps up to the plate.

For many years televised baseball games would show average, home runs, and RBIs when a batter came to the plate. In recent years, television often shows OPS in addition to the standard statistics. As discussed earlier, OPS represents that fans desire to see an overall player performance statistic. It's a decent indicator of production but knowledgeable fans know that OPS is simply a crude attempt to capture overall performance. By coincidence, OPS and BMP are often very similar numbers but they have a very different basis. Remember that BMP directly measures a player's production by bases moved and OPS is not a measurement but a sum of two mismatched fractions.

BMP would be a perfect substitute for OPS. Baseball fans will love and understand BMP!

Although BMP is a truly fundamental statistic, it cannot be derived from standard baseball statistics. In order to calculate BMP, analysis of score cards for each game would need to be completed because this is the only place runner's positions would be recorded. Computer archives of this data are available to accomplish this task. If MLB adopted BMP in the future, this data would be incorporated into standard statistics.

Basically, BMP is a revolutionary new way of measuring a very old fundamental concept: move the runners along. That's all there is to it. It seems likely that the typical baseball fan would appreciate the concept of BMP although there may be disagreement over the specific rules assigned. Let the debate begin!

For more information and access to the BMP batter and pitcher databases: https://sites.google.com/view/bmp-2025