

## Critical Performance Factors in Baseball Part 2

The game of baseball is played using a mix of high level physical skill and advanced mental acuity. The game's best players can not only recognize and track a pitch thrown at ninety miles-per-hour or throw from third base across the diamond from their knees, but rather, they have both the physical and mental skills needed to play baseball. To be a great baseball player you must be able to overcome failure and adversity mentally and must also keep yourself in peak physical condition through good health habits, constant training, study, and nutrition. While all sports involve a certain amount of psychology to plan and understand strategic situations, it is highly apparent in the game of baseball. Most of what we see when we watch the game of baseball is *thinking*. Baseball is different because the nature of the game provides its players more time to think before each action. All of this time to think means that baseball players need incredibly sharp cognitive skills and abilities to complement their highly advanced physical abilities to succeed in Major League Baseball. Quite honestly, most of the best baseball players in the world have extraordinary abilities that allow them to coordinate physical and mental processes such as incredibly fast reaction times, a hardened mental focus, and almost super human levels of visual focus. The physical nature and speed of the game means that there must be a great deal of mental preparation and toughness involved for success to be achieved. Mental prowess must be considered when discussing the critical performance factors of the world's best baseball players and a player's psychology will play a part in almost all of the more direct physical aspects of the game.

Many professional baseball organizations actually use a personality test called the Athletic Motivation Inventory (AMI) to identify which players might have the personality traits that could lead to success at the Major League level. There have been certain character traits that have been identified as comprising a "baseball personality". The traits that seem to be most important in the game of baseball are self-confidence, mental toughness (or how well a player faces adversity and reacts to failure), emotional control in high-stress situations, and a tendency towards aggression. Self-confidence and mental toughness are particularly important critical performance factors found in a Major League hitter. Baseball players also tend to have excellent focus which allows them to ignore external factors such as crowd noise, losing streaks, performance slumps, or simply bad luck. Baseball hitters also employ the psychological process of prediction to help them improve their performance. They use their knowledge of the game, their history of facing certain pitchers, and the particular game situation to predict what the next pitch might be. This is a critical skill because the hitter has such little reaction time when trying to make quality contact with a ball moving at velocities over ninety miles per hour. This ability blends with a hitter's reaction time which is generally considered more of a physical ability. Players with faster reaction times tend to have better chances at higher batting averages and to be slightly better hitters according to many experts. Mental ability will affect almost all physical performance in the game of baseball.

Professional baseball scouts look for very specific skills and qualities when evaluating potential baseball prospects. These vary depending on which position the prospect plays. For position players, scouts evaluate hitting, hitting for power, fielding, throwing arm, and speed. Each of these tools carries

varying degrees of importance depending on which position an athlete plays. For example, foot speed is far more important when evaluating a center fielder than it is when evaluating a catcher. For pitchers, major league scouts will focus on fastball velocity, fastball movement, breaking ball, other specialty pitch (change-up, slider, etc.), mechanics, and control. Scouts and recruiters will also place a good deal of importance on intangible aspects of the player's overall performance. These are generally the non-physical attributes that scouts evaluate. These intangible aspects of a player's make-up include things such as work habits, emotional maturity, leadership ability, and other similar qualities. Intangibles can also carry more weight at certain positions, such as a pitcher who controls much of the game single handedly and a catcher who is often considered the leader on the infield and exercises a great deal of influence over the pitcher. Regardless, the physical abilities of a player who has the potential to play in Major League Baseball must be almost unimaginably high. However, because of the nature of the game of baseball much of this ability must have a firm foundation that builds upon a high level of mental ability. According to some experts it is estimated that only one in two million players have the right combination of physical and psychological abilities required to succeed in the game of baseball at its highest levels of competition. Farther below in this assignment are descriptions of the critical factors associated with the physical play of the game of baseball and a brief rationale of what these abilities might be quantified as at the Major League level. These abilities are almost completely useless in the skill set of a player who does not possess the psychological make-up necessary to combine with them to produce a Major League Baseball player.

The core skills of baseball players are generally regarded as throwing, hitting, and fielding. The ability to throw the ball accurately and at a high rate of speed is vital, and not just for pitchers. Regardless of the position that the athlete plays they will be required to fire the ball to a teammate before the opposing runner reaches the base usually several times during the course of a game. This is especially important for pitchers who will frequently throw ninety-plus pitches in a game. If a pitcher's offerings are delivered at consistently low velocities or are poorly located then they will be more likely to give up more hits and walks, neither of which correlates to winning games. Hitting a baseball is regarded as one of the most difficult tasks in sports. The best professional hitters have batting averages in the .300 range which means that they only get base hits thirty percent of the time. The best hitters will usually always have a spot on the team. Besides the physical strength and proper mechanics needed to be a successful professional hitter players also must be able to quickly recognize what type of pitch is coming and adjust accordingly. This is an extremely difficult task at the professional level of play as the average Major League pitch takes just four-tenths of a second to arrive at home plate. Even if a player is not a home run hitter they can make up for this deficiency by being a proficient fielder. This is especially true for players in vital positions such as shortstop and center field which are manned by the players who usually have the best fielding range. Athleticism, quickness, and agility will allow players to reach a ball that others couldn't. As stated earlier, intelligence and mental skill always comes into play as well. By recognizing and knowing the tendencies and mechanics of opposing hitters the most intelligent players are able to position themselves accordingly which is more likely to increase their chances of being able to anticipate where the ball is more likely to be hit.

The 5 Tools of the baseball player are the core athletic skills required to be successful in the game of baseball. Varying in importance by position, these tools are critical components of an individual player's make-up. Five tool baseball players are extremely rare. Most players, even at the Major League level do not possess greatness in all five tools. Baseball also requires some specialization as pitchers do not necessarily need to be fast or be good hitters or good base runners. Pitchers are more concerned with velocity, control, and endurance. Catchers are likely to be considered for their arm strength, defensive skill, and intelligence. Middle infielders need arm strength and defensive capabilities. A Five Tool player in Major League Baseball is more likely to be an outfielder. As a sixth building block, I have included a player's intelligence. An elite baseball player does not necessarily need to understand the principles of quantum mechanics. However, baseball has been described as a cerebral game and a player's "baseball intelligence" is certainly discussed amongst coaches and scouts. Situational awareness in baseball is critical at and behind the plate, on the field, on the mound, and on the base paths. Smart players can overcome deficiencies in physical ability by anticipating changes in the complex situational necessities that the game regularly offers. Below are the essential skills of the best baseball players in the world and within each core skill there is a discussion of some of the most critical factors that contribute to each one.

## **1. *SPEED***

Speed may be the most "innate" (genetically predisposed) of the 5 Tools. It is possible to enhance a ballplayer's speed, but substantial gains are dependent upon the athlete himself. Players with speed are counted on to make things happen by pressuring the opposing team by being catalysts both offensively and defensively. Coaches, trainers, and instructors may seek to enhance an athlete's running speed by improving form, efficiency of movement and first-step quickness. In the game of baseball speed on the base paths allows a player to maximize extra base hits, which dramatically improve a team's chances of scoring runs. He must also be a threat to steal bases, which puts more pressure on the opposing pitcher, catcher and defense. Developing this essential skill must start at an early age and players, regardless of their physiology, must commit to becoming faster and more mechanically efficient runners if they are to increase their chances of playing at the highest levels. Again, slight deficiencies in overall running speed can be overcome somewhat by base runners that have higher intelligence, better situation awareness, and a better understanding of an opposing player's skill levels.

## **2. *ARM STRENGTH***

Elite pitching prospects are usually judged on their velocity but arm strength is a lethal weapon at any defensive position. Along with arm strength, muscle endurance is an often overlooked area for baseball players. Pitchers realize the importance of muscle endurance - being able to throw hundreds of pitches weekly - but what about the shortstop that needs to make plays day in and day out, or the outfielder looking to gun down a base runner at the plate? An extension of a player's fielding ability, throwing can be a key element in an elite player's arsenal, especially if he is a third baseman or shortstop, which must be able to

throw quickly and accurately across the diamond to first base. A strong throwing arm is also important for an outfielder, because it can be used to throw out runners or merely to make them and base coaches think twice about going for an extra base. Arm strength for catchers is absolutely essential for neutralizing an opposing team's base stealing threats. Some players seem blessed with innate arm strength but other players can improve in this area with dedication to a proper throwing and arm development exercise program. Participating in a regular throwing and arm strength regimen can and does help to improve arm strength and throwing velocity. Proper throwing mechanics should also be developed and will help maintain arm health, arm accuracy, and overall arm efficiency. The best players in the world will almost always have the arm strength to exceed ninety mile per hour velocities from the mound and across the infield. Some of the best outfield prospects and Major League players can reach velocities of ninety-eight miles per hour when throwing from the outfield. Obtaining these types of velocities should be the goal of all serious players and all training programs in order to produce the highest caliber players in the world. Focusing on arm strength and velocity as well as proper and efficient throwing mechanics are all critical factors that should be developed in all baseball players who aspire to play at the highest professional levels.

### **3. HITTING FOR AVERAGE**

To score runs in baseball you need base runners. Good hitters hit for average first and power second. Hitting for average requires the ability to hit to all fields and assess defensive situations - knowing when to hit to the right side, when to bunt, or being able to make contact when the hit and run is on. Hitting for average requires good decision-making ability and good pitch selection at the plate. While it's important for a good hitter to hit the ball out of the park, he must also hit for a high batting average. This means he must be able to hit to the opposite field, hit for contact with two strikes, and be willing and able to adapt his hitting approach to the situation in the game. Once again a hitter's overall intelligence and baseball knowledge will certainly have a great impact on their overall ability to consistently make contact at the plate. The best hitters will use the psychological process of prediction to help them hit the ball. They will recognize the pitcher's mechanics and historical tendencies as well as the overall game situation to help them predict what might be thrown next. The best hitters will have great vision, faster reaction times, and also have excellent focus to help them succeed. They must have the mental toughness to maintain self-confidence under great adversity and pressure. They must possess, practice, and understand the mechanics of hitting and be able to make constant adjustments under all circumstances. On top of all this, the best hitters must also maintain a very high level of physical and mental consistency in their approach to hitting on a day to day basis against the best pitchers in the world. All of these factors comprise the art of hitting and the best hitters in the world must be masters of the art form.

### **4. HITTING FOR POWER**

The most obvious benefit of this tool is that extra base hits increase a team's chances of scoring. Power hitters also add an intimidation factor as many power hitters are also usually amongst the league leaders in walks as pitchers are generally more cautious with a hitter who is a home run threat. Power hitters have recently emerged because athletes recognize the importance of strength and conditioning programs, and the fact that power hitters generally demand the best contracts. Home runs can change the entire outcome of a game and even a whole season with one swing of the bat. A five-tool player must be able to hit for power. This means he has the ability to hit home runs and hit for a high slugging percentage, a statistic that measures the frequency of extra-base hits. Power can be developed by increasing the strength of a hitter, increasing the hitter's flexibility, and improving the hitter's mechanics. Each of these can be considered a critical performance factor in improving a hitter's ability to hit for power. While vision, reaction time, the ability to adjust, timing, etc. all contribute to a hitter's overall ability, strength can compensate somewhat for deficiencies in these other areas by effectively increasing a hitter's margin for error during contact. The strongest hitter's effectively have a bigger "sweet spot" on the bat allowing for less than perfect contact to still result in a hard hit ball. Strength and power are similar to speed as they can be improved with properly focused training efforts and must be considered critical factors in a player's performance on the baseball field.

## **5. FIELDING**

Scouts will often say a player has "good hands." In reality, good hands - or good fielding position - are the result of a number of factors working together that make difficult plays look simple. Middle infielders, catchers, and outfielders must have the defensive skills required to take away base hits, know how to "read" a hitter, and know how to react and position themselves for the best chance for success. Saving runs defensively can be as important as creating them offensively, so it's important that the player be a good fielder. Speed helps here, too, especially if the player is an outfielder and needs to cover wide open spaces of the field. Again the result of good fielding is a combination of both physical and mental ability. Athleticism comprised of speed, quickness, agility, and strength will improve a player's fielding range but a player's situational awareness and overall intelligence can significantly improve a fielder's defensive success. Mental skill defensively can mean knowing the mechanics and tendencies of not only an opposing team's hitters but also those of your own pitching staff. This level of understanding and situational awareness can allow a fielder to position themselves in better anticipation of where the ball is likely to be hit.

## **6. INTELLIGENCE**

Hall of Fame catcher and the infamously often quoted Yogi Berra once said something to the effect that, "Baseball is ninety percent mental and the other half is physical." The introduction to this assignment spent quite a bit of effort trying to discuss the importance and effect of a player's mental acuity on their performance on the baseball field. Smart fielders know how to "read" hitters tendencies and mechanics. This gives them an

advantage in reaction time and positioning that can lead to defensive success and execution. A smart hitter studies an opposing pitcher looking for “tips” on when they may be throwing certain pitches. Smart hitters can also recognize and remember what a certain pitcher throws in very particular situations. These cognitive abilities can lead to success even if the physical talent is not at an elite level. Pitchers recognize a hitter’s weakness and throw to it until the hitter is forced to make adjustments to their offensive approach at the plate. Baseball is well known for the psychological battle that can go on between a hitter and a pitcher. By average a hitter is going to lose this battle about 70-75% of the time. Does this outcome lead to overconfidence on the pitcher’s part that can lead to a mistake? How do hitters maintain their confidence in the face of that kind of failure rate? These questions are as likely to be determined in baseball by a player’s ability as they are by his intelligence. Catchers are widely known for their baseball intelligence. Simply count the number of former catchers who now manage at the Major League level. Intelligence in baseball is usually rewarded regardless of physical ability and is a highly sought after trait in a player. Its dynamics must be considered when discussing the critical performance factors that impact a baseball player’s performance on the field.