

## Shooting Skill Development Study Guide Series

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# Introduction to Shooting

Shooting is the most celebrated fundamental in all of basketball. *SportsCenter* puts Blake Griffin's thunderous dunks on its *Top Ten Plays*, the Cameron Crazies cheered with each three-pointer J.J. Redick swished, and coaches everywhere hold their breath every time a free throw is attempted by their team. **Shooting** can be defined as any attempt to project the basketball through the hoop. Shooting is pivotal to the success of every team because it is the method which points are scored.

## The Most Difficult Skill to Coach

While the object of shooting is simple, getting the ball through the basket, it is the most difficult skill to coach in the sport. The difficult nature of teaching a player to shoot is, in part, a result of years of improper habits formed from unsupervised practice. Players often judge their success by the number of attempts they make without regard to practicing sound shooting mechanics. In order to become a great shooter, a player must trade makes now, using their poor habits, for misses from forcing themselves to use correct form. Shooting is a skill which must *sacrifice short-term success for a long-term gain*.

## Important Shooting Concepts

This section on important shooting concepts covers a variety of unique ideas to consider before proper shooting form is explained. Introducing these concepts now will provide a greater understanding on why shooting form is constructed in the manner explained in the following section.

### Complexities in Shooting

The two most significant factors a player faces in shooting a particular shot is alignment and judgment. **Alignment** is the act of the player lining himself up with the basket in an attempt to propel the ball in proper direction towards the rim. **Judgment** pertains to the player deciding how far and how high to shoot the ball. *Alignment* is responsible for the direction the ball travels, as mentioned in the definition, which means a miss to either the left or right is a result of breakdown in *alignment*. *Judgment*, in contrast, is related to the distance the ball travels on a particular shot and is generally responsible for misses long or short.

### The Definition of a Good Shot

Shooting by its nature is an act of failure. This is seen when the shooting percentages of the best NBA players are observed. For example, Ray Allen holds the record for the most 3pt field goals ever made by a player in NBA history, but for his entire career he has made only 45% of his 2pt attempts and 40% of his 3pt attempts. Therefore if the success of an individual shot is judged merely on its result, a make or miss, then a player will be discouraged more often than not after each shot attempt. In order to have a player remain optimistic about his shooting performance, a good shot can be defined as any shot that is on the **target line**, an imaginary line from the middle of the player's chest to the middle of the rim. This definition means a good shot does not miss to either the left or the right, but may miss long or short. Since this definition allows for a certain types of misses, it can be concluded a player should be satisfied with a mistake in *judgment*, but mistakes in *alignment* are not allowed. Through using this rule of a good shot we can also define a good shooter as someone who does not miss left or right although they may occasionally miss long or short.

The reason for defining a good shot in this manner is to narrow the focus to one factor related to the complexity of shooting as opposed to focusing on both complexities at once. There are far fewer variables in the *alignment* factor compared to the *judgment* factor in shooting which makes *alignment* easier for a player to perfect on a given shot. Later, this study guide will detail the parts of the shot which are responsible for *alignment* and *judgment*.

### **Economy of Motion, Shot Preparation, and the Quick Release**

Considering all the variables in a given shot it is in a shooters' interest to reduce them to a minimum. This is the essence of an **Economy of Motion** as it relates to the shot. It should be the desire of a player to limit the number of moving parts in his or her shooting motion and make it as efficient as possible. The logic behind an *Economy of Motion* is as the number of moving parts in a shot increases so does the probability of error. The shooting motion must be short, compact, and efficient in order for it to be easily repeated.

The quick release is another by product of having an *Economy of Motion*. The release time can be described as the length of time the ball is in a shooter's hand from the catch through the moment the ball leaves the player's finger tips on its way to the rim. The more complex the shooting motion is the higher the release time will be. The optimal release time is considered less than 2 seconds and can only be achieved with an efficient shooting motion with proper shot preparation.

Shot preparation is the effort a player makes to ready himself to shoot prior to catching the ball. The shooter must prepare himself to shoot **Low-To-High**, meaning the player should have his knees bent and below prior to catching the ball. After the catch, the player goes up into his shot and releases the ball high. For example, it would be to a player's disadvantage to play high-to-low-to-high, which would be catching the ball high, without his knees bent, and going low into his shot before coming up to release the ball high. For a quick release on a catch and shoot situation the shooter should present the passer a target with his hands. The shooter must have his hands ready with his palms pointed in the direction of the pass and fingers to the ceiling. If a player is thorough in his shot preparation he will be "ready on the catch" to go up into his shot without wasting valuable seconds.



### **Synergy**

Synergy is closely related to the *Economy of Motion* and neither of the theories can be exercised without the other. **Synergy** can be defined as multiple parts working together to achieve a result not independently obtainable. This term is used commonly in kinesiology, business, science, and even the NBA in regards to offense and defensive philosophy.

When *synergy* is applied to shooting mechanics it relates to flow, rhythm, cohesion, and timing in the shot. The muscles used in the shot must work in unison to create one motion. For instance, after the player catches the ball his or her arms and legs should coil at the same time before exploding up at identical times with a similar pace. The unison between the upper and lower body is what produces

rhythm in the shot. A player reduces complexity in the shot with rhythm because the shot becomes one motion and is more easily repeated. The greatest consequence of a shot lacking rhythm occurs when the lower body explodes before the upper body which disrupts the shot's timing. Once the shot loses this timing the power created by the lower body will be exasperated by the time the upper body begins to explode. Often this leads to a throwing or slinging motion (see "The Shooting Elbow" section") by the arms because they must attempt to compensate the lack of energy from the legs.

Flow is another way to describe *synergy*. Imagine the upper and lower body coiling in unison before the feet push off the ground and the body begins to straighten. Energy created in the muscles pushing off the ground travels into the legs, through the mid-section, into the arms, and finally out the wrist and fingers into the basketball. When there is a breakdown in *synergy* the result is often materialized in the shot falling short.

## The Proper Form

Most players are probably familiar with the acronym **B.E.E.F.** commonly used by youth coaches for teaching shooting form. Although the terms used for each letter vary depending on the coach, **B.E.E.F.** essentially stands for **B**alance, **E**yes on the rim, **E**lbow in, and **F**ollow through. This acronym is good for teaching young players to shoot, but a high school player must have a greater knowledge of shooting mechanics in order to achieve optimum results. This section on proper form will explore the individual aspects of the shot before offering two simplified rules for players to utilize more practicality.

### The Base and Foundation

The foundation for shooting a basketball is your lower body. Your feet should be under your shoulders with your dominant foot placed slightly in front of the other by no more than a couple of inches. It is important the feet are not too far apart because it will impair the player's ability to gain height on their jump. In addition his feet must also not be too close together resulting in a lack of balance. (If the player is on a hardwood floor the average number of boards between great shooter's feet is around 6.)

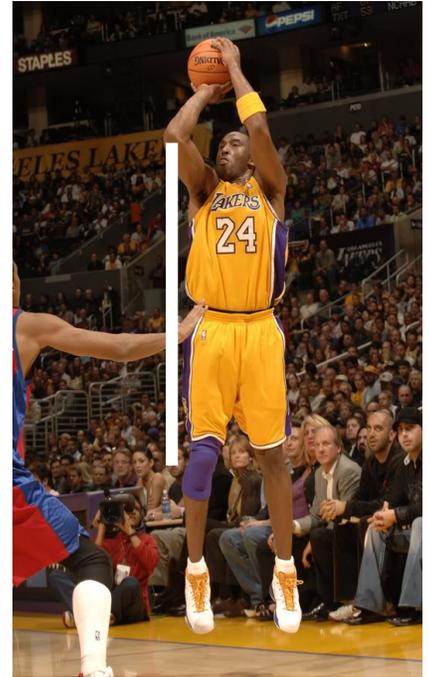


### Balance

A big mistake players make in regards to balance is only applying it to their pre-shot routine, what they do before they catch the ball through the moment they begin to rise into their jump shot. However, balance should be applied and maintain throughout the shot, from catch to release. The concepts in the previous section deal greatly with pre-shot balance laterally, which is almost entirely based off the width of the shooter's stance. In addition, it is important the shooter refrain from leaning forward or backward in the pre-shot routine and as a result, losing what is called directional balance. The key phrase to remember concerning directional balance is "**Nose Behind Toes.**" This phrase is to remind players to keep from leaning forward and sticking their nose out in front of their feet and losing forward balance. If the nose pokes out over the toes, a rocking motion is created in the shot, which is a

common mistake in shooting. A **Rocking Motion** is the result of the shooter losing his balance leaning forward and attempting to compensate by “rocking” backwards before leaving the floor on a jump shot. This rocking motion violates the *economy of motion* theory by creating extra movement and destroys *synergy* which was discussed earlier.

Along with pre-shot balance, balance must be maintained through the release and follow-through. Balance in these last two parts of the shot is regulated by how the shooter jumps. The player should use a natural jump when he shoots. A **Natural Jump** is when a player jumps straight up and down and lands with his feet in the same place as where he took off from. This is called a *natural jump* because when a child is just asked to simply jump by an adult, he or she will “naturally” jump in this manner. A *natural jump* is important in shooting because when a player jumps and drifts to a side or jumps and fades to or away from the basket, the shooter changes the original direction and distance to the center of the rim. For example, if a player jumps backwards one foot and to the left six inches, the player’s original *judgment* must account for an additional foot to the rim and the *alignment* must be corrected by half a foot before the ball is released. Any player who does not use a *natural jump* during his or her shot increases the complexity of the shot and therefore decreases the chances of a make.



### The Grip

The ball should be held in triple threat position with the ball shifted towards the player’s dominate hand’s hip. The player’s dominate hand, referred to as the shooting hand, should be placed behind the ball with the player’s non-dominate hand, or guide hand, placed on the side of the basketball. This ball held in this position creates what is termed as the shooting pocket. It is important that the fingers of the shooting hand be spread with the ball touching only the fatty portions of the fingers, often referenced as the



finger pads, but never touching the player’s palm. If the ball is touching the palm it is impossible for a player to adequately grip the ball, increasing the chances of the player losing control of the ball. It is important to stress that the ball does not sit, rest, or lay in the shooting hand, but the ball is gripped by the shooting hand. The guide hand has no significant role in the shot and is merely responsible for providing additional control.



## The Shooting Elbow

The elbow is one of the greatest enemies in shooting mechanics and receives a lot of attention. When the ball is gripped in the shooting pocket, the elbow should be directly behind the ball with a right angle created between the forearm and upper arm. The elbow is to remain locked in a 90° angle as the shoulder rotates the ball up towards the release point. Once the ball is raised and the upper arm is parallel to the floor, the elbow should be directly under the ball in order to create lift on the shot. A common mistake here is the elbow juts out to the side away from the body forcing the ball to be pushed off the *target line*, impairing the shot's *alignment*. The elbow should be in line with the inside of the knee and never bend beyond 90°. If the elbow were to bend to say a 60° angle, the result would be a throwing or slinging motion instead of a “shooting” motion and result in a shot with not enough arc. This throwing motion described is the most likely reason for a flat shoot, a shot with not enough arc or height, and is often the problem when shots are falling short. The elbow should extend into the follow through once the upper arm is parallel with the floor.



## The Shoulders

The shoulders are the most important facet of the *alignment* and the greatest determinant of the direction the ball will travel. Although the feet are originally lined up to the basket by player, the direction of the shoulders at the release point is what actually guides the basketball to the rim. Players frequently develop habits of lining themselves up to the basket then twisting their body in midair, impairing *alignment*. In order to prevent this twisting problem, it is important for a player to concentrate on keeping their shoulder square to the rim, before, during, and after the release. A shooter having his shoulders square to the rim is achieved by their chest being perpendicular to the shot's target line.

## Follow-Through

Follow-through is the last phase of the shot, but capable of making or breaking the entire shot. This portion of the shot begins once the upper arm reaches the point it is parallel to the floor. The point needs to be made that the shooting shoulder does not rotate the upper arm past the time it is parallel to the floor or to where the ball begins to pass the forehead. This action would result in the infamous throwing motion and result in a flat shot. The wrist should be looked in the 90\* angle it started at in the shooting pocket and the elbow should begin to extend/straighten. The energy flows from the shoulder through the arm till the elbow locks out. Once the elbow locks out the wrist snaps down towards the floor providing the ball with backspin which creates arc and the



“shooter’s touch.” The follow-through should end with the player landing with his shoulders square and in the same spot he jumped from.

There are three mistakes seen regularly in the follow-through. First, players “short arm” the shot by not extending their elbow to the point it locks out and as a result the ball tends to hit the front of the rim. Second, after players release the ball they allow their arms to cross which can alter the direction of the shot and push the ball off the *target line*. The last common mistake regarding the follow through is shooters “thumbing” the ball. A “thumber” is a player who uses the thumb on his guide hand to flick the ball as it is released. This mistake is extremely common for younger players transitioning from shooting with two hands to the one handed jump shot. Players use their non-dominant thumb to help increase range, but create inconsistencies in both *alignment* and *judgement*.

### Shooting Form Simplified: Two Basic Rules

Thus far this study guide has covered a multitude of shooting concepts and aspects of the proper form. It is impossible for a player to run down a checklist of all these principles which have been covered before every shot and achieve the most favorable results. A player contemplating this checklist in its entirety can be accused of thinking too much and letting their thoughts interfere with the muscle memory they have developed from an infinite number of repetitions. In contrast, a player who does not think at all during a shot could be considered guilty of not concentrating or focusing and let poor habits develop in his or her shooting motion. The answer to this dilemma is for the shooter to narrow their focus on the most important components of a shot. When a player is in their pre-shot routine they should center their mind on “**Shoulders Square, Finish High.**” *Shoulders Square* means the player should focus on keeping their shoulders perpendicular to the *target line* before, during, and after the release. If a shooter’s shoulders remain square throughout the shot, they minimize the chance of a breakdown in *alignment*. The second part of the phrase, *Finish High*, adds emphasis to the importance of a shooter gaining proper height on their shot. Players sometimes find themselves finishing out and not up. Finishing out pushes the ball to the rim on a low arc opposed to releasing the shot at its highest point to generate a higher arc. The action of finishing high can cover up for many other mistakes in the shot and prevent countless shots from falling short because most shots missing short fail to reach enough height on their arc.

## Shooting on the Move

Shooting on the move adds another element of complexity in shooting. It is extremely important this new element of complexity is eliminated as much as possible in order to resemble the form described in the last several sections. The next two sections will explain important concepts regarding shooting off the catch and shooting off the dribble, particularly when moving to the left or right.



The fundamentals for shooting off the catch and shooting off the dribble moving to the left or right are very similar. The process of getting shoulders turned facing the basket and square can be difficult when the body is moving in a direction away from the basket, but it is vital to *alignment*. The way the shoulders should be squared when attempting a shot on the move is by firmly planting the inside foot, the one closest to the basket, and pivoting the body till square with a *target line*. For example, if a player is moving into a shot to

his right, he must plant his right foot, which is his inside foot, and then pivot on that foot to square his body. Notice the player is not encouraged to hop or jump to square the shoulders for the shot. Hopping or jumping in to a shot creates a movement that is more difficult to repeat and does not establish a pivot foot leading to traveling violations.

Balance is also critical to success shooting on the move. When a player is moving into a shot to the left or right it can be difficult to stop their momentum and avoid drifting in the air in the same direction. As discussed in the balance section of this study guide, when a player moves laterally in air the *alignment* to the rim is altered from the place his feet left the floor and the shot will not follow the *target line*. In order to abstain from drifting in the air due to momentum before the shot, it is important to follow the *Low-to-High* principles. Being low going into a shot on the move lowers the center of gravity and makes it easier to stop momentum.

### **Key to Shooting off the Catch**

When a player is moving into a catch and shoot situation it is vital that he runs through the catch. The shooter should not wait on the ball to reach him: instead, he should move to meet the ball. Meeting the pass shortens the time the ball is in the air and reduces the amount of risk involved in the pass. The shooter needs to have *hands ready* and present the passer a target. A target must be given to the passer in order to demand a good pass. Often players throw passes without focus and the result is a pass off target. Presenting the passer with a target gives him an idea what is expected. A popular saying is “The quality of the pass leads to the quality of the shot.” The saying suggest, the farther a shooter’s hands must travel away from the shooting pocket to make a catch more adjustments the shooter must make to get the ball on the target line.

### **Key to Shooting off the Dribble**

A players dribbling into a shot should use a low hard dribble right before picking up the ball to shoot. The reason for this is similar to a player moving to meet a pass, by using a low hard dribble the shooter is able to increase the amount of time the ball is in his hands before the shot. This additional time gives the player added moments to get a better grip and control on the ball before releasing it.

## **FAQs**

The following part of this guide covers frequently asked questions on the topic of shooting. If there is a topic which has not been covered up to now most likely it can be found in this portion of the study guide.

### **Where to Aim**

Where should a player aim when he shoots? This question has many possible answers and the most common responses are the back of the rim and the front of the rim. There are also coaches who teach players to not aim at all just shoot. This section of the study guide will look at these common ideas logically and attempt to distinguish the best option.



First, consider aiming for the front of the rim. This target seems less viable than all other options based on the reality of hitting this target almost guarantees a miss. When a player shoots and hits the front of the rim, the ball most often hits the rim and redirects its trajectory to the floor. It is very rare occurrence when the ball hits the front of the rim and bounces up and through the net.

The second option of aiming for the back of the rim is a somewhat more reasonable target. There are essentially two possible outcomes when the ball hits the back of the rim. First the ball can hit the bottom half of the rim and redirect itself through the rim. Second the ball could strike the top half of the rim which would most likely cause the ball to carom up out of the cylinder, the area directly above the basket, and result in a miss. If this very basic argument is accepted then there is a 50% chance using the back of the rim as a target will result in a make and an opposing 50% chance of a miss.

Now reflect on the suggestions of not aiming at all and just shooting. The driving force behind this belief is it is best to clear the mind of clutter and let natural instincts take control. There are certainly times in basketball where it is more advantageous to avoid thinking and just react, but shooting may not be one of those times. If a player shoots without narrowing their attention it is quite possible they eventually begin throwing the ball in the direction of the basket hoping it will go in counter to shooting the ball and knowing it has a chance to go in.

The best solution for this question of where to aim may combine multiple philosophies. The best way to approach a shot is to have a “healthy focus” on shooting the ball over the front of the rim. Imagine a water bottle sitting on the front of the rim and the shooter attempting to knock it down. This helps the player avoid hitting the front of the rim which offers zero chance of success and encourages them to ensure enough height is placed on their shot to clear the front of the rim. While this study guide suggests aiming for a target above the front of the rim it is best for the individual player to experiment and decide what works best for them.

### **How to Increase Range**

Unfortunately there are no real shortcuts when it comes to gaining range on the jump shot. Range can only be increased through time and lots of work. The best way for a player to increase the distance they are comfortable shooting from is starting close to the basket slowly moving farther away as consistency improves. It is important for shooters to not begin practicing shooting farther away from the basket than they are comfortable because they will begin to sacrifice proper mechanics for the added distance needed to get the ball to the rim. When a player does begin to move out of his comfort zone it is paramount he remains *finishing high* in the follow through. It is normal for players to start shooting out and not up as they move away from the basket. The player must trust his *synergy* created from good rhythm to help the ball travel farther.



### **How to Raise Shooting Percentage**

The most obvious answer to this question is to become a better shooter through practice and this study guide attempts to provide the necessary information to aid a player in that endeavor. It takes

time for a player to improve his shot, but if a player learns to attempt only smart shots, he can increase his shooting percentage very quickly. A **Smart Shot**, or high percentage shoot, is any attempt where a player is open and within his range. Notice a *smart shot* is different from a *good shot* because a *good shot* is determined by the path the ball travels to the basket.

According to the definition there are two qualifications that must be met for a shot to be called smart. The first qualification is the player must be open. Players must realize an open shot for them can be different than an open shot for their teammate. Kobe Bryant does not need as much space between him and his defender to be considered open compared to his teammate Ron Artest because Kobe has superior skills. The second criterion for a smart shot is the player shooting within their range. Similar to an open shot, the acceptable range for players to shoot from varies and a player must know their own limits. For example, a 3pt shot for Kyle Korver is smart anytime he is open but it does not matter if nobody is within ten feet of Joakim Noah, it is never a smart shot for him to shoot a 3pt attempt. This is not an insult to Joakim Noah, he is just not a good shooter and his Chicago Bulls teammate, Kyle Korver, is one of the best shooters in the NBA.



### How to Improve at the Line

Every shot attempted in a game with the clock running is different, but free throws are the exact same every time because they are not external variables. The only internal variable which changes from one free throw to the next is pressure which can be controlled by the shooter. Players can learn to control the amount of pressure on a free throw by establishing a routine to follow before each attempt. This routine should be simple and include taking a deep breath. If a routine becomes too complex it becomes more difficult to repeat and goes against the *economy of motion* theory. Part of the routine should also include players setting themselves with a knee bend at an appropriate angle. The player bending their knees prior to shooting eliminates the extra motion of going down before rising to shoot. In addition to a routine, players should pay attention to their grip in the shooting pocket. Players should

take full advantage of the opportunity to get their hand behind the ball with their fingers utilizing the grooves in the basketball. Players should also finish on their toes and be sure to stay balanced without fading back off the line or falling over the line.

### What Makes a Good Shot Fake

When a shot fake is executed correctly, great things happen. Anyone who watches college basketball and listens to Bobby Knight as a color analyst for ESPN knows it is his favorite play. The shot fake is not used near enough in basketball and players need to learn how effective it can be. The shot fake is used widely by the best players in the world, notably Dwayne Wade, Kobe Bryant, and Paul Pierce. These NBA stars often use the shot fake to lift their defender into the air then jump into him, drawing a shooting foul.

A shot fake is simply a player's normal shot that he does not shoot. If a player examines his actual shot then compares it to his shot fake he should not notice any discrepancies. The key phrase to remember when using a shot fake is "Ball up, Butt down." The shooter wants to entice his defender to leave his feet in an attempt to block the shot. To accomplish this, the shooter needs to show the ball as much as possible to the defender by bringing the ball up to his forehead. At the same time the shooter must stay low, "butt down," to simulate the shooting motion. By staying low the shooter also stays quick using the *low-to-high* concepts and is ready to drive once the defender leaves his feet.

### How to Train

The most important part of training to improve a basketball skill is having a plan. Using shooting as an example, a player cannot just plan on going to open gym, play a few pick-up games and expect to improve his shooting. In a pick-up game played to 15 the average player may only shoot the ball 3 or 4 times. This is not enough to make a player a better shooter! A prominent NBA skill development coach suggests it takes the average professional player a minimum of 200 shots a day to maintain their current shot, and a minimum of 500 shots a day to actually generate improvement. There is no replacement for repetition when it comes to shooting.

The best way to practice shooting is for a player to find a partner and pass to him. With a partner it is easy for a shooter to attempt over 200 shots in as little as 15 minutes! If a player does not have a partner to shoot with, the player can best use his time by attempting shots close to the basket. This cuts down on the time it takes to rebound the ball and attempt another shot. The goal is LOTS of shots! The more shots you take with the proper mechanics the more natural the correct shooting form becomes.

Patience is also very important in improving shooting form. As mentioned in the introduction, shooting is a skill which must *sacrifice short-term success for long-term gain*. **The Theory of Two** is an interesting way to view skill development. It is as follows: *it takes two minutes to have skill explained, two weeks to become comfortable with and two months to perfect it to the point where it can be used in a game.*

