Basic Fundamentals of Pitching

As a pitching coach or an instructor, you do most of your work from behind the mound watching pitchers throw. There is a certain progression to use when you are observing pitchers. The first thing to do, especially when watching pitchers for the first time, is to just observe. Resist the urge to discuss any theories or any expectations. Just give them the ball and let them throw for 10 minutes. When watching pitchers throw for the first time, it's important to look for three things, and one of them isn't mechanics. Don't really concentrate on mechanics as one of the first things. Look at:

1) Ball movement
2) Velocity
3) Is the pitcher throwing strikes?

Obviously, when you look at the younger age groups, throwing strikes is the most important thing to focus on. Ball movement is a more advanced concept that comes into play as the players get older. Velocity is relative, based on the age group, but can be improved by throwing mostly fastballs at the younger ages. Velocity and ball movement should naturally take care of themselves as the players progress up the ladder.

Look at the results first and see where the pitcher is, because the more he's doing those things right and throwing strikes, that should tell you that you don't have that much work to do with that pitcher. The pitcher is doing a lot of things right if those things are happening. You are going to run into pitchers who don't

necessarily look smooth. They're herky jerky and unconventional, but they are throwing strikes. Do you need to change that pitcher much? Absolutely not. Look at how the pitcher is throwing before you start breaking down that kid.

You'll see the guys in the big leagues with picture perfect mechanics and not so picture perfect mechanics. If they are throwing strikes, the one thing they have in common is that they put themselves in a position – no matter what their mechanics are – with their hand and their arm slot to throw strikes. And that's what we want to try to accomplish from mechanics, a good end result. Everybody's mechanics are going to be a little bit different. We talk a lot about celebrating each player's individual talents, and that is never more important than with pitching. Just turn on the TV and you'll see that no two pitchers are alike.

Gripping the Baseball

The first thing we like to do is see how a pitcher is holding his fastball – either the four seam or the two seam. Does he know what type of movement he is supposed to get out of either one of those pitches?

Four-Seam Fastball

The first thing to introduce, especially to the young pitcher, is the four-seam fastball. Ask to see how the pitcher is holding the four-seam fastball. The pitcher should be holding the ball across the four seams. There are two ways to hold the four-seam fastball. You've got the open end of the horseshoe and the closed end of the horseshoe. Which way is the best way? The one the pitcher is throwing strikes with. But for the pitcher with smaller hands, it's a little better fit with the open end

of the horseshoe closest to the index finger. The index finger is shorter, so the seam drops down and allows the pitcher to contact the seam with both fingertips. For the older pitcher with bigger hands it really doesn't matter much. But for the little guys, that's a pretty good first step.

The next thing to look at is how wide the fingers are apart. You can't have the fingers too far apart, because the wider the fingers are, the more velocity the pitcher is going to lose. The fingers should be a comfortable distance apart for that individual pitcher. A common mistake is for the thumb to creep up the side of the ball. It's really hard to throw strikes if the thumb isn't below the ball serving as the anchor. It doesn't have to be all the way under, just more underneath the ball than on the side. Everybody has heard the expression, "Hold it like an egg." This really holds true. You want a nice, easy grip. The ball should come out like a feather. The fingertips are on the seams to generate the proper rotation, which helps movement and velocity. We want to make sure there is contact with the seams. You don't want to ride too high so the fingertips are not touching the seams.

What's the four-seam fastball going to do for you? It's going to stay straight. It's a good basis for throwing strikes. As the pitcher evolves and gets a little bigger and stronger, there might be a little action on the end of the four-seamer. But with the younger kids, a four-seam fastball is going to stay pretty much straight. That's good.

Two-Seam Fastball

We've talked about the four-seam fastball, now let's discuss trying to generate some movement. That's where the two-seam fastball comes into play. The pitcher should hold the two-seamer with the seams. Again, make sure the fingers are a

comfortable distance apart and the pitcher's fingers are not riding up on the ball. When riding up on the ball with a two-seam fastball, the fingers are splitting farther apart and the pitcher is losing velocity. The fingers should be working with the top half of the ball where the seams are the closest together. Whether the pitcher grips the ball with the fingers on top or inside the seams depends on comfort level. The key is to figure out which grip allows the pitcher to throw strikes while achieving maximum velocity and movement. Once again, make sure the thumb is below the ball.

What's a two-seamer supposed to do? If I'm a right-hander throwing to a right-handed hitter, it's supposed to run inside. If it's a left-handed pitcher, it's just the opposite. The two-seamer should move away from a right-handed hitter. How is that accomplished? Just like with the four-seamer, by keeping the hand behind the ball. Sometimes you'll see pitchers where balls are cutting dramatically. Many times that happens when the pitcher's hand is coming around the ball. It's not a real natural movement. That's not a good thing. We want to create movement by keeping the hand behind the ball and letting it come out of the hand naturally. That allows the movement to take over.

Mechanics

When you've got the base - the two-fastball grips - then we can start talking about mechanics. As a coach, sometimes you're looking at the pitcher and all you see are arms and legs coming at you. It can be tough to decipher exactly what's going on. What we've got to do is break it down. It's really tough to look at a pitcher in his entirety while he's throwing and determine what the problem is, or for that

matter, to determine what he is doing right. You may have a pitcher who has good velocity and isn't throwing strikes, but you can't tell what's wrong by seeing the entire throwing motion. You've got to break it down.

The Five Links of the Chain

Mechanics can be broken down into five sections. We like to call them the five links of the chain. Mechanics is one continuous motion, but there are five parts to that motion, and if one of those links breaks down, it can affect the chain. So what you want to do is look at the overall windup and then make it easy on yourself.

1) **Feet –** The first thing to look at is the feet. See where the pitcher is on the mound. There are a lot of theories. Some people say left-handers should be on the left side of the mound and that right-handers should be on the right side of the mound. Again, our theory is that the pitcher should stand wherever it takes to produce strikes. That's the comfortable side. Are there advantages to standing on one side or the other? Sure – when you get to the higher levels and start talking about angles. But for now the key is to make sure the pitcher is comfortable and throwing strikes. The middle is a good starting point.

   So, the pitcher starts on the middle of the rubber. The heels should be on the rubber so the toes are touching the ground in front of the rubber. If the pitcher starts with the toes on top of the rubber and steps back, to complete the next move (pivot), the pitcher has to pick up the foot and place it. Many of the fields that kids play on have rubbers that after a couple of days have

four-inch gullies in front of them. If you get a young pitcher picking up the foot and finding the spot and then dropping four inches again, it's going to be tough to throw strikes. Many times we overanalyze pitchers who are struggling to throw strikes when the problem could just be a simple thing like the feet or the grip.

The next thing to look at is what type of tempo the pitcher has. Is the first step nice and smooth, or is it violent? We have to make sure the pitcher has a nice, smooth first step. A good indicator when a pitcher takes the first step back is to look at the head and the pivot foot. Does the head remain over the pivot foot? If the pitcher's first step is too big, the head is going to go with the foot. So an easy thing to tell a pitcher instead of worrying about the feet is to say, "Keep your head above your pivot foot." That automatically will make the pitcher take a shorter step back and slow the tempo down.

The next thing to look at is the pivot. Make sure young guys pivot all the way so that the foot is totally parallel to the rubber. If they don't, if they get lazy and spin their heel on top of the rubber or leave the foot at a 45 degree angle to the rubber, when they get to balance position, they are already pointing away from home plate. They are too open and are self-destructing before they start.

That's the first link…it's all feet.

2) **Balance Position –** Let's see how the pitcher brings the leg up into the balance position. Is it a controlled movement or is it violent? The pitcher wants to be in control of that leg. Again, looking at the angle, the leg should

be slightly closed. If the pitcher's leg is not a little bit closed with the butt cheek pointing at least a little bit toward the catcher, he is opening up too soon. This will result in a front shoulder that is not pointed toward the target and a hard landing with the front foot.

As the leg comes up, look at how the pitcher brings the hands and legs together. This is where the pitcher gathers. It should be comfortable and there has to be a pause (not a long one). The pitcher gathers at balance position and then goes toward the plate. When you're talking textbook, the glove should be slightly above the belt. You're going to have pitchers who don't bring their gloves down that far and who have higher leg kicks, but as long as their arm arrives at the right time and they are throwing strikes, that's not a big deal. The pitchers are doing something right to get there.

3) **Power Position –** How does the pitcher take the ball out of the glove? That's the first thing to look at when analyzing the power position. From balance position, the pitcher can't get lazy. The ball has to be out and up. The wrist shouldn't drop below the ball, and the arm shouldn't be shortened up so the ball points at the ceiling. Sometimes you see pitchers who throw and look like a pitching machine. When they take the ball back, their hand is under the ball. They are not creating arm action. Arm action is created by keeping the hand above the ball when in power position and shifting behind the ball during rotation. Also in the power position the pitcher's weight should stay back. Everybody's heard the expression, "Stay back." The next time you are working with a pitcher, have him stop in the power position. More often than

not you'll see pitchers with their weight balanced evenly, not back. That will not allow them to generate the torque that takes them through rotation and creates momentum for the follow through.

4) **Rotation –** Torque creates rotation. The hand stays behind the ball as the arm comes forward. The elbow forms an "L" and is slightly above the level of the shoulder. Both feet are on the ground with the toe of the lead foot pointing toward home plate. In order to throw a baseball properly, the front side has to be used correctly. This is not just for pitchers. This is for every position. It's like looking down the scope of rifle. Pick out the target and get the shoulder on the target. This is the key to throwing strikes. Pitchers have to use the front side. If the front side is not used properly, the pitcher appears lazy, with the front arm kind of just falling to the wayside. Using the front side allows the pitcher to point the shoulder toward home plate and then create torque to generate power. No matter if a pitcher throws three-quarters or over the top, the elbow still should be above the shoulder.

5) **Follow Through –** When you throw a baseball, if you break it down on film, the back foot is still on the ground when the ball is released. Then the follow through takes place. The follow through is a result of momentum. If you don't have momentum you're not going to have a follow through. You can't say, "Hey, just pick it up at link five," if you don't have a follow through and just make an adjustment there. You've got to stay back, make a rotation so you have momentum and then follow through.

Not everybody is going to have the same form of momentum. Not every pitcher is going to be able to generate momentum and follow through to a perfect fielding position. Does it help? Sure. Is it a necessity? No. Goose Gossage used to end up practically down the first base line. Can you imagine if his youth league coach at 12 years old tried to straighten him out? He had a Hall of Fame career. The point is that he was able to throw strikes despite that finish. That's because he was on time when he needed to be. He just had so much explosiveness that his momentum carried him toward first base.

That's the basis. You take a look at the pitcher and evaluate. Look at the four-seam fastball and the two-seam fastball. See if the end result is a strike. Then breakdown the mechanics, these five links. As a pitching coach, just look at the feet and block out the rest. Then examine the balance position and power position. Block out everything else and look at each individual link. That makes seeing the problems that much easier. The challenge is to teach the kids the five links so that they know what you are talking about when you yell out from the dugout during a game.

You can't offer assistance unless you watch what the player is doing. If the kid is having success, even though everything mechanically is not necessarily by the book, you might continue to watch, but you don't want to fix something that isn't broken. So, the evaluation and observation period is crucial.

All of the mechanics of pitching – throwing at 60 feet – crossover to other parts of the game.

The five links of the chain is an advanced concept geared more toward the high school player. For the younger player, it can be broken down into simpler terms:

1) **Start with a baby step back.**
2) **Turn the foot (pivot).**
3) **Pick up the leg.**
4) **Point the front shoulder.**
5) **Throw.**

There are some drills that can assist with mechanics. Again, first we go back to the grip. You can do all of the drills in the world, but if the pitcher isn't gripping the ball correctly, nothing is going to change.

One-Knee Drill

This drill breaks down arm action and works on the power position. It concentrates on taking the ball back out of the glove and keeping the hand behind the ball. The drill is great for short-armers and long-armers, guys who get underneath the ball. It can be done in the outfield before a game. Players drop their throwing-side knee to the ground with the opposite knee up and play catch, using only a four-seam grip, from a short distance. Another thing you can do is to tell the kid to look back and see what the arm and hand should look like before coming forward. This may allow the player to see what is wrong. There are no quick fixes. Drills must be done every day in practice in order to correct problems.

Tee Drill

The use of a hitting tee can enhance the one-knee drill. This is for the player who chronically lets the elbow drop below the shoulder. The tee is placed on the player's throwing side close enough that if the elbow drops, it will hit the tee. This allows the player to visualize the proper throwing motion. The one-knee position is again assumed (throwing-side knee to the ground). Players will exaggerate the elbow position to avoid hitting the tee. On a daily basis this will help create muscle memory so the player doesn't have to think about it.

Power Position Drill

This can be used not only as a drill for troubleshooting, but also as a warm-up before a pitcher goes into a game. The player starts by creating a wide base with the feet. Using a four-seam grip, the hand is placed on the ball in the glove at chest level. As a coach, make sure the pitcher shifts the weight back before going forward. The hands break, the weight goes back, power position is assumed, the ball is released and the follow through takes place. The follow through in this drill occurs only with the arm. Both feet stay on the ground, with the trail foot staying near the rubber. Have the pitcher rotate on the backside, create a nice hip turn and finish. Make sure the front toe is pointing forward. Remember that in the power position, the hand is above the baseball, and the front shoulder is used as a site, pointing directly at the target. The first time you show this drill to your pitcher, it will be tough, because it takes a lot of balance and timing. Have the pitcher stop and "pose for a picture" after the arm finishes. Both feet should be on the ground. For

short-armers, you can have them start in the finish position then take the weight all the way back through the power position before finishing. This creates a long, whip-like motion and gives them a feeling of stretching the throwing motion out.

Another variation of the power position drill, for pitchers who throw the ball high a lot, is to have the catcher shorten up. To throw the ball downhill to the catcher from a mound the pitcher really has to concentrate on getting the elbow up and staying on top of the ball. This isn't a velocity drill. All the pitcher is thinking about is timing and balance. The drill also is good for long-striders. Pitchers with long strides will not be able to get downhill in time. Remember that both feet are on the ground when the pitcher completes this drill. The follow through is with the arm only, just as in the regular power position drill.

Pitchers can do "dry" sets where they are just working on the power position and rotation movements without baseballs. Five or ten sets of each motion will help create muscle memory and will allow pitchers to make adjustments during games when coaches point out problems.

Eyes on the Target

It can be a very simple thing, but in all the complexities of mechanics, Cal Sr. always used to say keep your eyes on the target, put your front shoulder in the glove, ball behind it. That is a very simple and safe thing to tell a young pitcher. Just like throwing in the outfield or infield, the pitcher wants to pick up a certain spot. If the pitcher is locked in and never takes the eyes off the target, that's a good starting point. That's not to say there aren't pitchers who can take their eyes off the target and still pick it up again, but for young kids, a good starting point is to tell

them to look at the target. If a kid is taking his eyes off the target for a split second and still throwing strikes, we don't want to fix that. But the longer the youngster sees the catcher's glove, the more likely a strike is going to be thrown.

Offspeed Pitches

When a pitcher can throw the two types of fastballs on both sides of the plate and has a good concept of mechanics, then it is time to look at offspeed pitches. But, we still want to establish the fastball first. Too many times, especially at the high school level, pitchers are in a hurry to become four-pitch pitchers. They forget that they have to throw the fastball on both sides of the plate, because everything is going to come off their fastball.

The most important thing for offspeed pitches is to make sure the ball is comfortable in the pitcher's hand. Too often a young pitcher will see a teammate with a good curveball and try to imitate that grip whether it is comfortable or not. Everybody's hand is different. Everybody has different arm slots and velocity and confidence, which is a huge factor in throwing a breaking ball for a strike. The best grip is the one that feels best in the pitcher's hand, so that's what we have to find.

Breaking Ball Grips

One common theme with all breaking balls is that the pitcher wants to find a long seam. The middle finger should be placed on the inside part of the long seam so there is something to pull down on. The ball should be visible on both sides of the fingers. A common mistake of young pitchers is to have too much of the ball exposed on one side. Once in a while they'll throw one for a strike, but most times

the ball just pops out and spins. No matter what breaking ball is being thrown, the ball should be visible on both sides of the fingers. As far as the thumb, some guys will have a little more daylight between the ball and the thumb. Some guys will choke it off a little bit more. You have to constantly tweak it. Tell the pitcher to move the grip around and throw a few to see what's comfortable. The most important thing is for it to feel good in the pitcher's hands.

The progressions of the windup are the same as with a fastball at the beginning. The hand stays on top of the ball then shifts behind the ball during rotation before getting over the ball out in front of the body. A pitcher can drop the wrist below the ball to throw a breaking ball, but this type of pitch has a ceiling. It won't get that much better and it puts more strain on the elbow. As the arm gets in front of the body, the hand comes over on top of the ball and then through it. This is where confidence comes in getting out front and being aggressive with it. If the pitcher babies it, that's when you get the lollipops. When you throw a breaking ball, you want to have good extension, but not quite as far as a fastball after the pitch is released. To get the feel for this, have someone hold a glove out where the pitcher would normally extend to after releasing the ball. Make sure the pitcher pulls back in after rotation and follows through short of the normal follow through.

As far as visualization, when you tell a kid to throw a breaking ball for the first time, make the expectation small. You've heard the term breaking ball. All we're trying to do is take a ball and make it break. We don't say curveball or slider. We let the pitcher determine which breaking ball he has. Let's just get out in front and create some rotation. A lot of times you tell a kid to throw a curveball and he has certain expectations because he's seen a big league pitcher throw one that breaks

off the table. Then the first thing the pitcher tries to do is make it really big and break from very high to very low. Tell your catcher to ask the pitcher to make it small. Create some rotation and throw some strikes. You can start the pitcher out in the power position drill practicing breaking balls from an abbreviated distance. Just have the pitcher separate and throw a breaking ball. It's an easy way from the shorter distance to get the pitcher comfortable with the ball coming out of the hand. The more comfortable the pitcher gets, the farther back the catcher can move.

Young pitchers often force the issue and throw the ball up to make it break down. The key is to get over the ball and let the ball break a little bit. There is a very fine line between overthrowing it and being firm with it. You want to be firm, but you don't want to become unglued. Also be careful, if you do teach a kid a good breaking ball at a young age, to not let the pitcher fall in love with it. The hitters aren't going to be used to hitting it, so definitely keep a pitch count on it. Young pitchers should be building arm strength by throwing at least 80 percent fastballs. If they fall in love with the curveball, they will not strengthen the arm sufficiently and as they get older their velocity will suffer and the risk of injury will be greater. You don't develop a good curveball when you are 10 years old and take it to the big leagues. You actually develop a good curveball by throwing a lot of fastballs at a young age. That strengthens the arm so that when it is time to develop a breaking ball, you are able to do so. But first you have established a fastball to build up arm strength. It is a God-given gift to be able to throw hard, but if you keep throwing fastballs you will develop your arm strength and allow yourself to throw a better fastball. The more breaking balls you throw at a young age, it's going to take more miles per hour off your fastball as you get older. If you develop a good fastball as a

youngster, you are going to be able to throw a good breaking ball when you get older.

There's nothing wrong with introducing the concept of a breaking ball, but you have to manage the big picture. You have to set certain rules. To be a big league pitcher, your arm strength and your fastball are going to get you there. You can add your breaking ball in as you go, but minimize it. Don't try to do it for the sake of winning the game. You can't compromise your rules and principles that govern the player's development. The concept is good, because if they get it, they can grow with the concept as they get older. Just make sure to minimize the use of the pitch in games.

Changeup

The changeup is a great pitch. If you are looking for something to teach your young guys as an off speed pitch, teach the changeup first. What is a changeup supposed to do? It's an off speed pitch. We're trying to take something off our fastball. Depending on the velocity range, the changeup is going to be 8 to 10 miles per hour slower than the fastball. The pitcher wants to have arm speed action similar to the fastball, but the pitch actually is a little bit slower. The idea is to throw off the hitter's timing and get his weight out in front too soon, eliminating his power. Pitchers have been told all their lives to throw hard, and all of the sudden you are telling them to lay one in there. They have to be convinced that this is what the pitch is going to do (get the batter's weight out front) and that they should trust it. Throw it for a strike. It's not a strikeout pitch. Let them hit it. Get that point across so they have the confidence to throw it.

There are a whole bunch of changeup grips out there. There is a three-finger grip that is good for younger players with smaller hands. You grab the ball across the four seams or two seams, whatever is comfortable. Get three fingers on it, but make sure the pitcher doesn't stick it in the back of the palm. One of the myths about a changeup is that you have to jam it into your hand and choke it. Not true. When you stick it in there, stick it in the back of the fingers and close it up. There should be some space between the hand and the ball. You throw a baseball with your fingers and not your hand. Some guys can throw a palm ball, but it's a very advanced pitch. Tell an 8- or 9-year-old to put three fingers on the ball and just play catch. When the kids start getting more advanced, we can get four fingers involved. Stick the ball right in the fingers with two fingers on the middle of the ball and use the pinky and pointer as bookends. Make sure it feels good then have the pitcher put the thumb on the ball. If the pitcher has big fingers, you've got a circle change. If the pitcher doesn't have big fingers, you still have a changeup grip. Don't force the circle. It will come. If the pitcher is 10, by the time he is 16, he'll grow into it. The ball has got to feel comfortable in the hand to throw the pitch for a strike. Constantly move the ball around and alter the grip until it feels good. The grip takes off the velocity and allows arm speed to remain the same as it is when a fastball is thrown.

Those are two very basic grips, now how do we throw these? Again, we get the arm back out of the glove with the hand above the ball. Stay behind the ball through rotation. As the arm comes forward, get back on top of the ball and slightly inside, not turning it over. Don't lead with the wrist. The hand naturally finishes a little inside. With the changeup, we just start the process a little earlier then let the

natural hand action create the rotation. Don't try to do too much with it. If you look at the grip, most of the pressure is on the inside of the ball anyway. The grip alone is going to take care of a lot of the action, so don't force it too much. A lot of times pitchers will force it and get too much movement. Then they won't be able to keep it in the strike zone. As a visualization, imagine there is a bucket and after releasing the ball you want to drop it in the bucket.

Speed is important, but don't worry if it is being thrown too hard at first. That means the pitcher is really throwing it. The grip can be adjusted to take off the velocity. A lot of time a kid babies the pitch and kind of lobs it up there.

As coaches, we are looking to build arm strength in young players. It sounds simplistic, but you learn to throw hard by throwing hard. You have to throw your fastball. You throw your changeup off your fastball. You're not going to throw your fastball off your changeup. Again, at a young age, don't fall in love with your changeup. Restrict what the kids can throw. You can't stress enough that you can't fall in love with your offspeed pitches, because in the developmental stages of your arm, the fastball is the most important pitch. Make sure that you govern it and aren't allowing them to throw 50 or 60 percent offspeed pitches. They may experience success at first, but if they don't develop the fastball, they are going to fall off of that ladder that you climb to get to the highest level of baseball. It's good to introduce it and get the concept out there. They are going to use it as they go up the ladder, but also make sure that they throw plenty of fastballs. The fastball can be four weapons; it can be thrown high, low, in and out.