

## The Basic Mechanics of the Fastpitch Pitching Form

The Fastpitch softball pitching form is one of the most difficult movements for the body to learn. It is a very complex motion that requires years of study and practice to perfect. I started pitching my sophomore year in High School, but it took me 3 years of throwing year-round to truly grasp an understanding of the motion. As I practiced the motion with my body, I started to learn the science of the motion by studying physics and human movement. I followed that up with college courses in biomechanics and started applying what I was learning about movement and the human body to my pitching. You would be surprised what a difference it made. That knowledge, combined with lots of practice, greatly improved my performance. I hope by sharing that knowledge, I can help you in your journey to become the pitcher or coach that you are destined to become!

The human body moves in patterns. The more efficient the movements, the more power we can harness from our body. Power is important because the movements in fastpitch softball should be quick and explosive. Think of an old engine that has not been tuned. It will be inefficient, burning more fuel and producing less power. A new, tuned engine will burn less fuel (meaning it is efficient) while providing more energy. Obviously, we want our bodies to perform like that new engine, greater energy output with less fuel consumption.

The legs are the strongest part of a woman's body. Therefore, if you are going to get the most out of your pitch, you need to use your legs correctly. Your legs should be used to create an explosive stride on the straight line of force that runs perpendicular from the rubber to home plate. When pitching, your stride leg should land on that straight line of force or "power line." Your stride leg, which is the left leg for right handed pitchers and the right leg for left handed pitchers, should land at about a 45-degree angle on that power line. This will protect the knee and help with proper hip movement. It is also important to land with your heel making contact before your toe. Pitchers who land on their toe will end up throwing with their weight too far forward and will lose a good amount of power, and have control issues. The length of the stride will vary depending on the age and height of the pitcher. My stride is about 7 feet long. But, I am also 5 feet 11 inches tall. When I first started pitching, my stride was probably about 5 feet long. Regardless of your height, make sure your stride is aggressive and explosive.

As the stride leg lands, you want to 'build a wall' with that side of your body. This is sometimes called 'blocking'. I refer to it as throwing against a "hard opposite side" or a "firm right side" for lefties and a "firm left side" for right-handers. Blocking is a movement pattern used in many sports. It is defined as "using opposite sides of your body to create energy." It is commonly seen in throwing sports, but a good example of blocking in a non-throwing sport is a high jumper who blocks on one side of her body to create force in an upward direction to propel her body over the bar. The block in the fastpitch motion creates a lot of force, as well. That is important because that force is transferred to the ball in the form of speed.

The proper hip movement is one of the most misunderstood parts of the pitching motion. The hips should be at a 45 to 52 degree angle at release (the hips should NOT be closed at release). The arm should pass in front of the hips as the snap on the ball is delivered. Many pitchers are incorrectly taught to snap their hips forward or 'closed' at release. The hips need to stay open and the back leg should drive or "pinch" into the front leg. This pinching action will put your legs into a "figure 4" position at release and insure that your hips remain at the ever important 45 to 52 degree angle.

Along with your hips, your belly button will also be at 45 to 52 degrees. If your belly button is facing the catcher at release, your hips are over-rotated and this will cause a loss of power. More importantly, it puts your shoulder joint in a compromising position. Young, flexible pitchers may not realize their hips are over-rotated and in a bad position at release. But, after years of pitching incorrectly, they will almost certainly have damaged their shoulder joint. When your back leg pinches in behind your front leg, it should create a dragline on the ground that looks like a stretched out inverted letter "S". (The picture of me shows the proper form at release. Notice the angle of my hips, the direction of my belly button and

the drive of my back leg.)

Your upper body positioning is also very important to the Fastpitch form. If your shoulders are over-rotated, you will have a tendency to pull your hips closed as a result of your shoulders being out of position. Let's face it, we do not usually, if ever, see people walking down the street with their hips facing forward and their shoulders rotated 90 degrees to the right or left! Our shoulders and hips follow each other. So, it is important not to muscle the pitch and pull the shoulders closed. This will only cause the hips to rotate early and get in the way of the release point. By keeping your shoulders open or at about the same angle as your hips, you will be able to let your arm enter into the release zone in a whipping movement. It is that whipping snap that creates a great deal of velocity.

When making the big circle of the windmill motion, your throwing arm should be fully extended all the way around. It is important that your arm circle be on a straight plane directly off your body. While it is normal for a slight bend to occur in the elbow as the arm enters into the downswing, make certain your arm circle remains on a straight plane all the way through release. One of the basic laws of physics states that "for every action there is an equal and opposite reaction." So, basically, if your arm circle is bent and over your head at the start of your pitch, the equal and opposite reaction will make your arm too far away from your body at release. That can cause control problems. Also, when the arm is too far away from the body at release, it causes stress on the elbow.

Your glove arm needs to extend out toward home plate and then pull into your body. Because of the opposing forces mentioned earlier, the glove arm also produces a great amount of energy. So, if you are using that arm ineffectively during a pitch, you will lose a great amount of power. Think of using your glove arm to pull your body toward homeplate. Just as a swimmer uses both arms to pull her body through the water, a pitcher can use her glove arm to pull her body through the air. Instead of water, a pitcher uses other forces to gain power with her glove arm.

The head is one of the heaviest parts of the body. Therefore, it is very important to keep your head over your center of gravity. Usually, your center of gravity is around your mid-section. If your head gets outside of your center of gravity, it will create balance problems. Pitchers who have a tendency to fall off to one side or the other, will many times simply have their head outside their center of gravity.

The follow through of the pitch should be very relaxed and loose. The main purpose of the follow through is to release the deceleration forces acting on the arm. Try to keep your arm relaxed and on a line straight off your "big arm circle" in the direction toward the target. If the ball goes off to the right, chances are pretty high that your arm circle and follow through also went toward the right. Pitchers who are tight on the follow through, should bring the arm up after release and either touch their opposite shoulder or their ear, remember the hips and shoulders at release should be at 45-52 degrees, therefore when the throwing arm comes up it should be in the area of the non-throwing shoulder. By focusing on bringing their arm up toward their shoulder, it will help keep their arm from being stuck down by the hips and help them release the extra forces created in the pitch.

As you are aware, the pitching motion is not easy to learn in just a couple practices! There is a lot going on in a very short amount of time. To get it all right, time after time, seems like an impossible task at times. But remember that hard work, with your body AND your mind, this knowledge of the pitching motion will help you get where you want to go. Best of Luck! Michele Smith