

# ***Speed Measurements***

## ***Correlations and Mechanics Analysis***



[www.PaulyGirlfastpitch.com](http://www.PaulyGirlfastpitch.com)

Here at PaulyGirl Fastpitch we measure our pitchers in numerous ways. One of the most important measures is of course speed. Yes, the “holy grail” of speed is important! But we tend to look at speed as a tool to analyze several things: 1) progress that our students are making, 2) is the pitcher working hard between lessons, 3) how fundamentally sound is the pitchers mechanics, and 4) is the pitcher ready to move on to the more advanced pitches.

We measure speeds from several starting positions to help us analyze their strengths and weakness in mechanics and energy level. Following is a description of those positions and what percentage of their mound speed they should be able to attain from each position.

From each position the pitcher will throw 7—10 pitches that we measure. From those pitches we take an average of the five best and also note the single highest speed. These are recorded by date so we can see progress and how rapidly they are progressing. Also, we can see when they digress so it sends a red flag up to us that something has changed for the worse.

**Slingshot** (often referred to as starting from the “K” position)

The pitcher throws from about 30 feet. In this position we really emphasize arm whip and body rotation throughout the kinetic chain. The pitcher is allowed to take a step with the lead foot so as to simulate the landing in the pitching motion.

A mechanically sound pitcher should be able to throw 90% of their normal mound speed from this position. Throwing from slingshot is the single best method of dialing in sound and safe pitching mechanics. Think about it.....90% from this position.

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**Parallel Powerline** (pitcher is fully strided with arms, hips, shoulders parallel to the powerline)

The pitcher throws from about 35 feet. It is a little farther than the slingshot because the speeds should be a little faster and there is no sense in killing the catcher, right. The pitcher will use a full arm circle including a backswing if that is their normal method of delivery. Again, the pitcher is allowed to take a step with the lead foot so as to simulate the landing in the pitching motion. We emphasize arm speed gradually increasing and hitting its maximum as the arm enters the whipping zone just prior to release. Certainly it is important to keep the throwing arm on the powerline throughout the entire motion including backswing.

A mechanically sound pitcher can achieve 93% of her normal mound speed from this position.

**Perpendicular Powerline** (pitcher stands with feet about 12 inches apart and her hips, arms, shoulders are perpendicular to the powerline)

The pitcher will throw from about 30 feet. The pitcher will use a full arm circle including backswing. The idea with this position is to isolate the arm speed and finger/wrist snap. There is not stepping allowed in this drill. However, a little rhythmic bouncing will certainly help the results. We encourage the pitcher to not twist their shoulders when they backswing (a good training method since we don't want them to twist in their normal mound pitching mechanics either). To help the pitcher get the feel of energizing her upper body during the pitching motion we suggest a very quick backswing followed by a very quick forward arm circle....thus this drill is referred to as "Quick-Quick".

A mechanically sound pitcher can achieve 85% of her normal mound speed from this position.

**Mound** (normal pitching mechanics as used during a game)

The pitcher will throw from 35-40-43 feet depending on age level. Everything about this should mimic a game situation fastball. The number one focus here is energy level. We want explosion from every part of the body. Landing posture and posture at release are key mechanical things to check.

The mound speed is the base from which we get our calculations for our other positions. Any significant variance from the percentages we have prescribed starts to tell us where to look for mechanical issues.

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## **Walk-in**

The pitcher will perform her throws using a moderately fast walk in motion. The pitcher should release the ball from a distance equal to their normal mound distance. We are looking to rev up the energy level in the pitcher and secondarily we encourage the pitcher to feel how the rotational torqueing of the hips/core increases because of the more violent stoppage of the body's forward drive.

A mechanically sound pitcher should be able to throw 105% of her normal mound speed when performing a walk-in pitch.

## **Walk-in Lite Flight Ball**

The pitcher will perform these pitches using a lite ball. We prefer using an Atec soft machine ball that weighs about 3.5 ounces. Again we are looking for high energy. Performing this drill will definitely increase the arm whip speed into the release zone and the finger snap speed. It is an indication of what speed a young pitcher should be striving to achieve. Young pitchers should be able to eventually throw a regular ball at these same speeds. The more mature pitchers will near their lite flight speeds but probably will not be able to achieve these with a regular ball.

Part of the intent of this drill is to train quick reactions of the small muscles in the finger snapping movement.

It is common for pitchers to throw 110% of their mound speed using this Lite Flight method.

## **Sample Speeds and Percentage Correlations**

<b><u>Position</u></b>	<b><u>Speed (MPH)</u></b>	<b><u>% of Mound Speed</u></b>
Perpendicular Powerline	51	85
Slingshot	54	90
Parallel Powerline	55.8	93
Mound	60	100
Walk-in	63	105
Walk-in Lite Flight	66	110