

What Age to Teach the Curve Ball; How to Teach It, and Common Faults That Add Stress on the Pitching Arm

I. When to Teach the Curve Ball

Of course a lot depends on the physical development of a young pitcher, but generally speaking, I believe a pitcher should be close to 15 years of age before throwing the curve ball in game situations. It is not a matter of being able to teach the pitch to a young pitcher, but rather should it be taught to pitchers with immature arms?

Factors to consider:

- Has the pitcher reached puberty; how developed are his bones and connective tissues?
 - A young pitcher's connective tissues, his tendons and ligaments, are not as strong or as securely attached compared to a mature pitcher, thus there is a greater risk of injury.
- Is the pitcher in the middle of a major growth spurt?
- How well developed are the biceps, triceps and forearm muscles?
 - A young pitcher needs arm muscle strength to help stabilize and control the forces on the elbow joint during the acceleration, release and deceleration phases.
- Has the pitcher been taught to throw the curve ball properly?
- How many curve balls (percentage wise) is he throwing in games?
- Is the pitcher experiencing any arm, mainly elbow, problems from throwing the curve ball?

Most of the stress from throwing the curve ball is on the ligaments of the elbow, the biceps and forearm muscles. Since the hand and arm speed is slower than on the fastball and slider, and the elbow leads longer, there is usually not as much stress on the shoulder joint as on the fastball.

Another major reason I have concerns about teaching the curve ball to 13 and 14-year old pitchers is that they already have more than enough physical stress having to pitch from a 60' 6" mound versus the 46 foot Little League distance. To add a breaking pitch at this age only compounds the physical exertion on the arm and body.

Most young pitchers' hands and fingers are smaller and shorter, so the youngsters have problems gripping, controlling and releasing the pitch properly. This often causes the hand, wrist or elbow to be out of proper position during the acceleration and release phases, which can lead to injury.

Also, when a young pitcher learns to throw a curve ball and has some success with it, he often "falls in love" with the pitch (throws it too often) and he will never really develop arm strength, hand speed, and fast ball velocity.

II. How to Teach the Curve Ball

The following is a curve ball drill sequence that I use to teach and re-enforce proper techniques to throw the curve ball. Notice the ball is thrown from short distances and slow speeds. The purpose is

to teach the pitcher proper techniques and develop the proper feel of the pitch without creating stress on the throwing arm.

Curve Ball Drill Sequence

A. Grip: We teach a four (4) seam grip with the middle finger pressed up against a long seam. The thumb should be placed under the ball (and middle finger) with the inside ridge of the thumb contacting the ball. Do not choke the ball so deep that the thumb cannot flick up behind the ball during the release phase. There should be a space between the thumb and first finger. The pressure points on the curve ball should be: the outside of the middle finger against the seam, the ball stabilized between the 1st and 2nd joint of the ring finger, and the inside of the thumb. The first finger is relaxed and up against the middle finger.

The grip needs to be firm, but the wrist and forearm muscles should be relaxed so the muscles can forcefully contract during the release phase.

B. Hand separation and arm path to the cocked position: Break down, back, and up keeping the fingers and hand on top of the ball, exactly the same as on the fastball except for the grip.

C. Cocked position: RHP. (Mirror or partner check)

Palm of the hand faces the shortstop

Wrist extended back

Elbow shoulder height, hand head high

Firm grip but a loose wrist and forearm

Hand closer to 3rd base than the elbow for a RHP; hand outside (back beyond) the elbow.

Lead elbow up to shoulder height, aligned to the plate (use front elbow as a rifle site), keeping the front side closed as long as possible.

D. Trunk Rotation Drill: (Mirror or Partner check)

Start in a proper cocked position.

On “now”, rotate and square the trunk (hips and shoulders) to the plate.

To rotate trunk

(1) Drive the lead elbow downward to a position outside the lead hip and close to the body.

(2) At the same time, roll the pivot foot over to release the back hip squaring the torso to the plate and begin bracing the stride leg. Stop in a squared position to home plate.

a. Shoulders should be relatively level

b. The palm of the pitching hand should face the head (turned inward)

c. Fingers on top of the ball

d. Wrist in an upright neutral position

e. Pitching elbow aligned with the shoulders but with the elbow leading the hand a little longer than on the fastball.

E. Spinning (throwing) the curve ball

From the cocked position, rotate the trunk, and lob (spin) the curve down and away.

Develop the feel, muscle memory, of the fingers coming down over the top outside of the ball (1 to 2

o'clock) and the thumb flicking up - through the back of the ball creating a fast over-spin.
The **wrist snaps forward and inward** and the ball spins out over the middle finger.

After ball release, relax the arm to allow for the natural arm pronation, and then bring the hand diagonally downward across the body with the hand decelerating down and outside the knee of the braced stride leg. Flex forward from the waist during the release phase getting the head and shoulders over the stride leg. Throw (lob) the ball from a 25-30 foot distance to learn the feel.

F. Next drill, down, back and up, Hesitate, throw.

Start with the hands together under the chin, feet in a wide stride position, stride foot open. On a cadence from a coach or partner, break down back and up, stop for 1-2 seconds to check the cocked position. Then spin the curve at 35-40 feet.

G. Next sequence, down, back and up, throw – no hesitation. Pull the back knee forward and inward, bringing the backside into the pitch. Work on the proper arm action and develop a feel of the release. Work for a ball rotation of a 45 degree angle down and away from the arm side. Emphasize forward torso flexion during the release phase.
(RHP – 1-7 or 2-8 o'clock – 35-40 foot distance)

H. Final sequence, curve ball from the Set Position
(50-52 feet, $\frac{3}{4}$ speed)

Via high speed video, we have observed that pitchers with outstanding curve balls:

1. Have the hand high in the cocked position (elbow shoulder height) so they can throw in a downward plane.
2. Get their trunk squared to the plate during the acceleration phase.
3. Have a loose wrist that snaps downward and inward right after ball release.
4. Bring the head and throwing shoulder down over and outside a braced stride leg more forcefully than on the fastball (forward torso flexion).

III. Common Mechanical Faults Throwing the Curve Ball

A. Faults that add stress on the arm

1. Twisting action of the wrist and hand during the release phase.
2. Attempting to create a 12-6 ball rotation by snapping the hand and wrist straight down during the release phase (hyper-extends the elbow).
3. During release, the hand and fingers roll under the ball. The elbow and forearm drops low causing too much extension of the elbow.
4. Elevates the elbow during the acceleration phase. The pitcher tries to throw too much over the top which overly extends the elbow. This also may cause impingement in the shoulder joint or cause bicep tendonitis.
5. Hand and elbow too low in the cocked position. The arm accelerates upward causing an upward casting of the ball versus the hand accelerating forward.
6. Pitcher has not stretched and warmed up properly.

The most important technique to emphasize on all pitches is the position of the wrist at the point of release. This is much more important than the grip on the ball.

B. Other common technique faults

1. Grips the ball too deep (“chokes the ball”), which reduces ball rotation. Also, the thumb is placed on the side of the ball versus under the ball.
2. Grips the ball too loosely. The ball slips out, reducing rotation and causes control problems.
3. Cups the wrist (inward flexion) during arm acceleration and the release phase, reducing pitch velocity.
4. Front side flies open early causing the throwing arm to drag and get too low.
5. Starts to flex forward before the trunk squares to the plate.
6. Not focusing on specific spots. Think “curve ball for a strike” or “curve ball for an out” (2 strikes on batter; start the pitch in the strike zone and break it down and away).

Note: When working on the curve ball at a normal distance and velocity, a pitcher should not throw over 5-6 curves in a row. The forearm flexor muscles tend to fatigue quickly. Throw one or two fastballs for arm muscle extension then go back to the curve.

If older and experienced pitchers have an effective curve ball using their own unique grip and motion, do not attempt to change them, unless:

1. They are experiencing elbow or forearm problems, or
2. They cannot control the pitch.

Coach Bill Thurston Amherst College (MA) & Pitching Consultant, ASMI