Drop your damn shoulder!

The benefits of lateral trunk bend revealed

This month I'd like to share with readers why they should drop the bowling shoulder as much as they can.

I always strive to ground my thinking in sport science research and my own research studies as well as reflection on thousands of hours of video analysis of the best players in the world. Accordingly, over the past 28 years of coaching, my philosophy has evolved. Through this on-going professional development process, my beliefs have become more cemented in objectivity.

This thinking has converged to some critically fundamental cause and effect sequences. To illustrate, my comprehension of the cause and effect relationships associated with space creation continues to evolve. Through this progression, I have come to realize that space creation is the most important element in maximizing biomechanical efficiency in bowling.

This will be no surprise to those readers who have read my swing slot articles over the years or the downswing angle concept that I developed recently. Each of these articles was an evolution of understanding and articulation of the importance of cause and effect associations related to space creation.

My comprehension of the positive effects of increased lateral trunk flexion grows deeper and deeper on a daily basis. Consequently, my appreciation of the importance of increased lateral spine tilt has become a focal point of my teaching due to the fact that the result of adding side lean leads to many positive outcomes including a freer swing, increased ball motion, and improved balance at the foul line. What is most exciting about this realization is the fact that increasing your trunk side bend, also known as dropping your shoulder, is a relatively simple concept to incorporate into your physical game to realize big improvements.

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As an advocate of lateral spine tilt, I created an initiative simply entitled *Drop Your Damn Shoulder (DYDS)* in March 2012. Contrary to what many have been told, dropping your shoulder is an important asset to improve one's bowling. Specifically, in order to drop your shoulder, a bowler must lean to the side, increasing space for the swing slot.

Whenever I give a lesson or clinic, I always ask the participant/s if they were told not to drop their shoulder. Unfortunately, nearly 100 percent indicate they were told not to drop their shoulder. It is time to stop these lies and I am on a mission to change the mindset and paradigm of thinking about the physical game. Start a revolution! Drop your damn shoulder!

What is DYDS?

In simple terms, DYDS is dropping one's shoulder significantly or increasing the amount of side bend or lateral lumbar spine tilt (lower back or L1- L5), thoracic spine tilt (middle spine or T1-T12), and cervical spine (neck or C1-C7) tilt during the setup, swing, and finish.

The normal range of lateral motion for the neck is approximately 45 degrees while the middle back range of motion is 30 degrees and the lower back range is 25 degrees. With more lateral neck and spine tilt during the entire approach, a bowler is able to create more space for the swing which leads to additional positive residual effects such as more biomechanical efficiency and energy transfer from body to ball. A number of benefits emerge including:

- A freer swing due to the increased swing slot space;
- Improved footwork due to the body attempting to seek balance;
- Improved visual targeting and accuracy since the head is more over the swing line;
- Increased downswing angle due to the large lateral trunk angle and the elbow moving toward the hip in the downswing;
- Improved hand position into the release due to the elbow remaining close to the body and inside of the wrist;
- Better balance and leverage at the line due to the trail leg position moving away from the slide foot to seek overall body balance; and
- Increased energy transferred to the ball leading to more ball motion.

Where should I measure DYDS?

Recall that dropping one's shoulder is brought about by increasing side bend (i.e., increasing the lateral neck and spine tilt). To measure DYDS, you must determine how much angle the torso is bending at specific points in the setup, swing start, upswing, and finish. Accordingly, I recommend that DYDS be measured in four distinct locations to maximize the best understanding of each unique player's current state of side bend in the approach as well as to best evaluate strengths and weaknesses.

These evaluation locations include:

1. Setup – How much lateral spine tilt angle does the player have after remaining motionless in the setup position and just before moving into the approach? This angle is measured relative to zero degrees being an individual standing straight up.
2. Swing Start – How much lateral trunk tilt angle exists as the ball begins to move into the swing?
3. Upswing – How much lateral trunk tilt angle exists as the ball passes the leg on the way into the upswing?
4. Finish – How much lateral trunk tilt angle exists at the point of release?

With these four locations, a thorough evaluation of the bowler's state of DYDS can be achieved. This can be a good starting point for discussion with the coach and player as well as allowing a player to compare with world-class players.

DYDS at the PBA level

In order to see the range of lateral torso tilt angles at the elite level, I conducted an analysis of videos of eight of the best players on the

PBA Tour. From my analysis of these top PBA players, lateral spine tilt concepts are present with some slight variation.

Specifically, I analyzed the players in three locations: (1) setup; (2) as the ball passes the leg into the upswing; and (3) in the finish position at release. These three locations were my first attempt at evaluating swing slot space brought about through the DYDS concept. As you read above, my thinking has expanded to include four points of evaluation rather than three.

DYDS in the Setup =

The PBA players ranged from 8 to 10 degrees of torso side lean.

DYDS in the Swing =

The PBA players had the largest variability when measuring the torso side bend at the point where the ball travels into the upswing. Specifically, the angle ranged from 20 to 30 degrees. It is not surprising that the torso angle in the swing varies the most. In my professional opinion, this is where bowlers can make the biggest change, allowing for more efficiency in their game. Moreover, there has never been an emphasis or effort to actually drop the shoulder more on purpose and increase the lateral trunk flexion angle as much as I am promoting.

DYDS in the Finish =

Most PBA players were in the 32 to 35 degree range at the release position although values ranged from 31 to 37 degrees.

For a general rule of good practice, the values of 10 degrees (setup), 25 degrees (swing), and 35 degrees (finish), will provide good checkpoints for a player or a coach assessing a player.

How do I incorporate DYDS into my game?

In simple terms, you need to lean to the outside by increasing your lateral spine tilt. Here are some verbal cues and points of focus to better achieve DYDS.

Setup – In the setup position, after setting your feet on the approach, set the ball in front of the shoulder. Then, move your nose to the outside of the ball.

Swing – As you are moving the ball into the swing, try to get your entire head outside of the ball. Literally, think about getting your opposite ear outside of the ball. For example, a righthanded bowler would think about getting their left ear outside of the bowling ball whereas a lefthanded player would get their right ear outside of the ball.

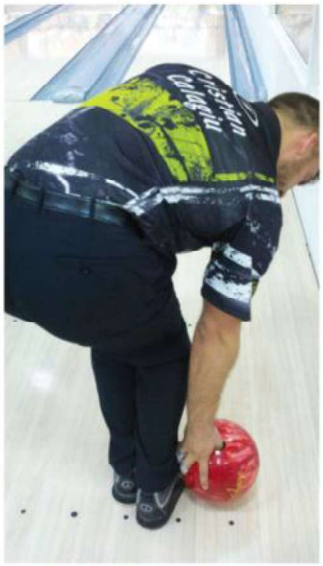
For a holistic change of the setup, swing, and finish, complete the DYDS drill described below.

DYDS drill

In an effort to help bowlers more naturally and holistically incorporate more side bend into their approach, I developed a DYDS drill several months ago. This places the body in a position before the approach which emulates both trunk rotation and lateral trunk flexion. It can also be viewed as an exercise which helps build muscles in the core area used when a bowler incorporates DYDS.

Drill Directions (use the pictures to help see the setup)

1. Setup on the approach where you would normal begin the full approach.
2. With the hand in the ball, bend down to the ball side and place the ball on the ground.
3. Move the ball next to the ball-side foot.
4. While keeping the ball on the floor, rotate your forearm to face the pins (index finger forward).
5. Hold this position for three seconds.



6. Now, lift the ball into the setup position (which will allow the bowler to maintain a natural lateral spine tilt). Simply lift the ball to the height, relative to the body, where the bowler normally sets up.
7. Execute a normal shot without thinking about your body position.

Through incorporating this drill into your practice routine, you will begin to DYDS naturally.

Fitness and conditioning for DYDS

DYDS and increased side bend require a strong core. The core consists of the internal obliques, external obliques, hip flexors, rectus abdominis, transversus abdominis, erector spinae, latissimus dorsi, and the quadratus lumborum. I strongly encourage you to begin to implement plank exercises into your daily routine. Visit youtube.com/watch?v=y5fXcEj9aPQ&feature=relmfu for an example of how to do one plank version correctly. All plank variation will aid in core health with reducing a chance of injury.

Concluding remarks

Dropping your shoulder and increasing lateral spine tilt has always been good for you. I start clinics now with a segment on "Lies Your Coach Told You" which features bowlers from the 1920s, 1930s, 1940s, 1950s, and 1960s dropping their shoulder.

When you drop your shoulder, you increase your lateral spine tilt which creates more space for the swing. When you increase the space for your swing, the ball swings more freely. More side bend leads to an improved hand position in the downswing that increases the potential for a stronger release and more ball motion. Finally, with more lean, the trail leg moves away from the body naturally increasing balance at the foul line. Dropping your shoulder is fundamental to great bowling.

I encourage you all to join the Drop Your Damn Shoulder group on Facebook. The rich discussions, photo sequences, videos, and new findings will help you to become a better bowler or coach. Start a revolution and drop your damn shoulder!