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The Biomechanics of Balance: Part 4

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David F. Wright, Ph.D., PGA

Correcting Core Rotation

July and **August** newsletters discussed "core" rotation and balance. This month I am going to show you the correction of "core" rotation. Your "core" muscles are those that surround your spine, front and back. Increased muscle tension on one side of your "core" will create a greater shoulder, torso and hip rotation in the direction of the tension.

When your "core" is rotated left or right, you are out of balance from a square stance line (feet parallel to your target line.) If this is the case, as you make your correction in stance balance as described below, ***your alignment will naturally be open (left) or closed (right)*** to your target line but your hips will be parallel.



The following photos from the biomechanics lab show the use of bars on hips and shoulders with light electrodes attached. We are validating the use of the bars for measurement of "core" rotation on the range.

If you click on the pictures, they will enlarge

Notice Kevin Stadler's "core" rotation in this Picture as shown by the rotation left of the bar on his hip line.



In this photo, Kevin has pulled his left foot back two inches. Notice that his hip line is parallel to the lines on the mat in this picture.



This simply shows that Kevin will be in balance and play his best golf from an open stance line at address, which he does. Do not try to force yourself into a square stance line if you determine you have a core rotation left or right. Ninety-five (95) percent of the

1000 plus players I have measured have some core rotation. That means that 95% of these players will be out of balance if they try to play from a square stance. A square stance line is alignment to the target line with hips and feet parallel to that line.



When you have a "core" rotation left, you pull your left foot back to



square your hip line. When you have a core rotation right, you pull your right foot back. This is a counterintuitive move, I know. Consider the following: When you have greater core rotation on one side, you have more tension on that side of your body. When you pull your foot back, you relieve the tension on that side and your hips will square to the target line. Most players have a 1 inch core rotation, although I have seen a core rotation of as much as 5 inches.

In this picture you will notice that I have exactly the same "core" rotation as Kevin, 2 inches.

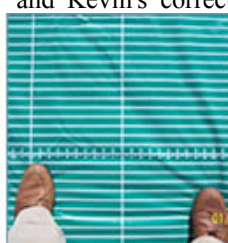
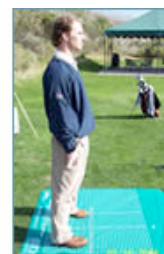


When I pull my left foot back 2 inches, my hip line squares to the target line, the lines on the mat.

The following photos of Erik show that he has a core rotation of 2½ inches right.



Unlike my and Kevin's correction, Erik pulls his right foot back to square his hips to the target line.



My good friend Sandra Palmer recently reminded me that Ben Hogan played from a closed stance with his hip line parallel to the target line. He apparently was correcting for a core rotation right to find balance. Erik, you are in good company.

Eliminating Core Rotation

If you attended the golf school or an individual lesson, you received instruction in a daily 3 minute exercise program that corrects your core rotation.



We are also researching the validity of this exercise program in the biomechanics lab.



Our preliminary results support the correction of "core" rotation through this exercise program. Recall from the [July newsletter](#) that your core rotation changes with stance width. When you do the exercise program, your "core" will be square from every stance width. When you set up to the ball from this square "core" position, your stance line will be parallel to the target line.

We just completed the first section of a trunk stabilization (core) exercise program (DVD) with Dr. Robert Watkins. Dr. Watkins is the consulting spine surgeon to the PGA Tour and the "Father of Core exercises." The "core" stabilization DVD will be available on this site in late 2005 or early 2006.

Next month I will discuss the importance of alignment as a prerequisite to finding balance. I will also describe some of the results of the vision study we are doing in the

biomechanics lab.

Announcements:



November Schools:

1 Day Schools:

November 8 and 28: Golf Club of California

November 13: Arroyo Trabuco California

2 Day Schools:

November 5 and 6: Arroyo Trabuco Golf Club

3 Day School:

November 18, 19 and 20: Arroyo Trabuco Golf Club

- Dr. Wright is resuming the biomechanics lab study November 7 in Dr. Frank Jobe's Lab at Centinela Hospital. He will keep you updated on our subjects and outcome.
- Are you considering a gift certificate for a golf school or private lesson as a Holiday gift? Contact our golf school office at 888.620.4653 or email us. We can customize your gift certificate and get it to you in plenty of time for your Holiday occasion.

Individual Lessons:

Please contact the Golf School office 888.620.4653 or Dr. Wright directly 949.285.1447 regarding individual lessons.

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