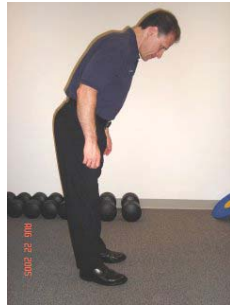


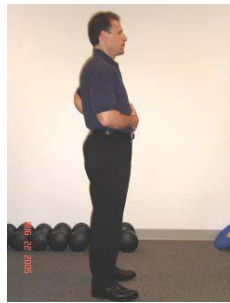
## DISTINGUISHING HIP MOVEMENT FROM LOWER BACK BENDING



1. Bend forward at the waist without bending your knees. You will feel the stress on the lower back.
2. Sit back into partial squat position feeling the movement at the hips. Sit back as if you are going to sit in a chair behind you.

## ABDOMINAL BRACING

*This is the key to preventing lower back injuries!*



An abdominal brace occurs when you have contracted both the abdominal, lower back, and buttock muscles at the same time. Here is how to perform the maneuver

:

1. Stand up straight and place one hand on the small of your back and one hand on your abdomen.
2. Bend forward at the waist and feel the lower back (extensor) muscles contract.
3. Come back to an upright posture and feel them “turn off.”
4. Without bending forward, contract the abdominal muscles (like you are about to get punched in your gut - feel them tighten with one hand) and the buttock muscles (as if you are holding in a bowel movement). You will feel the lower back muscles contract (with the other hand) when you contract your abs and buttocks.
5. Another way to feel the brace is to try coughing or blowing out as if you were going to blow out a candle. You will feel the contraction in abs, low back, and buttocks.

When all these muscles work together a “*super stiffness*” occurs, all three layers of muscles of the abdominal wall are activated to protect and stabilize the spine and discs. This transmission of forces to the muscles surrounding the spine is greater than the sum of the contraction of the individual muscles. Therefore, **single muscle “isolation” is both ineffective and dangerous** when performing activities requiring core stability (bending, twisting, running, jumping, kicking, punching, etc.). In other words, do NOT just suck your belly button inward when doing these activities. Perform the abdominal brace properly to protect your spine. **A note on breathing: learn to perform the abdominal brace independent of breathing! This requires short, shallow breaths. Only upon a maximal effort lift do you hold your breath (this is NOT recommended for unfit people or people with a heart condition).**