

## Muscles & Joint Actions: Spine Video Transcript

Welcome to the AFLCA Exercise Theory video series supplementing Chapter 7, Basics of Anatomy. In this video, we're going to cover the muscles of the spine and their joint actions. The muscles we are discussing are known as the CORE muscles. We're looking at 4 different abdominal muscles and the erector spinae muscle group. There are other muscles of the core that we're not going to discuss here.

Note that ALL core muscles work synergistically in all our daily movements. However, in this video, we are going to discuss them individually and simplistically for learning purposes.

Muscles of the spine have two primary functions. First, they function to STABILIZE the pelvis and spine throughout the day when standing and sitting with good posture, and also when exercising. Also, they function to MOVE the pelvis and spine, such as during a tennis swing or a basic abdominal crunch.

Let's start with the **transverse abdominis** muscle. It is the deepest of the abdominals and wraps around the torso horizontally like a corset. Its joint action is **compression** of the abdomen, which is an isometric contraction that results in no movement of the spine.

When fitness instructors cue, "draw your navel in toward your spine", this is the muscle that is activated. The plank exercise is a good example of the transverse abdominis generating force to isometrically compress and stabilize the spine.

Next, the obliques. The **internal obliques** are oriented in an upward angle at the sides of the abdomen. The **external obliques** are oriented downward. Joint actions of the obliques are lateral flexion of the spine, and rotation of the spine.

The **rectus abdominis** muscle is the one that everything thinks of when talking about the "abs" or the "six pack". It attaches to the ribs and pelvis and is situated over the front of the abdomen. The regular abdominal crunch exercise is an example of the rectus abdominis generating force concentrically to flex the spine.

*This* abdominal crunch with a twist involves spine flexion and spine rotation, so it engages the rectus abdominis, as well as the internal obliques, and external obliques.

Finally, this is the **erector spinae** muscle group. It begins at the pelvis and runs up both sides of the spine, attaching to various ribs along the way. Joint action of the erector spinae is **spine extension**. During good standing and seated posture, the erector spinae works isometrically to keep the spine extended.

The prone back extension exercise is an example of the erector spinae generating force concentrically to extend the spine.

In this video, we covered the muscles and joint actions of the spine, specifically the four abdominal muscles and the erector spinae. We discussed them in relation to various exercises where they function as stabilizers and movers. You may find it helpful to watch this video a few times, and thinking of even more exercises that involve these muscles. Thanks for watching!