



FEEDBACK MUSCLE ACTIVATION FOR LOW BACK, HIP, & NECK PAIN

This feedback exercise routine has been developed for those with chronic or recurrent low back and hip pain or neck pain who have demonstrated weakness or inactivation of core muscles. These core muscles should be active during lower body and neck use. *The pressure of your fingers on the weakened or inactive muscle is critical* to get your body and brain to recognize the muscle and reintegrate it into normal activity. These muscles have been inactive for a long time and so will be sore as they are reactivated and brought into constant use. These exercises are adapted from Vleeming et al (<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2518998/>)

1. **MULTIFIDIS** (low back at the junction with your hips):
 - a. **Seated version (less effective):** Fingers press the lower back- hip junction next to the right and/or left spine. Sit straight up on a chair with your back about a foot in front of the back of the chair. Bend back until your shoulders touch the chair back. Now bend forward so your shoulders are over the middle of your thighs. Repeat five to ten times.
 - b. **Prone version 1 (most effective):** Lay on your stomach. Fingers press the lower back- hip junction next to the right / left side of the spine. Lift the thigh and leg of the same side backwards off the table and then let it back down to the surface you are lying on. Repeat five to ten times. Do the same for the other side.
2. **TRANSVERSIS ABDOMINIS** (deep muscles that cross the abdomen):
 - a. **Seated version:** Sit on a chair. Press the fingertips of both hands on the outside front of your stomach about three inches lateral to your belly button. Rotate your shoulders (not your neck) to the left and then to the right. Repeat five to ten times each direction.
3. **POSTERIOR SCALENES** (neck muscles):
 - a. **Prone version:** Lay face down on bed or floor. A pillow under the chest may help. Press fingertips along both sides of the spine just below base of your neck. Maintaining pressure from fingers lift the head and neck backwards five to ten times.

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