

Therapeutic Exercises

The exercises included in the textbook and workbooks are only a few examples of the many options for spinal rehabilitation. The exercises used in your clinic may vary, but many of the tips and techniques will apply. Before teaching any exercises, review pages 232 and 233 in the textbook for the principles to follow during rehabilitation points to consider while teaching therapeutic activities.

In the following sections you will find tips and teaching points on some of the various exercises. This includes what to monitor during the movement, primary muscles being utilized, and tips you can give the patient to understand their exercises. As you read about each exercise try and perform the activity. This will give a better understanding of what the exercise should feel like and make it easier to answer patient questions. Remember, most of the exercises used in spinal rehabilitation are working to improve strength and endurance in the muscles that tend to be weak and underused.

It is important to use the textbook for corresponding pictures through the rest of this chapter review.

Lower Core Exercises

These exercises are primarily working the muscles of the lower core. These exercises will create stability and endurance of the core musculature and improve pelvic awareness and posture. The descriptions of these exercises are found on pages 234-246 of the textbook.

Abdominal Hollowing and Pelvic Tilting (pages 234-236)

This exercise is teaching a person how to tighten their transverse abdominus (TVA) muscle. This exercise lays the foundation for nearly all other core and posture exercises. Abdominal hollowing is hard to do correctly without recruiting other muscle groups. If done correctly the patient should not feel like they are sucking in and holding their breath or bearing down. Instead they should feel a tightening sensation across their lower abdominals and possibly a slight tightening in the small of the back.

The pelvic tilt should be just enough of a rotation to place the back in a neutral position, but not enough to bring the buttock off of the ground. The legs and chest should remain relaxed. The goal with the pelvic tilt is to create a neutral spine and to give the patient pelvic awareness.

Be sure to have the patient practice this exercise in the different positions and encourage them to incorporate it into their daily routine. For instance, if they have to stand at a cash register all day, they should focus on learning proper abdominal bracing and pelvic tilting standing since that is the position most functional for their daily activities.

Dead Bug Progressions (pages 237-239)

The primary focus during the dead bug exercises should be to maintain a neutral spine and abdominal brace throughout the movement regardless of the level. This exercise will improve strength and endurance of TVA's and stabilizing muscles of the lower core. To determine if a patient is performing the exercises correctly watch the hips. If the pelvis is neutral and the spine is stable, the hips will not rock from side to side when lifting the legs. Also, there should not be any sway in the low back if the person is maintaining a slight pelvic tilt throughout the exercise.

Floor Bridge Progressions (pages 240-243)

The floor bridge exercise series improves strength and endurance of the gluteus muscles. When rising into the bridge position, the gluteal muscles should be providing most of the stability and power for the movement. When moving into the advanced levels that incorporate leg movements, the hips should remain level and the spine neutral.

STUDY TIPS

If the patient is cramping in the hamstring have them bring their feet slightly closer to the body to remove some of the tension on the hamstring muscles. If they are having a lot of pressure or tension in the knees or quadriceps try moving the feet slightly farther away to remove the stretch on the front of the legs.

Quadruped Progressions (pages 244-246)

The quadruped exercise is a general core strengthening exercise that is useful in creating better body awareness. Before doing any arm or leg movements, the patient should get very comfortable with getting into the proper table top position. They should maintain a neutral spine throughout the movement. Proficiency performing the exercise correctly should show very little movement at the pelvis. A verbal cue to help the patient visualize the stability they need to maintain is *“Imagine a glass of water sitting on your lower back. When moving your legs, that glass of water should remain stable.”*

Cervical Therapeutic Exercises

The cervical exercises are primarily working the deep neck flexors musculature. These muscles help to counter balance the strength of the short cervical extensors that create a forward head posture, or chin poke. When performing these exercises correctly the patient will often feel like they have a lump in their throat or that it is hard to swallow. This is normal and attributed to the location of the muscles they are strengthening. The descriptions of these exercises are found on pages 247-249 of the textbook.

Neck Retraction (page 247)

This is a foundation exercise that will be utilized in most upper body core strengthening maneuvers. Watch for the head to stay upright during this move. Often, the patient will try and tuck the chin to the chest or lean the head back. As the patient relaxes from the exercise, be sure the patient returns to their normal position utilizing good posture techniques. Watch for them to jut their chin forward as this position creates poor postural habits.

Neck Retraction with Cervical Isometrics (page 248)

With cervical isometrics, the patient should push hard enough to feel resistance from the deep neck flexors, but not so hard that the head moves out of the straight up, neck retracted position. Make sure the shoulders stay relaxed and do not shrug up towards the ears during the exercise.

Neck Retraction on the Ball (page 249)

This exercise is an advanced way to perform cervical isometrics and will also work on upper back muscles. Form is important for proper strengthening, so make sure the patient maintains a neutral spine in the table top position and that the ball is the proper size for their body. Remember that the exercise should stay in the pain-free range of motion.

STUDY TIPS

If the patient is unable to get on their hands and knees, use a small ball against a wall to perform a similar neck retraction movement.

Upper Back/Torso Exercises

Upper back and torso exercises are going to help strengthen the muscles of the upper back. The main muscles being worked are rhomboids, lower trapezius, and serratus anterior. The tight pectoralis, upper trapezius, and levator muscles cause the shoulder to be raised and rounded and these exercises will help to bring the shoulders down and back. The descriptions of these exercises are found on pages 250-259 in the textbook.

Modified Wall Angel and Wall Angel (pages 250-251)

The goals of these exercises are to activate the extensor muscles of the upper body and learn to stabilize the scapula. Watch for the patient to lose their neck retraction or sway their low back. Patients that have issues with shoulder impingement or pain often do better with modified wall angel because it minimizes the overhead movement.

Cat/Camel (mat and standing) (pages 252-253)

Cat/camel exercises increase movement and flexibility of the spine. Movement should occur in both the upper back and the pelvis. The hips should always stay over the knees and the shoulders over the wrists. Remind the patient to remain in their pain free range of motion.

Scap Stabilization (page 254)

This exercise teaches the patient to isolate the muscles of the upper back and scapula and is good for preparing the patient for more advanced strengthening exercises. The foam rollers help produce a biofeedback response by stimulating the areas to be worked and allowing the patient to feel their scapula pinching into the foam.

Lat Pull-Downs and Rows (pages 255-257)

Both of these exercises are great for building strength and stability in the upper core musculature. Form is the key during these exercises to ensure strengthening of the proper muscles. By facilitating (tapping, scratching or stimulating) the rhomboids, lower traps, and lats, the brain is primed to work the correct muscles.

STUDY TIPS

By having the patient relax between each repetition and reset the shoulder blades before each pull, you are encouraging them to create a new muscle memory pattern.

Superman and Parachuter (pages 258-259)

These exercises are great for both upper and lower core strengthening. The person must use their gluteal muscles and lower abdominals to maintain their balance and not roll off the ball. The upper back and neck are strengthened by maintaining neck retraction and pulling the arms into the proper position. Watch for improper arm positions such as the arms angling down towards the hips in parachuter or the arms too far away from the ears in superman.

Posture and Proprioception

This series of exercises will improve a patient's proprioception abilities making them more aware of their body positions. Proper form is key in creating a correct feedback loop. These exercises will also improve overall body posture and endurance in the muscles that tend to be weakened. The descriptions of these exercises are found on pages 260-264 in the textbook.

Short Foot and Short Foot Strengthening (pages 260-261)

Short foot exercises increase strength in the muscles of the arch of the feet and improve the brain's connection to the feet. The feet are the body's foundation and learning to control the postural muscles within the feet is vital in overall proprioception and posture. When performing short foot, make sure the ball of the patient's big toe stays firmly planted on the ground.

Alexandrian Posture (page 262)

This is a full body posture position that activates the extensor muscle in the body, opens up the chest, and stabilizes the pelvis. It is important that the patient learn to perform this exercise properly since this is the position that needs to be maintained throughout the balance and proprioception series.

STUDY TIPS

Since there are many steps to this exercise, encourage the patient to start at their feet and work their way up to the head. This allows them to put each region of the body in proper form as they work up the body.

Single Leg Balance (page 263)

This exercise further increases proprioception and balance by increasing the challenge to one foot. The person should maintain the Alexandrian posture while on one foot and be careful not to lock the knee on the leg they are standing on. The non-weight bearing leg should be brought in front in order to maintain a neutral spine. Encourage the patient to stand in a doorway or have a chair nearby when balancing at home until they are able to perform the exercise safely without assistance.

Added Challenges to Alexandrian posture and Single leg balance (page 264)

There are unlimited options to vary Alexandrian posture and balance work. The list on page 264 is only some of the challenges that can be added. By changing up the challenges, the body is making adaptations and learning how to compensate for different positions and stimuli while maintaining a proper posture. The difficulty of these modifications should be based on the patient's abilities and understanding of the movements. Make safety a priority and only challenge the patient within their abilities.

Body-Ball Therapeutic Exercises

The focus of each of the body-ball exercises is the same as its counterpart on the mat. The reason for using the ball is to add difficulty to the move and create new challenges for the patient. Another benefit is that the incorporation of the body ball increases the proprioception requirements of the movement by having the patient maintain their balance while they perform the exercise. The descriptions of these exercises are found on pages 265-277 in the textbook. Before a patient begins these exercises, it is important to make sure the exercise ball fits the patient properly according to their height and that the patient is able to perform the activity safely.

The body-ball also increases biofeedback responses that occur during the activity. For patients who have a hard time feeling the right muscles activate or cannot tell if they are maintaining a controlled position, the movement of the ball as they perform different activities can improve their muscle control and endurance.

