

REHABILITATION FOR HIP AND PELVIS MUSCLE DYSFUNCTION: HIP EXTENSION WITH KNEE EXTENSION SYNDROME

THE CONDITION

The hip and pelvis consist of an intricate complex of muscles, ligaments, tendons, and bony structures. Under the control of the body's nervous system, these structures undergo a kinetic chain of events, and result in movement patterns that allow us to sit, walk, run, etc. This kinetic chain may be altered as a result of muscle tightness, weakness, poor biomechanics, nerve interference, and/or muscular imbalance, thus predisposing the body to injury and dysfunction.

Often, dysfunction within the hip/pelvis complex results in something we call a **Movement Impairment Syndrome**. Movement Impairment Syndromes occur when there is altered joint motion in a specific direction, resulting in pain and discomfort in tissues supporting the joint. The pain related to such a syndrome arises from negative changes in muscle participation and patterns of muscle recruitment. One such common condition is called the *Hip Extension with Knee Extension Syndrome*.

Hip Extension with Knee Extension Syndrome is characterized by poor activity and general weakness of the buttocks (gluteus maximus muscle) with hip extension, and/or of the quadriceps muscle group during knee extension. As a result, it is typical to have dominance and shortening of the hamstring muscle group. This leads to what is commonly seen as a “swayback” posture where the pelvis is excessively tilted backwards, and the buttocks appear flattened (see figure 1).

Due to the changes in muscle tensions, individuals with this syndrome often have pain in the area of your “sit-bones” (ischial tuberosities) where the hamstring muscles attach to the pelvis, and/or along the hamstring muscle belly. This condition is aggravated with long periods of standing or sitting.



Figure 1. Swayback posture

Whether these muscles have become tight, weak, painful, or any combination of symptoms, there are a number of activities that you can do to speed their healing and help prevent further injury. In conjunction, regular chiropractic care and adjunct therapies will help to decrease the resting muscle tension of these muscles and improve their function.

TREATMENT AND REHABILITATION

Objectives of your treatment and rehabilitation of Hip Extension with Knee Extension Syndrome are to:

1. Improve overall motion and function of the hip through utilization of corrective exercises. In particular, improving the strength and activity of the gluteus maximus and quadriceps muscle groups to avoid chronic overuse of the hamstring muscle group, and positively influence posture.
2. Improve flexibility of the hamstrings, gluteus maximus, and other tissues influencing hip motion through stretching and myofascial release methods.
3. Restore overall joint health to the hips, pelvis, lower and mid-back through joint mobilizations and chiropractic adjustments.

Rehabilitation Exercises

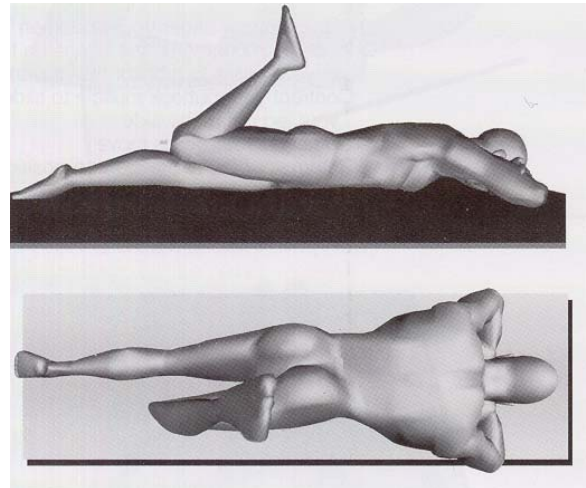
1. Hip Extension with Knee Extended

Purpose: to stimulate gluteus maximus muscle contraction while avoiding excessive hamstring muscle contraction.

Method:

- i. Start lying face down with your legs straight and relatively close together. Place a pillow under your hips to maintain a flexed hip position.
- ii. Bend your knee and allow your leg to rest on your thigh to relax the hamstring muscles.
- iii. Maintain a tight abdomen and, slowly raise one leg up off the floor and contract your buttock muscle. Do not lift your leg very high (only 10° or several inches).
- iv. Slowly lower your leg back to the floor. Alternate legs.

Instructions: Sets: 2-3; Reps: 15-20
 Hold: 4-10 sec
 Rest: 30-60 sec
 Frequency: 5x/week



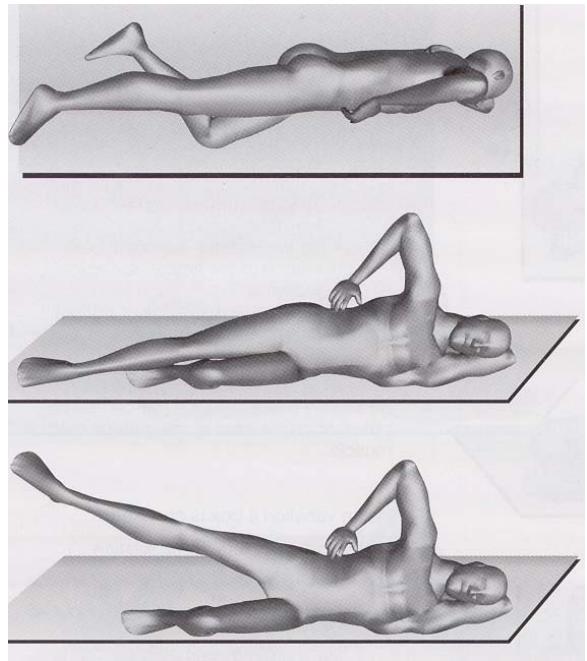
2. **Hip Abduction with slight External Rotation and Hip Extension**

Purpose: to stimulate the buttock muscles and change movement patterns.

Method:

- i. Begin in a side-lying position with the bottom hip and knee slightly bent. The pelvis should be rotated slightly forward. The top hand can be placed over the hip.
- ii. With the top leg straight out, raise the top leg slightly away from the bottom leg.
- iii. Outwardly rotate the entire leg so the kneecap is pointing slightly upward and continue lifting your thigh at the hip joint. Keep the pelvis square and stable throughout the motion. Do not lift the leg very high.
- iv. Slowly lower your leg to the starting position. Alternate legs.

Instructions: Sets: 2-3; Reps: 15-20
 Hold: 4-10 sec
 Rest: 30-60 sec
 Frequency: 5x/week



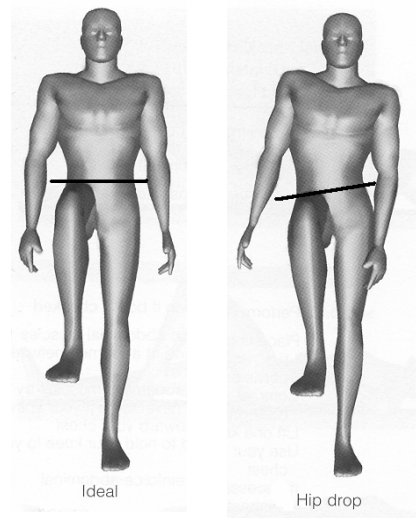
3. **One-Legged Stance: Unilateral Hip and Knee Flexion**

Purpose: to improve the performance of the hip and core muscles, and to prevent inward rotation of the thighbone.

Method:

- i. With feet relatively close together, shift your weight to one leg and tighten your buttock muscles on that side.
- ii. Slowly lift your other thigh up in front of you while bending the knee. Do not allow the hip to drop.
- iii. Slowly lower your leg down to starting position. Alternate legs.

Instructions: Reps: 2x
 Hold 15 sec
 Frequency: 5x/week



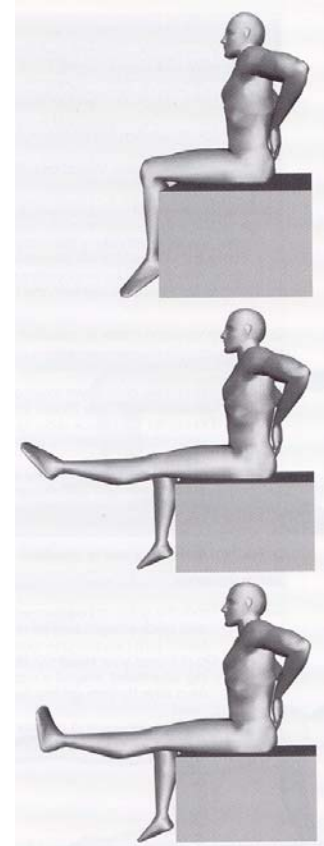
4. **Knee Extension and Dorsiflexion (Seated)**

Purpose: to improve the length of the hamstring muscles and improve postural control of the back and abdomen muscles.

Method:

- i. Sit on a chair, preferably with a high back. Your hips should be at a right angle (90°) to your trunk, and shoulders in line with your hips. Both feet can be on the floor.
- ii. Push your upper back into the chair, and slowly straighten out your leg as far as possible.
- iii. Next, leading with your big toe, point your toes toward your knee.
- iv. During this exercise, do not let your thigh lift off the chair or rotate inwards.
- v. If it is difficult to straighten out your leg or point your toes to your knee, you may use a towel or tubing for assistance.

Instructions: Reps: 2x
 Hold: 15 sec
 Frequency: 2x/day



Postural considerations

1. Consciously try to maintain a neutral pelvic position and avoid hip and knee hyperextension.
2. Avoid contraction of the hamstring muscles while in a seated position.
3. When walking, try to contract your buttocks at heel strike.
4. When returning from a forward bending position, tighten your buttocks to eliminate forward hip swaying motion.

Note: *It is important for you to follow any specific instructions given to you by your Health Care Professional. Your active participation in your rehabilitation will dramatically improve your recovery time and aid in the effectiveness of your in-office treatments. If you have any questions regarding the information provided in this handout, please don't hesitate to contact your Health Care Professional.*