Active Straight Leg Raise Movement Pattern Test

Purpose

The active straight leg raise movement pattern seems to be the least functional part of a screen, identified as functional. However, do not be fooled by the superficial simplicity of this test. This simple pattern not only identifies the active mobility of the flexed hip but the initial and continuous core stability within the pattern as well as the available hip extension of the alternate hip. It is not so much a test of hip flexion on one side as it is an appraisal of the ability to separate the lower extremities in an unloaded position. In growth and development this simple task precedes nearly all higher functional tasks and weight bearing activities, however it is often lost when flexibility of multi-articular muscles is lost (for both flexion – gluteus maximus / ITB complex and hamstrings and extension – iliopsoas). The movement pattern challenges the ability to disassociate the lower extremities while maintaining stability in the pelvis and core. The active straight leg raise test challenges active hamstring and gastro-soleus flexibility while maintaining a stable pelvis and active extension of the opposite leg.

Description

The individual first assumes the starting position by lying supine with the arms in an anatomical position (palms up and by the sides) and head flat on the floor. The board is placed under the knees. Both ankles should be in neutral position (sole of foot perpendicular to the floor). The tester then identifies mid-point between the anterior superior iliac spine (ASIS) and joint line of the knee. This usually corresponds to the mid-point of the patella, but confirm the joint line by flexing and extending the knee until the joint line between the tibia and femur are evident. The dowel is then placed at this position perpendicular to the ground. Next, the individual is instructed to lift the test leg while maintaining the initial ankle position. During the test the opposite knee should remain in contact with the board, the toes should remain pointed upward and the head remain flat on the floor. Once the end range position is achieved, note the position of the ankle. If the malleolus passes the dowel a score of 3 is recorded. If the malleolus does not pass the dowel then the dowel is aligned along the malleolus of the test leg, perpendicular to the floor and scored per the criteria below. The active straight leg raise test should be performed as many as 3 times bilaterally. If one repetition is completed successfully there is no reason to perform the test again.
Tips for testing:

- The flexed hip identifies the side being scored - this simply represents the pattern and does not imply the functional ability of a body part or side. Always remember you are screening patterns, not parts.
- Make sure leg on floor does not externally rotate at the hip.
- Both knees remain extended and the knee on the extended hip remains touching the board.
- If the dowel resides at exactly the mid-point, score low.
Active Straight Leg Raise Testing Procedure

III
- Malleolus (dowel) resides between mid-thigh and ASIS

II
- Malleolus (dowel) resides between mid-thigh and mid-patella/joint line

I
- Malleolus (dowel) resides below mid-patella/joint line

0 - The athlete will receive a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.
Implications of the Active Straight Leg Raise Movement Pattern Test

The ability to perform the active straight leg raise test requires an unloaded hip separation pattern. It also requires functional straight knee hip flexion and extension. Hamstring flexibility can also be observed but is only one limiting component to the test. The test is performed actively and requires mobility as well as static (core - pelvis and spine) and dynamic (hip) stability in an asymmetrical hip separation pattern.

Poor performance during this test can be the result of several factors. First, pelvic control may not be appropriate of the execution of the pattern. Second, the individual may have inadequate mobility of the opposite hip, stemming from iliopectineal inflexibility associated limited hip extension. Thirdly, the individual may have poor functional hamstring flexibility in the moving leg. A combination of these factors will demonstrate an individual relative bilateral, asymmetric hip mobility.
Active Straight Leg Raise

Score of 3
Maintenance
• Dip Bridge
• Single Leg Dead Lift

Score of 2
Stretches
Recommended not mandatory
Corrective Exercise
• Single Leg Lowering I (Passive)
• Single Leg Lowering II (Active)
• Leg Lowering w/ Core Engagement
• Single Leg Toe Touch w/ Stretch

Score of 1
Stick or Foam Roll Work
Partner Stretch
• Straight Leg Raise (Contract/Relax)
• Leg Lowering w/ Core Engagement
Active Straight Leg Raise Corrective Exercise Progressions

Partner Stretch
Straight Leg Raise

Starting Position- Athlete lies supine with knees and hips extended, ankles dorsiflexed and toes pointing up.

Execution at a glance- Partner assists the athlete in flexing one hip while maintaining knee extension and ankle dorsiflexion. The hip is flexed until a stretch is felt. The stretch is held for 5-7 seconds. The athlete then presses into the partner by extending the hip for 3-5 seconds. The athlete should relax and then the partner increases the stretch slightly. Repeat 3-5 times.

Safety Tips and Verbal Cueing- Make sure the athlete maintains proper position. The leg that remains in extension must remain in a neutral position, without external rotation at the hip. The knee must also maintain contact with the table/floor. Take special note of right and left asymmetries, focusing on the weakness.
Single Leg Lowering 1

Starting Position: Begin lying supine with legs in a doorway, flex both hips and extend knees. Place one foot on wall with hip flexed and knee extended for slight stretch. The opposite hip is flexed with the knee extended for a slight stretch. Your hands should be placed with palms up by your side and your head flat.

Execution at a glance: Begin by pointing toes of the moving leg and reaching out toward the ceiling. Lower the leg to floor/ground maintaining flat lumbar spine, place a bolster under the foot if the athlete has difficulty lowering the leg to the floor. (Progress by removing bolster) Perform movement 5-10 times bilateral for 3-5 sets.

Safety Tips and Verbal Cueing: Maintain flat lumbar spine and keep toes pointed and reaching with leg. Keep palms facing upward and head flat. Utilize bolster in order to perform exercise correctly. Take special note of right and left asymmetries, focusing on the weakness. Take special note of right and left asymmetries, focusing on the weakness.
Single Leg Lowering 2

Starting Position- Begin lying supine, flex both hips and extend knees until a slight stretch if felt. Your hands should be placed with palms up by your side and your head flat.

Execution at a glance- Begin with the toes pointed, reaching out toward the ceiling. Lower one leg to the floor/ground maintaining flat lumbar spine, place a bolster under the foot if the athlete has difficulty lowering leg to floor (progress by removing bolster). Perform movement 5-10 times bilateral for 3-5 sets.

Safety Tips and Verbal Cueing- Maintain a flat lumbar spine and keep the toes pointed. Keep palms facing upward and head flat. Utilize bolster in order to perform exercise correctly. Take special note of right and left asymmetries, focusing on the weakness.