Hyperlordosis

Assessment

Postural Assessment

- slight ankle plantarflexion is possible
- slight knee hyperextension is possible
- the hip joints are flexed
- bilateral anterior pelvic tilt is greater than 10 degrees in females and greater than 5 degrees in males
- lumbar lordotic curve is increased
- there is often a compensatory hyperkyphosis and head forward posture
- bilateral pes planus may be noted in a posterior view.
- abdominal or lumbar scarring may be present from surgery

Palpation

- tenderness, hypertonicity and trigger points may be present in the
  lumbar erector spinae
  quadratus lumborum
  iliopsoas
  tensor fascia lata
  rectus femoris
- the texture of the lumbar and iliotibial tract fascia is thickened and reinforced.

Testing

- AF ROM to test trunk and hip flexion reveals shortened lumbar extensors and lengthened hamstrings
- AF extension of the lumbar spine in the standing position may aggravate low back pain associated with hyperlordosis.
- PR ROM of the hip is reduced in extension
- AR strength testing reveals that both iliopsoas are strong while the abdominals are weak.

Special Tests

- Thomas test is positive bilaterally, indicating that both iliopsoas and rectus femoris are short.
- Ely's test is positive bilaterally, indicating rectus femoris shortness
- Ober's test is positive bilaterally, indicating tensor fascia lata shortness
- Hip adductor length test is positive, indicating adductor muscle length shortness.
- Piriformis length test is also likely positive
- Straight leg raise test shows an increase in hamstring length.
- In the lumbar spine and thoracolumbar junction. Anterior and lateral spinous challenge tests may reveal areas of vertebral hypo- or hypermobility.

General Treatment

- Positioning is started supine with pillows under the knees. The client is then turned prone with pillows under the abdomen and ankles.
- Hydrotherapy is pre treatment. Heat over one rectus femoris. The heat is moved to the other thigh once work is started. When the client is prone heat is over the lumbar fascia.

- Cool applications are used to stimulate the gluteals and hamstrings.

Specific Treatment

- Fascial techniques are used on the pre-heated anterior hip including slow skin rolling and connective tissue cutting along the rectus femoris and tensor fascia lata.
- Ulnar border stripping from the patella to the anterior superior iliac spine along rectus femoris is also indicated.
- Treat the other limb
- Myofascial release on the hip flexors
- Client is draped so the abdomen and the affected thigh are uncovered.
- The therapist's forearms are crossed and the proximal hand is placed gently on the client's abdomen over iliopsoas muscle. The distal hand is placed on the upper thigh and the slack is taken up. The pressure used by the proximal hand is just sufficient to stabilize the abdominal fascia, while the distal hand applies the majority of the pressure in a distal direction. This technique can be facilitated by allowing the clients leg to hang off the table, while the other leg is flexed at the hip and the knee.
- If the adductors are also affected, first the client's abdomen is redraped. The client's lower limb is positioned so the plantar surface of the foot is on the medial side of the untreated knee, with the affected knee flexed and the hip flexed, medially rotated and abducted.
  A pillow is placed between the clients affected knee and the therapists torso, allowing the affected knee to rest against the torso. Slow ulnar border stripping is applied to the adductors, working in a distal to proximal direction.
- Swedish techniques for rectus femoris, tensor fascia lata and the adductors include effleurage, palmar kneading, wringing and muscle stripping
- The trigger point in rectus femoris is located inferior to the anterior superior iliac spine. It refers pain into the knee
- Finish work to the thigh with repetitive effleurage.
- The limb is placed back on the table with the hip and knee in flexion to relax the abdominal muscles. The abdomen is undraped in preparation for treating iliopsoas
- Abdominal massage may be needed before working on iliopsoas, or it may be possible to start on iliacus if the client is comfortable with this.
- In rhythm with the clients breathing, increasing pressure is slowly applied through the abdominal muscles just medial to the anterior superior iliac spine. The fingers apply tolerable pressure as the client exhales and are held in place as the client inhales. You can get the client to flex the hip if you are having trouble finding iliacus. Once iliacus is contacted, slow muscle stripping and the origin and insertion technique are used to treat the muscle belly. The fingers are smoothly and softly withdrawn when the work to iliacus is completed.
- The same careful approach is used for psoas major. The lateral border of rectus abdominis is landmarked at the level of the umbilicus. Slowly increasing pressure is applied at this location, allowing the viscera to slide away from the palpating fingers. Pressure is applied at an oblique angel toward the spine. If a pulse is palpated the pressure is redirected. Slow muscle stripping and ischemic compression are used on the muscle belly.
- There are three trigger points in iliopsoas.
  - One is located in iliacus, in the iliac fossa on the inside surface of the pelvis, just superior to the anterior superior iliac spine and deep to the abdominal muscles.
  - The second is located in psoas at the level of L3. Both refer pain to the low back.

- The third trigger point is located at the insertion of the tendon onto the lesser trochanter of the femur. It refers pain to the anterior thigh and the low back.
- Abdominal work is finished with effleurage and stroking.
- PIR is used to lengthen iliopsoas. The client slides to the side of the table so the limb to be treated can hang freely over the side of the table. The hip and knee of the untreated limb are flexed with the foot flat on the table . This stabilizes the low back against the table. Further stabilization is applied at the anterior superior iliac spine of the untreated side with the proximal hand. The thigh of the treated side is moved into extension with the distal hand, until the iliopsoas is beginning to be stretched. The client submaximally flexes the hip against the therapists resistance for 10 seconds and relaxes, allowing the limb to fall into extension. Repeat at least 3 times.
- If a sacroiliac joint is hypomobile, joint play is used.
- One hand is placed palm up between the lumbar spine and the table. The thumb points towards the client's head and the fingers stabilize the sacrum at S2. The posterior superior iliac spine rests on the proximal phalanges. The other hand cups the anterior superior iliac spine, with the heel of the hand resting on the bone. The forearm is pronated so the thumb points towards the clients feet and the fingertips are on the lateral hip.
- The pelvis is mobilized posteriorly by the hand on the anterior superior iliac spine. The motion between the sacrum and posterior superior iliac spine is monitored.
- The pelvis is then mobilized anteriorly by the proximal phalanges under the posterior superior iliac spine.
- Repeat several times until the joint is mobilized.
- Medially directed pressure is applied bilaterally to the outsides of both anterior superior iliac spines, flaring the posterior superior iliac spines.
- A combination of full passive hip flexion and submaximal isometric contraction of the hamstrings is used to decrease the anterior pelvic tilt. The client's hip and knee are fully flexed so the thigh is against the client's abdomen. The therapist leans against the client's anterior leg using a pillow to maintain full flexion.
- The ischial tuberosity is grasped and used as a lever to rotate the pelvis posteriorly at the sacroiliac joint. When the slack is taken up in the hip and sacroiliac joint, the client's untreated thigh will come slightly off the table. When this happens the client is to contract the hamstrings by pushing into the therapists torso. This helps to pull the pelvis into a posterior tilt.
- The contraction is maintained for 10 seconds while the therapist continues to carefully, passively rotate the pelvis posteriorly.
- In the Prone position, heat is applied to the lumber fascia. Rhythmic techniques can be used to mobilize the low back.
- Fascial techniques are used on the lumbar fascia. These include skin rolling, crossed-hand spreading, fingertip spreading and the connective tissue cutting technique around superior attachments at the iliac crest, the inferior attachments at the twelfth rib and the lateral attachments at the lumbar vertebrae.
- Any hypomobility of the lumbar spine or thoracolumbar junction is treated with spinous process oscillations, anterior challenge or lateral challenge joint play.
- Swedish techniques are used on the lumbar erector spinae and quadratus lumborum, including effleurage, and ulnar border stripping.
- Trigger points in quadratus lumborum refer into the lateral hip, sacroiliac joint and inferior portion of the gluteals.

- PIR may be used to lengthen rectus femoris. The client's knee is flexed, bringing the heel towards the gluteals until the client feels a stretch on rectus femoris. The client submaximally extends the knee against the therapist resistance for 10 seconds and relaxes, allowing the knee to be moved into more flexion by the therapist. Repeat at least 3 times.
- If piriformis is short, Golgi tendon organ release is used on the insertion at the greater trochanter, followed by PIR with clients knee flexed.
- The gluteals and hamstrings are treated with brisk, stimulating Swedish techniques such as alternating palmar kneading and tapotement.
- Cool hydrotherapy can be used to stimulate the gluteals and the hamstrings.
- Effleurage is used to encourage circulation.