Lumbopelvic And Dural Tension Dysfunctions Common In Figure Skaters
Presented by Melinda Couch, PT

Several musculoskeletal patterns occurring in the pelvis and lumbar spine can be observed in figure skaters.

Pelvic Dysfunctions:
- Typical pattern is an outflare, a posterior rotation, and an upslip on the landing leg side
- Sacral torsion can also be present
- Possible causes:
  * direct trauma during falls
  * over-use of specific muscle groups from jumping, spinning, etc. in same direction
Outflare of right ilium

Posterior rotation

Upslip of right ilium
Pelvic Dysfunctions (cont.)

- Result can be lower back pain and decreased flexibility in the lower spine
- Dysfunctions can be corrected with different manual therapy techniques (muscle energy technique, Mulligan’s MWM’s/SNAG’s, manipulation, etc.)
- Off-ice core and strength training to prevent muscular imbalance as well as flexibility training key to aid in prevention

Lumbar Dysfunctions

- Another typical pattern is a rotation in the lumbar spine usually at the 3rd lumbar segment (FRSL. dysfunction in right leg landing skater)
  * This can also be in combination with a tight or over-facilitated psoas muscle
  * If the psoas remains tight, it may keep the vertebrae in this rotated position since it attaches to the front of the vertebrae and runs down to the hip (may also result in excessive hip compressive forces)

Lumbar Dysfunctions (cont.)

- The result of this dysfunction is lower back pain and difficulty extending the spine which could limit performing a layback or Bielman position
- Possible causes are falling or landing in an over-rotated position, straining the psoas muscle, and weak core musculature
- Treatment again consists of utilizing different manual therapy techniques to resolve the rotation of the lumbar segment
Lumbar Dysfunctions (cont.)

- Special attention needs to be placed on releasing the psoas muscle if it is involved or the rotation in the vertebrae will likely return
- Neuromuscular stimulation to fatigue and release this muscle has proven quite effective clinically

“V” in lumbar region vs. “U”

Possible lumbar dysfunction…

© Jay Adeff
Dural Tension Dysfunctions

- Another common issue but perhaps less thought of is excessive tension in the spinal tissue or “dural tissue”
- Can be very subtle yet have a distinct effect of decreasing range of motion in the spine and extremities
- Can often be mistaken for as well as contribute to muscular tightness

Dural Tension Dysfunctions (cont.)

- Example: while a skater is in a spiral position, assess if the weight-bearing leg is bent instead of completely straight
- If not, this may be a result of tight hamstrings (or other muscles), dural tension, or both
- Test hamstring tightness first to rule this out
- Then perform the Slump Test for dural tension

Dural Tension (cont.)

- The Slump Test: while in a seated position, the skater should slump down with the chin pulled towards the chest. Then one leg should be straightened with the foot pulled back into full dorsiflexion.
- Performed both passively and actively
- If the skater feels any pain or tension in the leg or along the spine there may be too much tension in the nervous system
Dural Tension Dysfunctions (cont.)

- Manual therapy techniques can be utilized to release this tension and thus provide increased flexibility in the entire system.
- The skater can also perform gentle nerve gliding exercises.

Dural Tension??

Less Dural Tension:
Dural Tension??

Better… knee straighter

Dural Tension?
Not much tension here!

Or here…

Dural tension? May be so, may be no…
Better…

Conclusion

- Off-ice training is key to preventing the above mentioned dysfunctions
- Core stability training is crucial as is proper stretching
- Active forms of stretching such as inhibitive/facilitated stretching and dynamic stretching are excellent ways to increase flexibility in muscle and nerve tissue simultaneously

Core Stabilization – training specific muscle groups to more effectively stabilize the spine
Core Stabilization – key to injury prevention and improving performance

Dynamic Stretching – training muscle and nerve tissue to lengthen through motion