

How Does the Diaphragm Locally Stabilize?

IAP (intra abdominal pressure) – together with transversus abdominis and pelvic floor, increases IAP.

Other Characteristics of Diaphragm Activity

- ▶ anticipatory timing similar to that of TA
- ▶ tonic activity observed during repetitive upper limb movements

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How Does the Pelvic Floor Locally Stabilize?

IAP (intra abdominal pressure) – together with diaphragm and transversus abdominis, increases IAP

▶ hypothesized to co-activate with TA helping to force close and prevent shearing at pubic symphysis¹

¹ (Lee)

Other Characteristics of Pelvic Floor Activity:

- ▶ anticipatory timing similar to that of TA
- ▶ not direction specific
- ▶ tonic activity observed during repetitive upper limb movements

Pelvic Floor's Effect on the Abdominal Muscles

▶ maximal contraction of the pelvic floor muscles was associated with activity of all abdominal muscles

▶ submaximal activity of the pelvic floor muscles was associated with a more isolated contraction of TA

▶ the specificity of the response was better when the lumbar spine and pelvis were in a neutral position rather than in posterior pelvic tilt²

² (Richardson quoting studies by Sapsford)

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Pelvic Floor

Action

All pelvic floor muscles support pelvic viscera.

- ▶ iliococcygeus and pubococcygeus constrict lower end of vagina and rectum
- ▶ ischiococcygeus counter-nutates sacrum and supports coccyx

Forms bottom of inner core.

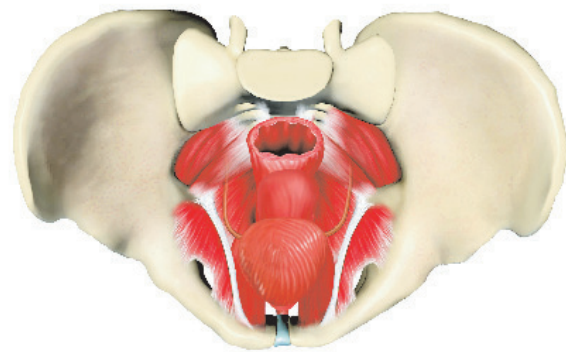


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Thoracolumbar Fascia

- ▶ broad area of connective tissue with three layers supporting the lumbar spine and pelvis
- ▶ connects bones of spine and pelvis to inner unit and outer unit
- ▶ several muscles affect tension through the fascia including latissimus dorsi, internal oblique, transversus abdominis, gluteus maximus, erector spinae and multifidus
- ▶ functions to help transfer loads from the upper torso through the pelvis and hips
- ▶ tension in fascia increases force closure at SI joint
- ▶ tension in fascia resists anterior translation of vertebrae



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