



MUSCULOSKELETAL PAIN

Musculus Luculentus Acuspunctura: The Transversus Abdominis (Pt. 1)

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Transversus Abdominis (Latin): *transversus*, across, crosswise; *abdominis*, of the belly/stomach.

In this ongoing series, my mission is to “nerd out” and provide you with all the information I use when treating certain muscles. I’m starting with the transverse abdominis (TrA) because just recently I needed it on a patient with low back pain, and it made a profound difference in modulating her pain and improving function. (Before I start, I’d like to give a shout-out to my colleagues who taught me this point. Thank you, Derrick and Jenny!)

I did multiple orthopedic and muscle tests on my patient, and I found that the active straight-leg raise would elicit pain and provoke an anterior pelvic tilt. Therefore, I used the straight-leg raise as my concordant sign and screening tool for this patient. I tested the TrA and discovered it to be weak and in the testing, the position caused the patient to anteriorly tilt her pelvis.

Muscle Testing the TrA

There are two ways to muscle test the TrA. One is with the patient in a supine position, the hips flexed at 70-80 degrees, and the knees at 90 degrees. Then ask the patient to do a draw-in maneuver or pull their belly button in. The draw-in maneuver is very important; otherwise, you are testing more of the rectus abdominis. The patient takes a deep breath, continues breathing, and isometrically holds this position. I then apply it to their raised ankles with a gentle downward pressure. Grade the patient’s strength and note any compensation and pain.

The second TrA muscle test is with the patient in the prone position and feet hanging off the table. Ask the patient to hold their legs straight and to push their ankles down onto the table. Again, make sure to ask the patient to pull their belly button into their abdomen. Then lift the patient’s ankles a few inches off the table to see if they can maintain this planked position without pain or compensation.

I prefer the supine position since I'll perform the test after the straight-leg raise, so I can better grade degrees of strength, and I think it isolates the TrA even more.

Other weak TrA signs to look for are toned abdominals above the navel, but a bulge below it. The client may experience an inability to hold in the stomach after a large meal or when gassy; and low back fatigue after prolonged standing or walking.¹

Treating a Weak TrA: Mechanism of Action

Knowing that the TrA was weak, along with other findings, I treated the patient, which included a point for the TrA that made a profound difference. The patient was able to actively perform the straight-leg raise without pain. I know it was the addition of the TrA point because I wouldn't get this result in just one treatment with other cases that presented in a similar manner.

You might be thinking, *What is the mechanism here?* Well, it's all about inadequate activation. The problem usually lies with the muscle being weak, but even more so with delayed timing. The muscle does not contract in a timely manner when required by the low back.²

All abdominal core muscles work on a moment-to-moment basis as we move, providing the tension required to render forces from the lower limbs to the upper limbs.³ The TrA muscle is the deepest of the six abdominal muscles. It extends between the ribs and the pelvis, and each hemisphere (right and left) wraps up the organs horizontally.³⁻⁴

TrA fascial attachments include the lumbar vertebrae, rib cage, iliac crest, and inguinal ligament.³ The muscle also connects directly to the *linea alba*, supplying a link between the xiphoid process, pyramidalis, and pubic bone.³

You can see that the fascia and muscle fibers themselves are like a powerlifting back support belt. The TrA is therefore recruited to provide essential support for the internal organs, as well as tensional support for posture, and lift for the L2-L3 lumbar vertebrae.³ It also aids in forced expiration, coughing, and defecation by raising intra-abdominal pressure.^{1,3}

Acupuncture for the TrA

Here are some of the potential benefits of needling the transverse abdominis:

- *Pain relief:* Trigger points in the transverse abdominis can contribute to chronic pain in the lower back, hips or pelvis. Needling can help release tension in these areas, providing pain relief and improved function.
- *Improved core stability:* The transverse abdominis is an important muscle for core stability and spinal support. By needling this muscle, you may be able to improve its strength and activation, which can lead to improved posture, balance, and overall movement quality.
- *Improved breathing:* The transverse abdominis muscle plays a role in breathing mechanics by helping to compress the abdomen during exhalation. Needling may help improve the coordination and activation of this muscle during breathing, leading to improved respiratory function.
- *Improved athletic performance:* Athletes may benefit from needling of the transverse abdominis to improve core stability, balance, and coordination during sports and other physical activities.

There are three points that can be considered when needling the TrA, but I'm only going to

elaborate on two. One I don't like to use because the needle position is under the ribs. Now knowing the origin and insertion of the muscle, you can probably guess where the needles go.

The TrA-1 point most superior/cranial is under the ribs.⁵ My favorite point is in the middle of the muscle itself, TrA-2. The inferior or most caudal location, TrA-3 is under the crest of the ilium. All these points are on the side of the body along the gallbladder tendino-muscle channel.

Editor's Note: Pt. 2 of this article discusses patient positioning and precautions when needling the TrA, as well as activation exercises to help strengthen the muscle. References for both parts accompany part 2.

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