



CHEK POINTS for Fitness Professionals

The Inner Unit

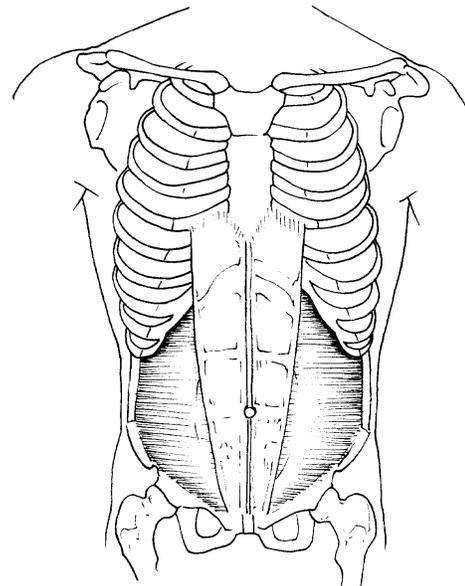
To create a functional and aesthetically pleasing core, remember that there are actually two functional units that make up the abdominal wall. The rectus abdominus and external obliques, the big muscles you see in the mirror, create what is called *the outer unit*. The muscles on the inside, *the inner unit*, are the transversus abdominis (TVA) and the internal oblique (IO). The TVA and posterior portions of the IO act like a girdle, producing a *drawing in* action, which is evidenced by the belly button moving inward toward the spine when the inner unit is activated. It is this drawing in action that creates the flat tummy look everyone is after.

Aside from flattening your tummy with its girdle like actions, the inner unit serves many other key functions that are essential to maintaining optimal health. Its functions include the following:

1. Joint Stiffness and Segmental Stability. The inner unit has been shown by scientific studies to be vital in producing and regulating joint stiffness of the torso and greatly influencing joint stability of the extremities.^(1, 2)

2. Visceral Support. The abdominal wall plays a critical role in supporting the internal organs. Although the organs are supported by an intricate network of ligaments, it is the abdominal wall that keeps them from falling downward and forward under the influence of gravity.

As the abdominal wall weakens (especially the inner unit) the organs begin to droop. This results in a condition known as *abdominal ptosis*. Abdominal ptosis has been linked to such maladies as low back pain, painful menstruation, poor circulation, digestive disorders, constipation, pelvic



The Transversus Abdominus

Origin: Internal surfaces of ribs 7-12, thoraco-lumbar fascia and iliac crest.

Insertion: Linea alba.

Innervation: The transversus abdominis (TVA), multifidus and pelvic floor muscles are on the same neurological loop, therefore if the TVA is not working properly, these muscles will also not function correctly.

floor disorders and chronic dysfunction of the respiratory system.³

3. Respiration and the Abdominal Wall. The abdominal muscles are *stabilizer* muscles that assist with respiration, while the diaphragm is a *respiratory* muscle that assists with stabilization.⁴ When abdominal ptosis exists, especially when

combined with an accumulation of abdominal fat, the ribs are pulled downward into a position of expiration. This disrupts respiratory excursion of the diaphragm and commonly results in an increased ventilation rate (breaths per minute). Increasing the ventilation rate alters blood Ph and has been linked to an increased propensity to experience muscle cramping.⁵

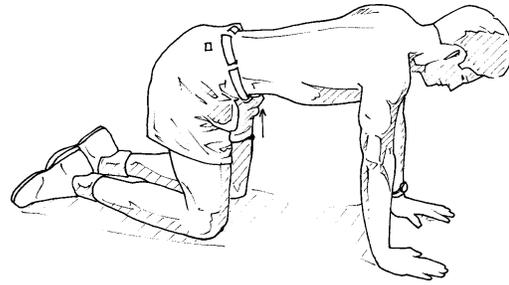
4. Inner Unit Support For Circulation and Immune Function. During activities such as walking or swimming there is a cyclical contraction of the inner unit. This cyclical contraction causes constant alteration of the pressures within the intra-thoracic and intra-abdominal cavities. Similar pressure fluctuations occur while breathing. These pressure variations, in concert with the pumping action created by the contraction of muscles which pushing blood through the veins toward the heart, serve to ease the load on the circulatory system.

One of the most effective ways to get the inner unit working optimally is to use breathing exercises. The Four Point Kneeling Tummy Vacuum is an excellent exercise that will both tone the TVA and exercise the inner unit as a breathing apparatus.

Once you can perform the Tummy Vacuum exercise in a standing position for three sets of ten repetitions, you are ready to begin training the inner unit with functional movements. Begin by tying a piece of string around your waist at belly button level. Draw the belly button inward toward the spine slightly and tie a knot in the string.

To begin your functional, inner unit training, wear the string to the gym and perform all your favorite exercises using a load you could lift 20 times. If your inner unit is working correctly, you will not feel the string tighten or dig into your sides as you perform the exercise. If your inner unit is lazy, it will push out as you do the exercise, resulting in an uncomfortable digging of the string into your stomach and sides. This should serve to remind you to draw your belly button inward until the string loosens.

Once you do this naturally, you can begin lifting heavier weights in the gym again. By correctly activating your TVA, you will notice that you now have a flatter tummy!



Four Point Kneeling Tummy Vacuum

- Kneel on the floor with your shoulders directly above your hands and hips directly above knees. Let the intestinal contents rest against the abdominal wall. This will put a pre-stretch on the TVA.
- Holding neutral spinal alignment, take a deep diaphragmatic breath.
- Exhale and draw the belly button toward the spine and slightly upward. **DO NOT TRY TO TIGHTEN YOUR ABDOMINALS!**
- Keep the lumbar spine in a neutral lordosis. Do not flex the spine nor posteriorly rotate the pelvis.
- Hold the umbilicus against the spine for ten seconds. Relax for ten seconds and repeat the process ten times.

References

1. Chek P. Scientific Core Conditioning, correspondence course and video cassette series. Encinitas, CA: A Chek Institute Publication, 1993, 1999.
2. Chek, P. "How to Be Back Strong and Beltless." Testosterone Web Magazine. www.t-mag.com (Sept. 8, 2000).
3. Goldthwait JE, et al. The Essentials of Body Mechanics in Health and Disease, ed 5. Philadelphia, J.B. Lippincott, 1952.
4. Lewit K. Manipulative Therapy in Rehabilitation of the Locomotor System, 2nd ed. Boston: Butterworth-Heinemann, 1991.
5. Courtney, R. (2000, Sept/Aug). Breathe Easy: Eucapnic Breath Retraining. Massage and Bodywork, 12-15, 18-21.
6. Guyton, A., Textbook of Medical Physiology 8th Edition, W. B. Saunders Co., Philadelphia, Pennsylvania, 1991.

The C.H.E.K Institute
800.552.8789 - www.chekinstitute.com