

How to Develop the Lower Abdominals: Part I

How to test lower abdominal strength and coordination

BY KIM GOSS

Despite all the cool toys available to develop the abdominals, the fact is an athlete can develop tremendous abdominals without ever performing a sit-up, crunch or anything involving all those fancy circus balls and other gimmicks on the market. Core training, to use the popular buzzword, doesn't have to be complex training.

As evidenced by the muscular mid-sections of powerlifters and weightlifters, simply performing total-body lifts such as squats, power cleans and deadlifts can develop impressive abdominals. The problem is that the lower region of the abdominals often gets neglected, a deficiency that may cause increased risk

of injury, back pain and poor athletic performance.

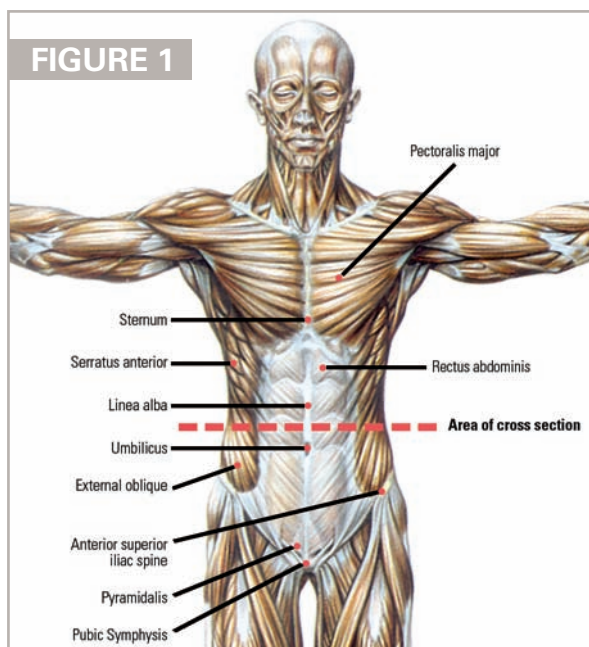
To explain what the lower abdominals are, why they are so important and how to properly train them, I turned to Canadian strength coach and posturologist Paul Gagné. Gagné has recently established quite a reputation in the golf world with his work with a clientele of professional golfers who include teenage phenomenon Michelle Wie and 2005 US Open Champion Michael Campbell. Because golf requires excellent posture and abdominal strength, Gagné's coaching has become highly sought after in this sport due to his expertise in developing exceptional strength in both the upper and lower

Gymnast Amanda Johanson shows the type of abdominal development that comes from training hard and smart. A member of the Olympus School of Gymnastics in Sandy, Utah, Amanda will be attending the University of Denver on a gymnastics scholarship this fall.

abdominal muscles.

An Ab Is an Ab Is an Ab...

Many exercise authorities and medical professionals will claim that the rectus abdominis, the muscle responsible for shaping the envied "six-pack," is just one long single muscle that extends from the top of the sternum and rib cage to the pubic bone. So, in light of

FIGURE 1

this skepticism, my first question to Gagné was “Just what is meant by the term *lower abdominals*?”

Gagné replied that while it’s true the lower abdominals don’t really exist from an anatomical standpoint, for training purposes the rectus abdominis can be divided into two sections: supraumbilical and subumbilical. “*Supra* essentially refers to the part of the rectus abdominis area over the bellybutton, and *sub* refers to everything under the bellybutton.” This separation is illustrated in Figure 1.

Although Gagné admits that the entire rectus abdominis is activated to some degree in virtually every exercise, it’s possible to emphasize specific segments of the muscle, such as by positioning your body differently. This effect, says Gagné, is similar to what happens when bodybuilders attempt to

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develop specific areas of the pectorals by performing bench presses on an incline or decline.

Gagné says the subumbilical section plays an important function in maintaining proper posture, and he explains that the excessive lumbar curvature displayed by some gymnasts (Figure 2) may

in part be due to weakness in the lower abdominals. This unnatural posture may contribute to lower back pain by reducing the shock absorbing qualities of the spine. Further, Gagné says the problem is compounded if one side of the subumbilical muscle is underdeveloped,

causing excessive rotation of the spine that can increase the risk of disk injury.

In terms of athletic performance, when the pelvis is rotated forward due to muscle imbalance, the lower abdominals are stretched and become difficult to contract and contribute to sports performance. Thus, a tennis player with weak lower abdominal muscles would not be able to generate as much power on a serve. “All macro movements in sports depend on micro movement,” says Gagné. “All this current emphasis on movement training for athletes is fine, provided the segments are strong enough to properly coordinate.”

Gagné says there is convincing research to show that an athlete can increase stride length, and therefore running speed, with proper development of the lower abdominal muscles. If weak lower abdominals are causing your pelvis to not rotate properly, every time you drive your rear leg back

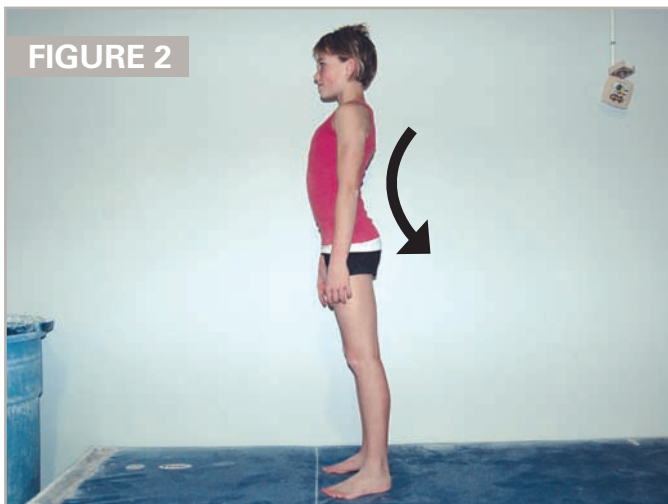
Paul Gagné and Michelle Wie



Canadian strength coach and posturologist Paul Gagné’s expertise in abdominal and posture training has put him in high demand among professional golfers. Here he is shown teaching teenage phenomenon Michelle Wie how to perform the split jerk.

Weak lower abdominals often leads to excessive curvature in the lower back and are common among gymnasts.

FIGURE 2



into extension, the catch-up phase is compromised. Weak lower abs can also change running mechanics. In fact, when strength coach Charles Poliquin worked with 100-meter sprinter Donovan Bailey prior to his gold medal performance in the 1996 Olympics, one primary focus in his training was the lower abdominals.

How do you know if you have weak lower abdominals? One test is to lie on your back with your knees bent at 90 degrees (as shown in Figure 3). Place your hands just above the hipbone, lift your elbows off the floor and rest your head on the ground. Now try to lift your hips straight up. If you can't perform this test without moving your knees towards your head, or if you have to brace your elbows on the floor or raise your head to perform the movement, then you have weak lower abdominals. "This lower abdominal raise is just about the only one you could say is purely subumbilical," says Gagné.

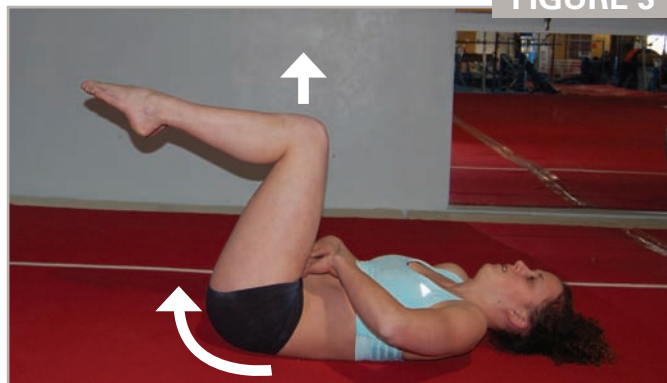
FIGURE 4



The seated pike is a good test to determine abdominal coordination.



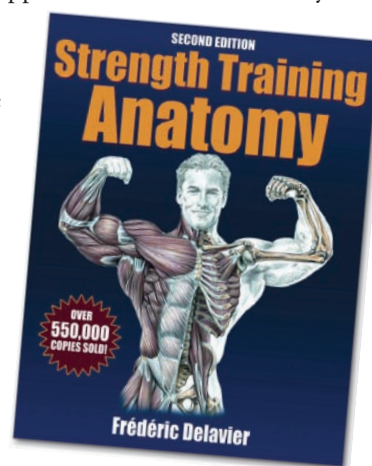
FIGURE 3



A test to determine lower abdominal strength.

One practical test of abdominal coordination, which is how your lower and upper abdominal muscles work together, is to perform a seated pike (Figure 4). With your legs extended in front of you, feet together, lift your hips and feet off the ground. Hold for one minute. If you don't have good coordination between your upper and lower abdominals, you will not be able to maintain a rigid position – you may hold one leg higher than the other, shift to one side or simply collapse before the minute is up.

In Part II of this series Paul Gagné will explain several specific exercises designed to place maximum emphasis on the lower abdominals – simple exercises, but still extremely effective. Until then, try the two abdominal tests described in this article and see if you are strong to the core. **BES**



The illustration for this article was taken from *Strength Training Anatomy 2nd ed.*, available from Human Kinetics, www.humankinetics.com

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