



*Dr. Karl Knopf*

# CORE STRENGTH FOR 50+

A Customized  
Program for Safely  
Toning Ab, Back  
& Oblique Muscles





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Ab, Back & Oblique Muscles

*Dr. Karl Knopf*



**Ulysses Press**



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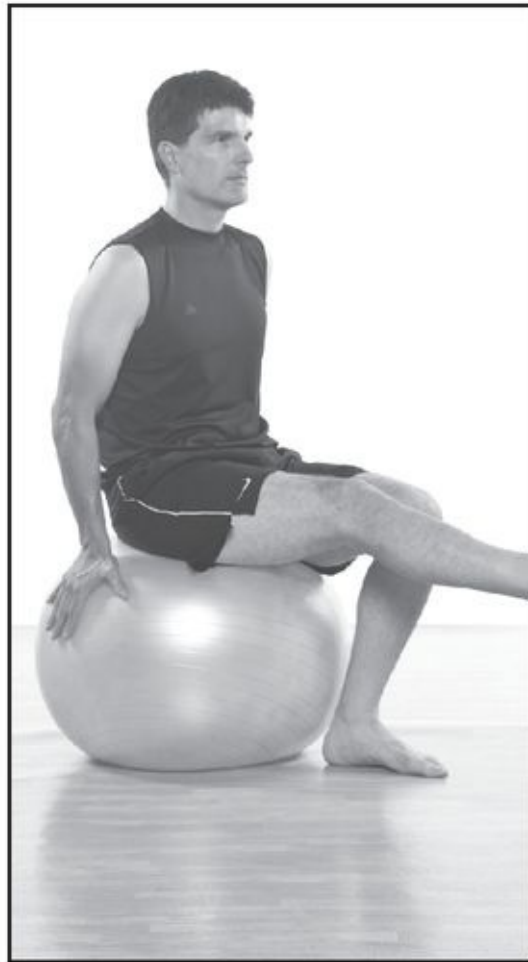
# part 1

## overview



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# Introduction



The “core” is the powerhouse of the body. When the concept of “core strength training” was first introduced, the core was considered to be only the abdominal region and the low back area. Nowadays, some experts consider the core to be the region from the tops of the legs to the shoulder area. With its roots in back rehabilitation, core training was later thought to be useful in sports performance. Today, core training needs to be a part of everyday exercise programs.

Having an aligned and strong yet flexible core can take the load off the vertebral column and discs, which results in improved function and less discomfort and pain. It’ll also assist you in activities of daily living, help improve posture, and maybe even boost appearance and foster athletic performance.

Consider a tower of blocks: If the blocks aren’t lined up properly and a load is placed on top of it, the middle portion often buckles and collapses. This is also what happens when we don’t have a solid core. Some experts maintain that true core strength is the interaction of the total body. It’s about improving functional fitness and reducing the strain on the spinal region. Core strengthening goes far beyond just having a flat stomach and six-pack abs.

Core Strength for 50+ is very different from other core training books because

it focuses on providing comprehensive, total-body core-strengthening options. The exercises described in this book are based on the most recent scientific knowledge of how the spine responds to corrective exercise. Any exercise that doesn't have superior benefits and minimal risks was not included. Additionally, some traditional core exercises were transformed a bit to accommodate balance and joint issues often seen in the 50-plus person. By using Core Strength for 50+, you're well on your way to enhancing your spine's stability and re-educating correct muscle activation patterns.

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# What is core strength?



Fitness fads come and go but core-strength training is not a passing trend. “Core strength” is not achieved by just doing a bunch of sit-ups; in addition, using heavy resistance is counterproductive. Rather, core strength is an integrated approach of systematic conditioning and correcting of muscular imbalances.

Too often people exercise their abdominals (or “abs”) for aesthetic reasons, but correct core strength is gained through proper activation of specific muscles in a coordinated fashion. Proper core training teaches you to engage and protect your back even when you’re not even thinking about your core. You’ll know you’ve mastered core training if you automatically engage your core muscles when you open a door, swing a golf club, get up from sitting, or lift something.

The roots of core training stem from sound back rehabilitation. The average fitness follower or anyone who has ever had a bad back is familiar with the terms “core stability” and “core training.” Core training is also known as “dynamic lumbar stabilization.”

Core training became very common in the early 1980s and received the most

acclaim when used by San Francisco 49er quarterback Joe Montana. The belief was that stabilization of the lumbar region would guard your low back by using your own body to build your own lumbar support. Patients were taught how to find the most balanced, pain-free position while in a static position and then progress to being able to locate that position in a variety of dynamic movements. This approach was so successful with clients who had intervertebral disc problems as well as facet joint involvement and other muscular imbalance issues that it was incorporated into fitness and sports conditioning routines for the young and old.

## **Core Strength vs. Core Stabilization**

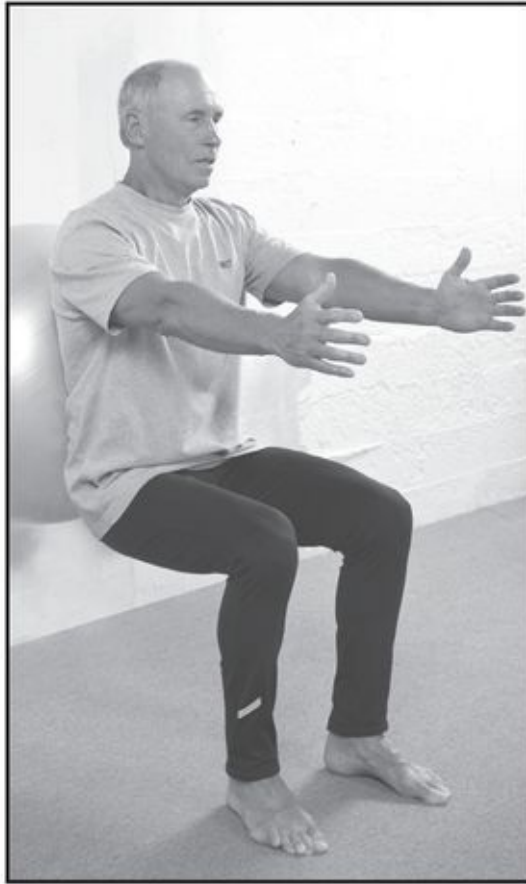
Core training goes by many names, such as core stabilization and core strengthening, to name the most common ones. They all generally agree that the abdominal and low back muscles must have the right amount of strength, endurance, and flexibility, as well as the muscle memory of knowing automatically when and how to engage and relax the core set of muscles. However, people often overlook the muscular balance that's required for a strong core, and only do sit-ups and back extensions without addressing all the subtle changes of posture and deep-lying muscles. This may lead to physical problems down the line. When strengthening your core, be sure to train both the superficial and deep-lying muscles in the front, back, and sides of the body. Your body needs a combination of muscular endurance to handle prolonged sitting and standing, and enough strength in that region to keep your posture long and tall.





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## Where is the core?



The “core” of anything is the central foundation of the structure, whether it’s the core of an apple or the core of a nuclear reactor. Although no one universal definition of “core” exists, most people refer to the abdominal wall muscles in the front of the body and the muscles of the back that run up and down the spine as the core of the human body. Sometimes the gluteal region gets included.

The core is a complicated arrangement of bones, nerves, ligaments, tendons, and supporting muscle configurations. Understanding the locations and roles of the muscles that comprise the core will motivate you to keep participating in your core-strengthening routine day in and day out.

The core team is made up of a pole (the vertebral column) and guide wires (the muscles), and each member of your core team has a specific role. The core muscle group includes the transverse abdominis, internal and external obliques, rectus abdominis, and erector spinae.

The transverse abdominis is the deepest-lying layer of fibers of the abdominal wall. The transverse abdominis provides compression to the internal organs and serves as nature’s back brace. Some physical therapists believe that the transverse abdominis is the most important element of core training.

The internal and external obliques are the muscles on the sides of the body. They’re engaged when you twist to reach and grab something.

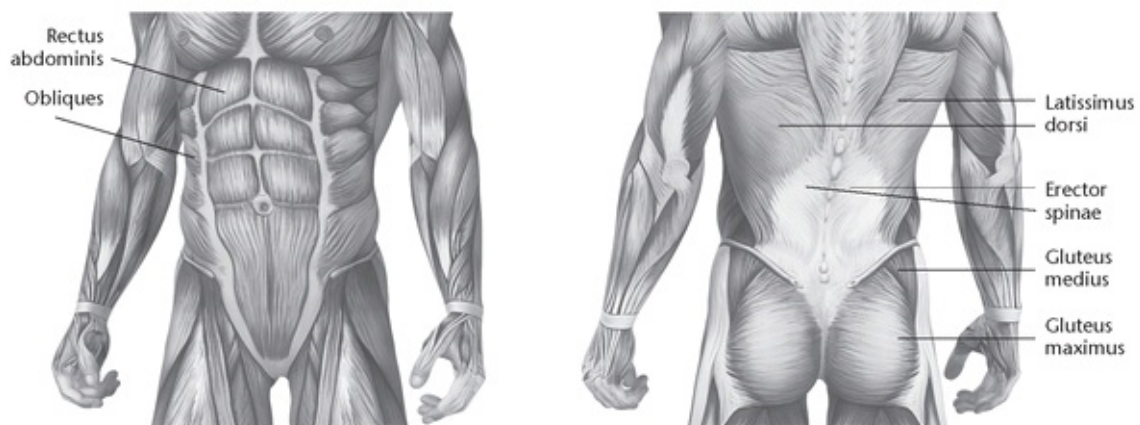
The rectus abdominis is the muscle that flexes the vertebral column. We're most familiar with this muscle because it gives us the six pack. It also helps stabilize the pelvis when walking.

The erector spinae group is responsible for extending the back. It's made up of three distinct muscles: the iliocostalis, the longissimus, and the spinalis. The erectors add stability to the trunk area and are also the primary muscles that help us stand erect.

When the core muscles are properly trained, they lead to improved posture and back protection.

Current research also suggests that the diaphragm assists spinal stability via a hydraulic consequence on the abdominal hollow space by increasing intra-abdominal pressure, often seen in weightlifters who bear down when doing heavy lift. For years the transverse abdominis was considered the key component for spinal stabilization training. However, today it's understood that the "deep core" muscles and the diaphragm need to work in a coordinated manner to provide an ideal platform from which the more superficial muscles can operate.

### Major Muscles of the Core



Author Karl Knopf makes some adjustments.



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## Benefits of a strong core



Much like replacing the plumbing under your house, core strengthening is often not visible. No one will ever see what you've done but if it's not working, things can really become a mess. Being fit doesn't necessarily translate into being highly aware of your core muscles. Oftentimes, a fit, athletic person can more easily substitute other muscles to perform the functions associated with the core.

The benefits of having a strong core include improved posture, which allows you to present a more youthful appearance, and balance. It also means less load on the lumbar region of your low back, reducing the risk of injury to any arthritic joints and discs in addition to pain. Performance in sports and recreational pursuits is also boosted.

## Core Strength and Back Pain Prevention

Having a solid core is analogous to the concept of keeping a radio tower upright. A radio tower is installed with guide wires to keep the tower straight and tall. If one set of wires is lax and another set is too tight, the tower becomes misaligned. The same applies to the back, with the spine being the radio tower and the muscles of the body being the guide wires. If one set of muscles is too tight from overuse and the others too lax from lack of use, the spine becomes unstable and is at high risk for injury. Muscle imbalances, along with poor body mechanics and aging, are believed to be a factor in low back issues.

It's important to keep in mind that "back pain" is a very generic term and can range in severity from simple overexertion to a herniated disc to something very serious (e.g., pain referred from a major organ). That's why a medical doctor should evaluate persistent, unrelenting low back pain.

That said, certain kinds of back pain can be prevented or reversed by proper core strengthening. A comprehensive core-strength training program can be thought of as building your own back brace to protect your spine, along with learning proper biomechanics and maintaining flexibility to avoid muscle spasms.

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# Core training the right way



Core strengthening is all about improving functional fitness and reducing the strain on the spinal region. A well-designed core-strength program requires a delicate balance of core strength, core muscle endurance, proper body mechanics, and flexibility of the surrounding muscles (such as the hamstring, quadriceps, iliopsoas, and the iliotibial band) that often contribute to low back imbalances.

Complete core-strength training requires a balanced multiplanar approach that includes a combination of isometric and dynamic exercises. While many of the exercises in this book look simple, it's critical that you master the subtleties of the movements through concentration and practice them until they become automatic before moving on to the next level.

Proper core stabilization has four basic stages:

Stage 1 Learn to contract deep-lying muscles.

Stage 2 Focus on endurance of the deep-lying muscles.

Stage 3 Challenge the core with arm movements once stabilization can be maintained.

Stage 4 Continue challenging the core.

The beauty of a core strength program is that it can be used as both a preventative and rehabilitative back-care wellness tool. The desired outcomes of

good core-strength program are:

- A solid core that will protect the low back, reduce back injuries, and foster better low-back health
- Improved sports performance
- A better interdependence between the muscles on the front of the body and the back of the body, which will reduce fatigue and improve posture

To achieve these aspects, you can progress to performing the exercises in a supported position, such as supine, prone, kneeling, and standing, before finally incorporating dynamic movement. To truly improve core strength, meticulous body awareness is needed. Talking or listening to music while doing these exercises can detract from learning core stabilization, so no distractions are recommended. Core training requires total mind-body interaction. Just pounding out sit-ups to the latest tunes is not what core-strength training is all about.

## 10 Core-Training Tips

Here are 10 tips that will help you make the most of your core-training workout.

1. Core training can and should be done daily. If you're pressed for time, exercise the front side of your body one day and then exercise the posterior side of your body the next day.
2. Concentration and practice and then more concentration and more practice are the axiom of core training.
3. Train, don't make pain. Follow the two-hour rule: If you hurt more than two hours post-exercise, re-evaluate your exercise program and back off.
4. Better results occur when you cross-train—in addition to core training, include a regular walking program with comfortable shoes or participate in a water-exercise program.
5. Avoid doing core exercises first thing in the morning. It's believed that intervertebral fluid pressure in the spinal region is higher in the morning and can cause problems.
6. Focus on core muscle endurance rather than aiming to make the muscles overly strong.
7. Sad but true, there's no ideal set of exercises for everyone. Your exercises need to evolve and adapt according to your functional goals and pain issues. Some people will do core exercises for rehabilitative purposes and others for general fitness and prevention, while others do it to enhance athletic performance. Therefore, use your inner wisdom when selecting and designing a core strength program.
8. Don't expect quick results. It'll take a long time to learn to perform the exercises correctly and mindfully. The goal of core training is instinctually knowing how to properly engage your core muscles while performing activities of daily living.

9. Practice braced breathing and learn diaphragmatic breathing (see page 35).

10. When performing static exercises, don't hold your breath. If you have any cardiovascular issues, avoid static exercises.

## **TRAIN SMART!**

The keys to correct core-strength training are as follows:

- Concentration and perseverance
- Quality of movement is more important than quantity
- Slow, purposeful progression to more challenging movements
- The ability to perform every action from a neutral spine





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