



CORE TRAINING MANUAL

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What is the Hype About?

Core training has been a hot topic in the world of sport & fitness for the past 4-5 years, with the development of specific training classes, tools & toys, and specialized instructors. Much has to do with the realization that the ability of the body to generate and react to forces relies on the fundamental strength and stability of the mid-section. Customized training of the limbs and the body's cardiorespiratory system will have direct impact on performance, but without inclusion of proper core strengthening and stabilization, the athlete will not achieve optimal results. Consider the martial artist who uses the transfer of energy from his/her legs and trunk into the upper body resulting in a more powerful use of their shoulder, arm and fist.

What is the CORE?

- The area around your trunk and pelvis, it is where your center of gravity is located (Also known as the powerhouse of the body).
- Specifically, the core is made up of the deep-trunk muscles - Transverse Abdominus (TA), Multifidus (MF), Internal Obliques (IO), paraspinal, and pelvic floor muscles; these are key to the active support of the lumbar spine. The co-contraction of these muscles produce forces via the Thoracolumbar Fascia (TLF) and Internal Abdominal Pressure (IAP) mechanism which stabilize the lumbar spine, and the paraspinal and MF muscles act directly to resist the forces acting on the lumbar spine.
- Hodges and Richardson (1996) showed that the co-contraction of the TA and MF muscles occurred prior to any movement of the limbs. This suggests that these muscles anticipate dynamic forces which may act on the lumbar spine and stabilize the area prior to any movement. Hodges and Richardson showed that the timing of co-ordination of these muscles was very significant, and that back injury patients were unable to recruit their TA and MF muscles early enough to stabilize the spine prior to movement
- The deep-trunk muscles act as 'stabilizers' and are not involved in producing movements, but instead involve static, or isometric, contractions. Furthermore, they must act as stabilizers continuously throughout everyday activities as well as fitness and sport activities, and so require very good endurance of low-level forces. These muscles do not need to be very strong, but they must be correctly co-ordinated and capable of working continuously
- Basically, the core muscles act like a big internal corset to support & stabilize the Lumbar spine and pelvis while your body is moving to maintain posture & strength

My strength comes from my abdomen.
It's the center of gravity and the source of
real power".

– BRUCE LEE

Why is Core Training Important?

- It is a natural training that begins quite normally in early childhood without any coaching; Most babies spend about 6 months doing aggressive core training before taking their first steps, mostly by practicing moving their hips & spines. They gain greater levels of control by progressing their movements: pushing up onto elbows, then all 4s; eventually crawling and then progressing to standing. All of these exercises work to develop strength & stability of their core.
- Core training will lay the foundation for strength, power, speed, and agility. It will and should become automatic so the athlete's concentration can be on his/her actual movements & performance.
- Poor flexibility, muscle imbalances, inappropriate training and/or one-dimensional conditioning habits can all work to alter movement patterns which in turn has an impact on how the core muscles react and stabilize.
- Proper core training can minimize athletic injury and improve performance as the body's powerhouse develops strength & stability from which all movements are generated.

Differentiation Between Strength & Stability

- Strength is the ability to produce force and generate movement
- Stability is the ability to control movement and force

Theraband Exercise Balls

Pick the appropriate ball size for your body height *

Height (inches)	Height (cm)	Ball (colour/size)
4'7" - 5'0"	140- 153cm	Yellow (45cm)
5'1" - 5'6"	155- 168cm	Red (55cm)
5'7" - 6'1"	170- 185cm	Green (65cm)
6'2" - 6'8"	188- 203cm	Blue (75cm)

*Please note that when sitting on an inflated ball, your hips and knees should be bent at 90° with your back upright.

CORE TECHNIQUE POSITION

Lying on your back with legs bent. Use two fingers or thumb to press deeply on the inside of the hipbones. Contract the Transverse Abdominis (TA) by drawing your navel down and up towards your heart. Breathe normally for 10 sec while holding the contraction. This action stabilizes your pelvis and back.

All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

FLOOR EXERCISES

BASIC CORE

START



Begin with the Core Technique Assessment, Contract your abs and glute muscles to maintain control of your pelvis and core.

FINISH

Lift one leg off the floor slightly, be sure not to let your hip drop on the lifted side – to insure this make sure you have a strong contraction of your abs and glutes prior to lifting your leg.



FINISH (ADVANCED)

Once you lift your leg, extend it out but do not touch the ground with it, return to the starting position. Be sure to have a strong contraction of your abs and glutes to stabilize your pelvis.



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BRIDGE

START



Begin with the Core Technique Assessment, contract your glutes, then raise your pelvis off floor so your pelvis is in a straight line with the rest of your body, then lower it – slowly.

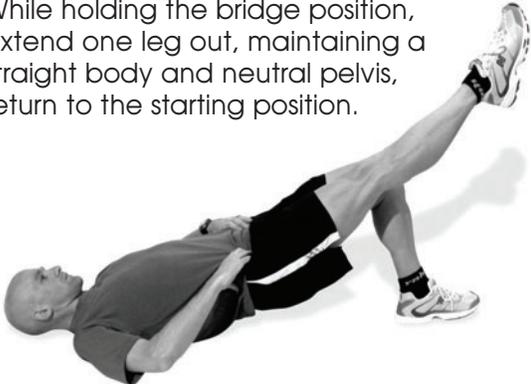
FINISH

While holding the bridge position, lift one leg bent, do not let hips drop or rotate. Keep abs and glutes contracted.



FINISH (ADVANCED)

While holding the bridge position, extend one leg out, maintaining a straight body and neutral pelvis, return to the starting position.



PUSH-UPS

START

Begin by lying on your stomach, contract your abs and glutes and raise your body off the floor onto your toes, hands should face forward and elbows at 45 degrees. Start on your knees to reduce the weight on your arms, then progress to your toes.



FINISH

Lower your arms to allow your face & body to be closer to the floor. Keep your body straight as you push up and lower down.



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PLANK PRONE

OPTION A

Start in a push up position but lean on your forearms – your upper arms should be vertical. Lift body in a straight line off the ground and hold.



OPTION B

Start in a push up position but lean on your forearms in an extended position. Keep your body straight as you hold the position. Start holding for 10 sec. and build.



PLANK SIDE

START



Start on your side, with your body resting on your elbow, keep your upper arm vertical under your body and one foot in front of your feet together.

FINISH

Begin in the starting position, then bend one leg, then raise your hips off the ground in a straight plane and hold.



FINISH (ADVANCED)

Keep both feet together and raise your hips off the ground in a straight plane and hold. Start holding for 10 sec. and build.



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PLANK SUPINE

START

Begin lying down with your arms bent, lean on your elbows and forearm. Contract your abs prior to raising your pelvis for the Finish position.



FINISH

Contract your abs and glutes, then lift your body off the ground, keeping it in straight plane and hold.



CRUNCH WITH KNEES BENT

START

Begin with the Core Technique position, put your hands behind your head. raise your upper body, then lower back down in a controlled manner.



FINISH

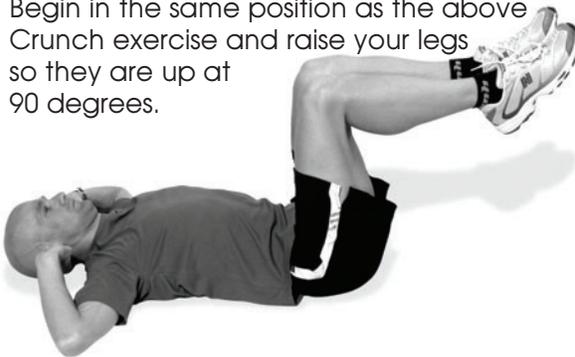
Raise your upper body so that your shoulder blades are slightly off the ground, lower back down in a controlled manner.



CRUNCH WITH LEGS UP

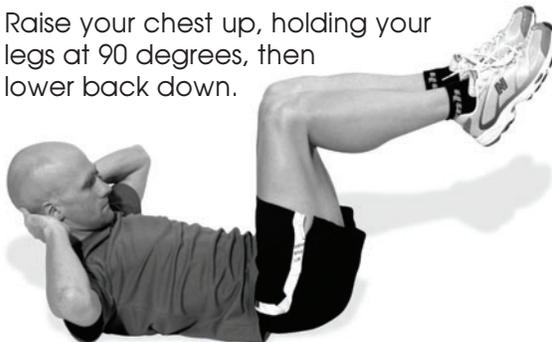
START

Begin in the same position as the above Crunch exercise and raise your legs so they are up at 90 degrees.



FINISH

Raise your chest up, holding your legs at 90 degrees, then lower back down.



All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

OBLIQUE CRUNCHES

START



Begin in the Core Technique position, put your hands behind your head. Do these exercises one side at a time or alternating from side to side.

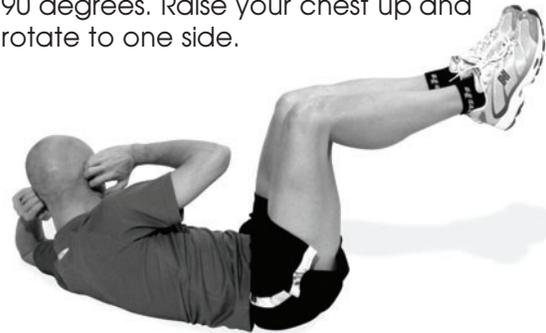
START

Lift your upper body up and rotate to one side leading with your elbow. Do not pull on your head or neck through these movements.



FINISH

Begin as above but with your legs up at 90 degrees. Raise your chest up and rotate to one side.



LOWER ABS

START

Lie on your back with your legs up at 90 degrees, put your hands under your low back and glutes.



FINISH

Contract your abs to stabilize your pelvis then extend both legs out together, do not touch the ground with your legs, bring them back to the starting position.



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SUPERMAN

START

Lying face down on a mat, extend your arms out in front.



FINISH

Raise your upper & lower body off the ground so your back is arched, hold, then lower back down.



TABLE TOP

START



Start on your hands and knees, keeping your back straight by contracting your abs.

FINISH

Contract your glutes then extend one leg straight back without lifting your hip up, keep your back straight do not arch.



FINISH (ADVANCED)

Extend opposite leg and arm – keeping your torso and hips stable by contracting your abs and glutes. Do not let your hips rotate.



CORE TECHNIQUE POSITION

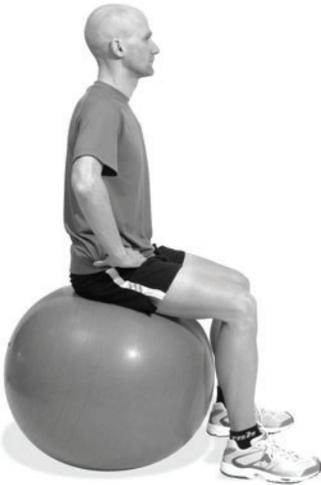
Lying on your back with legs bent. Use two fingers or thumb to press deeply on the inside of the hipbones. Contract the Transverse Abdominis (TA) by drawing your navel down and up towards your heart. Breath normally for 10 sec while holding the contraction. This action stabilizes your pelvis and back.

All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

BALL EXERCISES

BASIC CORE

START



FINISH (OPTION A)



FINISH (OPTION B)



START

Sit up tall on the ball, knees and hips at 90 degrees (neutral pelvis), contract lower abs.

FINISH (OPTION A)

Keep one leg on the ground, contract your abs, lift the other leg up, keep your hips level.

FINISH (OPTION B)

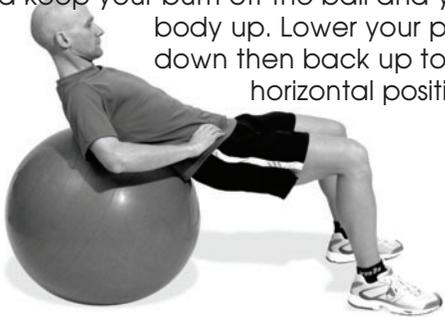
Lift one leg up and extend it out, keep your balance.

All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

BALL BRIDGE

START/FINISH

Lying on your back on the ball, keep the ball under your mid Back, contract abs and keep your bum off the ball and your body up. Lower your pelvis down then back up to a horizontal position.



START (ADVANCED)

Roll the ball up to your shoulders and neck, contract your abs to keep your body horizontal to maintain bridge position.



FINISH (ADVANCED)

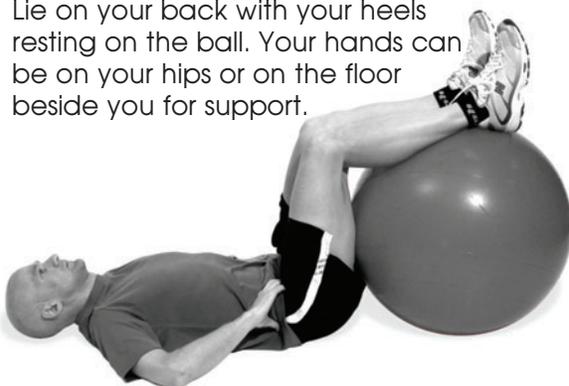


Same position as above, then extend your leg out keep your hips up, do not drop in the middle.

BRIDGE ON FLOOR

START

Lie on your back with your heels resting on the ball. Your hands can be on your hips or on the floor beside you for support.



FINISH

Contract your abs and glutes and raise your body up so it is in a horizontal position.



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BRIDGE HAMSTRINGS

START (ADVANCED)



Lie on your back with your heels resting on the ball. Your hands can be on your hips or on the floor beside you for support. Contract your abs and glutes and raise your body up so it is in a horizontal position.

FINISH (ARMS OUT)



Keeping your body up in a horizontal position, roll the ball towards you by bending your knees and using your hamstrings to pull the ball. (Double leg hamstring curls).

FINISH (HANDS ON HIPS)



Putting your hands on your hips makes this exercise a little harder as your base of support is less.

FINISH (ADVANCED)



Maintaining the bridge position, keep one leg straight and lift it off the ball, then roll the ball in with one leg. (Single leg hamstring curls).

All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

PUSH-UPS

START

Lie on your stomach on the ball; roll out so that the ball is under your thighs (basic), Assume push up position with hands facing forward and elbows at a 45 degree angle.



FINISH

Contract abs and keep body straight, lower arms to allow face and body to move closer to the floor.



FINISH (ADVANCED)

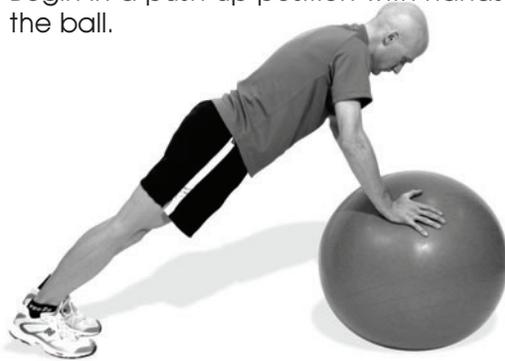
Roll out so that the ball is under your shins. Contract your abs and keep body straight, lower arms to allow face and body to move closer to the floor.



PUSH-UPS ON BALL

START (ADVANCED)

Begin in a push-up position with hands on the ball.



FINISH (ADVANCED)

Contract abs and keep body straight, lower arms to allow face and body to move closer to the ball. This exercise requires a a lot of stability as the ball will move.



All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

PLANK PRONE

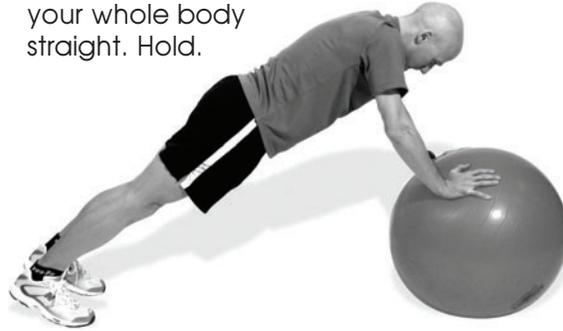
BASIC

Start in a push-up position and rest your forearms on the ball. Contract your abs and keep your whole body straight. Hold.



ADVANCED

Start in a push-up position with your hands on the ball, contract your abs and keep your whole body straight. Hold.



PLANK SUPINE

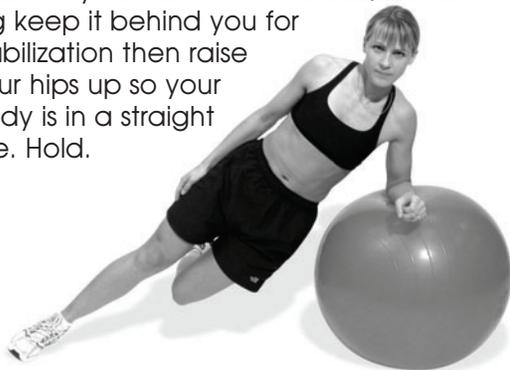


Sit on the ball, roll out so only your forearms are on the ball. Contract abs to keep your body in a horizontal position. Hold.

PLANK SIDE

BASIC

Lean on your elbow on the ball, bend one leg keep it behind you for stabilization then raise your hips up so your body is in a straight line. Hold.



ADVANCED

Put your feet together and raise your hips up. Contract abs to keep your body in a horizontal position. Hold.



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CRUNCHES

START



Lie on the ball, extend your back slightly over the ball, put your hands behind your head. Keep your pelvis neutral.

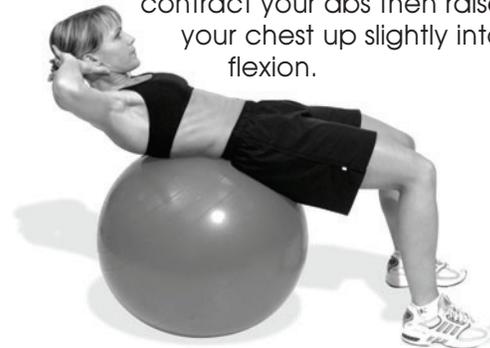
FINISH (BASIC)

Position the ball under your shoulders, contract your abs then raise your chest up slightly into flexion.



FINISH (ADVANCED)

Position the ball under your low back/hips, contract your abs then raise your chest up slightly into flexion.

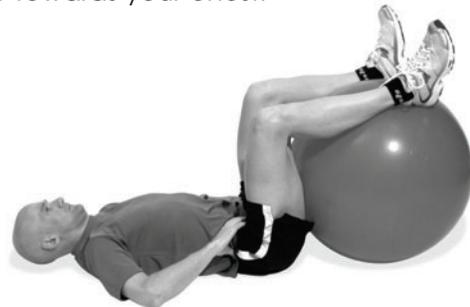


OBLIQUE CRUNCHES / LOWER ABS

Raise your chest up and rotate to one side, keep your hips stable on the ball, only rotate your upper body.



Lie on the ground with your legs bent, squeeze the ball between your upper and lower legs and roll your legs and the ball up towards your chest.



All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

BACK EXTENSIONS

START



Kneel down and roll your body over the ball so that the ball is resting at your hips, put your hands behind your head, keep your feet on the ground.

FINISH



Lower your torso slightly over the ball then raise your upper body up to a horizontal level.

FINISH (HANDS ON HIPS)



Lie on the ball, roll into a push up position, the ball should be under your hips, start with your feet on the ground.

FINISH



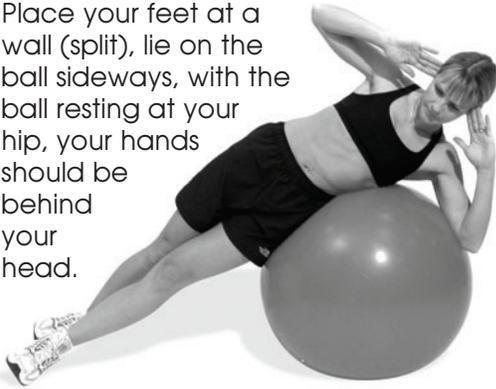
Raise your legs up together to a horizontal position; do not arch your back.

All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

SIDE RAISE

START

Place your feet at a wall (split), lie on the ball sideways, with the ball resting at your hip, your hands should be behind your head.



FINISH

Roll over the ball sideways then up so body is aligned (or just past).



AB ROLL

START

Kneeling, keep your body upright, put your hands together and rest your wrists/forearms on the ball.



FINISH

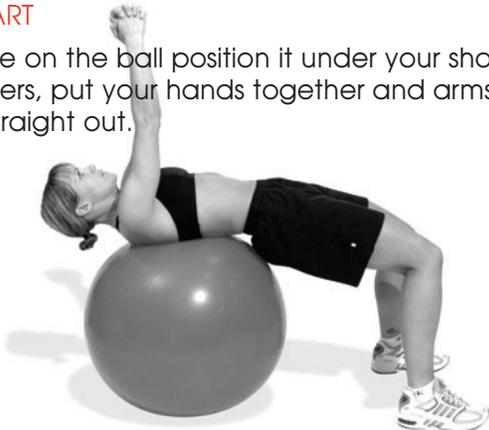
Contract your abs and roll the ball away from you. Do not arch your back or let your pelvis drop.



BALL TWIST

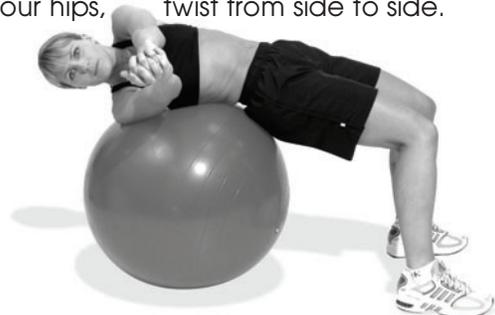
START

Lie on the ball position it under your shoulders, put your hands together and arms straight out.



FINISH

Roll side to side using your abs. Keep your eyes looking at your hands, do not twist your hips, twist from side to side.



All exercise movements are to be done **slowly** and **controlled**, in order to engage the core stabilization muscles.

LEG RAISE

START

Lie on the ball with your hands and feet touching the ground.



FINISH

Raise opposite arm/leg, you can start with only raising one arm then one leg and work up to raising both together. Keep your body/hips neutral do not rotate. Be sure to contract your abs when you lift your arm and leg.



JACKKNIFE

START

Begin in a push-up position with the ball under your feet. Contract your abs to maintain a horizontal position.



FINISH

Maintaining a push-up position, using your abs bring your legs and the ball underneath you.



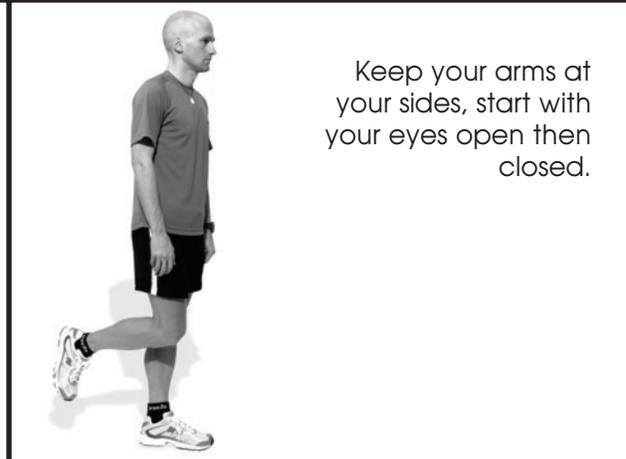
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BALANCE - PROPRIOCEPTION

BALANCE



PILLOW / 747

