

## SPINE STABILISATION

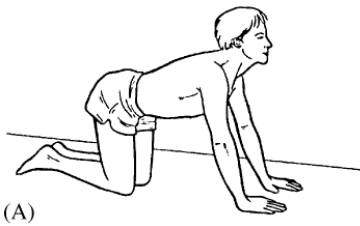
### Step 1: be aware of your low back neutral position

**ABDOMINAL BRACE TECHNIQUE** to use any time your low back is challenged (for ex. during lifting)

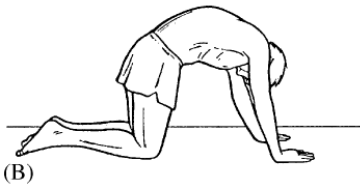
1. Bend forwards/backwards and find the point in which low back muscles are relaxed. Feel them by placing your fingers on the low back. That is the neutral position for your low back.
2. Grips the floor with the feet, fractional bends the hips and knees and tightens through the core, feeling for the muscles to contract.
3. Challenge the posture maintaining the spine in the neutral position

### Step 2: warm up

#### CAT-CAMEL EXERCISE



1. Begin by getting on your hands and knees on the floor.
2. Keep your back in a neutral position
3. Arch your back and extend your neck (A) while you breath in through the nose.
4. Round your back up and bring your head down (B) while you breath out from the mouth.

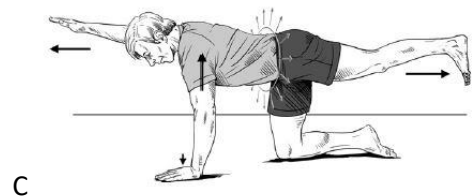


Variation: maintaining the spine in neutral position arch laterally by moving the shoulder and the hip on the same side close to each other.

Always to perform in the pain free range. Repeat for 6 to 10 cycles in each direction.

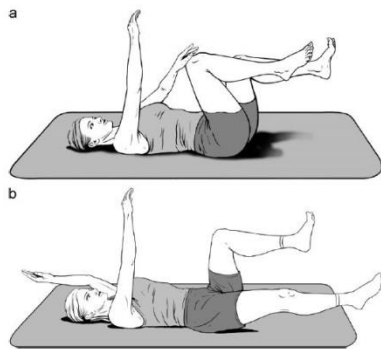
### Step 3: stabilize your core

#### BIRD DOG



1. Kneel on the floor with hands firmly placed about shoulder width apart
2. Brace the abdominals
3. Lift one arm at the time and hold it up for 5-10 seconds for 10 repetitions. Keep the back in neutral avoiding flexion, extension and rotation (A).
4. Do the same with the legs (B).
5. Once you feel confident and you can easily control the neutral position of your spine you can pass to position C lifting one arm and the opposite leg together. Hold the position for 5-10 seconds for 10 repetitions. Get used to the unbalanced position before doing position C by lifting the leg and the arm for few inches at first.

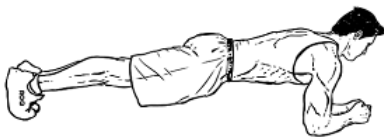
## DEAD BUG



1. Lie on your back
2. Reach to the ceiling with your hands as high as you can.
3. Bring your feet up in the air so that your shins are horizontal and your thighs vertical.
4. Tap a knee with the opposite hand.
5. Then extend your arm and leg on opposite sides.
6. Progress by adding a small weight such as a medicine ball in your hand.

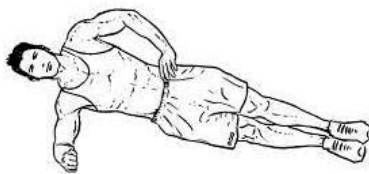
-Maintain the brace and crunch while moving your arms and legs in order to stabilise the back.  
-Keep the low back in contact with the floor  
-3 set x 12-20 reps

## PLANK



1. Place the forearms on the ground with the elbows aligned below the shoulders. Start by supporting yourself with the knee on the floor. Use your feet as shown in the picture for more demanding level.
2. Rotate your elbows to a 45 degree angle and clasp your palms together in the center
3. Make sure that your back is flat and your head, neck and spine are in a straight line.
4. Keep your abdominal muscles engaged and do not let your stomach drop or allow for your hips to rise up
5. Hold the position for 10-20 secs x 3 times

## SIDE BRIDGE



1. Lie on your side as shown but start with the knees bent. A more demanding level is with the legs straight.
2. Find and hold the Neutral Spine position and a light Abdominal Brace.
3. Lift your hips off the floor so that your torso and thighs form a straight line, and hold for 5 seconds, then lower. Aim to perform between 10 and 15 repetitions.

-Between each repetition, as your hip is in contact with the floor, do not allow your spine to sag sideways.  
-If you experience shoulder discomfort use your free hand to hold over your shoulder.

## CURL-UP



1. Lie on your back with one knee bent as shown. Tilt the low back to find the Neutral Spine position, then put your hands under the low back to support the spine in neutral throughout the exercise
2. Gently brace the abdomen. Keeping the elbows on the floor, lift the torso stiffly off the floor keeping the neck and head in line with the torso. Do not bend the neck at all. Even if you can, do not raise higher than the point where the shoulder blades just clear the floor, because that can overload the low back. Hold for 3 seconds and lower. Aim for 3 sets of around 10-15 repetitions. Don't worry if you can't do that many in the first weeks
3. Slightly more demanding levels consist in performing the same exercise with the elbows raised from the floor and to hold the position for more seconds

### References:

Liebenson, G., 2007. Rehabilitation of the spine. A practical manual. 2<sup>nd</sup> edition. Lippincott William & Wilkins: Baltimora  
McGill, S., 2007. Low back disorders. 2<sup>nd</sup> edition. Human Kinetics: Canada.



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