

shows there's a problem with your overall bike fit. If in doubt, get a professional bike fit from a qualified coach or your local bike shop.

When out on the bike, practise good riding habits. Change your position regularly and stand up out of the saddle every few minutes to relieve the pressure on your back, even if the terrain doesn't encourage it. On long climbs, switch between the front, middle and back of the saddle to vary the forces going through the lower spine.

Once you've checked your bike fit, you need to think about your core stability (see boxouts for potential problems from core instability).

## Core stability

Athletes have been inundated with advice on core stability training. However, there remains confusion as to what actually IS the core, and how to specifically train these muscles. Usually people assume the core is made up of the abdominals and lower back muscles (rectus abdominus, internal and external obliques, and the transverse abdominus).

However, when looking at core training and movement patterns, it appears the core is not simply these three muscles.

For the lower back, pelvis and hip region there are 29 different muscles, each providing stability to the core. The lower back pain or discomfort which athletes suffer from can be because of the vast number of muscles in this region, and which may have been overlooked in any core program. If too much emphasis is placed on certain areas such as the abdominals (six pack) then muscle imbalances can develop, leading to pain and injury. It's therefore necessary to emphasise the importance of a comprehensive core development program to cover the whole lumbar, pelvic and hip region.

Initially you need to practise static postures to learn the correct positions and 'neutral alignments' – the position where

your muscles are not put under strain. Make sure you see a coach, personal trainer or physio or attend a pilates class to learn these, as they will form the foundations for all exercises (including swim, bike and run).

Once you've got to grips with this, make the exercises more functional with dynamic movement patterns and include them in your swim, bike and run as follows.

**SWIMMING:** when swimming, stretch out, with your abdominals gently pulled in. This will reduce snaking and side to side movement.

**BIKING:** when biking keep the upper body as still as possible, reducing wind resistance and increasing the work the legs do.

**RUNNING:** when running, run tall, leading with your chest, and gently pulling in your abdominals. This will help to improve the efficiency of your running and maintain a 'good form'.

## Treat low back pain

If you do get back pain, the most important message is that it is generally not due to any serious disease or injury, and it will usually improve within a few days. Use something to control the pain such as painkillers (see your pharmacists or GP), ice in the first 48hrs or heat if more preferable, and gentle massage can also ease any muscle spasm. Obviously, reduce extreme activity so you don't aggravate your back, but keep active or your back will stiffen up.

Check your posture, particularly if you spend a lot of time sitting down at a desk or driving, and ask your employer for a work place assessment.

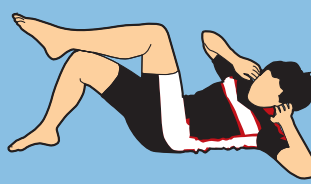
If your symptoms do not improve within a week or so, then see your GP and get a referral to a physio for a detailed assessment to identify the exact cause of your pain (it could be a slipped disc, facet joint syndrome, sacroiliac joint dysfunction or sciatica, spondylosis) and to receive any necessary treatment.

## Core-stability strengthening exercises

Core strength is important for every athlete, but if you suffer from back pain then you should be especially diligent about looking after these muscles. Perform these exercises at least three times a week.

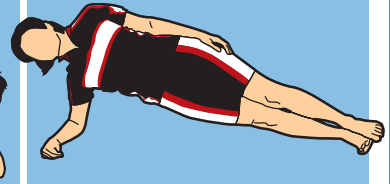
### 1 Alternating crunch hold

**LIE ON YOUR BACK** with knees bent. Place hands by the sides of your head. Rotate to bring left elbow to right knee, and away. Repeat other side



### 2 Front and side plank

**LIE FRONT DOWN**, forearms on floor. Push body up onto elbows and toes. Keep back flat and abs tight. Repeat sideways on one arm as shown



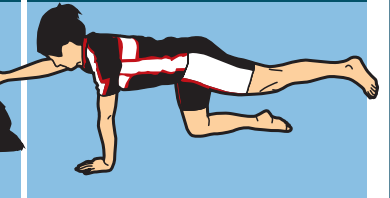
### 3 Bridging (bottom lift)

**ON BACK**, with knees bent and feet flat, tilt pelvis to flatten lower spine. Lift your bum off the floor, one spine segment at a time. Lower



### 4 Four-point knee lift (legs & arms)

**ON YOUR HANDS** and knees, reach forwards with one arm, then back down again. Repeat with other arm, then both legs



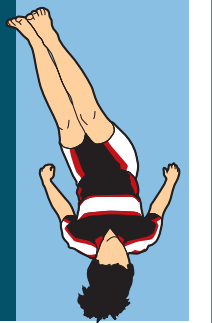
### 5 Dead bug (repeat on both legs)

**LIE ON BACK** with knees bent towards chest – 90 degree bend at hips and knees, arms by your side. Lower heel to touch floor, then raise



### 6 45-degree hold

**ON YOUR BACK**, lift legs to reach ceiling, with 90 degree bend at hips. Keep shoulder blades flat. Rotate pelvis so legs lower 45 degrees to side. Hold for 30secs



## Injuries from poor core stability

- ! Lower back pain (lumbar spine and / or sacroiliac joint)
- ! Abdominal strains
- ! Groin strains
- ! Hip flexor / abductor / adductor strains
- ! Pelvic misalignment
- ! Other musculoskeletal injuries due to compensation

## Possible performance detractors

- ! Poor swim/bike/run mechanics
- ! Poor postural alignment
- ! Poor force transfer from lower to upper extremities