

## LOWER BACK PAIN

### Description

Low back pain is very common among tennis players. Low back pain may have various causes, such as postural abnormalities, muscle dysfunction (imbalances, shortening or weakening of muscle), overuse, instability, and articular dysfunction in the lower back. In tennis, the combined rotation, flexion, and extension of the back during the serve may cause problems (Figure 1).



Fig 1. Rotation, flexion and extension of the back during a serve

In 95% of the cases of low back pain no specific physical abnormalities are found by additional diagnostic investigations that may explain the low back pain; this is why it is called “non-specific”. This includes muscle strains and back sprains. Specific low back pain is low back pain caused by structural abnormalities such as a herniated disc, a fracture, or a tumour.

### Symptoms

Common symptoms are a sudden, sharp, persistent or dull pain in the lower back, sometimes on one side only, that worsens with movement. Prolonged standing, sitting, or running may also provoke pain. The pain may radiate to the hips, buttocks, or back of the thigh. Often, muscle spasms in the back may develop.

## First Aid

Rest, medications and ice are recommended to relieve pain and muscle spasm. Bed rest beyond two days is not recommended, as this can have detrimental effects on bone, connective tissue, muscle, and the cardiovascular system.

In the event of serious complaints, or if the pain is accompanied by other symptoms, such as shooting pain in the leg extending as far as the foot, a tingling sensation, numbness or loss of strength, consult a (sport) physician. He or she can give you personal advice and, in some cases, refer you to a (sport) physiotherapist for treatment.

## How to Ensure the Best Recovery

As pain and spasm subside, exercises to improve strength and flexibility (“core stability exercises”) are started. This build-up proceeds in three steps, from light to strenuous.

### Step 1. Improvement of Normal Function.

As soon as the pain allows, you can start moving your back again. The mobility and stability of the lower back can be improved by doing the following exercises.

- Lie on your back with bent knees and keep your feet flat on the ground. Slowly move your knees from left to right, while your feet keep touching the ground.
- Take up a position on your hands and knees. Round your back, like a cat, arching your back as far as you can. Then make your back as hollow as you can, letting it sag towards the floor. Lateral mobility can be improved by moving your hips from left to right.
- Stretch the lower back. Especially in the morning, or after a longer period of over-use, the back will often feel stiff and painful. Stretching the lower back muscles can offer some



Fig 2. Stretching the lower back

relief from the pain. The simplest stretching method is to assume a relaxed, squatting position and hang over a table or chair. Hold this position for 20 to 30 seconds and repeat this two or three times, taking short breaks in between (Figure 2).

- Spinal extensions (Figure 3). Support yourself on hands and knees and stretch the right arm and the left knee. Repeat this on the other side. You can make this exercise more difficult by stretching the arm and leg of the same side.



Fig 3. Spinal extensions

## Step 2. Build-up

Strong abdominal and back muscles (a good abdominal corset) will protect the back and can help prevent excessive strain to the intervertebral disks. The following exercises can be done to prepare for normal training. It is, however, essential that the exercises are carried out correctly. Abdominal exercises carried out incorrectly can in fact aggravate the back injury!

- Straight crunch. Lie on your back on a firm surface with your knees bent and your feet flat on the ground. Place the tips of your fingers behind your head and, let your elbows stick out sideways. Look straight ahead and make sure your head and neck are relaxed. Tense the abdominal muscles and raise yourself to a point where your shoulders are just off the ground. Hold this position for 3 seconds. Repeat as often as possible.
- Oblique crunch. Lie on your back on a firm surface, with your right knee bent place it across your left knee. Place your fingertips behind your head, so that the elbows are pointing outwards. Look straight ahead and make sure your neck and head are relaxed. Tense the abdominal muscles and curl your body up with a twisting motion, bringing your right elbow towards your left knee, to a point just above the ground. Hold this position for 3 seconds and repeat as often as possible and then repeat the exercise on the other side.
- Bridge. In doing this exercise you train your back and abdominal muscles simultaneously. Lie on your back on a firm surface, keeping one leg bent. Push your pelvis upwards and stretch

the other leg so that the leg, the pelvis and the torso form one straight line. You can make this exercise more difficult by taking your weight on your elbows (Figure 4).



Fig 4. 'Bridge' exercise

- Balance exercises on a gym ball. Sit up straight on a gym ball. Raise your right leg five centimeters from the ground and hold this for a few seconds. Repeat this with the other leg. Do it at least 15 times. You can make this exercise more difficult by stretching your leg, closing your eyes or by passing a weight (1-2 kg) in circular movements from one hand to the other behind your back or over your head (Figure 5). You can also lie on your back on the gym ball and try to keep your balance.



Fig 5. Balance exercises on a gym ball

### Step 3. Return to Play

- Try to play on clay as much as possible, avoid hard courts. Longer braking distance on a clay court causes lower peak strain on the back than is the case on a hard court.
- If possible, start off by hitting the ball from an area measuring two square meters. In doing this you can practice your footwork (taking small steps, always getting into the right position to hit the ball) so that your back will not be strained by having to stretch too much.
- The following exercises put more strain on the back and must therefore be built up gradually: the service (particularly the kick service and the topspin service); powerful topspin open stance forehands; long series of low or wide volleys; difficult left-right exercises; and high topspin backhands. In addition to these there are combinations of volley-overhead drills that involve alternating volleys and overheads, which are very taxing for the back. It is better to train these strokes in separate sessions.

## Preventing Re-injury

- Do a thorough warming-up before and cooling –down after the training or match- take at least 10 minutes for each. Concentrate on performing these exercises correctly.
- Make sure you have an adequate abdominal corset by doing abdominal and back exercises at least twice a week.
- Make sure you build up training step by step, so that your body can get used to the extra exertion gradually.
- Make sure you have the right tennis shoe and pay attention to shock absorption, lateral stability, feeling for the surface (good traction) and optimal comfort.