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## Exercise safety

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### Summary

- Training too hard or fast is a common cause of sports-related injuries.
  - Consult with your gym instructor, coach, sporting association, exercise physiologist or physiotherapist for instruction on how to exercise safely.
  - Potentially harmful exercises include bouncing while stretching, standing toe-touches, full squats, straight-legged sit-ups and double leg raises.
  - Wear appropriate protective gear and make sure your sporting equipment (including shoes) is well maintained.
  - Stop exercise immediately if you are injured and seek medical advice before starting exercise again.
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Regular physical activity is vital for good physical, social and emotional health. While there is a risk of injury with any type of physical activity, the benefits of staying active far outweigh the risks.

You can reduce your risk of exercise injury by:

- wearing the right shoes
- using the correct equipment
- drinking lots of water
- warming up and stretching properly.

### Exercise safety advice

You can obtain information and advice about exercise safety from your doctor, a sports medicine doctor, physiotherapist or an exercise physiologist – or see a sporting association about correct sporting technique and equipment.

### Guidelines for exercise safety

Some guidelines for general exercise safety include:

- Use pre-exercise screening to identify whether you are at a higher risk of experiencing a health problem during physical activity. This is a filter or 'safety net' to help decide if the potential benefits of exercise outweigh the risks for you. Ensure you read through [\*\*pre-exercise self-screening tool\*\*](#) before you embark on a physical activity or exercise program.
  - When deciding if any exercise is safe, you need to consider the technique used as well as your individual condition, such as injury history and fitness level.
  - Be guided by a qualified fitness instructor. If you have a pre-existing injury or medical condition, consult a sports medicine doctor, exercise physiologist or physiotherapist.
  - There are many changes during pregnancy, such as changes in body shape and size, that pose potential risk of increased injury. It is essential that all pregnant women discuss their exercise plans with their doctor, as each pregnancy is different.
  - Be aware that increasing the speed of any exercise can increase the risk of injury.
  - Avoid or modify any exercise that causes you pain or discomfort. Don't ignore your body's signals of fatigue, discomfort and pain.
  - Cross-train with other sports and exercises to reduce the risk of over training.
  - Make sure you have at least one recovery day, preferably two, every week.
  - Remember that injuries need rest – trying to 'work through' the pain will cause more damage to soft muscle tissue and delay healing.
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### **When to stop exercising immediately**

Stop exercising and seek medical help if you experience symptoms such as:

- discomfort or pain
- chest pain or other pain that could indicate a heart attack, including pain in the neck and jaw, pain travelling down the arm or pain between the shoulder blades
- extreme breathlessness
- a very rapid or irregular heartbeat during exercise.

### **Exercises that could be harmful**

Some exercises that involve fast or repetitive twisting, or long-lasting or held movements are best avoided because they can cause damage to bones and muscles. When deciding if any exercise is safe, you need to consider the technique and the load, as well as your personal circumstances, such as any previous injuries and your fitness level.

#### **Bouncing while stretching**

It is mistakenly believed that 'bouncing' as you stretch (ballistic stretching) helps muscles to stretch further. Sudden overstretching stimulates the stretch reflex causing the muscles to contract even tighter in an attempt to prevent injury. Bouncing is counterproductive as it can cause small tears to the muscle tissue, which are experienced as muscle soreness or tenderness.

Instead of 'bouncing, try:

- concentrating on slow, sustained stretches
- holding the stretch for 10 to 20 seconds
- once the muscle feels comfortable, gently increasing the stretch and then holding again.

#### **Standing toe-touches**

Avoid standing toe-touches altogether. Bending down to touch the toes, with straight legs, can overstretch the lower back muscles and hamstrings, and stress the vertebrae, discs and muscles of the lower back and hamstrings. Adding a twisting movement to the toe-touch can cause damage to the joints.

Alternative stretches for the abdominal muscles or the lower back muscles and hamstrings include:

- Stretch the hamstrings and lower back muscles by placing one foot on a low bench or chair, with both legs slightly bent so as not to stress the knee joints and, keeping your back straight, gently reach forward with your arms.
- An alternative hamstring stretch involves lying on your back with both knees bent. Straighten one leg by lifting it towards the ceiling, keeping the knee slightly bent. Support this leg by clasping both hands behind the knee. Hold. Repeat for the other leg. You should feel the stretch on the back thigh of the straight leg.
- For an alternative lower-back stretch, sit cross-legged on the floor then slowly lean forward, keeping your back straight while reaching your arms out to the floor. Hold.

#### **Deep (full) squat**

Full squats push the knee joint past 90 degrees. Whether they are done with or without weights (a barbell or a weight held across the shoulders or in the hands) this can strain the ligaments, cartilage and muscle of the knee joint and lower back, and create problems with the tracking (movement) of the kneecap.

Alternative suggestions include:

- Perform half-squats instead (45-degree bend of the knee).
- Use a mirror to check when your knee joint is at 90 degrees. You could also ask someone else to watch you or seek instruction from a qualified fitness professional.

#### **Sit-ups**

Two common but potentially harmful variations of the sit-up include anchoring the feet (where your training partner

holds your feet) or keeping the legs straight along the floor. The hands are held behind the head or neck, and the upper body lifted. These types of sit-ups strain the lower back and tend to target the muscles of the hips and thighs rather than the abdomen. Avoid this style of sit-up altogether.

Instead, perform abdominal curls. Lie on your back with your knees bent, feet flat on the floor and arms folded across your chest or alongside your body. Breathe out and curl your ribcage towards your pelvis.

### **Double leg raises**

Avoid double leg raises. This exercise involves lying on your back and raising both legs at the same time. This places enormous stress on the lower back. Another potentially harmful variation is to lie on your stomach and lift both legs at the same time. An alternative is to perform the exercise one leg at a time, making sure your hips remain stable throughout the movement. Keep the other leg bent, with your foot on the ground.

### **Behind the neck press**

The 'behind the neck press' or 'lat pulldown behind the neck' should be avoided, especially if you have been told you have instability in the front of your shoulder.

### **Stretching and exercise safety**

Stretching, warming up and cooling down were previously thought to aid injury prevention during exercise. However, there is not a lot of evidence that these activities are effective in reducing exercise injury risk.

There is some evidence that warming up and cooling down might help to reduce muscle soreness after exercise, even if they don't prevent injuries. Careful stretching can be included as part of your overall warm-up and cool-down routine. Some people also find psychological benefits in stretching and warming up to put them in the right frame of mind for exercise or to help them relax after exercise.

### **Warming up and exercise safety**

As the name suggests, your warm-up (five to 10 minutes) should gradually warm your muscles and body temperature. The type of activity done in the warm-up should include the major muscle groups that will be used in your sporting activity.

Your warm-up could begin with a low intensity activity such as brisk walking or jogging. Stretching should be performed once the muscles have been warmed, as the stretching of cold muscles is less effective. It is also important to stretch after activity to assist recovery.

### **Cooling down and exercise safety**

In the last five minutes of exercise, slow down gradually to a light jog or brisk walk, then finish off with five to 10 minutes of stretching (emphasise the major muscle groups you have used during your activity). This helps to reduce muscle soreness and stiffness.

### **Water consumption and exercise safety**

You can lose around one and a half litres of fluid for every hour of exercise. One of the first symptoms of dehydration is fatigue, which causes a significant drop in sporting performance. It may also cause you to experience cramps, heat stress and heat stroke. Suggestions include:

- Avoid starting exercise dehydrated. Drink plenty of fluids for several hours prior to exercise.
- If you are well hydrated you should be able to pass a good volume of clear urine in the hour before exercise.
- Drink at least 500 ml (2 cups) an hour before exercise.
- Drink at least 150 ml every 15 minutes during exercise.
- During exercise take advantage of all breaks in play to have a drink.
- After exercise, drink more to ensure you are fully rehydrated.

### **Exercise safety in hot weather**

Exercising in hot weather puts additional strain on your body. Heat-related illnesses such as heatstroke and sunstroke occur when your body can't keep itself cool. Sweating isn't enough on its own to cool your body.

Symptoms of heat-related illness can include:

- irritability
- general discomfort
- weakness
- headache
- nausea
- cramps.

Suggestions to avoid heat-related illnesses include:

- Drink plenty of water before, during and after exercise.
- Wear lightweight, light-coloured, loose-fitting clothes.
- Protect yourself from the sun with clothing such as long-sleeved tops, full-length trousers, a hat and sunglasses or an umbrella.
- Exercise in the cooler parts of the day – preferably before dawn or after sunset.
- Reduce your exercise intensity. Take frequent breaks and drink water or other fluids every 15 to 20 minutes, even if you don't feel thirsty. If you have clear, pale urine, you are probably drinking enough fluids.
- Don't drink alcohol, tea or coffee before or after exercising, as these beverages promote fluid loss.
- If you have travelled to a hotter climate, remember that it may take about 10 days of exercising before you fully acclimatise.

### **Exercise safety in cold weather**

In cold weather, muscles are more susceptible to injuries. Safety suggestions include:

- Wear appropriate warm clothing. Multiple layers of clothing trap more body heat than one bulky layer.
- Devote more time to warming up and stretching before exercising and make sure you do a thorough cool-down.
- Keep up your fluid intake, since cold weather prompts fluid loss.
- Don't forget sun protection – it is possible to be sunburnt even in cold weather, especially at high altitudes or on clear days.

### **Exercise safety and your equipment**

Most sports and exercises rely on some type of equipment, such as shoes, bicycles or racquets. Protective equipment – such as mouthguards, shin pads and helmets – can significantly reduce the risk of injury by absorbing the impact of falls or collisions. Safety suggestions include:

- If your sporting equipment is handheld, make sure you are using the right grip – for example, holding a tennis racquet the wrong way can increase your risk of tennis elbow (tennis elbow).
- Make sure your equipment is appropriate to your sport or activity and your size and age.
- Wear appropriate shoes for your sport and replace them before they wear out.
- Wear protective equipment during training, not just for competition and games.
- Check equipment regularly and replace if worn out. If you are unsure how to maintain or check your equipment, consult with your coach or sporting association.
- Injuries can also be caused by incorrect form or technique. Consult your gym instructor, coach, sporting association, exercise physiologist or physiotherapist for instruction on how to improve your sporting technique.

### **Where to get help**

- Your doctor
- Sports medicine doctor
- Physiotherapist
- Sports association
- Exercise physiologist

## Things to remember

- Training too hard or fast is a common cause of sports-related injuries.
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