Whether one exercises occasionally, on an impulse, or routinely and without fail, exercise-induced injuries are a common occurrence. While these injuries are more common in people who exercise vigorously, or who are involved in competitive sports, the risk of injury is also higher in people who are new to exercise, as their bodies are not properly prepared for the strain that it’s asked to endure. Much can be done to prevent these injuries from happening, as well as to prevent the injuries from becoming worse. Most exercise-induced injuries can be effectively treated, provided the correct protocol is followed. It is also very important to seek professional help if necessary.1,2

Common exercise-induced injuries

Sprains and strains are the most common sports-related injuries, often occurring after a fall or misjudging a step.1,3

**Sprains** occur when ligaments are injured. Ligaments are bands that connect the bones to the joint.1 Ligaments may be stretched or torn. Depending on the severity of the sprain, symptoms may include pain and swelling, or in more severe cases, weakness and bruising of the limb.1

**Strains** occur when the muscles or tendons are injured. This is often referred to as a “pulled muscle”.1

Inflammation of a tendon, the muscle surrounding the tendon, or in the joints, often occurs due to overuse. The most common symptoms may be pain, swelling or redness of the affected area.1

Other forms of exercise-induced injury, such as dislocations and fractures, need immediate medical attention by a doctor.1

A large study of adults who exercised regularly demonstrated that almost a quarter developed an injury during the first year of regular exercise. Mostly, the injuries involved the legs, with a knee-joint injury being most common.1

**Some common causes of exercise-induced injuries**4

- Not warming up before exercising or not cooling down afterwards
- Repetitively exercising the same muscles
- Incorrect technique while performing the exercise
- Not resting the body between exercises
- Not using the right equipment
- Too much exercise, too soon and before the muscles and the joints are conditioned to cope with the additional load
- Not enough rest

The above causes of exercise-induced injuries may be easily prevented in the following manner:

**Warm up before and cool down after exercise**

Warming up for 5–10 minutes before exercise slowly increases the heart rate and loosens the muscles and joints. Similarly, cooling down for 5–10 minutes after exercise gradually lowers the heart rate and body temperature.3 An example would be to walk briskly for 5–10 minutes before jogging and then walking again for 5–10 minutes after jogging to cool down.4

“Sprains and strains are the most common sports-related injuries, often occurring after a fall or misjudging a step.”
Mix the exercise activities
More than half the sports injuries occurring in teens and young adults are due to the same muscle groups being exercised over and over again. These injuries, e.g. shin splints and tendonitis, occur when minor injuries are repeated, or when an exercise programme is started too quickly without gradually easing into it.

Changing your exercise activities relieves the impact of exercise on the same muscle groups or joints. High-impact activity, such as jogging, should be alternated with low impact activities, such as swimming or cycling.

Exercise right
Make sure that, whatever the exercise of choice is, it is done correctly. It may mean consulting with a trainer to make sure the exercise is performed correctly. This also applies to exercise gear. It is important to have the correct equipment for the exercise, e.g. the correct running shoes for a runner.

Stretch
Stretch the muscles after warming up and again after cooling down to increase flexibility.

Exercise within personal limits
As mentioned above, starting an exercise programme too quickly may lead to injury. It is recommended to begin an exercise programme slowly and to gradually increase intensity and duration. Pain during exercise may be due to injury. If pain occurs, it is best to stop the exercise and rest the muscle, or change to another type of exercise that works a different set of muscles.

Take a break
Do not exercise the same muscle groups every day. Allow one or two days off per week in order to give the body a chance to recover.

Hydrate
Drink enough water before, during and after exercise to keep the body hydrated.

Remember!
Advis patients to always consult a doctor before starting an exercise programme, especially if the person has an underlying medical condition or has not exercised regularly for some time.

What to do after an acute exercise-induced injury
The main focus after an acute exercise-induced injury should be to lessen the chance for further damage, reduce pain and encourage the healing process. A strategy adopted by many healthcare professionals may be remembered by the following acronym: RICE.

Rest
Time is needed for an injury to heal effectively. Ignoring an injury prolongs the healing process and may do further damage.

Ice
Immediately after an injury, the inflammatory cells are able to enter the injury site due to torn blood vessels. Applying ice to the area reduces the swelling and helps relieve the pain.

Advise patients to never apply ice directly to the skin, but to make sure it is contained in a cloth or towel.

The ice-pack should be applied as soon as possible after the injury, for no longer than 15 to 20 minute periods. Remove the ice for about 60 minutes and then reapply. This process should be repeated hourly for the next four hours and thereafter four times a day for the next two or three days.

Compression
An elasticised bandage wrapped firmly, but gently, around the injury helps to prevent fluid from building up around the injury. It also helps, to a certain extent, to immobilise the injury which helps ease the pain.

The bandage may need to be removed and the area rewrapped at a later stage if more swelling occurs. The bandage should not be so tight as to interfere with blood flow.

Elevate
Elevating the injured limb allows gravity to drain fluid away from the injury. This helps reduce pain as well as swelling.

The RICE method should be continued for 48 to 72 hours after injury. Heat should not be applied during the first three days after the injury, as this may worsen the swelling.

It is recommended that the injury be rested for three to seven days. Thereafter, gradual, gentle movement should be started in order to promote regeneration (renewal) of muscle fibres and to prevent atrophy (withering) of healthy muscle. Movement should be pain-free!

“The main focus after an acute exercise-induced injury should be to lessen the chance for further damage”

Medication
The inflammatory process that takes place immediately after an acute muscle injury is helpful in the healing process. However, too much inflammation may also cause damage.

Many healthcare professionals recommend that NSAIDs (non-steroidal anti-inflammatory drugs), e.g. ibuprofen, should not be given in the first 48 hours after an injury. Instead, paracetamol may be given to relieve the pain in the first 48 hours after injury.

After 48 hours, NSAIDs may be given if necessary. NSAIDs have been associated with adverse events, therefore the lowest effective dose should be administered for short-term management of pain and swelling.
Topical anti-inflammatories, although safer than oral anti-inflammatory agents, have been shown to offer only "modest to moderate" pain relief.1

When to refer the patient to a doctor

After an acute injury, a doctor should be consulted if:

- It is suspected that a bone may be broken4
- Excessive swelling or pain develops following the injury7
- The limb is bent at an abnormal angle, if the patient is unable to move the limb, or if the patient is unable to support weight on the limb4,7
- Changes in skin colour develop that are not attributed to normal bruising4
- There is no improvement of symptoms after a few days of RICE therapy6

Bibliography