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Sprains and strains explained for runners

Everything you need to know about sprains and strains

Sprains and strains are the bane of any runner, and very few people that run regularly will continue the sport without suffering one, or other, or both. However, anyone can fall foul of these injuries. Here's everything you need to know about sprains and strains as a runner.



Sprains are sustained to ligaments, and strains are injuries to muscles or tendons. Either can occur anywhere in the body at any site where the structures are located.

What are the symptoms of sprains and strains?

These injuries occur during physical activity of some kind. The usual symptoms include local pain, tenderness, swelling, and spasm caused by protective muscular guarding, which limits range of motion. Sometimes in severe sprains and strains, local bruising will occur and some function of the damaged structure is lost.

What are the causes of sprains and strains?

A sprain is an acute injury to a ligament where the joint, which it supports, is stretched excessively out of its normal range by excessive force. These are common in falls, and sometimes occur at speed. These can occur due to a sudden twist of a joint, for example when running on uneven ground, or changing direction suddenly. These are usually graded from 1-3, 1 being some tearing to the collagen fibres within the ligament, and 3 being a complete tear of the ligament itself.

Strains can be either acute, or chronic, and involve the muscle or tendon fibres being damaged. This is either due to a contraction which was too strong or too fast, or a force making the damaged structure stretch too far beyond its normal limits. These are also graded from 1-3, with 1 being damage to some muscle fibres, and 3 being complete rupture of the muscle.

Certain sports put you more at risk of certain sprains and strains. In runners, sprains to ankles and knees, and

strains to the calf and hamstring muscles, are the most common.

Other risk factors for runners include running whilst cold, inadequate warming up, or previous injuries which are not fully resolved.

How are sprains and strains diagnosed?

Diagnosis is made from the signs and symptoms that are presented. A variety of clinical and orthopaedic tests can be done, which will show what structures are specifically implicated as well as the severity of the injury itself.

X-rays are not necessary in sprains and strains as they do not show soft tissue damage and are only required where there is a risk of some bony injury having occurred at the same time. If there is tenderness directly over the bone of a joint, severe weakness or significant bruising, or the joint looks to have extra bumps or a different shape to normal, then these are indicators for seeking further investigation.

How are sprains and strains treated?

All sprains and strains should be treated the same initially with the PRICE protocol.

Protection – protect the affected area from further injury – for example, by using a support.

Rest – avoid exercise and reduce your daily physical activity. Using crutches or a walking stick may help if you cannot put weight on your ankle or knee.

Ice – apply an ice pack to the affected area for 10–30 minutes. A bag of frozen peas, or similar, will work well. Wrap the ice pack in a towel to avoid it directly touching your skin and causing ice burn.

Compression – use elastic compression bandages to limit swelling.

Elevation – keep the injured leg, knee, arm, elbow or wrist raised above the level of the heart. This may also help to reduce swelling.

The above should help in the first 24-48 hours following an injury and this is an important time. There is some considerable debate currently about whether to use anti-inflammatories or not during this time as they are thought to slow the inflammatory cascade, the process that begins healing. However some people do advise to use them, and some patients find them beneficial.

Following this period, here are some recommended treatments:

- Soft-tissue massage techniques, focusing on the areas around the site, especially in higher graded injuries, as well as mobilisation techniques to the joints.
- Occasionally ultrasound therapy is used, as well as different types of strapping and taping, again depending on the specific injury.
- Rehabilitation should start as soon as possible. Proprioception work can help with preventing further injury as well as aiding in repair.
- It is important to keep your level of fitness up by doing something like swimming, cycling or another form of cross training – this all depends on the site, and level of injury, but complete rest can be responsible for rapid deconditioning of a fit runner.
- Once the injury is healing well and function and strength of the damaged structure has been restored, sports specific rehabilitation is recommended. In runners this could include landing strategy, and drills including directional change.
- Don't try to do too much too soon. Listen to the advice of your healthcare professional and they will ease you back into your sport at the correct and appropriate time. It is always our aim to get you back to your sport as quickly as possible but only within safe and appropriate parameters.

How are sprains and strains prevented?

Preventing sprains and strains is pretty much impossible, as so many are caused by trauma. However, here is some advice to try and reduce your risk:

- Do not leave your house and just start running! Do not walk in and just stop. Warming up properly can help to prevent sprains and strains. A proper cool down is thought to assist in recovery as well.
- Have regular sports massages. Keep your muscles well looked after. A therapist will also be able to identify any areas of future potential issues.
- Consider your running surface. Uneven surfaces increase the risk of landing injuries.
- Fuel your body. Fatigue can play a role in increasing susceptibility to sprains and strains so ensure that you fuel properly before and after training. Remember that after training you have a 30-minute window to refuel your body with protein to provide the building blocks for repair, and two hours to take in carbohydrate to refuel for your next training session.
- Don't just run! Too many runners do no other form of exercise. Cross train and address muscular imbalances. Work with a professional on your strength and conditioning. Strong muscles which are trained in both strength and endurance will be less likely to be injured.