



## Clinical specialties in orthotics and prosthetics

Image Courtesy of Össur

# Orthoses for sports injury rehabilitation

Sporting activities involve repetitive high impact movements, often with extreme ranges of motion, translational or rotational forces. Athletes are at increased risk of injury to their joints, bones, tendons, muscles, ligaments and nerves. Sports injuries can develop suddenly (acute) or over an extended period of time (chronic).

## How do orthoses help with sports injury rehabilitation?

An orthosis (often called a splint or brace) is a supportive device applied to the body to protect, improve function, correct deformity or alignment, or restrict movement. Orthoses are often a conservative or non-surgical management option for sport injuries, but are also used after surgery and to help prevent injury. Orthoses can be commercially produced and customized, or custom-made.

## Examples of orthoses used in sport injury rehabilitation



Orthoses are prescribed after assessing the client, considering how the injury occurred and determining the clients specific needs relating to their sport.

### Knee

Knee orthoses can provide stability and support after surgery or injury. Common acute injuries include ruptures or sprains of the knee ligaments and torn knee cartilage. Common chronic injuries can include patella tendonitis, knee arthritis and runners knee. Knee orthoses range from simple knee straps and sleeves to complex functional orthoses designed to protect or support specific injuries.

*An example knee orthosis*



*An example ankle orthosis*

### Ankle

Ankle ligament sprains are the most common sports injury, accounting for nearly a quarter of all sports injuries presenting to accident and emergency departments. Ankle orthoses support the ankle ligaments, allowing them to heal and providing sensory feedback which improves a persons sense of proprioception (the position of the joint in space). Ankle orthoses include sleeves, wraps, lace-up designs, or hinged with joints. Orthoses may be used for rehabilitation after surgery or injury or in the longer term to provide ongoing protection.

Fractures in the foot, ankle or lower leg often require immobilisation to encourage healing. Common examples are stress fractures in runners and fractures from a rolled ankle. Ankle immobilising orthoses are often used initially, to restrict the ankle's range of motion.

### Foot

Foot orthoses can help improve shock absorption in high impact activities, and can correct poor foot posture which can be a cause of injury. Examples of injuries include stress fractures, Achilles tendonitis and plantar fasciitis.



## Orthotists – supporting the Australian community

### Shoulder

Shoulder dislocation is a common injury in high impact sports, resulting from excessive lateral rotation and shoulder abduction. Shoulder stabilising orthoses help prevent these movements and allow ligaments to heal. Neoprene shoulder supports and straps may be appropriate where less support is required, providing support, heat and compression. Collar bone (clavicle) injuries such as fractures or joint sprains may require a shoulder sling or orthosis to promote healing in the optimal position.

### Elbow

Tennis elbow (lateral epicondylitis) and golfers elbow (medial epicondylitis) are painful overuse conditions affecting the outer and inner part of the elbow respectively. A forearm compression orthosis can be effective in managing related symptoms. Neoprene elbow orthoses may be more appropriate for clients with overuse injuries or joint pain. The warmth and support of the neoprene elbow support can help to relieve pain and swelling. Following a fracture or surgery custom made orthoses are often required to immobilise or restrict movement using adjustable elbow joints.

### Hand and wrist

Racquet sports and contact sports are common causes of wrist injury. Thumb and wrist orthoses can help injuries such as Carpal Tunnel Syndrome, repetitive strain injury and fracture by immobilising the required body part. Wrist hand orthoses include sleeves with varying degrees of support as well as thumb and finger orthoses.

### Can orthoses help prevent injuries?

In general, orthoses appear to be effective in reducing the risk of sports injuries. However, research has tested limited types of orthoses (predominantly foot orthoses and ankle orthoses) in clients who tend to be younger athletes and those in military service.

### Who provides orthoses for sports rehabilitation?

Orthotists (*pron. or-tho-tist*) are tertiary qualified allied health practitioners who specialise in the clinical assessment, provision and ongoing review of orthoses including education, therapy and device maintenance. In Australia, orthotists are trained in both disciplines of orthotics and prosthetics at either a Bachelor or Masters level. Orthotists work autonomously or within the multidisciplinary team.

### How do I access orthotic treatment for a sports related injury?

Acute injuries and fractures should be initially managed by your doctor or specialist who will help advise if a referral to an orthotist is appropriate. If you are referred to an orthotist, they will:

- Perform a clinical assessment
- May prescribe and provide an orthosis, including measurement, manufacture and fitting
- Provide ongoing clinical support and education including regular reviews
- Adjust and/or replace the orthosis to maintain an optimal fit
- Liaise with relevant members of the multidisciplinary team

**Certified Orthotist/Prosthetists (c-OP AOPA)** can also be located using the 'Find a practitioner' search function on the AOPA website ([www.aopa.org.au](http://www.aopa.org.au)).



Disclaimer – This fact sheet does not replace clinical advice. If you require prosthetic services AOPA recommend speaking to your practitioner. This fact sheet was developed based on interpretation of current evidence as of August 2017. References available on request.