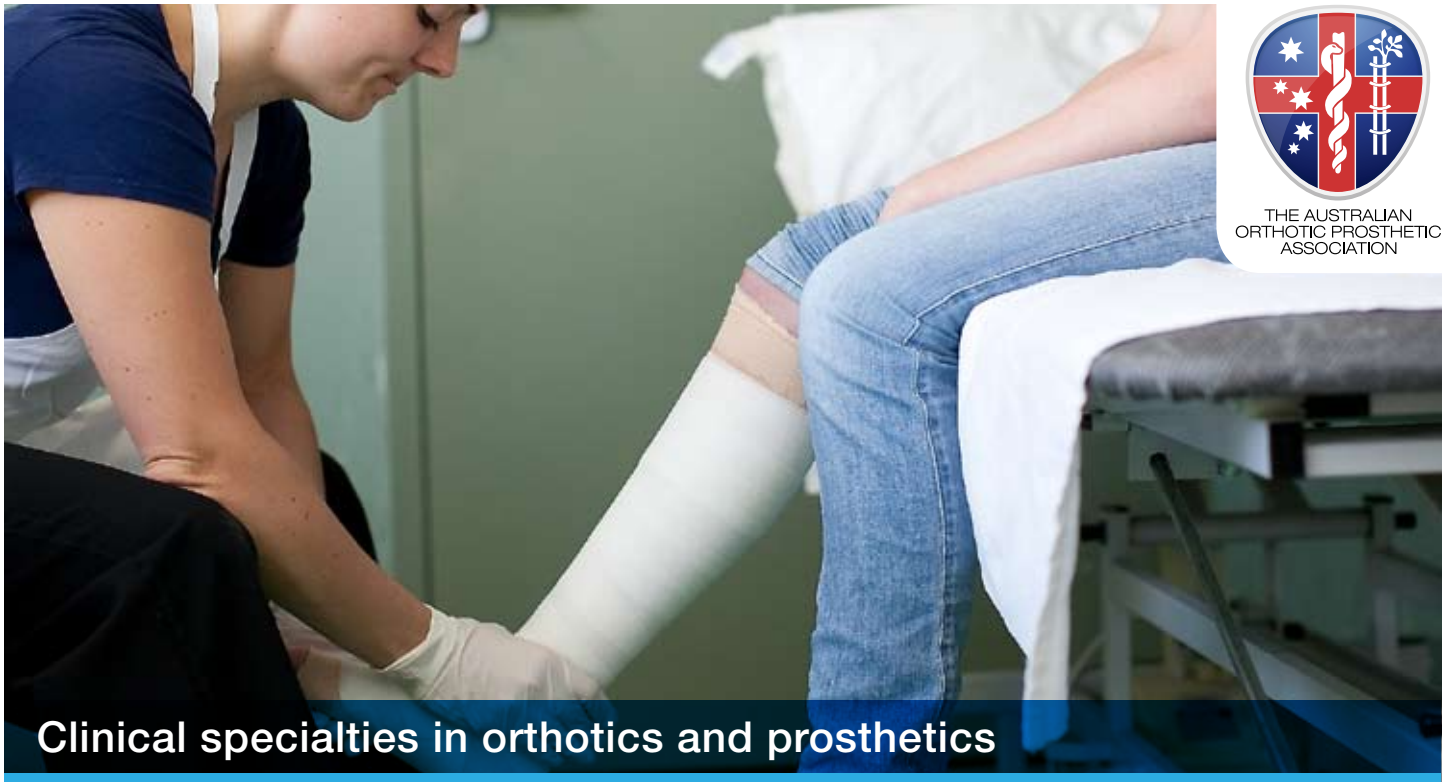


THE AUSTRALIAN ORTHOTIC PROSTHETIC ASSOCIATION

Clinical specialties in orthotics and prosthetics

Orthoses to minimise scarring and contracture in burns rehabilitation

Complications of scarring in burns injuries

Hypertrophic scarring

Burn injuries may result in hypertrophic (or keloid) scarring. Hypertrophic scars are an exaggerated response of the body's healing process. These scars have a high blood flow and increased levels of collagen and are extremely active - becoming raised, red, rigid and painful. Hypertrophic scarring tends to occur after partial or full thickness burns where skin grafting is required.

Contracture

As scars mature they also contract or shorten. In hypertrophic scarring this can result in serious complications relating to vision and breathing if a burn is close to the eyes, nose or ears. Similarly, for clients whose scar tissue extends down the neck or over joint concavities, scar contraction may result in reduced range of motion and functional limitations such as impaired breathing or reduced mouth opening.

How do orthoses help in burns rehabilitation?

Orthoses are used in burns rehabilitation when there is a need to minimise contractures, reduce hypertrophic scarring and preserve range of motion for any part of the body. Orthotic intervention occurs alongside other methods of scar tissue management including massage, exercises, topical silicone therapy and pressure garments.

Minimising scarring

Orthoses can help reduce scarring by maintaining constant pressure over the scar. Applying pressure is thought to decrease scar formation by reducing the amount of oxygen and blood flow within the scar tissue which slows the influx of collagen. It also speeds up the scar maturation process and encourages reorientation of collagen fibers into uniform, parallel patterns as opposed to the disorganised pattern seen in untreated scars.

Prevention of contracture

When scars contract they take the shortest route possible which means they may cause contractures across natural concavities and joints such as the neck, knee, elbow and armpit. If untreated this may cause reduced range of motion and functional problems. Burns orthoses are used to maintain a consistent, gentle stretch over the area, helping to remodel scar tissue as it forms and maintain anatomical contours, thereby preventing excessive scar contracture.

What types of orthoses are used in burns management?

Transparent face orthosis

Pressure orthoses (or pressure garments or pressure therapy) have been used in scar management since the 1970s. Pressure orthoses must contour exactly to the body part to ensure effective scar minimization. A transparent face orthosis (TFO) is a custom-made mask made from clear plastic that is made from a model of the client's face and fitted directly against the skin (see image on next page). The orthosis creates a blanched effect over the scar, which indicates flattening and reduced blood flow. A TFO can also protect fragile maturing scar tissue from irritants and unwanted shear forces that could impair the healing process. A TFO is typically worn 20 to 23 hours daily starting at wound closure until burn scar maturation, usually from 6 months to 2 years. Similar custom-made orthoses may be used around the nose, ear or neck.

THE AUSTRALIAN ORTHOTIC PROSTHETIC ASSOCIATION

Orthotists – supporting the Australian community

Images provided courtesy of OPST

Transparent Face Orthosis

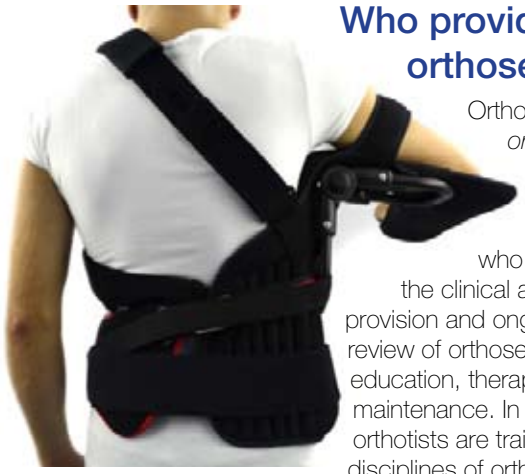
Positional orthoses

Positional orthoses can be made for any part of the body to help preventing the loss of range of movement. These orthoses apply controlled gentle stretching of scar tissues. Positional orthoses can be commercially fabricated or custom-made, and are made of a variety of different materials.

Examples of positional orthoses used for burns rehabilitation include:

- Arm abduction orthoses (also known as an aeroplane orthosis) which maintains a stretch on the armpit
- Neck orthoses
- Three point pressure orthoses or static thermoplastic orthoses for the knees and elbows
- Custom Ankle Foot Orthoses (AFO's) which maintain optimal positioning at the foot/ankle complex to provide the best position for walking and standing

Positional Orthosis



Positional Orthosis

Who provides burn orthoses?

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 and as an integral member of the multidisciplinary team.

If you need to use a burns orthosis you will see an orthotist who will:

- Perform a clinical assessment
- May prescribe and provide a burns orthosis, including measurement or casting, 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.

How do I access orthotic treatment for burns?

If an orthosis is required for management of a burn, your plastic surgeon will refer you to an orthotist. **Certified orthotist/ prosthetists** 'cOP-AOPA' can also be located using the 'Find a practitioner' search function on the AOPA website (www.aopa.org.au).

orthoticmotion

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.