



QUEENSLAND ORTHOTIC LAB

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A GUIDE TO PRESCRIPTION WRITING

CAST BISECTION

Use given lines - you mark the posterior calcaneal bisection on the outside of the cast.

POURING

The casts will be poured vertically in the majority of cases.

If the neutral calcaneal stance position is markedly varus or valgus you may wish to have the casts poured inverted or everted to a specific number of degrees.

FOREFOOT POSTING

Intrinsic posting means correction for the forefoot is within the shell of the orthotic device.

Intrinsic with Reinforcing - the intrinsic post is reinforced with EVA to increase shell rigidity and maximise forefoot control. It increases the posting surface area to reduce "digging in" associated with high forefoot post angles.

Extrinsic posting - means the correction for the forefoot is achieved by a post in EVA attached to the anterior edge of the shell.

FOREFOOT PLATFORM

A forefoot platform is made of plaster and added to the cast to obtain a reference plane. In an **Intrinsic** post it is used to balance the forefoot to perpendicular to the rearfoot. In an **extrinsic** post it is used to simply level off the plane of the forefoot.

Balance 1 to 5 mets is the most common reference platform used involving all 5 metatarsal heads.

No filler 2 to 4 mets - this is used when a transverse metatarsal arch is required in the anterior edge of the shell.

PLASTER MODIFICATIONS

Medial Skive Depth (at 15°) - To be prescribed as per reference - "The Medial Skive Technique" by K. Kirby J.A.P.M.A. Vol.28 No.4 April 1992.

- 2mm - For thin plantar heel fat pad.
- 4mm - For moderate amount of extra pronation control. The patient must have a good plantar fat pad.
- 6mm - For a large amount of extra pronation control. Adult patients must have a good plantar heel fat pad.

Plantar Fascia - if the orthotic device is to be highly inverted or there is a tight plantar fascia, some accommodation of the medial band of the plantar fascia is recommended to prevent irritation. The amount required is measured by dorsiflexing the hallux and measuring the depth of the plantar fascia at its deepest point.

Minimal Medial Arch Plaster The minimal amount of ILA plaster is used to maximise the shell arch contour particularly for planus foot types.

REARFOOT POSTING

No R/F Posting - the bulk is reduced from the shell under the heel area at 0 degrees.

1/4 Post - this post is 1/4 the size of an extrinsic post and placed under the anteromedial area of the heel cup. High density "Lunacell" is used.

Extrinsic - extrinsic heel posting may be EVA, Lunacell or Swirl. EVA is available in Microlon (EVA 350) (hard) or Genlite (EVA 220) (soft). Lunacell is a dense material for use with heavy patients. Swirl (PE 260) is a lightweight hard material ideal for Paediatrics. The post is ground to the angle requested with a specific number of degrees of motion (medial grindoff) to allow for normal pronation to occur. Compression pins are used in all posts (except Genlite).

If **Lab Discretion** is requested the post applied is 4° varus with 4° of motion.

Medially Longer - The rearfoot post is made longer (1cm to 1.5cm) on the medial side to increase pronation control and shell rigidity.

Laterally Longer - The rearfoot post is made longer (1cm to 1.5cm) on the lateral side to increase lateral stability.

Heel Raise - used when a limb length difference requires accommodation.

3/4 Raise (Heel to Sulcus) - this is a tapered raise to the sulcus and supplied separately.

POSTING ELEVATION

A posting elevator (platform) is used to provide the proper sagittal plane angulation of the post to the shell. This is to prevent rocking of the anterior edge of the rearfoot post against the shoe. The height of the elevator is determined by the shoe heel seat slope.

- e.g. - Heel Height 0, Posting Elevator 0. - Heel Height 1.25cm (jogging shoe), Posting Elevator 4mm.
- Heel Height 2.5cm, Posting Elevator 8mm. - Heel Height 4cm, Posting Elevator 12mm.

SHELL MATERIAL - DIGITAL OPTIONS

PA11 - Starts at 1mm thick, goes up in 0.1mm increments. You can also request varying shell thicknesses and arch stiffeners. All extrinsic posts are printed in PA11. Discuss with the lab to determine the most appropriate choice. Behaves similar to polypropylene.

Full Length Milled EVA - Available in 3 densities - 250, 300, 350.

SHELL MATERIAL - HAND CRAFTED OPTIONS

Carbon Fibre - Flexible 1.7mm, Semi Rigid 2.1mm, Rigid 2.6mm Discuss with the lab to determine the appropriate choice.

Polypropylene and Subortholen -

2mm Polypropylene can be used for Paediatrics or adults when a flexible device is required. We recommend that it is used with a 3mm or 6mm EVA ILA filler.

3.0mm - For lighter patients or when a more flexible device is needed (i.e. cavus foot), also useful for dress shoe applications.

4mm, 4.5mm and 5mm - These materials offer increased strength and rigidity. Polypropylene is slightly more rigid than subortholen (for the same thickness).

ACCOMMODATIVE DEVICES

These devices are manufactured from EVA. EVA shells rely on their physical bulk to support the foot. In the shoe these devices can be less flexible (to compression) than thermoplastic devices. EVA does not have the same ability to resist torsion (inversion/eversion) as other materials so is more dependent on the shoe to provide stability.

Single Density - available in **Grey EVA 220** (medium density) or **EVA 350** (firm density) these devices will cover most situations where an EVA device is preferred.

Dual Density Soft - A moulded lamination of a low density blue EVA 120 (base) and 3mm multiform (top) for patients needing maximum accommodation. Some top covers (vinyl/neoprene) are not suitable for use with this material.

Dual Density Standard - A moulded lamination of cork like EVA 350 (base) and 3mm multiform (top) for patients needing more control/support than the soft dual density.

SHELL SHAPE

Standard - the shell bisects the 1st met head and is taken to the lateral extremity of the 5th met head.

Narrow - the shell is just lateral to the 1st met head and bisects the 5th met head.

Wide - the shell is just medial to the 1st met head and lateral to the 5th met head.

Wide at Midfoot - the shell is widened on the medial side in the region of the navicular. This is useful in any situation where you need a little more midfoot support. The shell edge doesn't become vertical in the way a medial flare does.

Medial Flare - the medial edge of the shell is brought right to the medial edge of the cast and then wrapped up vertically in the region of the medial cuneiform and the navicular. It can be requested to be small, large or to have a navicular accommodation.

Lateral Flare - the lateral edge of the shell is wrapped up vertically along the lateral side of the cast and finishes just distal to the styloid process. If the styloid process is prominent it may be advisable to request a plaster accommodation or to have the flare finish proximally.

Gait Plate for In-Toe - gait plates to correct in-toe gait problems in children have an anterior angulation of the shell from the IPjt of the 5th digit to just proximal to the head of the 1st met.

Coathanger - A shell shape useful for fashion shoe fit.

Anterior Edge Shape

Longer at the Second/Shorter at the First - as determined by the morphology of the foot we will construct the forefoot platform to replicate the positions of the 1st and 2nd met heads. The orthotic will be machined to match this shape.

Straight Anterior Edge - the forefoot platform is finished in a straight line just proximal to the 1st and 5th met heads. The orthotic will be machined to match this shape.

First Cut Out - the anterior medial corner of the shell is cut away from the region of the 1st met head and sesamoids. This can be done in conjunction with either anterior edge shape.

HEEL CUP DEPTH

QOL recommends that when selecting heel cup depths that you choose the deepest cup that the footwear will allow or that the patient requires.

Generally for: - Sports, medial skive, etc. 18mm and higher - Children up to 18mm - Dress 10mm to 18mm

If increased control is required on the medial side, prescribe a higher medial heel cup.

If lateral ankle instability is a concern, increase the heel cup depth on the lateral side.

For accommodative devices which have flexible heel cups a lower height is recommended, approximately 12mm to 15mm.

Glue to Midfoot - The top cover is glued up to the midfoot allowing access to place and adjust forefoot padding at fitting.

Prepare for Cover - The orthotic shell is roughened in preparation for a top cover.

Heel Aperture and Pad - A circular aperture is cut into the plantar calcaneal surface of the orthotic and filled with poron.