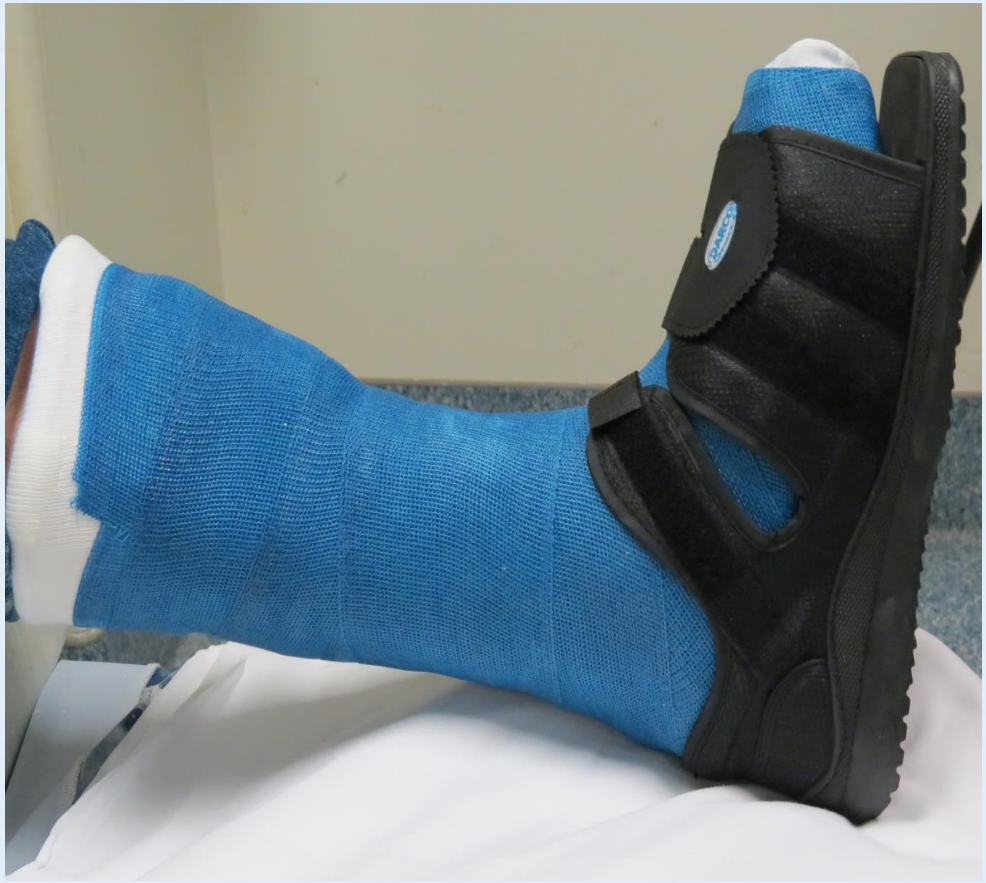
TOTAL CONTACT CAST (TCC)



Workshop with Brent Fisher and Emil Schmidt

Definition

TOTAL CONTACT CAST

- A composite, anatomically conforming, below knee cast that is applied over minimal padding, either with a fish mouth opening or enclosing the toes.

HISTORY

- 1930's Dr Milroy Paul and Dr Joseph Kahn – developed casting for trophic ulceration secondary to Hansen's Disease (Leprosy) in Ceylon, India

- Here in Dunedin we have been using the TCC for around over 10 years.

Purpose

- Redistribution of high pressure areas under forefoot or mid-foot
- Edema control and structural protection of bone and joint disintegration in Charcot Arthropathy

Indications

- Ambulatory treatment of uninfected, superficial forefoot and mid-foot plantar ulcerations
- Charcot Joint / Neuropathic fractures
- Ulcers must be plantar, grossly clean, and without cellulitis, abscess, or purulent drainage

Ulcer Healing Time

- Various studies show an average of 5 to 8 weeks to complete healing though dependent on treatment method and size of ulcer
- Correct application of TCC is vital to its function
- **TCC is the "Golden Standard" for offloading treatment**

Total Contact Cast

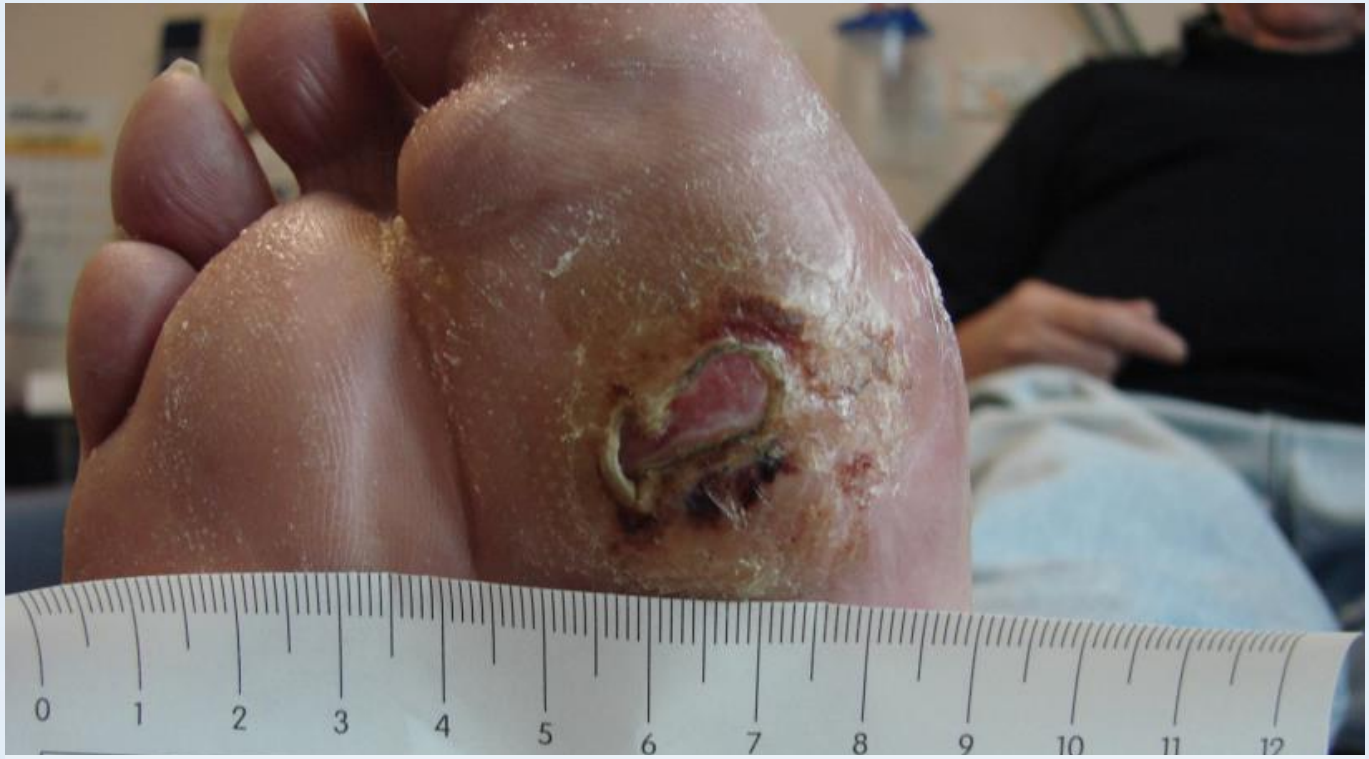
Pros

- Excellent pressure reduction/relief
- Prevents disruption of wound
- compliance

Cons

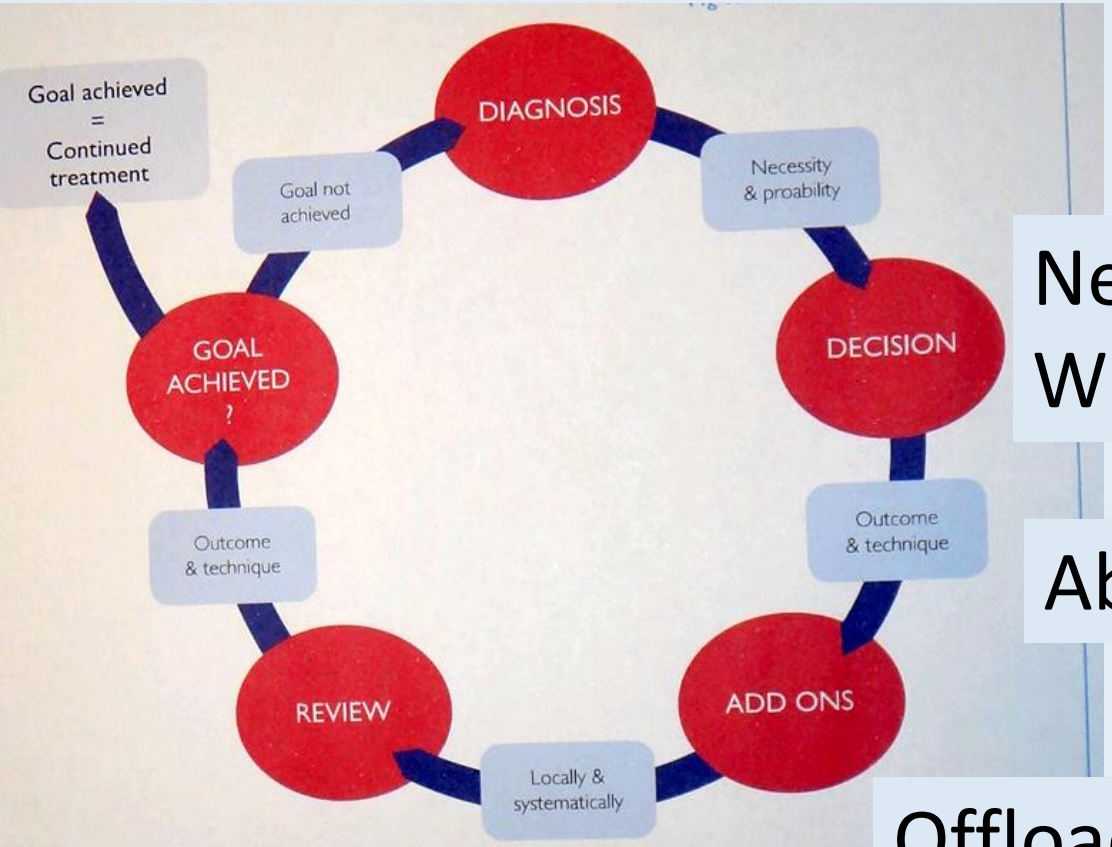
- Requires experience and expertise to apply
- Expense
- Potential for iatrogenic lesions
- Frequent removal and reapplication

Remember
Debridement is a process!



Have you got an integrated plan?

Debridement Quality cycle



Needs debridement
Which technique?

Absorbent dressing

Offloading

Terminology

Diagnosis:
Diagnosis of bioburden, tissue type and factors influencing debridement.

Decision:
Decision on the outcome that should be achieved, the time by which it can be achieved and, depending on this, the techniques that should be used.

Add on:
Additional measures needed to secure a successful debridement process, such as optimising tissue for debridement, locally and additional systemic measures to secure successful debridement, e.g. relieve pressure, treat infection, induce blood flow and optimise comorbidities.

Review:
Review whether the outcome has been successfully achieved and whether the chosen debridement technique had proven to be valid in the specific treatment case.

Goal:
If optimal debridement result has been achieved, continue the management of the individual with the wound. If optimal debridement has not been achieved, re-diagnose and repeat the debridement process cycle.

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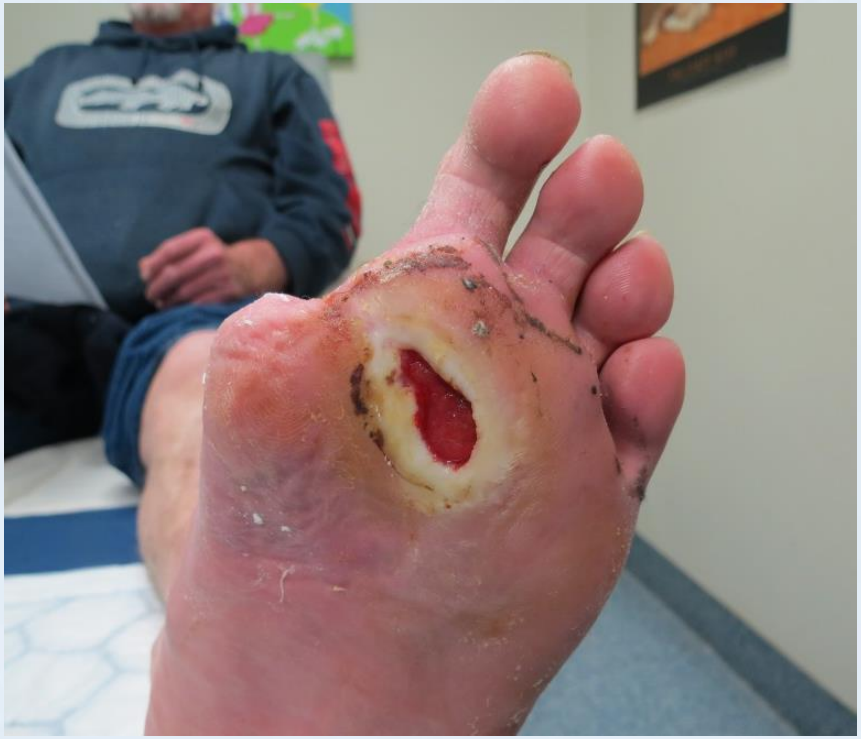
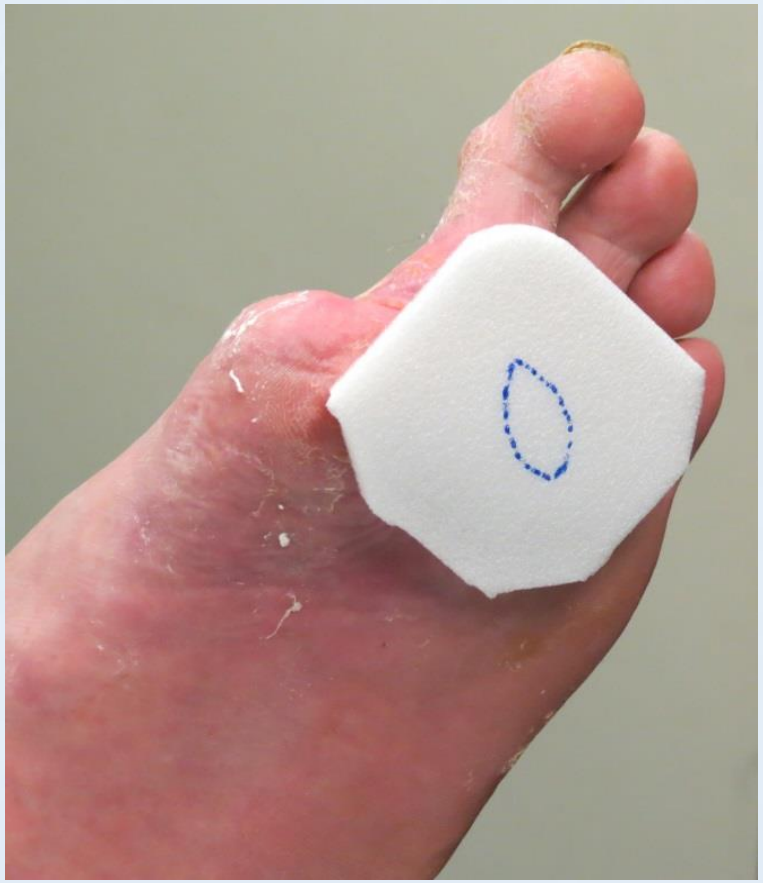
Fitting a TCC

- Document size, location and appearance of ulcer
- We are currently using the silhouette computer system to record this information



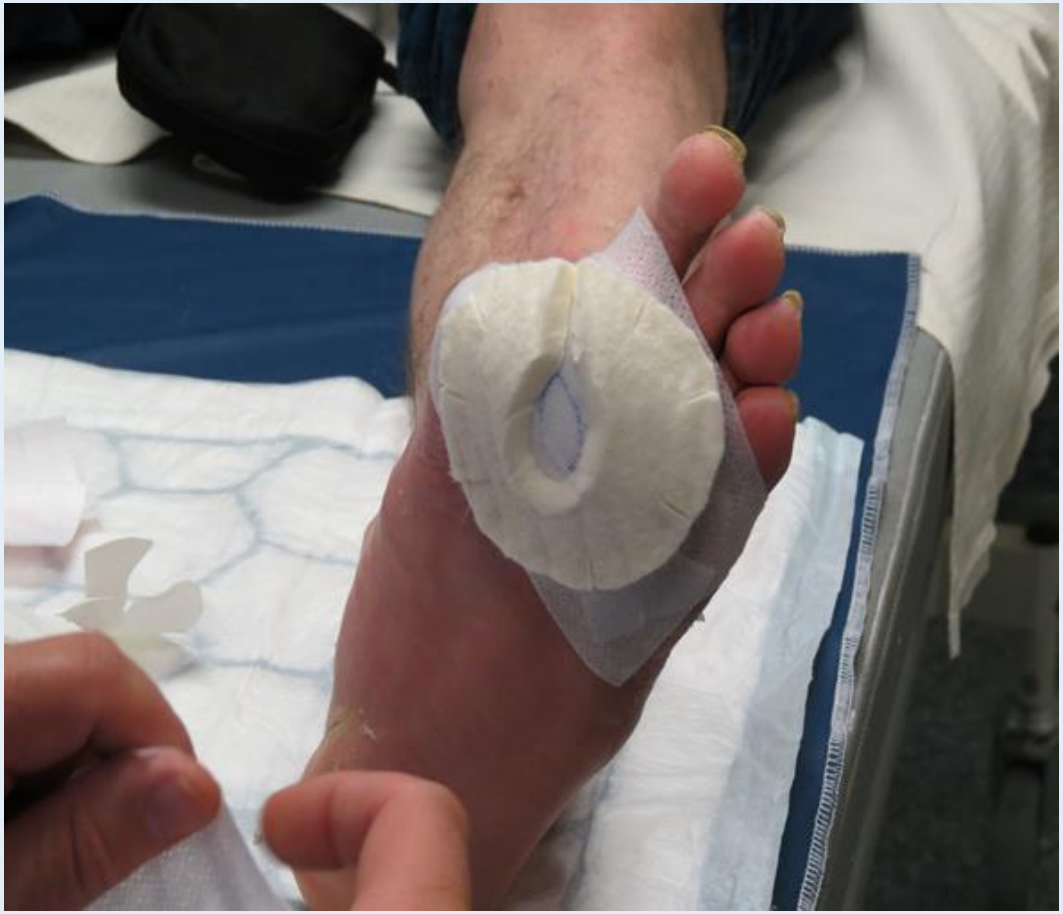
Fitting a TCC

- Sharp debridement of callus/wound bed
- Wound filler if required
- Dress ulcer with absorbent foam dressing
- Mark the location of ulcer!
- Fix with hypafix



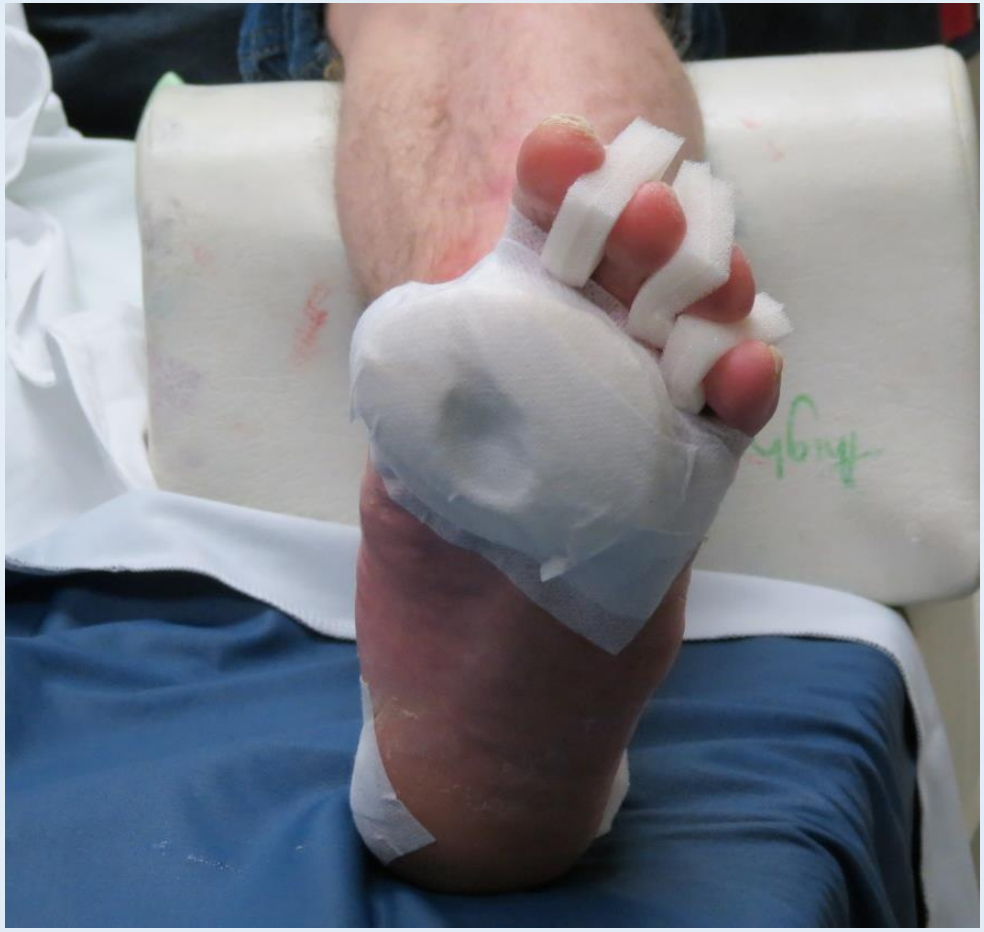
Fitting a TCC

- Apply orthopedic felt donut exactly over the ulcer



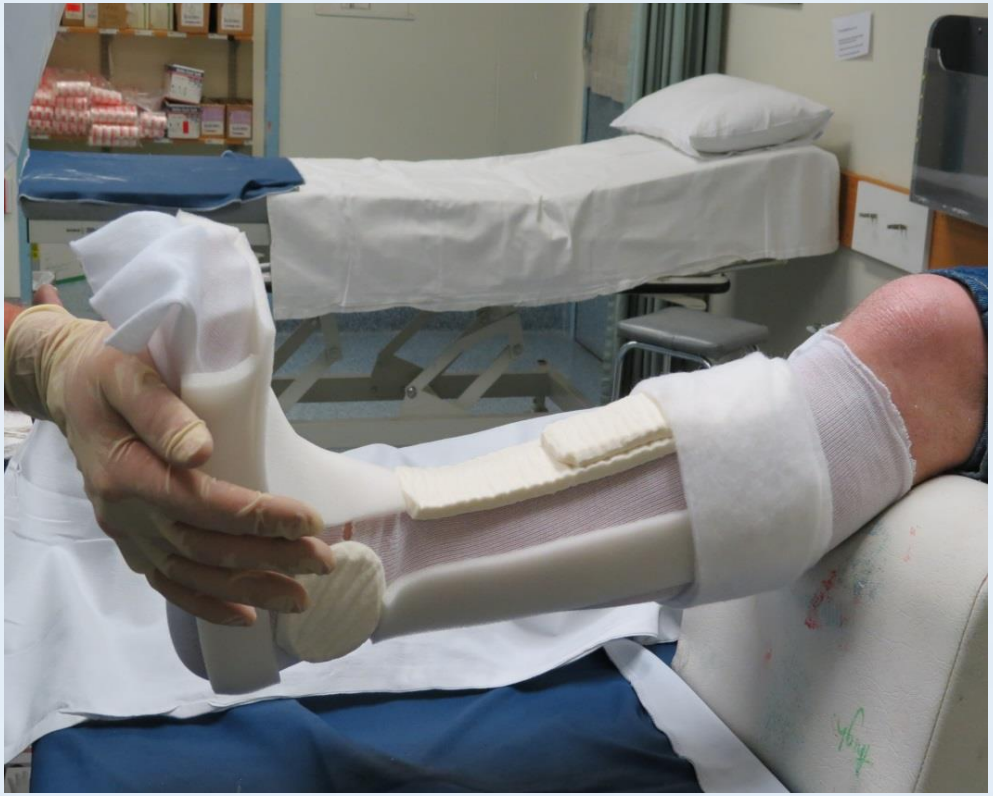
Fitting a TCC

- Reduce moisture and pressure areas between toes with foam pads



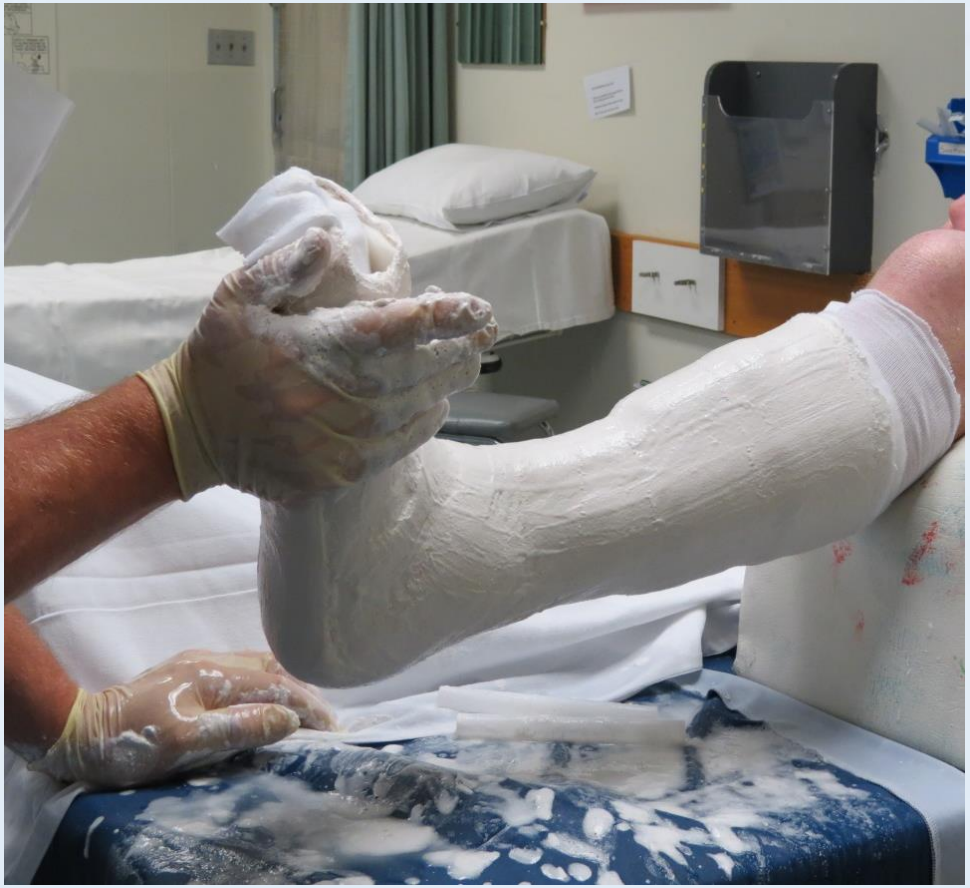
Fitting a TCC

- Felt padding is applied over bony prominences



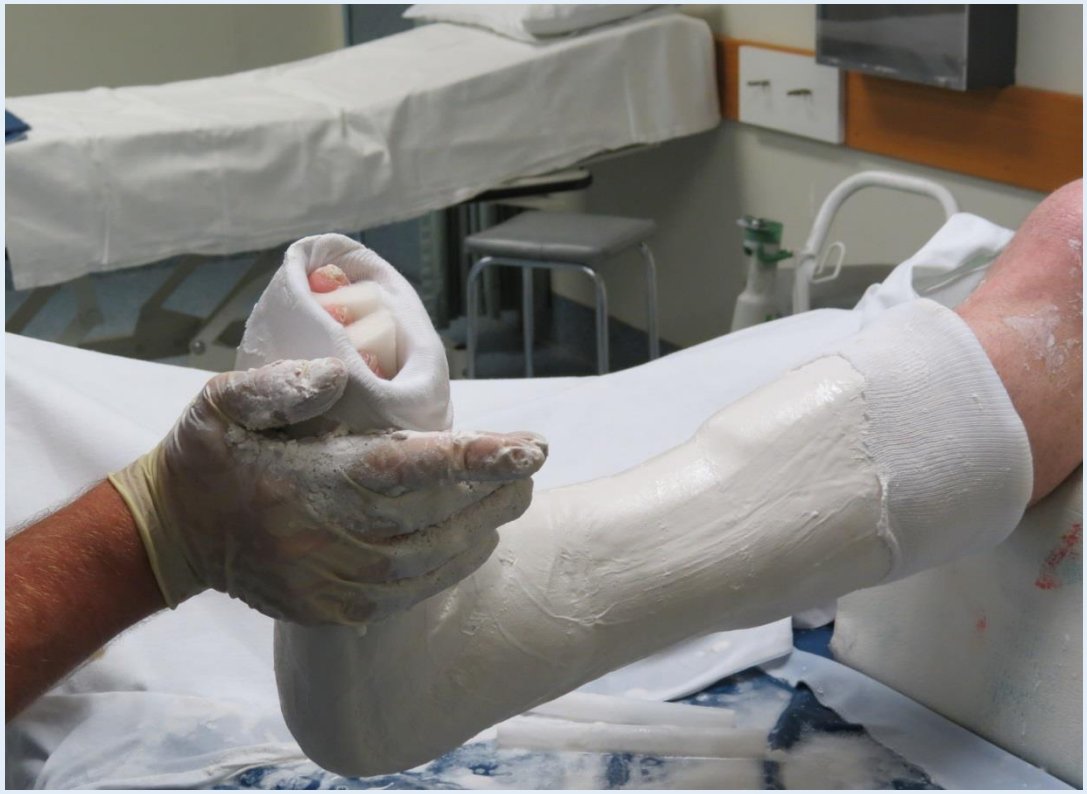
Fitting a TCC

- Apply 2- 3 layers of POP forming it well into leg contours.



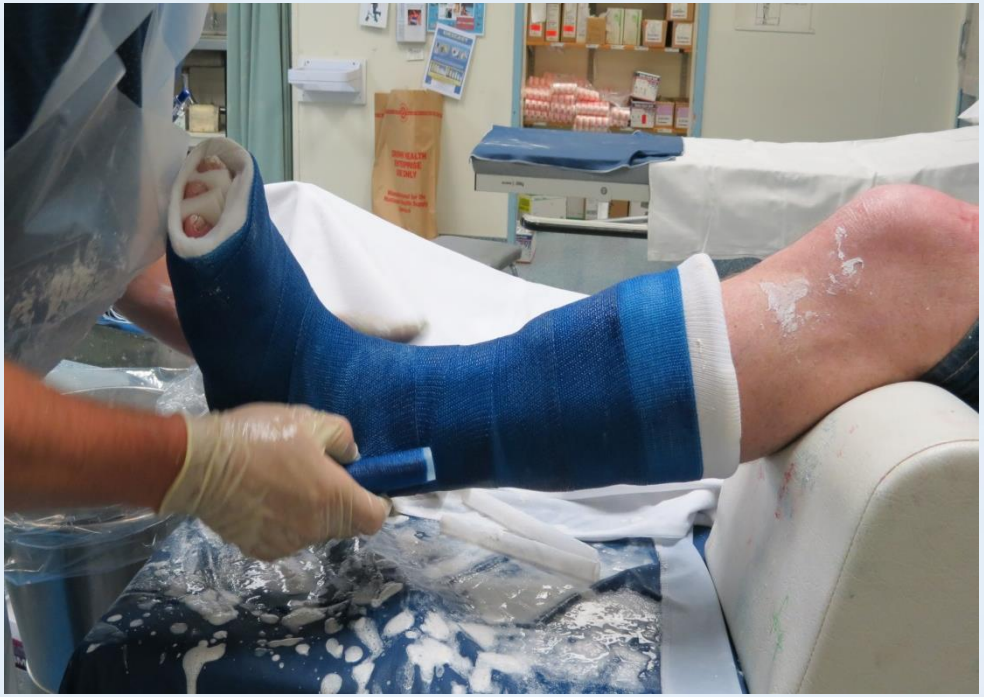
Fitting a TCC

- Roll back the stockinet distal and proximal ends



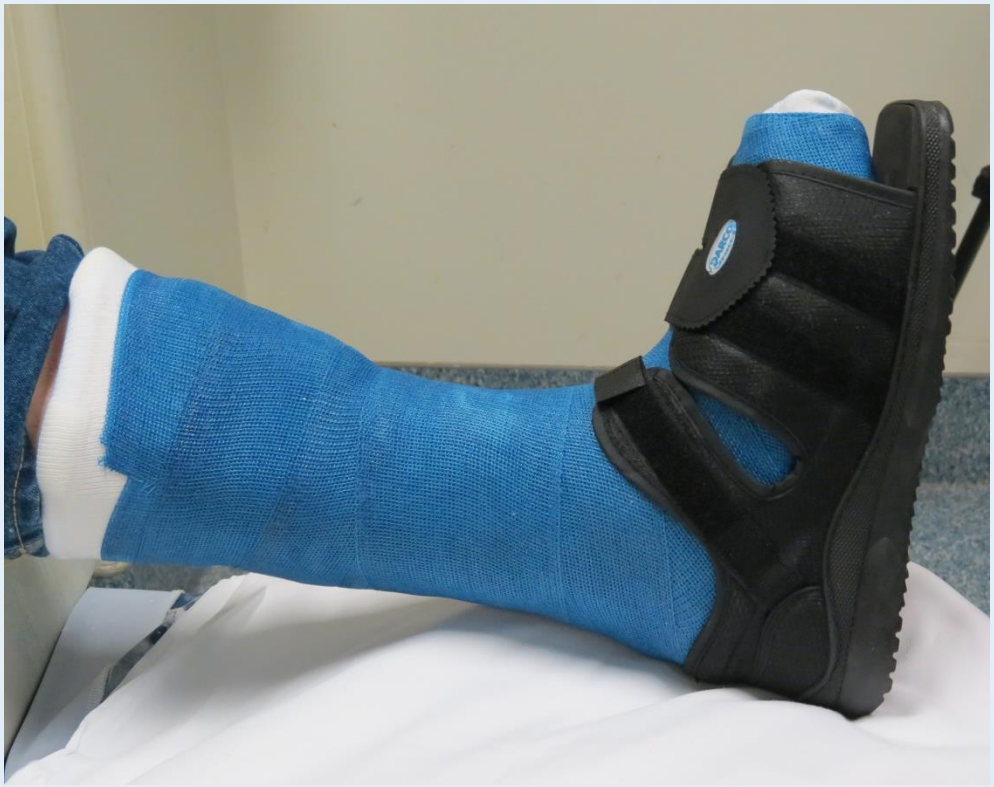
Fitting a TCC

- Outer layer of fibre-glass for strength when weight bearing



Fitting a TCC

- Fitting Darco Shoe to allow mobilization



TCC treatment plan

- Change of cast after 7 days or sooner in some cases.
- If the patient has a wound then we continue to change the cast weekly.
- Clear patient instructions including handouts on how to care for cast.

Healing of a six year old diabetic foot ulcer using total contact cast technique

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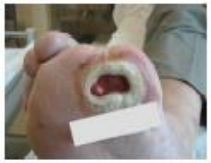
The Client: 62 year old male with type 2 diabetes and a history of a six year old non-healing foot ulcer on his right foot

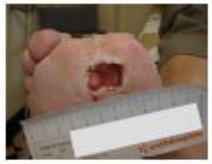
Medical history:
Hypertension, retinopathy, nephropathy, peripheral neuropathy, recurrent cellulites, IDDM, HbA1c 10 -12, BMI 38-44, Great toe amputation 2006



Previous treatment for the ulcer:
Regular sharp debridement, topical antimicrobial dressings, hydrogels, negative pressure wound therapy, offloading with moon boot and custom made footwear

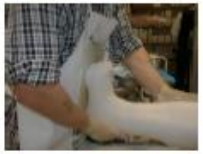
Total contact casting (TCC) has become the "gold standard" for off-loading in lower extremity amputation prevention [1,2]

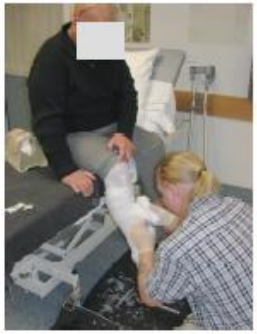
The correct application of TCC by a skilled and trained plaster technician is vital for its function and prevention of iatrogenic ulceration.

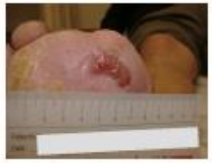


TCC commenced

Wound size 4.7 cm^2
Depth: 4.5 mm
Surgical debridement
Dressing: Hydrogel, Foam
Weekly TCC change

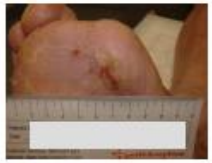






Week six

Wound size: 2.5 cm^2
Depth: 0.3 mm
Dressing: Foam
Weekly TCC change

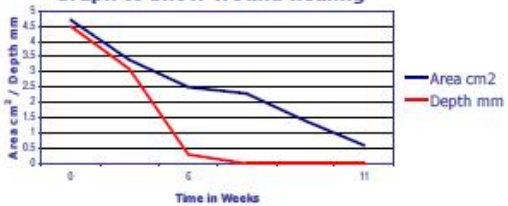


Week eleven

Wound size: 0.6 cm^2
Depth: 0 mm
Dressing: Foam

Ulcer was healed after one more week in TCC. Moon walker was then used for four weeks followed by custom made footwear wear

Graph to show wound healing



Conclusion: Total contact casting appeared to be the pivotal treatment that provided a healing environment for this persistent diabetic foot ulcer

1.Armstrong DG, Lavery LA. Evidence-based options for off-loading diabetic wounds. *Clin Podiatry Med Surg.* 1998;15(1):95–104.
2. Lavery LA, Baranoski S, Ayello EA. Options for off-loading the diabetic foot. *Adv Skin Wound Care.* 2004;17(4 Pt 1):184–186.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THIS!