



OFFLOADING FOOT ULCERATIONS (IN THE OFFICE)

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Overview

- Learning Objectives
- Importance of Offloading
- Methods/Options
- Tips/Tricks



Offloading – What it is ; Why it's important.

- Management of pressure and the forces through the foot and wound bed.
- DFUs are pressure wounds.
- Many options for each scenario.

Boulton AJ. Pressure and the diabetic foot: clinical science and offloading techniques. Am J Surg. 2004 May;187(5A):17S-24S. doi: 10.1016/S0002-9610(03)00297-6. PMID: 15147987.





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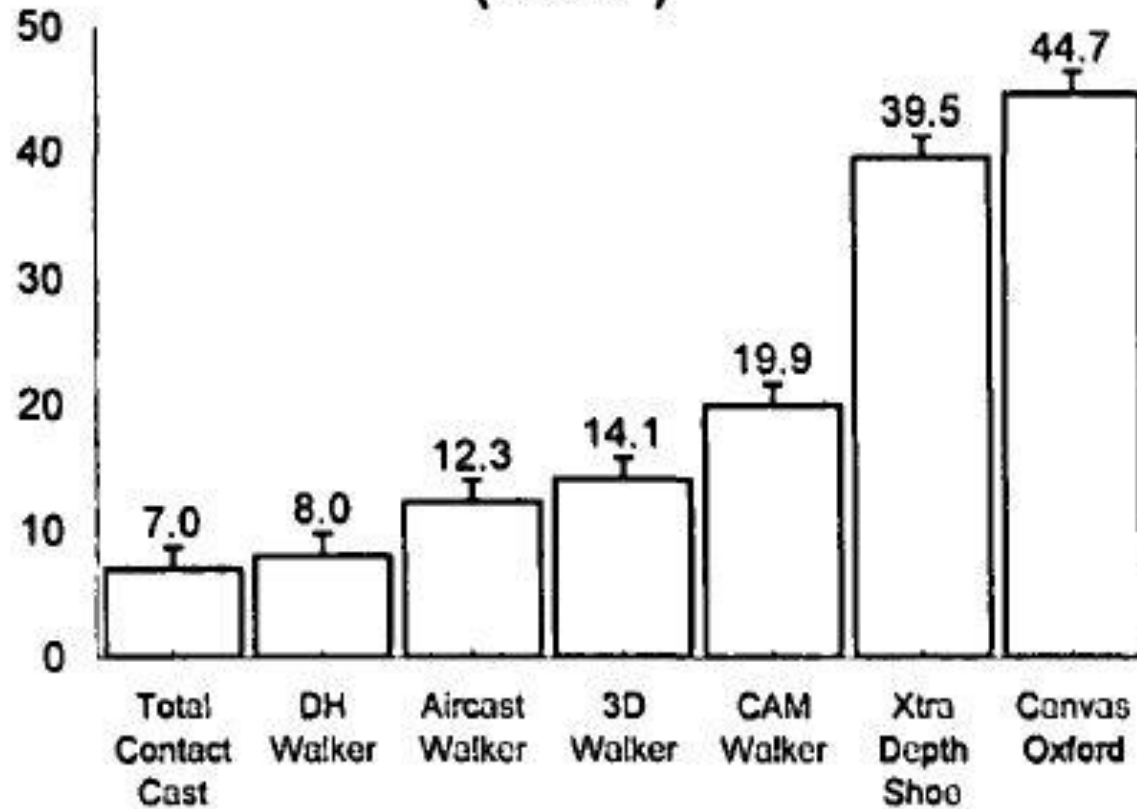


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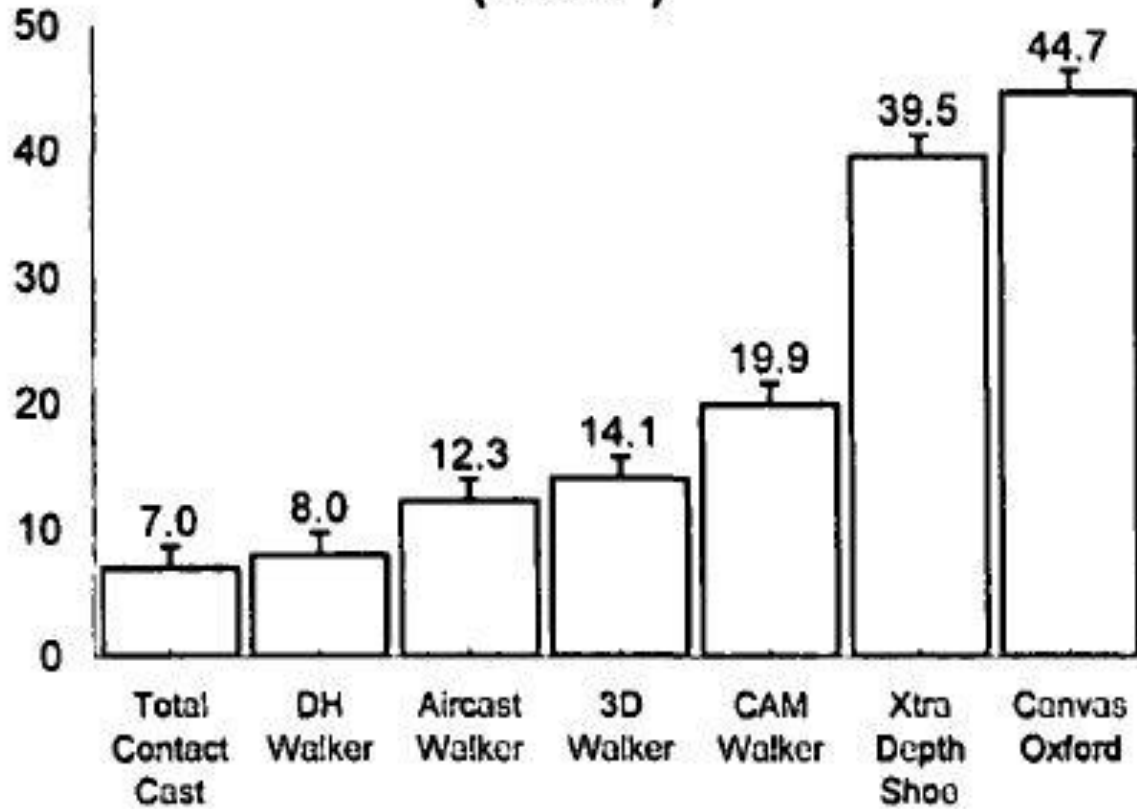
Mean Peak Pressure For Ulcers Under the 1st Metatarsal Head (N/cm²)



Lavery LA, Vela SA, Lavery DC, Quebedeaux TL. Reducing dynamic foot pressures in high-risk diabetic subjects with foot ulcerations. A comparison of treatments. Diabetes Care. 1996 Aug;19(8):818-21.



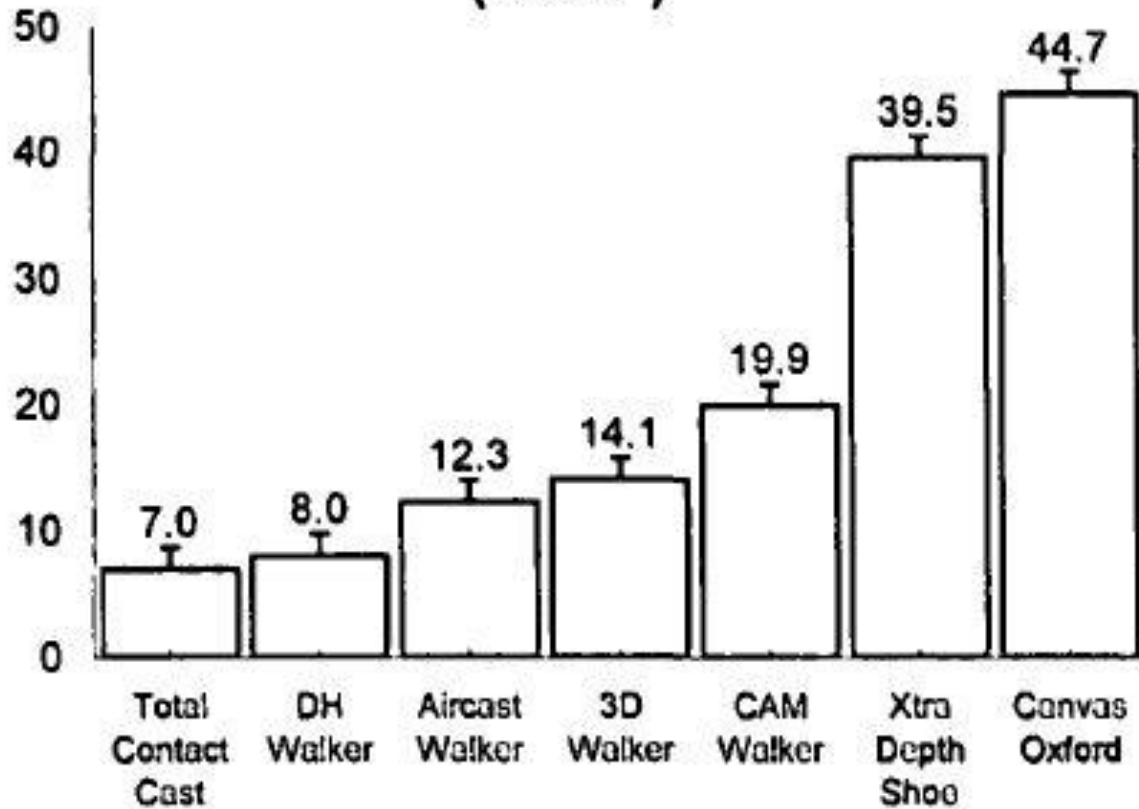
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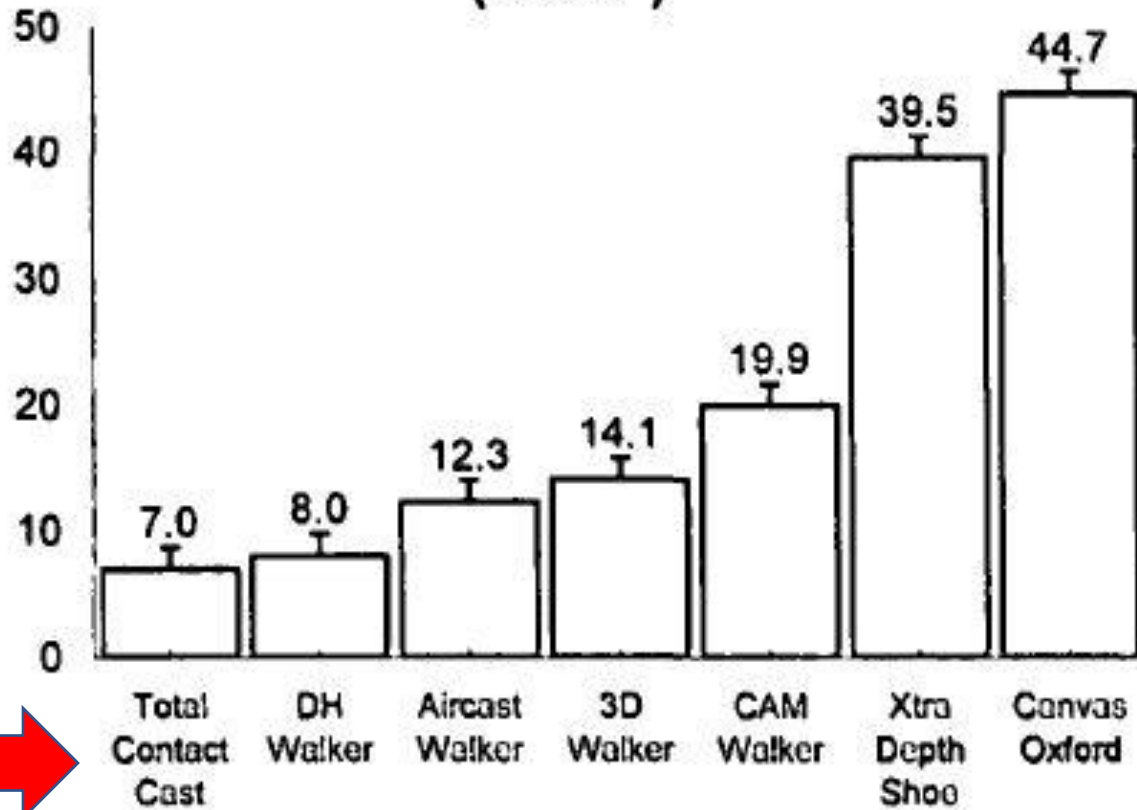
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Total Contact Casting

“Gold Standard” for off-loading
plantar foot ulcerations.

Wertsch, Jacqueline & Frank, L & Zhu, H & Price, M & Harris, Gerald & Alba, H. (1995). Plantar pressures with total contact casting. Journal of rehabilitation research and development. 32. 205-9.





Total Contact Casting

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Takes time and expertise to apply;
costly and messy

Armstrong DG, Nguyen HC, Lavery LA, van Schie CH, Boulton AJ, Harkless LB.
Off-loading the diabetic foot wound: a randomized clinical trial. *Diabetes Care*.
2001 Jun;24(6):1019-22. doi: 10.2337/diacare.24.6.1019. Erratum in: *Diabetes*
Care 2001 Aug;24(8):1509. PMID: 11375363.





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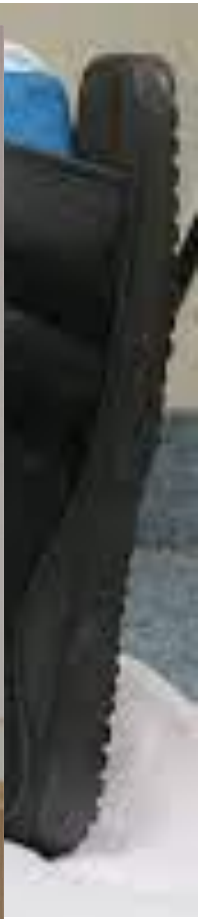


Total Contact Casting



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Is a TCC “right” for my patient?

Indications

- Non-infected neuropathic foot ulcerations
- Post-operative care
- Charcot Neuroarthropathy
- Pre-ulcerative lesions

Contraindications

- Infection
- Decreased/Unknown Vascular Status
- Non-compliance/Reluctance to comply
- Allergy to casting material
- Excessive Swelling / Compartment Syndrome



Removable Cast Walkers (RCWs) / CAM Boot / Walking Boot



Advantages → Removable / Fast / Can dispense in the office / Easily modified

Disadvantages → REMOVABLE / Clinically, TCCs usually reduce pressures more effectively.

Wu, S.C., Crews, R.T. & Armstrong, D.G. The pivotal role of offloading in the management of neuropathic foot ulceration. *Curr Diab Rep* **5**, 423–429 (2005). <https://doi.org/10.1007/s11892-005-0049-5>



“Instant TCC”

Can apply a fiberglass casting material to make the CAM boot non-removable.

Easy to apply.

Reducing the benefit of being able to change the dressings and monitor wounds.

Wu et al 2005.



Table 1. Comparison of the standard TCC with an iTCC*

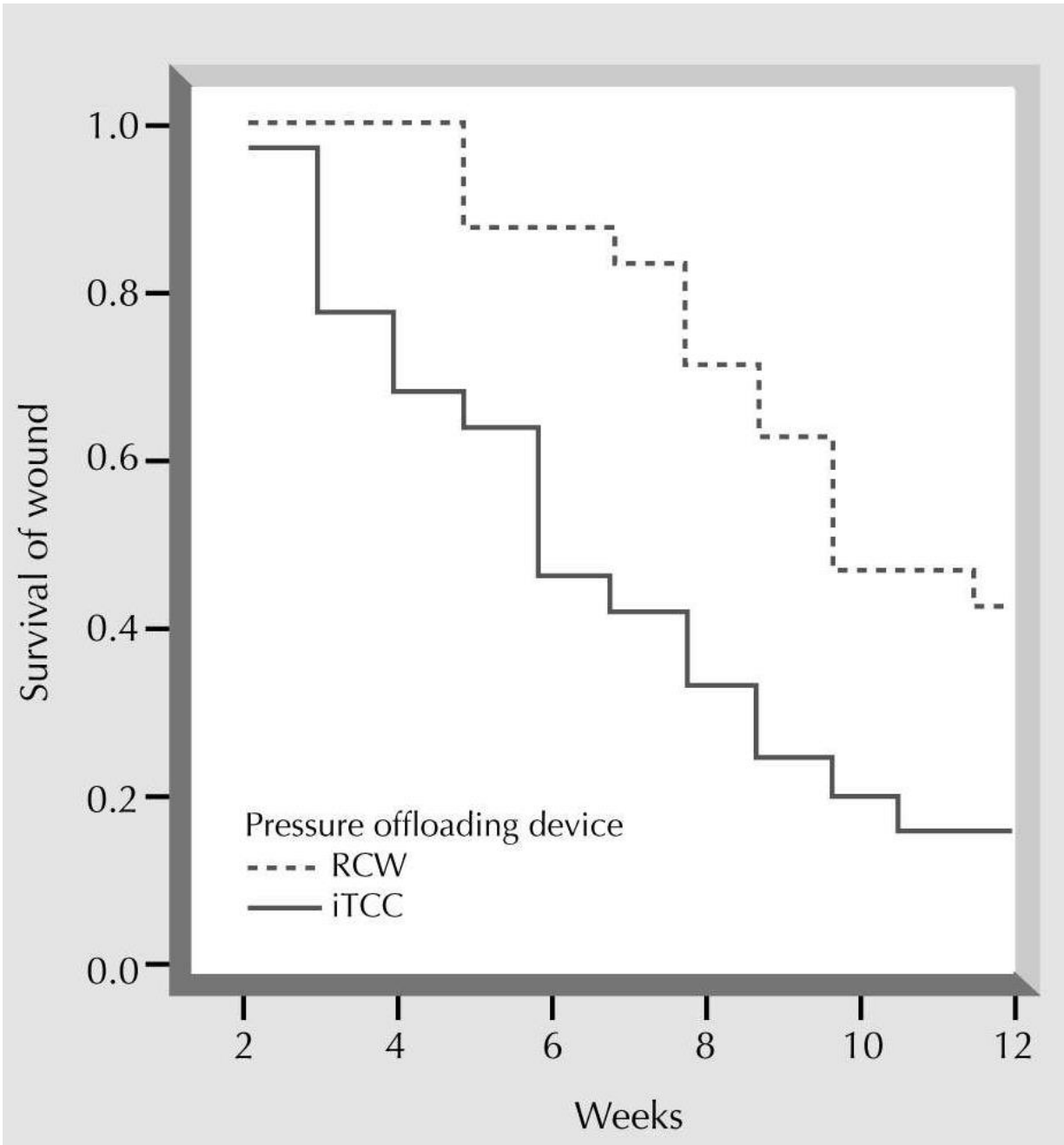
Variable	TCC	iTCC
Time to healing, wk	5.4	5.1
Time to apply, min:sec	12:30	7:47 [†]
Time to remove, min:sec	3:39	2:17 [†]
Cost (over wound duration)	\$226.06	\$177.15 [†]
Complications	68%	42%

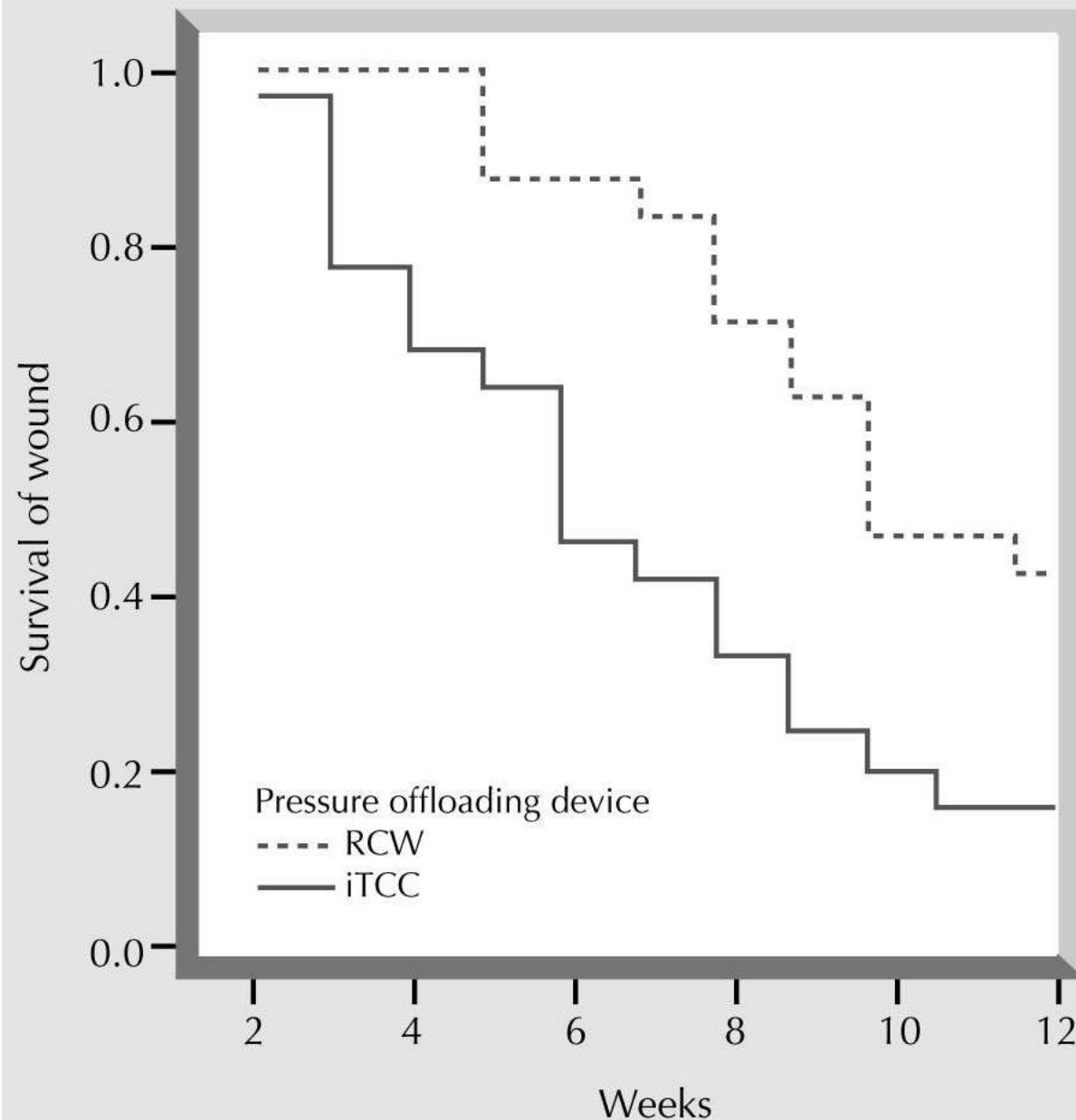
*Katz et al. [50•] compared the standard TCC with an iTCC and found no differences in healing rates and the mean healing time between patients who received the TCC versus the iTCC. The cost in materials and personnel was much lower for the iTCC compared to the TCC group. They also found no differences in complications between the two groups.

[†] $p < 0.05$.

ITCC—instant total contact cast; TCC—total contact cast.
(Data adapted from Katz et al. [50•].)





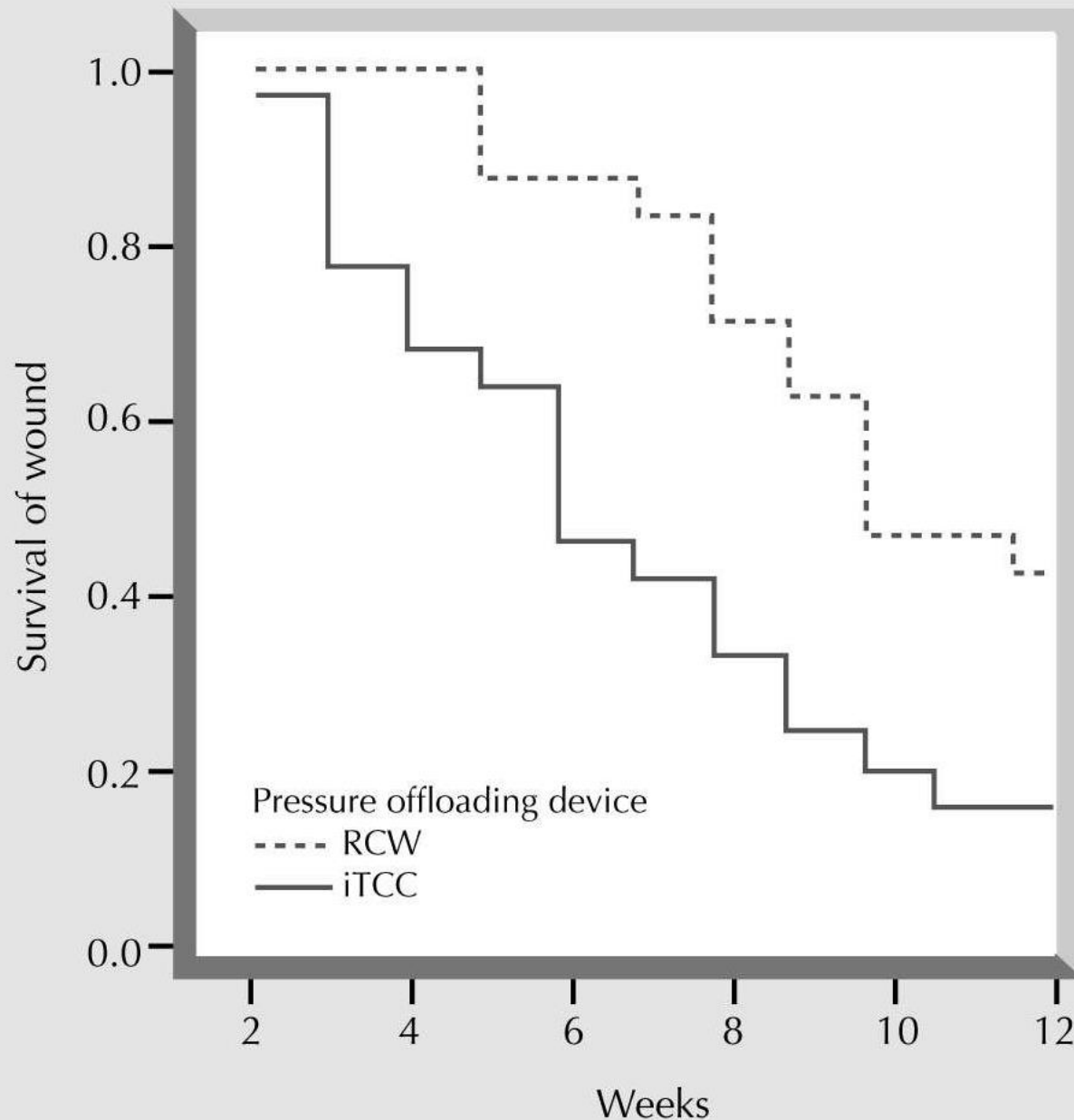


Patient Compliance...

Armstrong et al; Diabetes Care.
2003;26(9): 2595-2597.

20 subjects with UT Grade 1A wounds
with accelometers on wrist and 2nd
device hidden in the RCWs.





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Patients wore the RCWs less than
30% of their daily activities.



Post-operative Shoe/Off-loading Shoe



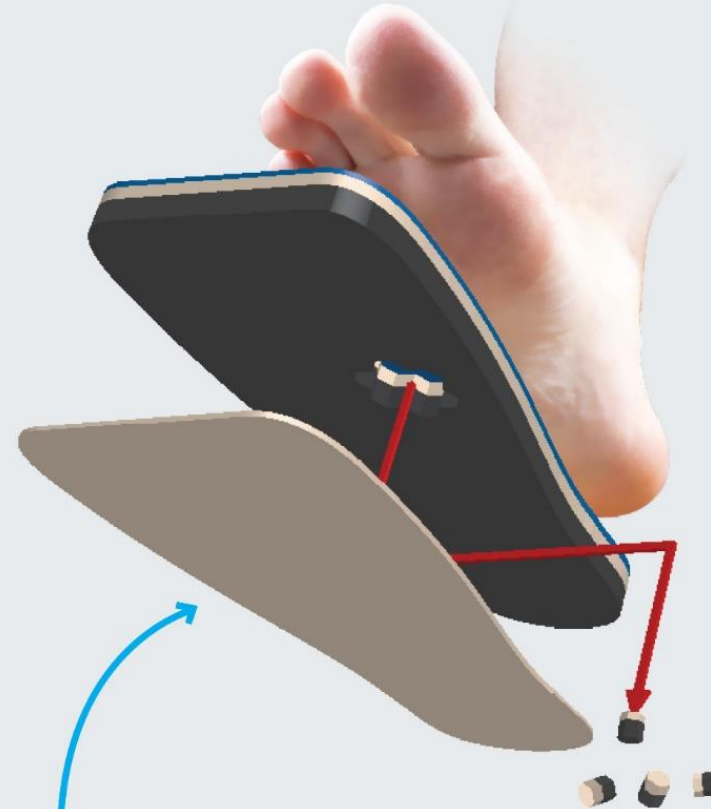
Post-operative Shoe/Off-loading Shoe



Post-operative Shoe/Off-loading Shoe



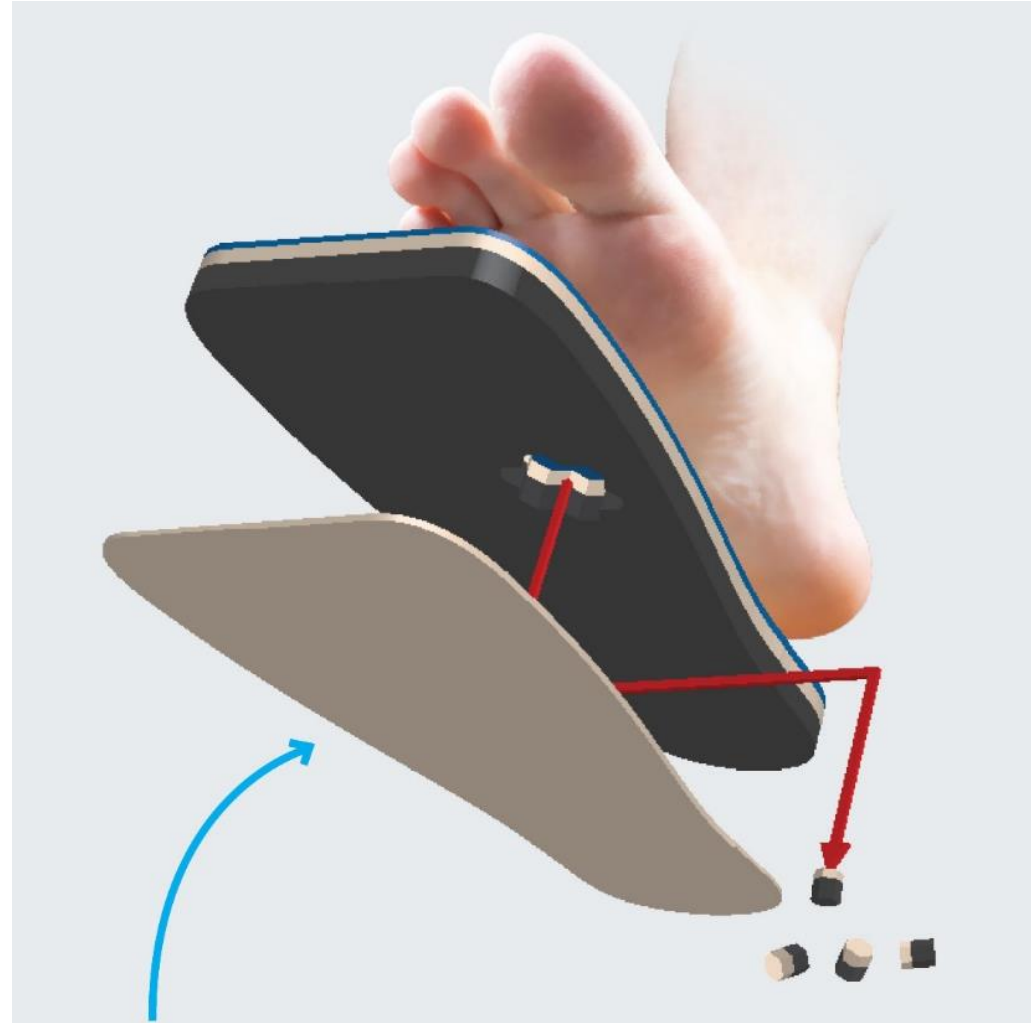
*Each insole has a **15mm combination Plastazote® and Multi-Foam base with a 3mm PORON® Cushioning cover***



Stabilizer board included to maintain product integrity



Combining Approaches can Help



Forefoot Off-loading Shoe



Heel Off-loading Shoe



Felted Foam Dressings



Digital Ulcerations



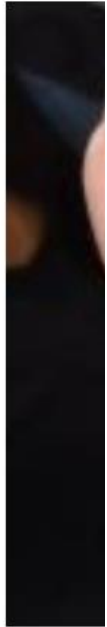
(a)



(b)



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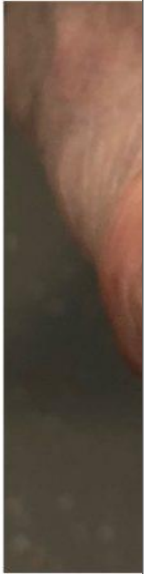


Digital Ulcerations



Surgical Off-loading





Surgical Off-loading



Off-loading in Conclusion

- DFUs increase mortality/morbidity.
- Huge drain on Resources and Health Care costs.
- Reducing plantar pressures is paramount.
- Multiple approaches → TCC is the Gold Standard
- Referral to Podiatry / Wound Center



References

- Boulton AJ. Pressure and the diabetic foot: clinical science and offloading techniques. *Am J Surg*. 2004 May;187(5A):17S-24S. doi: 10.1016/S0002-9610(03)00297-6. PMID: 15147987.
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- Armstrong DG, Lavery LA, Kimbriel HR, Nixon BP, Boulton AJ. Activity patterns of patients with diabetic foot ulceration: patients with active ulceration may not adhere to a standard pressure off-loading regimen. *Diabetes Care*. 2003 Sep;26(9):2595-7. doi: 10.2337/diacare.26.9.2595. PMID: 12941724.

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