

# The Impact of utilizing Total Contact Casting on Chronic Wounds of the Foot: Less than 60 Days to Total Healing

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## BACKGROUND AND PURPOSE

The aging population and prevalence of multiple co-morbidities complicate the care of patients with chronic wounds of varying etiologies including diabetic foot ulcers, pressure ulcers, and wounds related to trauma. Chronic wounds of the foot frequently fail to move through the reparative process in an orderly, timely fashion. Additionally it is known that diabetic foot ulcers affect 2.5 to 10.7% of all diabetics which frequently result in amputations. Off-loading to redistribute pressure is a basic principle in healing chronic wounds of the foot including diabetic and neuropathic foot wounds. Options for off-loading include bed rest, wheelchairs, crutches, surgical shoes, custom sandals, removable cast walkers, felted foam dressings, orthotics, and orthopedic foot wear. The Total Contact Cast\* (TCC) is considered the gold standard for off-loading foot wounds. This series of 6 patient cases with a total of 7 wounds provides significant evidence to further validate why TCC is and should continue to be gold standard for off-loading.

## METHODS

The patients had multiple co-morbidities and wounds varying in time of existence from 1 month to 8 months. Each patient's wound was treated with several different types of wound dressings including skin substitutes, silver alginates, foams, silver dressings, and activated collagen. All patients were off-loaded utilizing a new quick and easy form of TCC.

## RESULTS

By utilizing the easier and quicker method of TCC it allows the facility to apply TCC within a fifteen minute time frame or less. In evaluating the outcomes it is evident that using TCC has a direct effect on wound healing to include a significant reflection on total days to heal. These 6 patients had an average of 31.5 days to wound healing ranging from as few as 14 days to 57 days. This is significant especially with the variety of co-morbidities, wound age, and over half of the patients were diabetic. Further research is suggested with a larger variance of wound etiologies, more focused wound dressing applications, and evaluating healing times to substantiate observations.

### References:

1. Bryant RA, Nix DP. Acute and Chronic Wounds: Current Management Concepts. St Louis, MO: Mosby Elsevier; 2012.

### CASE 1

**Patient Hx:** Initial injury to left foot was a retained foreign body (fragment of insulin needle) in August of 2011. Patient developed a left 3rd inter-space infection/ abscess, hospitalized with extensive treatment, poorly controlled diabetic.

Presented to our clinic on 05/16/12 for treatment of a non healing diabetic wound with total contact casting.

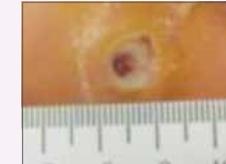
Primary dressing: collagen and silver alginate



05/16/12: Left sub-met 3 wound measured 0.7cm x 0.5cm x 0.3cm.



05/23/12: Wound measured 0.8cm x 0.8cm x 0.3cm. Primary dressings: collagen and silver alginate.



05/30/12: Wound measured 0.4cm x 0.3cm x 0.1cm. Primary dressings: collagen and silver alginate.



06/06/12: Wound measured 0.1cm x 0.1cm x 0.1cm. Primary dressing: non adherent foam dressing.



06/13/12: Wound is healed. Total days to heal = 23 days.

### CASE 2

**Patient Hx:** Neuropathic wound to left 5th metatarsal since 2/28/12. Non diabetic.

Presented to our clinic on 04/10/12 for treatment of a non healing diabetic wound with total contact casting.

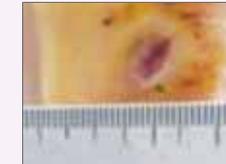
Primary dressing: collagen and silver alginate



04/10/12: Wound measured 1.0cm x 0.7cm x 0.3cm, with undermining at 400-1200.2. Primary dressings: Living skin substitute cover with silver non adherent foam dressing.



04/12/12: Wound measured 0.8cm x 0.5cm x 0.3cm. Primary dressing: silver non adherent foam dressing.



04/17/12: Wound measured 0.8cm x 0.4cm x 0.3cm. Primary dressing: silver non adherent foam dressing.



04/24/12: Wound measured 0.5cm x 0.3cm x 0.1cm. Primary dressing: silver foam.

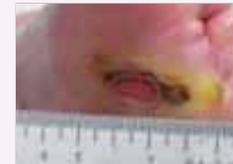


05/09/12: Wound is healed. Total days to heal = 29 days.

### CASE 3

**Patient Hx:** Chronic pain syndrome, CAD, HTN, left trans-metatarsal amputation. Non-diabetic.

Presents to wound care clinic 04/24/12 with sub-met 3 and 4 wounds present for over a month.



04/24/12: Sub-met 3 wound measured: 1.2cm x 0.6cm x 0.1cm. Sub-met 4 wound measured: 1.1cm x 0.4cm x 0.1cm



05/22/12: Sub-met 3 wound measured: 0.6cm x 0.3cm x 0.1cm. Primary dressing: collagen and silver foam. Sub-met 4 wound measured: Healed Total days to heal= 28 days.



06/19/12: Sub-met 3 wound healed. Total days to heal= 57 days.

### CASE 4

**Patient Hx:** Left foot wound began as a blister 3/1/12. Patient was hospitalized for foot infection, went to OR for I&D 4/7/12, positive for osteomyelitis, and IV ABX. Diabetic for 30 years.



04/17/12 Patient presents to wound care center. Wound measured 3.1cm x 1.7cm x 0.4cm. Primary dressings: silver foam, plain foam HBO initiated 04/18/12.



04/19/12: Wound measured 3.8cm x 1.9cm x 0.4cm. Primary dressings: silver foam, plain foam dressing.



04/24/12: Wound measured 3.0cm x 2.0cm x 0.3cm. Primary dressing: silver foam, plain foam dressing.



05/01/12: Wound measured 2.7cm x 1.2cm x 0.1cm. Primary dressing: silver foam.



05/15/12: wound is healed. Total days to heal = 26 days.

### CASE 5

**Patient Hx:** Wound on left plantar foot since 5/3/11, multiple foot infections and hospitalizations. Uncontrolled diabetes. Past amputation of left 1st and 2nd toes.



02/07/12: Wound measured 1.7cm x 1.5cm x 0.5cm. Primary dressing: silver foam.



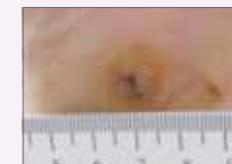
02/14/12: Wound measured 1.6cm x 1.4cm x 0.4cm. Primary dressing: silver foam.



02/28/12: Wound measured 0.8cm x 0.8cm x 0.1cm. Primary dressings: living skin substitute and silver foam. Living skin substitute applied 03/06/12.



03/13/12: Wound measured 0.8cm x 0.5cm x 0.1cm. Primary dressings: collagen-alginate and silver alginate.



03/27/12: Wound is healed. Total days to heal = 48 days.

### CASE 6

**Patient Hx:** Chronic ulcerations, infections and amputations. Diabetic, neuropathic, and charcot deformity



2/7/12: TCC Initiated for treatment of non-healing diabetic foot wound. Wound measured 0.3cm x 0.2cm x 0.4cm.



02/14/12: Wound healed.



02/28/12: Wound healed. Total days to heal= 14 days.

\*TCC-EZ® Total Contact Casting System, Derma Sciences, Inc., Princeton, New Jersey.