

# Combination of a Novel Powder Dressing\* with Hyperbaric Oxygen in the Treatment of Diabetic Foot Ulcers and Chronic Non-Healing Wounds

## Purpose:

The purpose of this evaluation was to determine if a novel powder wound dressing can be applied in conjunction with Hyperbaric Oxygen (HBO) therapy as a treatment for non-healing debrided ulcers of the foot.

## Methods:

Patients were assessed and proper wound care technique including sharp debridement, resolution of infection and overall care of health was performed prior to initiation of treatment with HBO and the powder dressing.

The dressing was applied to the surface of a clean, debrided wound and left in place typically without a secondary dressing. HBO Therapy was initiated with the dressing in place. The dressing was changed weekly and the wounds were photographed.

Wound surface area was calculated by digitizing the images using the included ruler as a scalar and pixel area was converted to surface area in the image using NIH Image J with aspect ratios accounted for in the images.

## Treatment:

Patient 1: 56 year old male presenting with Diabetes Mellitus and peripheral vascular disease (PVD). The ulcer was present on the right heel and had remained in stasis for over 1 year. The wound was debrided and the powder dressing was applied in conjunction with HBO therapy at regular intervals. The dressing was changed weekly. At week 7, the wound achieved closure with some soft tissue deficit on the surface.

Patient 2: 45 year old female presenting with DM and PVD. Patient was recently discharged from the hospital following a metatarsal head resection that resulted in dehiscence. The wound was complicated by tunneling resulting in communication through an original plantar ulcer into the remaining metatarsal shaft. The wound was debrided and the powder dressing and HBO therapy was initiated. The dressing was changed weekly with regular HBO therapy. By week 2 the plantar wound resolved and the tunneling through the resection was resolved. Closure was achieved by week 8 with weekly dressing changes.

Patient 3: 20 year old female, smoker presented with wound as a result of a neuroma excision and non-healing wound between the second and third metatarsal in stasis for three months. The wound was treated with HBO and the powder dressing with the dressing changed weekly. The wound showed increased granulation tissue initially and then was resolved to closure.

### Patient 1



Day 0



Week 2



Week 6



Week 7

### Patient 2



Day 0



Week 2



Week 6



Week 8

### Patient 3



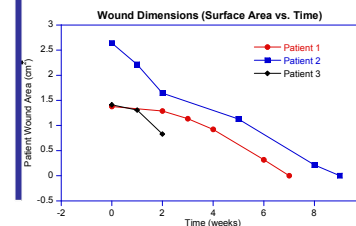
Day 0



Week 2



Week 3



## Results:

There were no complications in the combined treatments for the three patients with debrided wounds in this set of cases associated with HBO therapy and the novel powder dressing. The dressing was changed weekly and did not require reapplication between visits. Each wound was resolved to closure.

## Conclusions:

It is possible to combine HBO therapy with the application and covering of a debrided wound with a novel powder dressing in the treatment of debrided chronic wounds.

## Acknowledgement:

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\*Altrazeal Transforming Powder Dressing