

# The use of Transdermal Continuous Oxygen Therapy to Accelerate Wound Healing

Author:

**Howard Myles Kimmel, D.P.M., M.B.A., F.A.C.F.A.S.**

Residency Director, PM&S 36, Louis Stokes Cleveland Department  
Veterans Affairs Medical Center, Cleveland, Ohio

Senior Clinical Instructor, Department of Surgery, Case Western  
Reserve University School of Medicine, Cleveland, Ohio

## Introduction

It is well known the importance of oxygen in wound healing. It impacts collagen production and development through its effects on enzymes. It has a major role for angiogenesis, the production of granulation tissue, as well as resistance to infection. Transdermal Continuous Oxygen Therapy (TCOT) is another delivery system which provides a flow of continuous pure oxygen directly to the wound bed. There are several advantages over hyperbaric oxygen, including decreased cost, decreased complications and a more efficient delivery of oxygen to the wound surface.

Transdermal Continuous Oxygen Therapy (TCOT) is the **EPIFLO®** delivery system is a portable generator that delivers 3 milliliters of pure oxygen per hour with ambient humidity this provides a moist wound environment which is continuously bathed in pure oxygen.

## Methods

We evaluated 5 published articles on Transdermal Continuous Oxygen Therapy. 4 of the 5 articles were used. The article that was not used, did not have the patients listed individually. A total of 13 patients were identified. These patients had ulcers due to either pressure, arterial or venous insufficiency, or were post-operative wound dehiscences.

## Results

The average patient age was 59 years old, with the pre-treatment ulcer area of 22.3 cm<sup>2</sup>. Post-treatment area was 3cm<sup>2</sup> with an average length of treatment being 11 weeks. Wound area reduction average was 85%

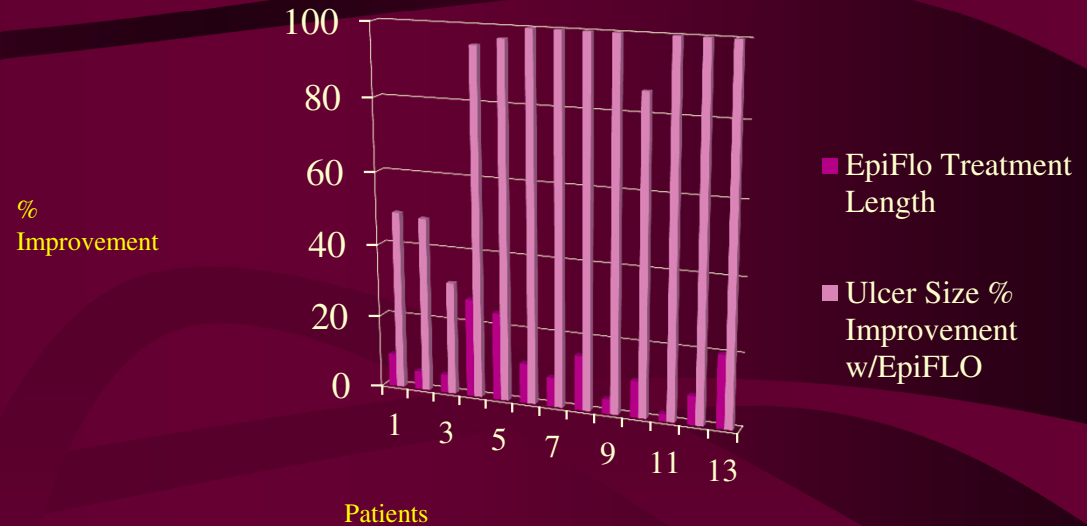
## Conclusion

The beneficial effects of oxygen therapy are numerous. From decreasing bacterial load to stimulating growth factors. Utilization of Transdermal Continuous Oxygen Therapy as the primary therapy for wound healing caused an average decrease in size of 85%. Further studies need to be performed to show the true benefits of this device.

## References:

- Banks and Ho: A Novel Topical Oxygen Treatment for Chronic and Difficult Wounds to Heal, *J Spinal Cord Med.* 2008; 31(3): 297-301  
 Lowell et. Al: Transdermal Continuous Oxygen Therapy as an Adjunct for Treatment for Recalcitrant and Painful Wounds, *The Foot and Ankle Online Journal.*2009; 2 (9):4  
 Hirsh et. Al: **Transdermal Oxygen Delivery to Diabetic Wounds: A Report of 6 Cases;**  
[www.ogenix.com/home/page/clinical/](http://www.ogenix.com/home/page/clinical/)

EpiFLO Treatment Length vs. % Improvement of Ulcer Size



Pre-EpiFLO vs. Post-EpiFLO Treatment Size

