

Hyperbaric Oxygen Therapy Mediates Increased Nitric Oxide Production Associated With Wound Healing: A Preliminary Study.

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OBJECTIVE:: The objective of this preliminary study was to document general somatic and wound nitric oxide (NO) levels during and after hyperbaric oxygen therapy (HBOT). **DESIGN::** The study evaluated 6 chronic wound patients that responded favorably to HBOT treatment (20 treatments; 2.0 atmosphere absolute [ATA] x 90 minutes). Successful HBOT was associated with increased wound granulation tissue formation and significantly improved wound closure. Wound fluid and fasting plasma samples were obtained for measurement of nitrate and nitrite (NO_x), the stable oxidation products of NO; plasma L-arginine (L-Arg); and asymmetric dimethylarginine (ADMA). NO_x measurements were obtained before treatment (baseline), after 10 and 20 treatments, and at 1 and 4 weeks after therapy. **RESULTS::** Wound fluid NO_x levels tended to increase during treatments, were significantly elevated at 1 and 4 weeks after therapy, and correlated with reductions in wound area. Plasma L-Arg and ADMA were unchanged during and after HBOT. **CONCLUSION::** This preliminary study documents a significant increase in local wound NO levels (by NO_x measurements) after successful HBOT and suggests that this mechanism may be an important factor in promoting enhanced wound healing and wound closure associated with this therapy.