

DIABETES & HYPERBARICS

Diabetes affects more than 12 million people and is the seventh leading cause of death in the U.S. With diabetes primarily affecting the small blood vessels, hyperbaric oxygen therapy (**HBOT**) has been demonstrated to stimulate angiogenesis to help ameliorate compromised blood flow and prevent organ failure. Research has shown that HBOT can lower blood sugar levels by increasing cellular sensitivity to insulin and skeletal muscle reception of glucose. Furthermore, recent reports have provided evidence towards linking HBOT to regenerating pancreatic islets of Langerhans, thus potentially producing more insulin. HBOT is often beneficial in treating osteomyelitis and cellulitis, in addition to preventing systemic toxicity and permanent disability. With chronic diabetes, impaired circulation reduces wound healing capability and promotes ulcerations. HBOT increases the amount of oxygen available to ulcerated areas, leading to increased fibroblast activation. Studies have demonstrated the benefits of HBOT for diabetes with the following:

IMPROVE BLOOD CHEMISTRY PROFILE WITH HBOT

- Fasting Blood Sugar
- Hemoglobin HbA1C
- Lipid Profiles

ADVANCE GLYCEMIC CONTROL WITH HBOT

- Increases Pancreatic Islets of Langerhans
- Improves Insulin Sensitivity
- Increases Skeletal Muscle Reception of Glucose

DECREASE CARDIOVASCULAR RISK WITH HBOT

- Promotes Long-Term Blood Pressure Control
- Attenuates Metabolic Syndrome
- Reduces Risk of Sudden Heart Attack Due to Ventricular Arrhythmias

STIMULATE ANGIOGENESIS & REDUCE INFLAMMATION WITH HBOT

- Improves Brain Function & Reduces Risk of Stroke
- Enhances Heart Function & Reduces Risk of Heart Attack
- Reduces Risk of Diabetic Retinopathy
- Decreases Risk of Diabetic Neuropathy
- Minimizes Risk of Diabetic Nephropathy
- Combats Cellulitis

ENHANCE INTERNAL/EXTERNAL HEALING WITH HBOT

- Proliferates Epithelialization
- Promotes Closure of Non-Healing Wounds
- Ameliorates Ulcerations
- Reduces Risk of Amputation

Study: Amputation Rate Decreased with HBOT

A study published in 2008 evaluated the efficacy of HBOT with respect to decreasing amputation rates for patients with diabetic foot ulcer. A total of 184 consecutive patients received an average of 39 HBOT sessions (60 to 120 minutes a day, six times a week with patients' progress evaluated at 3, 6 & 12 months) as an adjunct to standard treatment modalities for diabetic foot ulcer. Following treatment, 115 (62 percent) were completely healed, 31 (17 percent) showed no improvement and 38 (21 percent) underwent amputation. HBOT's success was illustrated by the attenuation to hypoxic tissue by the mechanisms of angiogenesis, fibroblast replication, collagen synthesis, revascularization, epithelialization and increased leukocyte bactericidal activity. The study confirmed that HBOT can help to reduce major amputation rates in diabetic foot ulcers by repairing tissue. This finding is especially noteworthy considering other conventional treatments had failed.

Ahmet Kaya, Figen Aydin, Taskin Altay, Levent Karapinar, Hasan Ozturk & Cengiz Karakuzu Can major amputation rates be decreased in diabetic foot ulcers with hyperbaric oxygen therapy? International Orthopaedics (SICOT) (2009) 33:441–446 DOI 10.1007/s00264-008-0623-y

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