

Hyperbaric Oxygen Treatment for Compromised Graft or Flap

Potential issues: Grafts or Flaps

Despite careful surgical planning and execution, reconstructive failure can occur due to poor wound beds, radiation, random flap necrosis, vascular insufficiency, or ischemia-reperfusion (IR). Traumatic avulsions and amputated composite tissues, which are compromised tissue, may fail from crush injury and excessively large sizes. [1]

These complications may result in loss of tissue, additional surgery, accrued costs, and negative psychological patient effects. Hyperbaric oxygen is an **adjunct therapy** that has been proven effective in limiting these issues. [1]

Hyperbaric Oxygen Therapy (HBOT)

HBOT increases oxygen intake, improves fibroblast function, neovascularization and amelioration of IR injury. It can also increase the likelihood and effective size of composite graft survival, improve skin graft outcomes, and enhance flap survival. [1]

Preemptive treatment

The ideal treatment for graft/flap compromise is prevention by recognizing poorly perfused wound beds that may lead to compromise of the transferred tissue. Many of these grafts can be preemptively treated with HBO therapy for the respective problem wound indications to minimize the chance of compromise and improve the chance of reconstructive success. [1]

Salvage treatment

In tissue compromised by irradiation or in other cases where there is decreased perfusion or hypoxia, HBOT has been shown to be extremely useful in flap salvage. [2]

In certain situations, radiation damage, low wound bed oxygen tension, vascular insufficiency, random-pattern flap ischemia, and ischemia-reperfusion (IR) injury, may be unrecognized or unavoidable, and can result in graft or flap compromise. Again, in these instances, HBO can be a valuable salvage option. [1]

Source:

[1] Francis, Ashish, and Richard C. Baynosa. "Hyperbaric oxygen therapy for the compromised graft or flap." *Advances in wound care* 6.1 (2017): 23-32.

[2] UHMS.org (<https://www.uhms.org/resources/featured-resources/hbo-indications.html>)