



Use of BSN medical Fiberglass Casting Products in Hyperbaric Oxygen Therapy for Diabetic Foot Ulcer Treatment

Increasingly, the use of hyperbaric oxygen treatment is being indicated for management of hard to cure wounds, including diabetic ulcers. Many times this is coupled with synthetic casting immobilization of the affected extremity in order to offload weight from the affected foot in order to improve the potential for healing. The treatment of diabetic foot ulcers requires management of a number of systemic and local factors, including:

Precise diabetic control is, of course, vital, not only in achieving resolution of the current wound, but also in minimizing the risk of recurrence.

Management of contributing systemic factors, such as hypertension, hyperlipidemia, atherosclerotic heart disease, obesity, or renal insufficiency, is crucial.

Management of arterial insufficiency, treatment of infection with appropriate antibiotics, offloading the area of the ulcer, and wound care are also essential.

In the presence of an intractable wound and associated no correctible ischemic arterial disease, hyperbaric oxygen therapy may be beneficial (in selected cases). Löndahl et al found that 40 hyperbaric oxygen treatments (85 min daily, 5 d/wk for 8 wk) resulted in complete healing of chronic diabetic foot ulcers in 52% of patients in the treatment group. Among patients in the placebo group, 29% had complete healing at 1-year follow-up.

The off-loading of body weight using a total contact cast system is important in the treatment of a diabetic foot ulcer. Advanced casting products offered by BSN such as Delta Lite Plus employ a fiberglass substrate impregnated with a fast curing, low-tack, water activated polyurethane resin that cures to weight bearing strength in 20 minutes, flexural rigidity is specified at 30 minutes after application as 1.6 kgf/cm minimum, and the cast is considered for all practical purposes to be completely cured after approximately 1.5 hours.

While some practitioners recommend waiting 12 hours after cast application / reapplication before initiating hyperbaric oxygen therapy, BSN feels this is an excessive length of time to wait for full cast curing of BSN fiberglass casting products. Since curing levels reach high levels within 1.5 hours, hyperbaric oxygen therapy could commence immediately during the same treatment visit, thus increasing patient compliance and reducing the overall time needed for ulcer healing.

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