

CLINICAL SUMMARY

Targeted Amino Acid Supplementation in Diabetic Foot Wounds: Pilot Data and a Review of the Literature

Maris S. Jones, Mariangela Rivera, Cassandra L. Puccinelli, Michael Y. Wang, Shelley J. Williams, and Annabel E. Barber. *Surgical Infections* 2014; 15(6):708-712.

Diabetic foot ulcers are a highly morbid and costly complication of diabetes mellitus.

In an experimental wound healing model, targeted amino acid supplementation with a supplement containing arginine, glutamine, and β -hydroxy- β -methylbutyrate (HMB) (Juven®) was shown to increase wound collagen formation, as measured by hydroxyproline concentration, in healthy elderly persons in a wound healing model.¹ A major component of collagen, hydroxyproline is a surrogate marker used commonly for tissue collagen concentrations.

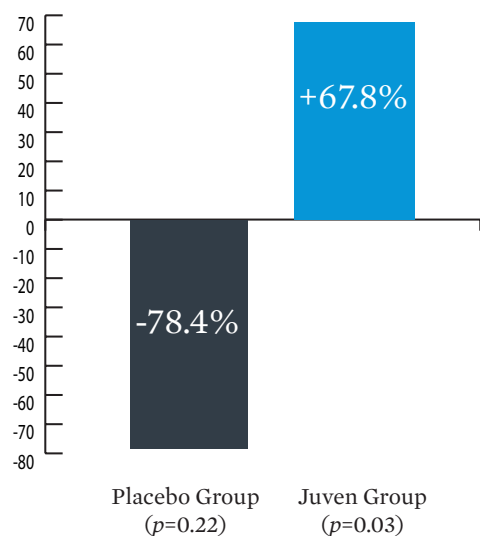
This pilot study utilized a blinded, randomized, controlled design to compare outcomes in 9 patients scheduled to undergo wound debridement for chronic (>30 days) diabetic foot ulcers. Subjects were randomized prospectively to receive either a placebo (n=3) or Juven (n=6) supplementation twice daily for two weeks. Wound tissue samples were collected both before and after 2 weeks of supplementation at the time of scheduled tissue debridement. Wound tissue hydroxyproline levels were used to evaluate changes in collagen formation.

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Results

Results showed a significantly greater hydroxyproline concentration after two weeks of supplementation compared to baseline ($p=0.03$) in the Juven group, as compared with a value of $p=0.22$ in the placebo group. The mean percent change in the hydroxyproline level of the Juven group was $+67.8\% \pm 129.89$ compared to the placebo group ($-78.4\% \pm 20.55$).

Hydroxyproline Concentration After Two Weeks of Supplementation



NUTRITION CONCLUSION

These data suggest that the use of Juven, as an adjunct nutritional therapy, may improve the healing of diabetic foot ulcers via increased collagen production.

REFERENCE:

1. Williams JZ, Abumrad N, and Barbul A. Effect of a specialized amino acid mixture on human collagen deposition. *Annals of Surgery*, 2002;236(3):369-375.