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**File: ■ Grape (*Vitis vinifera*, Vitaceae) Seed Extract
■ Wound Healing**

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RE: Grape Seed Extract Cream Promotes Surgical Wound Healing

Hemmati AA, Foroozan M, Houshmand G, Moosavi ZB, Bahadoram M, Maram NS. The topical effect of grape seed extract 2% cream on surgery wound healing. *Glob J Health Sci.* 2015;7(3):52-58.

Wound healing can be affected by factors such as age, medications, nutrition, circulation and tissue hypoxia status, and use of localized antibiotics and antiseptics. Accelerated wound healing reduces the risk for infection, lowers the number of complications, and decreases costs. Studies suggest that using plant resources alone or combined with chemical agents promotes more effective wound healing. Grape (*Vitis vinifera*, Vitaceae) seed extract has been found to possess antioxidant, antimicrobial, antiviral, and antibacterial activities, which may help wound healing. The goal of this double-blind, clinical study was to investigate the effects of grape seed extract on the healing of small surgical wounds in humans.

The 3-week study enrolled patients admitted to the Dermatology Clinic at Imam Khumeini Hospital at the Ahvaz Jundishapur University of Medical Sciences in Ahvaz, Iran, for surgery on skin lesions. The patients were aged between 14 and 50 years, with benign skin lesions measuring between 3 mm and 1 cm. The lesions included skin tags and moles on the neck, trunk, and limbs. Both groups were similar in demographic data, skin type, clinical diagnosis of lesion, and lesion location and size. Patients were excluded if they had underlying diseases, were taking immunosuppressants, were pregnant, or had accompanying malignancy.

Forty patients were randomly assigned to use grape seed 2% cream (n=20) or placebo cream (n=20) topically. The topical grape seed cream was produced by the Faculty of Pharmacy at the university where the study was conducted. Grape seed 2% cream was based on Eucerin®; its aqueous phase was greater than its fat phase (about 60%). Also in the cream were preservatives and specific compounds for color and flavor (details not provided). The placebo cream contained the same ingredients, except for the grape seed extract.

All lesions were surgically removed with scalpel and/or surgical scissors after the skin was numbed with lidocaine and sterilized with Betadine®. They were then treated with

the secondary intention method. After bleeding had stopped, the lesion was measured, cream was applied on the wound, and the wound was dressed.

Patients were instructed to wash their hands and wound and then apply the cream on the surface of the wound twice daily, completely covering the wound area, for 21 days. At day 1, wound level was considered 100% and rate of improvement, 0%. The patients were visited on days 3, 7, 10, 14, and 21. At each visit, the surface area of the wound was measured, the shape of the lesion graphed, each wound photographed, and wound level and rate of improvement recorded. Two patients from the grape seed group and 3 from the placebo group withdrew from the study, leaving 35 patients whose data were analyzed at the end of the study.

Wound healing was significantly better in the grape seed group compared with the placebo group at day 3 ($P=0.0001$), day 7 ($P=0.0001$), day 10 ($P=0.0001$), and day 14 ($P=0.036$). Of the total number of lesions (1-2 per patient), 31 were examined in the grape seed group and 32 in the placebo group. On day 3, none of the lesions were completely healed; however, the mean level of healing in the grape seed group was 79.44% compared with 55.5% in the placebo group.

On day 7, none of the lesions in the placebo group had healed; 20 (64.5%) lesions in the grape seed group were fully healed ($P=0.0001$). On day 10, 9 (28.2%) lesions in the placebo group (28.2%) displayed complete healing, compared with complete healing of all 31 lesions in the grape seed group ($P=0.0001$). Levels of healing were 95.48% in the placebo group and 100% in the grape seed group. By day 21, all lesions in the placebo group had healed. The groups' mean healing times were 8 days (grape seed) versus 14.4 days (placebo).

The authors conclude that this study shows that topical use of grape seed extract cream can be effectively used to promote wound healing. They suggest its effectiveness may be due to its proanthocyanidins and additional antioxidant properties, which "trigger the release of vascular endothelial growth factor along with the promotion of fibroblasts to produce more collagen fibres," causing wound closure. Wound healing may also be aided by the extract's anti-inflammatory and antimicrobial properties.

A drawback of this study is the poor characterization of the grape seed extract used. In general, the composition of grape seed extracts is critically dependent on the protocol of extraction and purification used. This reflects in a very different distribution of proanthocyanidins in terms of molecular weight.

—*Shari Henson*

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