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Improved Skin Wound Healing Activity of Insulin Cream as Evidenced from the Morphological Evaluation in Guinea Pigs

By: [Mohamed, NAH](#) (Mohamed, Nur-Aliana H.)^[1]; [Mokhtar, RH](#) (Mokhtar, Rafidah H.)^[2]; [Al-Ani, IM](#) (Al-Ani, Imad M.)^[3]; [Ayob, A](#) (Ayob, Azizi)^[4]; [Misran, M](#) (Misran, Misni)^[5]

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Abstract

Background: There is no histological study evaluating the effects of insulin-containing cream on skin injury. The goal of this study was to examine the effects of insulin-containing creams on wound healing. Methods: Creams consisting of nine parts of oil and one part of aqueous phase (9:1) mixed with 1.5 mL human insulin were prepared. Eighteen male guinea pigs were divided into three groups; the control (9:1 C) group received cream without insulin. The experimental groups received Humulin N (9:1 N) and Humulin R (9:1 R) respectively. A 1 cm(2) wound of 1-2 cm thickness was created in the skin. Each animal received 0.5 g of the respective creams which was topically applied once a day for 14 days. The progress of wound healing was monitored daily. Skin tissues were excised at the 14th days from the wound sites and processed for light microscopy. Results: Skin wound treated with the long acting insulin Humulin N had an accelerated wound healing process with restoration of vascular network, increased collagen deposition and early complete wound remodeling. Conclusions: Insulin cream with long acting mechanism facilitates in normalizing cell permeability, promoting vascularization, reducing exudation and stimulate proliferation of cells. These properties render insulin cream suitable for expediting wound healing.

Keywords

Author Keywords: [inflammation](#); [insulin cream](#); [Guinea pigs](#); [skin](#); [wound healing](#)

KeyWords Plus: [MONOCYTES](#); [REPAIR](#)

Author Information

Reprint Address: Al-Ani, IM (reprint author)

+ Int Islamic Univ Malaysia, Dept Basic Med Sci, Kulliyah Med, Kuantan 25200, Pahang, Malaysia.

Addresses:

+ [1] Univ Teknol MARA, Ctr Clin Sci, Fac Dent, Selangor 40450, Malaysia

+ [2] Univ Sains Islam Malaysia, Fac Med & Hlth Sci, Kuala Lumpur 55100, Malaysia

+ [3] Int Islamic Univ Malaysia, Dept Basic Med Sci, Kulliyah Med, Kuantan 25200, Pahang, Malaysia

+ [4] Int Med Univ, Sch Med, Kuala Lumpur 57000, Malaysia

+ [5] Univ Malaya, Dept Chem, Fac Sci, Kuala Lumpur 50603, Malaysia

E-mail Addresses: imad_alani@yahoo.com

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