Enhancement of re-epithelialization with topical zinc oxide in porcine partial-thickness wounds.

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We investigated the effect of locally applied zinc on the healing of partial-thickness skin wounds in the domestic pig using two zinc compounds (zinc oxide and zinc sulfate) in two different vehicles (a gauze compress and a collagen sponge). The rate of re-epithelialization was determined morphometrically 48 and 64 hr after infliction of standardized square wounds (4.8 cm² and 400-microns deep) with an electrokeratome. Zinc oxide in gauze significantly (P less than 0.05) increased re-epithelialization of the wounds (33% more epithelialized than control wounds after 64 hr) and in collagen sponge (76% more epithelialized than control wounds after 64 hr). Zinc sulfate had no such stimulatory effect at any dosage or vehicle used. Our results show that topical zinc oxide enhances re-epithelialization of partial-thickness wounds in nutritionally balanced pigs and that the mode of delivery of zinc is probably critical for achieving the beneficial healing effect of zinc.

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