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Article Citation:
Joel W. Beam (*2008*) Occlusive Dressings and the Healing of Standardized Abrasions. Journal of Athletic Training: November/December 2008, Vol. 43, No. 6, pp. 600-607.

doi: 10.4085/1062-6050-43.6.600

Original Research

Occlusive Dressings and the Healing of Standardized Abrasions

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Abstract

Context: Acute skin trauma during sport participation, resulting in partial-thickness abrasions, is common. The limited investigations focusing on the acute wound environment and dressing techniques and the subsequent lack of evidence-based standards complicate clinical wound care decisions.

Objective: To examine the effects of occlusive dressings on healing of standardized, partial-thickness abrasions.

Design: Controlled, counterbalanced, repeated-measures design.

Setting: University laboratory.

Patients or Other Participants: Sixteen healthy women (n = 10) and men (n = 6).

Intervention(s): Four standardized, partial-thickness abrasions were inflicted. Film, hydrogel, and hydrocolloid occlusive dressings and no dressing (control) were applied. Participants returned on postwound days 1, 3, 5, 7, 10, and 14 for digital imaging. Wound healing time was measured by change in wound contraction (cm^2) and change in wound color (chromatic red) and luminance in red, green, and blue color values.

Main Outcome Measure(s): Wound contraction, color (chromatic red), and luminance.

Results: A day-by-dressing interaction was found for wound contraction, color, and luminance. Post hoc testing indicated that the film and hydrocolloid dressings produced greater wound contraction than the hydrogel and no dressing on days 7 and 10. Film, hydrogel, and hydrocolloid dressings also resulted in greater wound contraction than the control on day 14. Hydrocolloid dressings produced smaller measures of color and greater measures of luminance than no dressing on day 7. Film, hydrogel, and hydrocolloid dressings also resulted in smaller measures of color and greater measures of luminance compared with no dressing on days 10 and 14.

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Current Issue
Available Issues

Journal Information

Print ISSN	1062-6050
eISSN	1938-162X
Frequency	Bimonthly:

January/February
March/April
May/June
July/August
September/October
November/December

Conclusions: When compared with the control (no dressing), the film, hydrogel, and hydrocolloid occlusive dressings were associated with a faster healing rate of partial-thickness abrasions across time measured by wound contraction, color, and luminance. Overall, these data indicate that occlusive dressings were more effective in healing than no dressing was.

Keywords: wound management, skin trauma, moist environment

Joel W. Beam, EdD, LAT, ATC, contributed to conception and design; acquisition and analysis and interpretation of the data; and drafting, critical revision, and final approval of the article.

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