

WHAM Evidence summary: Skin care to reduce the risk of pressure injuries

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CLINICAL QUESTIONS

What is the best available evidence on skin care to reduce the risk of pressure injuries (PIs)?

KEYWORDS

Pressure injury, pressure ulcer, decubitus ulcer, skin care, massage, cleansing, moisturising

SUMMARY

Preventive skin care incorporates a range of strategies that reduce risk factors for PIs. Selection of appropriate interventions should be based on an individualised assessment, and include cleansing¹ and moisturising² (Levels 1 & 2), reducing moisture^{3, 4} (Levels 1 & 3) and avoiding massage⁵ (Level 1).

CLINICAL PRACTICE RECOMMENDATIONS

All recommendations should be applied with consideration to the wound, the person, the health professional and the clinical context:

Use a pH balanced cleanser to promote healthy skin. (Grade B)

Use a moisturiser to maintain moisture balance and reduce the risk of skin damage. (Grade B)

Protect the skin from moisture sources (e.g. incontinence) to reduce the risk of skin damage. (Grade B)

Avoid skin massage to reduce the risk of skin damage. (Grade B)

SOURCES OF EVIDENCE

This summary was conducted using methods published by the Joanna Briggs Institute.¹²⁻¹⁴ This evidence summary is based on a structured database search combining search terms that describe pressure injuries with search terms related to massage, cleansing, moisturising, and preventive skin practices. Searches were conducted in EMBASE, PubMed, Medline, Scopus and the Cochrane Library. Evidence published up to June 2017 in English was considered for inclusion.

CLINICAL EVIDENCE

A comprehensive skin regimen that includes best practice recommendations and preferences of the individual promotes the best clinical outcomes for people at risk of PIs.

A cohort with control group study reported on a comprehensive skin care regimen that included gentle skin cleansing, moisturiser applied after bathing, barrier cream, a faecal continence management device, continence pads, avoiding massage and regular skin assessment. Compared to a standard care group, the comprehensive skin regimen group had significant reduction in PIs (13.2% versus 50%, $p = 0.001$)⁶ (Level 3).

Table 1: Sources of evidence and the level

Level 1 Evidence	Level 2 Evidence	Level 3 Evidence	Level 4 Evidence	Level 5 Evidence
Experimental Designs	Quasi-experimental Designs	Observational – Analytic Designs	Observational –Descriptive Studies	Expert Opinion/ Bench Research
1.b Systematic review ⁹ 1.c RCTs ^{1, 4, 5, 10-12, 14}	2.d Pre-test, post-test retrospective control group study ²	3.c Cohort study with control group ⁶ 3.e Single group cohort study ³	4.c Case series ¹⁵	5.b Expert opinion ^{7, 16} 5.c Bench studies ^{8, 13}

Cleansing

Maintaining clean, dry skin is a foundation principle in skin care.⁷ Consensus opinion is that skin should be cleansed with a pH balanced cleanser. A pH balanced cleanser reduces skin irritation and dryness, reducing the risk of impaired skin integrity^{7, 8} (*Level 5*).

One randomised controlled trial (RCT)¹ has compared the impact of cleansers on PI incidence. In a small trial (n = 93) a standard 1% aqueous soap solution with an alkaline pH was compared with a foam no-rinse, pH balanced, emollient-containing cleanser. After 14 days of use, significantly more individuals with Category 2 PIs or greater experienced improvement in or maintenance of skin condition (p = 0.05)¹ (*Level 1*).

Moisturising

Maintaining hydrated skin is a foundation principle in skin care.⁷ When skin is inadequately hydrated, the risk of PI increases⁹ (*Level 1*).

A quality improvement study demonstrated that a comprehensive skin management plan that included a skin emollient was more effective than a similar management plan without a moisturiser or emollient component. After implementing the new skin care regimen in an in-patient wound centre there was a significant (p = 0.008) reduction in PIs and a significant cost saving demonstrated² (*Level 2*).

In one RCT, a moisturiser of hyper-oxygenated fatty acids applied every 12 hours for 14 days was not significantly different to a placebo cream for preventing PIs in individuals at high risk¹⁰ (*Level 1*). Another study compared a hyper-oxygenated fatty acid moisturiser to olive oil and found no significant difference between the two products for reducing PIs¹¹ (*Level 1*). A third RCT (n = 164) comparing a hyper-oxygenated fatty acid moisturiser to a perfumed glycerol-based product reported significant reduction in sacral, trochanter and heel PIs when the fatty acid moisturiser was applied twice daily for 30 days¹² (*Level 1*). Although these findings are mixed, none of these trials provided a strong evaluation of the efficacy of moisturising versus not moisturising, and all had significant limitations.

Reducing moisture exposure

There is a greater risk of PI when skin is exposed to moisture in conjunction with pressure and/or shear⁹ (*Level 1*). The most common sources of moisture at the skin surface are incontinence, perspiration and wound

exudate¹³ (*Level 5*). Strategies to reduce exposure to excessive moisture that have been explored with respect to PI incidence include continence management and application of barrier creams.

Continence management

An RCT (n = 200) that explored a positioning device that elevated the perianal area, thereby increasing ability to perform continence care and reducing skin exposure to faecal incontinence, was associated with a significant reduction in skin breakdown compared with regular continence care (11% versus 39%, p < 0.001). Although the use of such a suspension device may not be possible in most clinical areas, the findings demonstrated that maintaining strict perianal hygiene in individuals with faecal incontinence can reduce PIs⁴ (*Level 1*).

A small RCT (n = 59) compared two different faecal management systems to usual care for reducing PIs. A zinc-based barrier cream was used for the usual care group and the intervention groups received either a bowel management catheter or a rectal trumpet. Pressure injury rates were not significantly different between either faecal bowel management system and using a barrier cream,¹⁴ although the researchers acknowledge numerous methodological limitations (*Level 1*).

A single group cohort study evaluated the use of high absorbency continence pads for improving health-related quality of life for incontinent individuals in rehabilitation. Although no significant difference in PIs was observed after two weeks, there was a 67% decrease in facility-acquired PIs after ten intervention weeks (95% confidence interval [CI] 16% to 78%)³ (*Level 3*).

Barrier cream

In a small case series (n = 20), not all of whom had PIs), strategies to protect the skin from moisture, including use of a spray-on barrier cream and a faecal management system for individuals with loose stools were associated with 85% of moisture lesions with and without erythema/ PIs being classified as healed after 3 to 28 days. Some individuals also received a prophylactic dressing, which may have contributed to the results¹⁵ (*Level 4*).

Massage

Consensus opinion is that massage and vigorous rubbing of the skin is more likely to cause skin/cellular/blood vessel damage and tissue inflammation than to promote beneficial outcomes associated with massage (such as increased tissue blood flow)^{8, 16} (*Level 5*).

One RCT⁵ specifically explored the relationship between massage and PI development. The three randomised study groups received a placebo cream, massage with a topical antioxidant cream, or position change with no massage. There was no benefit in reducing PIs associated with massage, with those individuals who received no massage having a non-significant superior outcome (odds ratio [OR] 0.636 versus 1.136 for massage with placebo)⁵ (*Level 1*).

CONFLICTS OF INTEREST

The author declares no conflicts of interest in accordance with International Committee of Medical Journal Editors (ICMJE) standards.

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ABOUT WHAM EVIDENCE SUMMARIES

WHAM evidence summaries are consistent with methodology published in

Munn Z, Lockwood C, Moola S. The development and use of evidence summaries for point of care information systems: A streamlined rapid review approach, *Worldviews Evid Based Nurs*. 2015;12(3):131-8.

Methods are provided in detail in resources published by the Joanna Briggs Institute as cited in this evidence summary. WHAM evidence summaries undergo peer-review by an international review panel. More information is available on the WHAM website: <https://www.whamwounds.com/>.

WHAM evidence summaries provide a summary of the best available evidence on specific topics and make suggestions that can be used to inform clinical practice. Evidence contained within this summary should be evaluated by appropriately trained professionals with expertise in wound prevention and management, and

the evidence should be considered in the context of the individual, the professional, the clinical setting and other relevant clinical information.

PUBLICATION

This evidence summary has been published in *Wound Practice and Research*:

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