



JOANNA BRIGGS INSTITUTE



Scar Management: Academic-Clinician Collaborations in Identifying and Mapping Evidence

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JBI Model of Evidence Informed Healthcare



Overarching principles

Culture - Capacity - Communication - Collaboration

Academic-Clinician collaboration

*“ the knowledge needs
of expert clinicians
need to be paired with
the skills of
experienced academics
to synthesize and
produce practical,
relevant, usable
evidence”*

(Jordan 2018)

JBI Database of Evidence-Based Practice

- > More than 3,300 Evidence Summaries, 900 Recommended Practice documents
- > Transfer relevant, up to date evidence

The screenshot shows the Ovid database search interface. At the top, there is a navigation bar with 'Search', 'Journals', 'Books', 'My Workspace', 'EBP Tools', and 'Multimedia'. Below this is a 'Search History' section with a table of searches and buttons for 'Save', 'Remove', and 'Combine with: AND OR'. The main search area is titled 'Advanced Search' and includes a search bar with a 'Search' button. Below the search bar are radio buttons for 'Keyword', 'Author', 'Title', and 'Journal'. There is a 'Limits' section with a 'close' button and an 'Include Multimedia' checkbox. The 'Limits' section includes a 'Publication Year' dropdown, a 'Publication Types' dropdown, and a 'Subject Area Nodes' dropdown. The 'Subject Area Nodes' dropdown is currently open, showing a list of categories: Aged Care, Burns Care, Cancer Care, Cardiovascular Care, and Chronic Disease. At the bottom of the interface, there are language selection buttons for English, Français, Italiano, Deutsch, 日本語, 繁體中文, Español, 簡體中文, and 한국어. A copyright notice at the bottom reads: © 2018 Ovid Technologies, Inc. All rights reserved. OvidSP_UI03.31.01.212, SourceID 114488.

The Joanna Briggs Institute Burns Node

- > JBI Burns Node launched in 2009
- > 13 Expert Reference Group members
- > 190 online Evidence Summaries and 77 Recommended Practices, updated yearly
- > 17 audit topics in JBI's online auditing software

JBI Evidence Summary

Evidence-informed practice at the point of care

Axilla Burns: Post-Surgical Care

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Question

What is the best available evidence regarding management of axilla burns and contractures following surgery?

Clinical Bottom Line

Burns to the axilla present a challenge to healthcare professionals. More than one-third of patients sustaining burn injury > 30% body surface area (BSA) have burns of the neck and chest. These burns often include the axilla and contractures can range in severity and can be difficult to treat due to both the concavity of the axilla and the wide range of flexion and abduction motion. There can be poor compliance with axilla splints, as they can be difficult to keep in place, and due to being uncomfortable.^{1,2} Contractures to the axilla region can cause restrictions in shoulder movement, have an impact on daily functioning, and are unsightly.^{3,4} A variety of surgical and non-surgical methods are often used to address axilla contracture, including but not limited to skin grafting, Z-plasty, Y-V plasty, regional and free flaps, island flaps and perforator flaps, as well as different splinting methods.^{1,3,4} For axilla burns, treatment options depend on the severity of the contracture, health of the patient, safety of anesthesia, availability of resources/equipment, and possibility of follow-up care.⁵

- The modified aeroplane splint helps the management of axillary contractures by providing circumferential pressure for scar management and prolonged stretch to contracted tissue. It increases the shoulder range by acting as a serial cast. It is comfortable and this enhances compliance.¹ (Level 5)
- A case study investigated the factors that influence functional improvement in severe axillary contracture. The authors reported that adequate surgical treatment in the early period, after occurrence of contracture, is desirable for burn scar contracture of the axilla.² (Level 4)
- A clinical study reported on post burn axillary contractures treated with thoracodorsal perforator-based cutaneous flaps. Satisfactory improvement in shoulder abduction was obtained and cosmetic results were satisfactory from the patient's point of view. The authors recommend this approach as a treatment of choice.³ (Level 4)
- A study was conducted to present a new opposite running Y-V-plasty designed to overcome the cumbersome, unattractive, and distortion of the axillary hair that occurs with traditional flap surgical methods. The authors reported the opposite running Y-V-plasty is a good alternative method when considering the reconstruction of axillary burn contracture.⁴ (Level 4)
- Splints are traditionally the air place splint, which provides stability and immobilization, arm abduction, and protection to the surgical site from shear forces. Fitting for splints is best done whilst the patient is still under anesthesia, to prevent pain. Splints should be worn as much as possible with an hour rest every 3 to 4 hours for 2 weeks following surgery. The splint should then be worn at night for 6 months after this period. In addition to splinting, active range of motion and passive stretching exercises can begin usually 2 weeks following surgery.⁵ (Level 5)

- Splinting is essential in the prevention and treatment of axillary burn contractures, as patients have a tendency to rest in positions of contracture that lead to contractures. Aeroplane splints have been used to prevent and treat axilla contractures. High density foam splints may have advantages compared to thermoplastic splints, which can increase compliance, comfort and ease of use for health professionals, and take shorter time to make.⁶ (Level 4)
- There is no consensus on when to splint or for how long splinting should continue. One article outlined a treatment algorithm for patients with axilla burns. Those classified as low risk patients with passive range of motion greater than 90 degrees were fitted with a shoulder abduction pillow. High risk patients and low risk patients with passive range of motion less than 90 degrees were fitted with a shoulder abduction brace. Both the groups received physiotherapy treatment on a daily basis. At discharge and at twelve weeks follow up, there was good range of movement scores in both low and high risk groups. The authors concluded that a shoulder treatment flowchart with standardized splinting and exercise regimes can result in good outcomes.⁷ (Level 3)
- The salute splint is one type of splint that has been used for treatment of burn contractures, where the patient's wrist is strapped to their head, in the traditional saluting position.⁸ (Level 4)
- As splints that aim to keep the arm in an abducted position can be uncomfortable, can be difficult to make, and can result in compliance issues, a figure of 8 sling which provided pressure on the skin graft has been used. The sling was well received by patients and provided good range of movement.⁹ (Level 4)
- There is evidence to suggest that there is no benefit between splinting and exercise and exercise alone on shoulder range of motion at 12 weeks post-operatively in adult axillary burns.¹⁰ (Level 1)

Characteristics of the Evidence

The evidence included in this summary is from a structured search of the literature and selected evidence-based health care databases. Evidence in this summary is from:

- A literature summary.¹
- A study that included 13 consecutive cases of severe axillary burn scar contracture.²
- A clinical study that included 15 case reports.³
- A clinical study that included eight cases.⁴
- An opinion paper and literature summary.⁵
- A design modification study.⁶
- An observational study.⁷
- An opinion paper and design modification study.⁸
- A clinical study that included 40 case reports.⁹
- A prospective randomized study of 52 patients.¹⁰

Best Practice Recommendations

- Splinting and physiotherapy regimes may be required following correction of axilla contractures; however, the treatment delivered is dependent on the surgical method and the patient presentation. (Grade B)

References

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JBI Burns Node – Scar Management

Scar Management Topic	Evidence Summaries
Compression therapy	<ul style="list-style-type: none"> • Burns Scar Management: Pressure Garment Effectiveness • Clients Perspectives of Pressure Garments and Factors Determining Compliance • Facial Burns: Pressure Therapy Application • Facial Burns: Adverse Effects of Pressure Therapy
Moisturizers	<ul style="list-style-type: none"> • Burn Scar Management: Moisturizers
Silicone gel sheeting	<ul style="list-style-type: none"> • Burns/Surgical Scars: Silicone Gel Sheeting
Massage	<ul style="list-style-type: none"> • Burns/Surgical Scars: Massage
Taping	<ul style="list-style-type: none"> • Scar Management: Taping
Splinting	<ul style="list-style-type: none"> • Neck Burns: Positioning and Splinting • Burns (Lower Extremity): Positioning and Splinting
Surgical treatment	<ul style="list-style-type: none"> • Axilla Burns: Post-Surgical Care
Laser therapy	<ul style="list-style-type: none"> • Burns Scars: Lasers • Trauma Scars: Laser Therapy
Therapeutic ultrasound	<ul style="list-style-type: none"> • Scar Management: Therapeutic Ultrasound
Corticosteroids	<ul style="list-style-type: none"> • Scar (Keloid and Hypertrophic): Corticosteroids
Scar assessment	<ul style="list-style-type: none"> • Burns Scars: Assessment (Objective Tools) • Burns Scars: Assessment and Measurement (Subjective Scales)
Complications	<ul style="list-style-type: none"> • Burn Scars: Breastfeeding • Trunk Burn Injuries: Obstetric Complications

Evidence Overview – Compression Therapy

ES title	Best practice recommendations	Level of evidence/study designs
Burns Scar Management: Pressure Garment Effectiveness	<p>Given the limited evidence for effectiveness, associated costs and morbidities, clinical judgment should be used to determine whether a application of PGT is a ppropriate. (Grade B)</p> <p>Practitioner judgments should be used to determine appropriate levels of pressure required. (Grade B)</p> <p>PGTs should not be used in isolation but as part of a multi-faceted scar prevention and management strategy. (Grade B)</p> <p>Custom made pressure garments are recommended over ready-made garments. (Grade B)</p> <p>Pressure garments are to be worn 24 hours daily and removed only for hygiene and washing purposes. (Grade B)</p> <p>Pressure garments should be regularly reassessed for a dequate fit and pressure, with either adjustments made or new garment supplied as required. (Grade B)</p>	Level 1 & 5 – systematic reviews, RCTs & expert opinion articles
Clients Perspectives of Pressure Garments and Factors Determining Compliance	<p>The use of alternative materials, additional support for patients with instructions, and continued education for patients on pressure therapy are a range of measures that may improve patient compliance with pressure garments. (Grade B)</p>	Level 3 (quantitative) & Level 3 (qualitative) – Mixed methods SR & observational study
Facial Burns: Pressure Therapy Application	<p>Transparent face masks appear to have a range of advantages over other types of pressure delivery methods, and should be considered. (Grade B)</p> <p>Healthcare professionals should be aware of the impact pressure therapy may have on developing craniofacial features. (Grade B)</p>	<p>Level 3 – Observational studies</p> <p>Level 5 – Expert opinion and literature review articles</p>
Facial Burns: Adverse Effects of Pressure Therapy	<p>Practitioners need to be aware of the potential for obstructive sleep apnea to occur in patients with pressure garments on the face, particularly if they have pre-existing risks for sleep apnea. (Grade B)</p> <p>Healthcare professionals should be aware of the impact pressure therapy may have on developing craniofacial features. (Grade B)</p>	<p>Level 3 – Observational studies</p> <p>Level 4 – Case reports</p>

Evidence Overview – Additional interventions

ES title	Best practice recommendations	Level of evidence/study designs
Burn Scar Management: Moisturizers	Moisturisers for burn scar management should be non-irritant and non-deleterious to pressure garment effectiveness (i.e. aqueous rather than oil based) if applicable. In considering which moisturisers should be used, attention should be paid to patient dermatological history and preferences. (Grade B)	Level 1 – Systematic reviews
Burns/Surgical Scars: Silicone Gel Sheeting	There is some evidence to support the use of silicone gel sheeting as a preventative or management treatment for hypertrophic and keloid scars. However, this should be just one component of a multiple method approach to scar prevention and management. (Grade B) Clinical judgments should be used to determine the most appropriate wearing regimen. (Grade B) Silicone gel sheeting should only be applied once the wound has healed (i.e. skin is intact) and in accordance with the manufacturer's recommendations. (Grade B)	Level 1 & 5 – RCTs & clinical guidelines
Burns/Surgical Scars: Massage	There is some but not conclusive evidence supporting the benefits of massage in improving pigmentation, pliability, vascularity and height of scars. (Grade B) Massage can be recommended for its psychological benefits including reduction of depression and anxiety, developing patient-therapist rapport, and improving mood. (Grade B)	Level 1 & 5 – RCTs & expert opinion articles
Burns Scars: Lasers	Fractional nonablative laser resurfacing appears to be an effective treatment for burn scars, and may be considered as part of a multicomponent strategy to reduce scarring. (Grade B)	Level 1 & 3- RCTs & observational study

Rapid reviews and evidence mapping

- > Assists clinicians with identifying evidence-based strategies for implementation
- > Assists in identifying future research priorities
 - Primary and secondary research

Summary

- > Interventions that included multi-components were found to be most effective
- > Optimal management is dependent on the patient and scar characteristics
- > Academic-Clinician collaboration is invaluable to facilitate implementation of evidence in practice and highlight research priorities

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