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**Literature search results**

<table>
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<tr>
<th>Search completed for:</th>
<th>Sores associated with plaster casts</th>
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**Search details**

Sores associated with plaster casts

**Resources searched**

NICE Evidence; TRIP Database; Cochrane Library; CINAHL; MEDLINE; Google Scholar

**Database search terms:** (plaster OR synthetic OR fibreglass OR fiberglass OR blackslab* OR "back slab*" OR "of paris"), (cast OR casts OR casting), (sore* OR blister* OR ulcer* OR lesion* OR abscess*), complication*, “pressure injur*”

**Evidence search string(s):** cast* AND (sore* OR blister* OR ulcer* OR lesion* OR abscess* OR complication*)

**Google search string(s):** cast AND (sores OR blisters OR ulcers OR lesions OR abscesses OR complications)

**Guidelines and Policy**

Nothing found

**Evidence Reviews**

Nothing found
Published Research – Databases

Calamine lotion to reduce skin irritation in children with cast immobilisation.

Author(s) Mak MF, Li W, Mahadev A

Citation: Journal of Orthopaedic Surgery, August 2013, vol./is. 21/2(221-5), 1022-5536;1022-5536 (2013 Aug)

Publication Date: August 2013

Abstract: PURPOSE. To evaluate the effect of calamine lotion in reducing skin irritation in children with cast immobilisation and to identify factors correlating with skin irritation. METHODS. 250 children aged 6 to 15 years who underwent cast immobilisation for limb fractures were assigned into calamine (n=122) and non-calamine (n=128) groups. Data were collected at the time the cast was applied and removed. Potential confounders (gender, age, race, medical history, drug allergy, cast type, duration of casting, and extent of itch prior to casting) were identified. Each patient graded his levels of itch, sweat, and heat using a 5-point scale (with 5 indicating most severe). The on-duty plaster technician recorded the presence and type of skin lesions (blisters, wounds, or others) during cast removal. RESULTS. Children in the calamine group were less likely to develop skin lesions (1 vs. 9, odds ratio [OR]=0.115, p=0.009), had less itch during casting (mean difference=0.74, p<0.0001), had less itch during casting (mean difference=0.84, p=0.0001), and had lower sweat levels (p=0.048). After adjusting for confounders, the chance of developing skin lesions remained lower in the calamine group (OR=0.063, p=0.003). Being an older child and having shorter duration of casting were associated with presence of skin lesions. The odds for having skin lesions increased by 39.2% per year increase in age (OR=1.392, p=0.04) and decreased by 9.4% per day increase in casting duration (OR=0.906, p=0.03). The decrease in itch level remained significantly greater in the calamine group after adjusting for confounders (p<0.0001). CONCLUSION. Calamine lotion may reduce skin irritation in children with full casts.

Source: Medline
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Available in fulltext at Journal of Orthopaedic Surgery; Collection notes: On first login to a ProQuest journal you will need to select 'Athens (OpenAthens Federation)' from Select Region, and then 'NHS England' from Choose your Library.
Available in fulltext from Journal of Orthopaedic Surgery (10225536) at EBSCOhost

Use of polyurethane foam inside plaster casts to prevent the onset of heel sores in the population at risk. A controlled clinical study.


Citation: Journal of Clinical Nursing, March 2011, vol./is. 20/5-6(675-80), 0962-1067;1365-2702 (2011 Mar)

Publication Date: March 2011

Abstract: AIM: The aim of this study was to test the effectiveness of polyurethane foam in contact with the heel inside a plaster cast to decrease the rate of pressure sores in the population at most risk.BACKGROUND: The rate of pressure sores caused by the plaster cast is reported to be 14-15% in the paediatric population, 33.3% in patients having undergone chemotherapy for bone tumours and 43% in orthopaedic patients who already have sore skin when the cast is applied (grade 1 lesion) to the heel.DESIGN: Controlled clinical trial.METHODS: From November
2007-January 2009, all consecutive subjects requiring lower limb casts having undergone chemotherapy and/or presenting heel soreness received polyurethane foam in contact with the skin of the heel before applying the cast. The results were compared with those of patients with the same risk factors but were not administered the foam and were enrolled from May 2005-August 2006.

RESULTS: In total, 156 patients were enrolled, 85 in the control group and 71 in the experimental group. In the experimental group, 2 of the 56 patients (3.6%) with sore skin developed a pressure sore compared with 21 of 49 (42.9%) in the control group without polyurethane foam (p < 0.0005). In the experimental group, one of the 24 patients (4.2%) patients undergoing chemotherapy developed a pressure sore compared with 18 of 54 (33.3%) in the control group (p = 0.005).

CONCLUSIONS: Placing polyurethane foam in contact with the skin of the heel inside a plaster cast prevents the formation of pressure sores.

RELEVANCE TO CLINICAL PRACTICE: This study provides evidence that using polyurethane foam to prevent sores even inside plaster casts in populations at most risk is a simple and cost-effective strategy and decreases the discomfort, pain and risks in these patients. 2011 Blackwell Publishing Ltd.

Source: Medline
Available in fulltext from Journal of Clinical Nursing at EBSCOhost
Available in fulltext from Journal of Clinical Nursing at the ULHT Library and Knowledge Services' eJournal collection

Removal of a below knee plaster cast worn for 28 months: a case report.

Author(s) Ingoe H, Eastwood S, Elson DW, Young CF
Citation: Journal of Medical Case Reports [Electronic Resource], 2011, vol./is. 5/(74), 1752-1947;1752-1947 (2011)
Publication Date: 2011
Abstract: INTRODUCTION: An unusual situation in which a below knee cast was removed after 28 months is reported. To the best of our knowledge no similar cases have been reported in the literature. CASE PRESENTATION: The cast was removed from the leg of a 45-year-old Caucasian woman. Significant muscle atrophy and dense skin scales were present but the underlying skin surface was relatively healthy with only small pitted 1-2 mm ulcers. No pathogenic organisms were cultured from this environment. CONCLUSION: It seems likely that skin can tolerate cast immobilization for prolonged duration.
Source: Medline
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Cohort study of the incidence of heel pressure sores in patients with leg casts at the Rizzoli Orthopedic Hospital and of the associated risk factors [Italian]. Please note: the rest of the article will be in Italian

Author(s) Forni C, Zoli M, Loro L, Tremosini M, Mini S, Pirini V, Turrini R, Durante S, Nicolini AM, Riccioni F, Girolami R
Citation: Assistenza Infermieristica e Ricerca, 01 July 2009, vol./is. 28/3(125-130), 15925986
Publication Date: 01 July 2009
Abstract: Introduction. Pressure sores, especially at the heel, are a side effect of the cast. Aim. To assess the incidence of late skin complications (heel pressure sores) of a cast and determine risk factors. Methods. All consecutive patients treated with a leg cast over a 16 months observation time were recruited. Risk factors were identified by the nurse that placed the cast and skin lesions classified with the NPUAP scale when the cast was removed. Results. In the 216 enrolled
patients 17.6% (38) developed a pressure sore: 161124 in orthopedic wards; 22192 in oncology wards. The multivariate analysis identified the following risk factors: administration of cytotoxic drugs (P=0.033; OR=2.61; having a cancer did not increase the risk); skin redness before cast application (p=0.001; OR=4.44) and having reported symptoms after the application (p=0.000; OR=7.86). Pressure sores were mainly stage 1 and only 6/216 (2.4%) >/=stage II. The type of plaster cast, the material, the number of days it was worn and having had a surgery are not significant risk factors. Conclusions. Pressure sores related to leg plaster casts are a frequent complication in at risk sub-groups. The acknowledgement and identification of specific risk factors may allow to identify and evaluate preventive interventions to improve the care of these patients.

Source: CINAHL

**Principles of casting and splinting.**

**Author(s)** Boyd AS, Benjamin HJ, Asplund C  
**Citation:** American Family Physician, January 2009, vol./is. 79/1(16-22), 0002-838X;0002-838X (2009 Jan 1)  
**Publication Date:** January 2009  
**Abstract:** The ability to properly apply casts and splints is a technical skill easily mastered with practice and an understanding of basic principles. The initial approach to casting and splinting requires a thorough assessment of the injured extremity for proper diagnosis. Once the need for immobilization is ascertained, casting and splinting start with application of stockinette, followed by padding. Splinting involves subsequent application of a noncircumferential support held in place by an elastic bandage. Splints are faster and easier to apply; allow for the natural swelling that occurs during the acute inflammatory phase of an injury; are easily removed for inspection of the injury site; and are often the preferred tool for immobilization in the acute care setting. Disadvantages of splinting include lack of patient compliance and increased motion at the injury site. Casting involves circumferential application of plaster or fiberglass. As such, casts provide superior immobilization, but they are more technically difficult to apply and less forgiving during the acute inflammatory stage; they also carry a higher risk of complications. Compartment syndrome, thermal injuries, pressure sores, skin infection and dermatitis, and joint stiffness are possible complications of splinting and casting. Patient education regarding swelling, signs of vascular compromise, and recommendations for follow-up is crucial after cast or splint application.  
**Source:** Medline  
Available in fulltext from American Family Physician at EBSCOhost  
Available in fulltext from American Family Physician at Free Access Content

**Cast abscess: a case report.**

**Author(s)** Carmichael KD, Goucher NR  
**Citation:** Orthopaedic Nursing, March 2006, vol./is. 25/2(137-9), 0744-6020;0744-6020 (2006 Mar-Apr)  
**Publication Date:** March 2006  
**Abstract:** This report describes a case in which a pediatric patient wounded his ankle when he stuck an object inside the cast while trying to scratch himself. The wound became infected and resulted in a limb-threatening abscess. Although most patients treated with casts do not have any significant problems, it is important to emphasize cast care instructions to young patients and their parents. In addition, it may be equally important to advise patients about safe methods to alleviate itching, such as blowing cool air under the cast. In this way, the risk of serious infectious complications can be minimized.  
**Source:** Medline  
Available in fulltext from Orthopaedic Nursing at EBSCOhost  
Available in fulltext from Orthopaedic Nursing at the ULHT Library and Knowledge Services’ eJournal collection
Cast abscess.
**Author(s)** Carmichael KD, Goucher NR
**Citation:** Southern Medical Journal, September 2005, vol./is. 98/9(953-4), 0038-4348;0038-4348 (2005 Sep)
**Publication Date:** September 2005
**Source:** Medline
Available in fulltext from Southern Medical Journal at EBSCOhost

Septic shock with skin ulceration and infection after use of a synthetic hip spica cast for treatment of congenital dislocation of the hip.
**Author(s)** Kremli M
**Citation:** Annals of Saudi Medicine, May 2003, vol./is. 23/3-4(171-2), 0256-4947;0256-4947 (2003 May-Jul)
**Publication Date:** May 2003
**Source:** Medline
Available in fulltext from Annals of Saudi Medicine at Free Access Content

Google Scholar

*From the 1st fifty results:*

Cast and splint immobilization: complications
During the past three decades, internal fixation has become increasingly popular for fracture management and limb reconstruction. As a result, during their training, orthopaedic surgeons receive less formal instruction in the art of extremity immobilization and cast application and removal. Casting is not without risks and complications (eg, stiffness, pressure sores, compartment syndrome); the risk of morbidity is higher when casts are applied by less experienced practitioners. Certain materials and methods of ideal cast and splint application are recommended to prevent morbidity in the patient who is at high risk for complications with casting and splinting. Those at high risk include the obtunded or comatose multitrauma patient, the patient under anesthesia, the very young patient, the developmentally delayed patient, and the patient with spasticity.