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**Literature search results**

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<td>Lesley Firth</td>
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**Search details**


**Resources searched**

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

*Database search terms:* (nipple* OR areola*), (tattoo* OR micro-pigmentation OR micropigmentation) repigmentation, (lignocaine OR lidocaine), (inject* OR topical OR cream* OR surface), (anaesthe* OR anesthe*)

*Evidence / Google Scholar search string(s):* (nipple OR areola OR medical) (tattoo OR micropigmentation)

**Guidelines and Policy**

*Chartered Institute of Environmental Health*

Tattooing and Body Piercing Guidance, 2013

p. 15 Use of local anaesthetic medication (please note this is information for commercial tattooists so the information may not be relevant).

**Evidence Reviews**
Published Research – Databases

Three-dimensional nipple-areola tattooing: a new technique with superior results.
Author(s) Halvorson, Eric G, Cormican, Michael, West, Misti E, Myers, Vinnie
Citation: Plastic and reconstructive surgery, May 2014, vol. 133, no. 5, p. 1073-1075 (May 2014)
Publication Date: May 2014
Abstract: Traditional coloring techniques for nipple-areola tattooing ignore the artistic principles of light and shadow to create depth on a two-dimensional surface. The method presented in this article is essentially the inverse of traditional technique and results in a more realistic and three-dimensional reconstruction that can appear better than surgical methods. The application of three-dimensional techniques or "realism" in tattoo artistry has significant potential to improve the aesthetic outcomes of reconstructive surgery.
Source: Medline
Available in fulltext from Plastic & Reconstructive Surgery at the ULHT Library and Knowledge Services’ eJournal collection

Promising results after single-stage reconstruction of the nipple and areola complex.
Author(s) Børsen-Koch, Mikkel, Bille, Camilla, Thomsen, Jørn B
Citation: Danish medical journal, Oct 2013, vol. 60, no. 10, p. A4674. (October 2013)
Publication Date: October 2013
Abstract: Reconstruction of the nipple-areola complex (NAC) traditionally marks the end of breast reconstruction. Several different surgical techniques have been described, but most are staged procedures. This paper describes a simple single-stage approach. We used a technique based on a local flap for reconstruction of the nipple in combination with immediate intradermal tattooing for reconstruction of the areola. We reviewed the outcome of 22 cases of women who had simple single-stage reconstruction over a period of one year. We found no major and only two minor complications including one case of partial flap necrosis and one case of infection. Only three patients needed additional tattooing after a three-month period. The cosmetic outcome was satisfactory and none of the patients needed corrective procedures. The mean procedure time for unilateral reconstruction was 43 min. (30-50 min.). This simple single-stage NAC reconstruction seems beneficial for both patient and surgeon as it seems to be associated with faster reconstruction and reduced procedure-related time without compromising the aesthetic outcome or the morbidity associated with surgery.
Source: Medline
Available in fulltext from Danish Medical Journal at Directory of Open Access Journals

Surgical tips: areolar tattoo prior to nipple reconstruction.
Author(s) White, Colin P, Gdalevitch, Perry, Strazar, Robert, Murrill, Wayne, Guay, Nicolas A
Citation: Journal of plastic, reconstructive & aesthetic surgery: JPRAS, Dec 2011, vol. 64, no. 12, p. 1724-1726 (December 2011)
Publication Date: December 2011
Source: Medline

Patient satisfaction following nipple-areolar complex reconstruction and tattooing.
Author(s) Goh, S C J, Martin, N A, Pandya, A N, Cutress, R I
Citation: Journal of plastic, reconstructive & aesthetic surgery: JPRAS, Mar 2011,
Abstract: Nipple-areolar complex (NAC) reconstruction and tattooing complete and compliment reconstruction of the breast mound. Patient satisfaction with NAC reconstruction and tattoo, independent from breast mound reconstruction is evaluated in this study. Patients who underwent nipple tattooing between January 2001 and June 2008 were sent a postal questionnaire retrospectively. Questions included those regarding reconstruction type, patient satisfaction with NAC reconstruction and tattoo outcome, and complications. 110 patients with completed questionnaires were included from the 172 patients who were invited. Median follow up time was 38.5 months (1-86). Eighty eight percent reported overall satisfaction with their NAC reconstruction. Seventy percent of patients were satisfied with their nipple tattoos. All procedures were done in a day case setting and eighty-nine patients reported no postoperative complications. The commonest causes for disappointment were lack of projection of the NAC reconstruction and fading of tattoos. Ninety-six percent of women stated that NAC reconstruction and tattooing were important to them, and 93% of the patients would undergo the procedures again. We believe that NAC reconstruction is an important and integral part of breast reconstruction. This study should inform surgeons and patients regarding outcome, possible complications and the potential need and timing of further tattooing.

Source: Medline

Patient satisfaction and time-saving implications of a nurse-led nipple and areola reconstitution service following breast reconstruction.

Author(s) Potter, S, Barker, J, Willoughby, L, Perrott, E, Cawthorn, S J, Sahu, A K
Citation: Breast (Edinburgh, Scotland), Jun 2007, vol. 16, no. 3, p. 293-296, 0960-9776 (June 2007)
Publication Date: June 2007
Abstract: Nipple tattooing is a safe and effective technique for restoration of the nipple-areola complex following breast reconstruction and has a positive impact on patient well-being and body image. This procedure is usually performed by a surgeon, but following appropriate training, a nurse-led nipple tattooing service was established in our unit in December 2005. All 14 patients who had undergone nipple tattooing over a 6 month period were contacted by telephone and questioned about their cosmetic results and satisfaction with the service. Hundred percent of patients were 'satisfied' with their tattoo and all patients rated the nurse-led service as 'excellent'. It was estimated that 20h of consultant time was saved. Our study demonstrates that a nurse-led service is associated with both excellent cosmetic outcomes and high levels of patient satisfaction. It also results in a significant saving of consultant time allowing more effective use of clinic and theatre resources.

Source: Medline

Tattooing of the nipple-areola complex: review of outcome in 40 patients.

Author(s) El-Ali, K, Dalal, M, Kat, C C
Publication Date: January 2006
Abstract: Reconstruction of a pigmented nipple-areola complex (NAC) is one of the final steps in rehabilitating patients following mastectomy. We report the results of 40 consecutive patients who had NAC tattooing done by the same surgeon. Assessments were made both subjectively using a questionnaire, and objectively by using a computer software programme (Adobe Photoshop) to analyse the colour of the NACs. Follow up ranged between six and 24 months (mean 14 months). One patient suffered an infection, and was the only one to need repeat tattooing in our series. Thirty-seven patients (92%) reported some colour fading...
which ranged between 5% and 80% (mean 32%). A grade of good or very good was given by 33 patients (82%) for colour match, by 36 patients (90%) for overall satisfaction, and by 34 patients (85%) for enhancement in body image. An analysis of the colours of the tattooed and unoperated NACs by the software programme showed that they were similar to a value that ranged from 78% to 97% (mean 91%). Tattooing is a simple and safe procedure, and despite some colour asymmetry it still has a high satisfaction rate. It significantly improves patient's perception of body image. An objective assessment of tattooing using a computer software programme can be a useful tool in reviewing the outcome. Video clips (1-5) are included with the paper for demonstration of the tattooing technique (re-arranged from the video presented with the paper at BAPS).

Source: Medline

The patient's experience of a nurse-led nipple tattoo service: a successful program in Warwickshire.

Author(s) Clarkson, James H W, Tracey, Annette, Eltigani, Eltigani, Park, Alan
Publication Date: January 2006
Abstract: Although once the preserve of tattoo artists, units within the UK have increasingly begun making use of the Clinical Nurse Specialist (CNS) to perform areola tattooing. Bringing the technique within the Breast Unit enhances continuity of care and makes use of skills that can be provided by the CNS. Our CNS is involved with both the patients' oncological management and the areola tattoo service. The CNS-led service was investigated and patients' experiences of nipple tattooing were assessed. We present the results of a postal questionnaire and a prospective clinical audit of the procedure. Forty tattoos were done over a 2-year period with one self-limiting complication. Patient satisfaction was high both with the outcome and the experience of the procedure. Fading of the tattoo is a consistent finding frequently requiring further shading. Overall the patient's experience of a nurse lead 'in-house' tattoo service has been highly satisfactory and this is reflected by their high confidence rating and ease of access to the nurse. We believe that the role of the CNS in oncological treatment and reconstructions helps integrate the multidisciplinary experience for the patient.
Source: Medline

Micro-pigmentation: implications for patients and professionals.

Author(s) Collingridge, Kim, Calcluth, Julie
Publication Date: August 2005
Abstract: In the UK, reconstructive breast surgery is routinely offered to patients undergoing surgery for breast cancer. The results can be excellent, but without a nipple-areola complex the patient can feel incomplete. In response to patient need, an innovative nurse-led micro-pigmentation service has been developed in the authors' NHS trust, which provides women (and men) an opportunity to complete their reconstruction process. With the use of coloured pigments, micro-pigmentation creates a permanent image of a nipple-areola complex, which improves the aesthetic appearance of the surgically-created breast. As with the development of any new nurse-led innovation, the micro-pigmentation service has professional and client implications. Breast cancer can be devastating and may induce many psychological concerns, not least about body image and sexuality. This article addresses these issues, along with professional matters, such as autonomous practice, role expansion and the blurring of clinical boundaries. These factors are considered in relation to the nursing management of the micro-pigmentation service, where patient autonomy is encouraged to promote acceptance of self-image and closure on the breast cancer experience.
Micropigmentation: tattooing for medical purposes.
Author(s) Garg, Geeta, Thami, Gurvinder P
Citation: Dermatologic surgery : official publication for American Society for Dermatologic Surgery [et al.], Aug 2005, vol. 31, no. 8 Pt 1, p. 928, 1076-0512 (August 2005)
Publication Date: August 2005
Abstract: Micropigmentation, also known widely as tattooing, is being commonly used esthetically to camouflage various medical conditions related to dermatology and plastic surgery. The aim was to review the procedure of tattooing and its various latest medical indications. Peer review of the literature on micropigmentation through a MEDLINE search was done to enumerate its various medical indications. The literature review revealed widespread acceptance of micropigmentation for a spectrum of diseases of cosmetic importance, especially in mucosal vitiligo. Micropigmentation is also being used for various medical indications, such as burn scars, alopecia areata, and nipple-areola reconstruction. The procedure is relatively easy, provides permanent camouflage, and is generally devoid of any significant adverse effects. However, a number of infections can be transmitted from one patient to another if the universal precautions for sterilization of instruments used for micropigmentation are not adhered to.
Source: Medline

Nipple-areola tattooing as part of breast reconstruction.
Author(s) Hoffman, Saul, Mikell, Antonette
Publication Date: October 2004
Abstract: Tattooing of the nipple-areola complex has become standard procedure in reconstruction following a mastectomy. It is generally performed as the final stage of breast reconstruction. We began performing the procedure in 1991 and have treated more than 1,000 patients. The purpose of this article is to report on updated techniques since nipple-areola tattooing was first performed.
Source: Medline

Professional tattooing: alternative method to nipple reconstruction.
Author(s) Fourie, Le Roux, Bruce-Chwatt, Andrew
Publication Date: October 2004
Source: Medline
Available in fulltext from Plastic & Reconstructive Surgery at the ULHT Library and Knowledge Services' eJournal collection

Professional tattooing: alternative method to nipple reconstruction.
Author(s) Ho-Asjoe, M, Mallucci, P
Citation: British journal of plastic surgery, Mar 2004, vol. 57, no. 2, p. 185-186, 0007-1226 (March 2004)
Publication Date: March 2004
Source: Medline
Available in fulltext from Plastic & Reconstructive Surgery at the ULHT Library and Knowledge Services' eJournal collection
### Google Scholar

*From the 1st fifty results:*

Nothing additional found

### NHS Trust patient information leaflets

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<td>Medical Tattooing</td>
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<tr>
<td>NHS Lothian, Edinburgh Breast Unit</td>
<td>Nipple Tattoo</td>
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<tr>
<td>Queen Elizabeth Hospital Birmingham</td>
<td>Information for patients undergoing areola micro-pigmentation</td>
<td>2013</td>
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<td>(Have attached this as a PDF to your email as it’s a bit tricky to open)</td>
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<td>Gloucestershire Hospitals NHS Foundation Trust</td>
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<td>Imperial College Healthcare Trust</td>
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<td>Gateshead Health NHS Foundation</td>
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