



TITLE: Breast Reduction Surgery for Hypermastia: Clinical Effectiveness and Guidelines

DATE: 21 August 2014

RESEARCH QUESTIONS

1. What is the evidence that hypermastia causes neck, shoulder, or upper back pain in adult women?
2. What are the guidelines associated with breast reduction surgery in women?

KEY FINDINGS

One systematic review, three non-randomized studies, and three evidence-based guidelines regarding breast reduction surgery for hypermastia were identified.

METHODS

A limited literature search was conducted on key resources including PubMed, The Cochrane Library (2014, Issue 8), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were used to limit retrieval by publication type for question 1. A methodological filter was applied to limit retrieval to guidelines for question 2. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2009 and August 12, 2014. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

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SELECTION CRITERIA

Table 1: Selection Criteria

Population	Women between the ages of 30 and 60 requesting breast reduction surgery
Intervention	Breast reduction surgery
Comparator	None
Outcomes	Clinical effectiveness (i.e., reduction in neck, shoulder, and upper back pain), guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, evidence-based guidelines

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and evidence-based guidelines.

One systematic review, three non-randomized studies, and three evidence-based guidelines regarding breast reduction surgery for hypermastia were identified. No relevant health technology assessment reports or randomized controlled trials were identified.

Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

The identified systematic review¹ found that women who underwent breast reduction surgery had improved outcomes regarding musculoskeletal pain, breathing, sleep, and headaches. One non-randomized study² found that women who had larger breast tissue resection volumes had more often experienced pre-operative back pain, breast pain, shoulder grooves, rashes under the breasts, poor posture, and exercise intolerance than those who went on to have smaller resections; however, symptoms improved in both groups postoperatively. The authors concluded that breast reduction surgery improved a variety of symptoms, regardless of body surface-area calculated adjustments and breast tissue resection volume.² The remaining two non-randomized studies^{3,4} also found a postoperative improvement in breast-related symptoms, including quality of life,³ frequency of pain,³ and low-back compressive forces.⁴

One guideline⁵ suggests that breast reduction should be considered when resection weight is 500 grams or more, and that surgery is not to be considered in patients with a body mass index greater than 27.5. Two guidelines from the American Society of Plastic Surgeons^{6,7} state that resection volume is unrelated to symptom relief, and there is inconclusive evidence regarding the risk of complication associated with body mass index; ability to undergo surgery, and resection volume, should be at the discretion of the surgeon.

The guidelines⁵⁻⁷ suggest breast reduction surgery be considered for patients experiencing the following symptoms:

- back pain (upper^{6,7} or unspecified⁵⁻⁷), neck pain,⁵⁻⁷ and shoulder pain,⁵⁻⁷
- intertrigo,⁵⁻⁷ especially if unresponsive to medical intervention,^{6,7}
- shoulder grooving from bra straps,⁵⁻⁷
- socially or emotionally bothered by large breasts,⁵
- physical activity limited by breast size,⁵
- breasts are low hanging, with stretched skin and enlarged areolas,⁵
- when breasts are unsupported, nipples hang below the breast crease,⁵
- acquired thoracic kyphosis,^{6,7}
- chronic breast pain,^{6,7}
- headache,^{6,7}
- paresthesia of the upper extremities,^{6,7}
- and congenital breast deformity.^{6,7}



REFERENCES SUMMARIZED

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

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[PubMed: PM22090252](#)

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

2. Strong B, Hall-Findlay EJ. How Does Volume of Resection Relate to Symptom Relief for Reduction Mammoplasty Patients? *Ann Plast Surg.* 2014 Apr 10.
[PubMed: PM24727444](#)
3. Valtonen JP, Setala LP, Mustonen PK, Blom M. Can the efficacy of reduction mammoplasty be predicted? The applicability and predictive value of breast-related symptoms questionnaire in measuring breast-related symptoms pre- and postoperatively. *J Plast Reconstr Aesthet Surg.* 2014 May;67(5):676-81.
[PubMed: PM24508223](#)
4. Foreman KB, Dibble LE, Droke J, Carson R, Rockwell WB. The impact of breast reduction surgery on low-back compressive forces and function in individuals with macromastia. *Plast Reconstr Surg.* 2009 Nov;124(5):1393-9.
[PubMed: PM20009823](#)

Guidelines and Recommendations

5. Commissioning guide for breast reduction surgery [Internet]. London: British Association of Plastic Reconstructive and Aesthetic Surgeons; Royal College of Surgeons of England; 2013. [cited 2014 Aug 19]. Available from: <http://www.rcseng.ac.uk/healthcare-bodies/docs/bapras-breast-reduction-commissioning-guide>
See: *Introduction to Commissioning Guidance*, page 2
6. Evidence-based clinical practice guideline: reduction mammoplasty [Internet]. Arlington Heights (IL): American Society of Plastic Surgeons; 2012. [cited 2014 Aug 19]. Available from:
http://www.plasticsurgery.org/Documents/medical-professionals/health-policy/evidence-practice/Reduction_Mammoplasty_Evidence_Based_Guideline%20%282%29%282%29.pdf
See: *Diagnostic Criteria*, page 3; *Considerations for Surgical Planning*, page 3; *Effectiveness/Quality of Life*, pages 4-5
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See: *Policy, page 2*

PREPARED BY:

Canadian Agency for Drugs and Technologies in Health

Tel: 1-866-898-8439

www.cadth.ca

APPENDIX – FURTHER INFORMATION:**Non-Randomized Studies***Population Outside Age Range of Interest*

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[PubMed: PM24431933](#)

Impact on Vertebral Column and Posture

9. Karabekmez FE, Gokkaya A, Isik C, Saglam I, Efeoglu FB, Gorgu M. Does reduction mammoplasty revert skeletal disturbances in the vertebral column of patients with macromastia? A preliminary study. *Aesthetic Plast Surg*. 2014 Feb;38(1):104-12.
[PubMed: PM23949126](#)
10. Findikcioglu K, Findikcioglu F, Bulam H, Sezgin B, Ozmen S. The impact of breast reduction surgery on the vertebral column. *Ann Plast Surg*. 2013 Jun;70(6):639-42.
[PubMed: PM23123605](#)
11. Karaaslan O, Demirkiran HG, Silistreli O, Sonmez E, Bedir YK, Can M, et al. The effect of reduction mammoplasty on the vertebral column: a radiologic study. *ScientificWorldJournal* [Internet]. 2013 [cited 2014 Aug 19];2013:701391. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3767055>
[PubMed: PM24062631](#)
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[PubMed: PM23494029](#)

Guidelines – Unclear Methodology

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See: *Reduction Mammoplasty*, pages 10-11
15. Armed Forces Commissioning Policy Task and Finish Group. Interim clinical commissioning policy: Breast reduction and breast lift (Mastopexy) surgery [Internet]. Redditch, United Kingdom: NHS England; 2013 Nov 19. [cited 2014 Aug 19]. Available

from: <http://www.england.nhs.uk/wp-content/uploads/2013/11/N-SC005.pdf> Ref:N-SC/005.

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See: *Female Breast Reduction (Reduction mammoplasty)*, page 7