Oncoplastic and Reconstructive Surgery
Plastic-reconstructive aspects after mastectomy

- **Versions 2002–2017:**
  Audretsch / Bauerfeind / Blohmer / Brunnert / Dall / Fersis / Gerber / Hanf / Kümmel / Lux / Nitz / Rezai / Rody / Scharl / Solbach / Thomssen

- **Version 2018:**
  Ditsch / Lux

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Pubmed 2003 - 2017
Cochrane data base (z.B. Cochrane Breast Cancer Specialised Register)
Suchbegriffe: breast reconstruction; ... AND random allocation, ... AND cohort study

**Einteilung in EBM-Grade nach**

**Verwendete Guidelines zu Diagnostik und Therapie des Mammakarzinoms**
American Association of Clinical Oncology (ASCO) and Technology Assessments: http://www.asco.org/portal/site/ASCO/menuitem. (Practice Guidelines),
Canadian Medical Association (CMA): http://www.cmaj.ca/cgi/content/full/158/3/DC1
NCCN 2016
Regeln zur Überarbeitung der AGO Empfehlungsdias_Stand 2018
Definition of oncoplastic surgical procedures

Use of plastic surgical techniques at the time of tumor removal to enable safe resection margins and to preserve aesthetic breast contour.

Focus on favorable scar placement, adequate soft tissue formation, choice of proper reconstruction procedure (including in the context of radiation) and reconstruction of the contralateral side to achieve symmetric results.


3. Optimizing breast cancer adjuvant radiation and integration of breast and reconstructive surgery. Kuerer H, et al. ASCO Educational Book 2017; Memorial Sloan Kettering Cancer Center, Fig. 2 und 3
Breast Reconstruction Principles

AGO: ++

- Planning the reconstructive procedure by an interdisciplinary tumor board before mastectomy
- Counseling regarding all surgical techniques, including advantages and disadvantages
- Offer of a second opinion
- Discussion of neoadjuvant treatment in unfavourable tumor-breast-relation
- Consideration of the contralateral breast;
  - discuss possible alignment / sequencing surgical procedures to produce symmetry; usually after at least 3-6 months (Caveat: need for post-resections, consider effects of radiotherapy on the affected side)
- Preference for a less stressful surgical technique with long-term stable esthetic result
- Caveat: no delay in adjuvant therapy due to reconstruction

1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengewebe. Registernummer 015 – 075, Stand: 01.04.2015 , gültig bis 31.03.2020
### Postmastectomy Reconstruction

**Use of silicone gel filled breast implants**
- one step or two steps after expander
  - Safety comparable to saline implants

**Autologous tissue reconstruction**

**Pedicled tissue reconstruction**

**Free tissue reconstruction**
- (including vascular anastomoses)

**Autologous tissue procedure plus implants**

Caveat: BMI >30, smoking status, diabetes, radiotherapy, age, bilateral mastectomy

<table>
<thead>
<tr>
<th>Oxford</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
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<tbody>
<tr>
<td>Use of silicone gel filled breast implants</td>
<td>2a</td>
<td>B</td>
<td>+</td>
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<tr>
<td>one step or two steps after expander</td>
<td>2b</td>
<td>B</td>
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<tr>
<td>Safety comparable to saline implants</td>
<td>2a</td>
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<tr>
<td>Autologous tissue reconstruction</td>
<td>2a</td>
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<td>+</td>
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<tr>
<td>Pedicled tissue reconstruction</td>
<td>2a</td>
<td>B</td>
<td>+</td>
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<tr>
<td>Free tissue reconstruction (including vascular anastomoses)</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Autologous tissue procedure plus implants</td>
<td>3a</td>
<td>C</td>
<td>+</td>
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### Timing of Reconstruction

<table>
<thead>
<tr>
<th>Procedure</th>
<th>LoE</th>
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<tbody>
<tr>
<td>Immediate Breast Reconstruction</td>
<td>3b</td>
<td>B</td>
<td>++</td>
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<tr>
<td>- Mandatory: SSM/NSTM</td>
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<tr>
<td>- Avoidance of a postmastectomy syndrome</td>
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<tr>
<td>Delayed Breast Reconstruction</td>
<td>3b</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>- No interference with adjuvant procedures (CT, RT)</td>
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<td></td>
<td></td>
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<tr>
<td>- Disadvantage: loss of the skin envelope</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>„Delayed-immediate“ Breast Reconstruction</td>
<td>3b</td>
<td>B</td>
<td>+/-</td>
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9. Implant breast reconstruction and radiation: a multicenter analysis of long-term


Tissue Replacement Techniques and Meshes

- Autologous tissue (e.g. autodermal graft, TDAP §, LDF *)
- Acellular dermal matrix (ADM)
- Synthetic meshes

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<tr>
<td></td>
<td>3b</td>
<td>C</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td>2a</td>
<td>B</td>
<td>+&quot;</td>
</tr>
<tr>
<td></td>
<td>2b</td>
<td>B</td>
<td>+&quot;</td>
</tr>
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§ Thoracodorsal Arteries Perforator flap
* Latissimus dorsi flap
* Participation in registry studies recommended

8. Focus on technique: one-stage implant-based breast reconstruction. Salzberg CA. Plast


Postmastectomy Pedicled Reconstruction

Breast reconstruction (BR) with autologous tissue

- TRAM, Latissimus-dorsi-flap (both can be performed as a muscle-sparing technique)  
  3b  C  +
- Delayed TRAM in risk patients  
  3a  B  +
- Ipsilateral pedicled TRAM  
  3b  A  +
- Radiotherapy:
  - BR following radiotherapy  
    2a  B  +
  - BR prior to radiotherapy  
    2a  B  +/-
  (higher rates of fibrosis, wound healing problems, liponecrosis and reduced aesthetic outcome)


### Kind of free flap
- DIEP
- Free TRAM
- SIEA
- Glutealis flaps (SGAP, IGAP, FCI)
- Free gracilis flap (TMG)

### Advantages
- DIEP and free TRAM are potentially muscle-sparing procedures. The DIEP has a lower rate of abdominal hernias.

### Disadvantages
- Time- and personnel consuming microsurgical procedure
- Intensified postoperative monitoring
- Higher reoperation rate
- Pre-reconstruction radiotherapy increases rate of vascular complications

### Oxford LoE, GR, AGO

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<tbody>
<tr>
<td>DIEP</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Free TRAM</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>SIEA</td>
<td>3a</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Glutealis flaps</td>
<td>4</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Free gracilis</td>
<td>4</td>
<td>C</td>
<td>+/-</td>
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Stalked versus free tissue transfer

- Muscle-sparing techniques and accuracy of abdominal wall closure will lead to low rates of late donor site complications whatever method used

- Autologous abdominal-based reconstructions have the highest satisfaction in all patient groups without any difference

- Donor site morbidity (e.g. impaired muscle function) has to be taken into consideration in all flap techniques.

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### Risk-reducing bilateral mastectomy for healthy women (RRBM)

<table>
<thead>
<tr>
<th>Topic</th>
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<tbody>
<tr>
<td>RRBM reduces breast cancer incidence</td>
<td>1b</td>
<td>A</td>
<td>++</td>
</tr>
<tr>
<td>RRBM in deleterious BRCA1/2 mutation</td>
<td>2a</td>
<td>B</td>
<td>+*</td>
</tr>
<tr>
<td>RRBM in high risk situation without BRCA 1/2 mutation (individual decision depending on personal- family history and mutational status – e.g. high and moderate risk genes, Hodgkin lymphoma)</td>
<td>4</td>
<td>D</td>
<td>+/-*</td>
</tr>
<tr>
<td>High risk and no BRCA counselling in specialized centre*</td>
<td>5</td>
<td>D</td>
<td>--</td>
</tr>
<tr>
<td>Non-directive counselling prior to RRBM</td>
<td>2b</td>
<td>B</td>
<td>++*</td>
</tr>
<tr>
<td>RRBM should be considered with other prophylactic surgical options incl. bilateral salpingoophorectomy (BSO) and pre-existing diseases</td>
<td>2a</td>
<td>A</td>
<td>++*</td>
</tr>
<tr>
<td>Further need for education of physicians regarding possibilities and advantages of RRBM</td>
<td>1b</td>
<td>A</td>
<td>++</td>
</tr>
</tbody>
</table>

*Counselling, risk prediction and follow-up in specialized centres recommended*


8. Nipple-sparing mastectomy in BRCA1/2 mutation carriers: an interim analysis and