Oncoplastic and Reconstructive Surgery
Oncoplastic and Reconstructive Surgery

- **Versions 2002–2016:**
  - Audretsch / Bauerfeind / Blohmer / Brunnert / Dall / Fersis / Gerber / Hanf / Kümmel / Lux / Nitz / Rezai / Rody / Scharl / Thomssen

- **Version 2017:**
  - Kümmel / Solbach (in consens with AWOGyn)
Definition of Oncoplastic Surgery

Use of plastic surgical techniques at the time of tumor excision to enable safe resection margins and to preserve aesthetic breast contour.
Oncoplastic Breast Conserving Surgery

- Tumor adapted reduction mammoplasty  
  Oxford / AGO LoE / GR  
  2a  B  +

- Local flap techniques  
  2a  B  +

- Partial mastectomy with tissue transfer  
  3b  B  +/-

- Oncological safe  
  2a  B

- Complication rate comparable with lumpectomy  
  2a  B
Algorithm of Breast Reconstruction

Patient wishes to undergo breast reconstruction
N.B.: Habitus, breast volume, wishes

No postmastectomy radiotherapy
- SSM/NSM and implantation
  or
- MRM + tissue expander → Implantat

Postmastectomy radiotherapy indicated
- Mastectomy
  → Radiotherapy
  → Delayed autologous reconstruction

Not suitable for autologous reconstruction
E.g. too little subcutaneous fat, wishes of patient
- Prosthesis reconstruction
  Radiotherapy
  N.B.: Increased complication rate, particularly capsular fibrosis

To be discussed in individual cases:
- Immediate autologous reconstruction
  N.B.: Increased fibrosis rate
- Delayed prosthesis reconstruction
  N.B.: Increased complication rate
Breast Reconstruction
General Considerations

AGO: ++

- Counseling regarding all techniques, including techniques not offered at the own clinic, advantages and disadvantages
- Offer of a second opinion
- Consider neoadjuvant treatment in unfavourable tumor-breast-relation
- Consider adjustment surgery to achieve symmetry
- Prefer most convinient and aesthetically long lasting technique
- Caveat: delay in adjuvant treatment due to reconstruction
Postmastectomy Reconstruction

- Use of silicone filled breast implants
  - Oxford / AGO LoE / GR: 2a B +
- Autologous tissue reconstruction
  - Oxford / AGO LoE / GR: 2a B +
- Pedicled tissue reconstruction
  - Oxford / AGO LoE / GR: 2a B +
- Free tissue reconstruction
  - Oxford / AGO LoE / GR: 2a B +
- Autologous tissue combined with implants
  - Oxford / AGO LoE / GR: 3a C +

Attention: BMI >30, smoking status, diabetes, RT, age, bilateral mastectomy
Timing of Reconstruction

- **Immediate BR**
  - Mandatory: SSM / NSM
  - Avoidance of a postmastectomy syndrome

- **Delayed BR**
  - No interference with adjuvant procedures (CHT, RT)
  - Disadvantage: loss of skin envelope

- „Delayed-immediate“ BR

Oxford / AGO
LoE / GR
3b B ++
### Timing of Implant Based Reconstruction and Radiotherapy

<table>
<thead>
<tr>
<th>Procedure</th>
<th>LoE</th>
<th>Grade</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implant reconstruction (IR)</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>IR without radiotherapy (RT)</td>
<td>2a</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>IR prior to RT / following PBRT (higher complication rate)</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>IR following MX and RT</td>
<td>2b</td>
<td>B</td>
<td>+/-</td>
</tr>
<tr>
<td>IR following Mx for local relapse after BCT</td>
<td>2a</td>
<td>B</td>
<td>+/-</td>
</tr>
<tr>
<td>Periop. antibiotic therapy (at least 24 h)</td>
<td>2b</td>
<td>B</td>
<td>+</td>
</tr>
</tbody>
</table>

*MX = Mastektomie
Tissue Replacement Techniques and Meshes

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

* LDF = Latissimus dorsi flap

Oxford / AGO LoE / GR

- Autologous tissue (e.g. autodermal graft, LDF*): 3b C +#
- Acellular dermal matrix (ADM): 2b B +#
- Synthetic mesh: 2b B +#
Lipotransfer

- Lipotransfer after MX and breast reconstruction
  - Oxford / AGO LoE / GR
  - 2a B +

- Lipotransfer after breast-conserving therapy
  - 2a B +

- Autologous adipose derived stem cells (ASCs)-enriched fat grafts
  - 5 D -
Postmastectomy Pedicled Reconstruction

Reconstruction (BR) with autologous tissue

- TRAM, latissimus-dorsi-flap (both can be performed as a muscle-sparing technique)
- Delayed TRAM in risk patients
- Ipsilateral pedicled TRAM

Radiotherapy:
- BR following RT
- BR prior to RT
  (more fibrosis, more wound healing problems, more liponecrosis)

Oxford / AGO
LoE / GR

- 3b C +
- 3a B +
- 3b A +
- 2a B +/−
Free Tissue Transfer

Free tissue transfer

- DIEP-flap
- Free TRAM-flap
- SIEA-flap
- Gluteal Flaps (SGAP- / IGAP-flap/FCl)
- Free gracilis flap (TMG)

**Advantage:**
- 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 RT increases rate of vascular complications

Oxford / AGO LoE / GR

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<tr>
<td>DIEP-flap</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Free TRAM-flap</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>SIEA-flap</td>
<td>3a</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Gluteal Flaps (SGAP- / IGAP-flap/FCl)</td>
<td>4</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Free gracilis flap (TMG)</td>
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Pedicled vs. 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
Flap-Implant Combination

LDF* + implant
- IR following RT
- IR prior to RT

Other flaps + implant

Advantages:
- TRAM: staged procedure preferable
- Improved implant coverage
- Suitable for radiated tissue

Disadvantage:
- Muscle contraction (LDF)

*LDF = Latissimus dorsi flap

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<tr>
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<tr>
<td>2b</td>
<td>C</td>
</tr>
<tr>
<td>3b</td>
<td>C</td>
</tr>
<tr>
<td>5</td>
<td>D</td>
</tr>
<tr>
<td>5</td>
<td>C</td>
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Skin/Nipple Sparing Mastectomy (SSM/NSM) and Reconstruction

- **Skin sparing mastectomy (SSM/NSM)**
  - Safe (same recurrence rate as MX)
  - Higher QoL for patients
  - NAC can be preserved under special conditions
    - Feasible after mastopexy / reduction mammoplasty
  - Feasible after mastopexy / reduction mammoplasty

- **Skin incisions** ⇒ different options possible:
  - Periareolar („purse-string“; higher risk of necrosis)
  - Reduction pattern: „inverted-T“ or vertical
  - Inferior lateral approach, inframammary fold
    - Lowest incidence of complications

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**Oxford / AGO LoE / GR**

- Safe (same recurrence rate as MX) 2b B ++
- Higher QoL for patients 2b B ++
- NAC can be preserved under special conditions 2b B ++
- Feasible after mastopexy / reduction mammoplasty 4 C ++
- Lowest incidence of complications 2b B +
Risk Reducing Bilateral Mastectomy in Healthy Women (RRBM)

- RRBM reduces breast cancer incidence
- RRBM in deleterious BRCA1/2 mutation
- 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)
- High risk and no BRCA counselling in specialized centre*
- Non-directive counselling prior to RRBM
- RRBM should be considered with other prophylactic surgical options incl. bilateral salpingoophorectomy (BSO)
- Further need for education of physicians regarding possibilities and advantages of RRBM

*Study participation recommended
*Counselling, risk prediction and follow-up in specialised centres recommended

Oxford / AGO LoE / GR

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Level</th>
<th>Evidence</th>
<th>Grade</th>
</tr>
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<tbody>
<tr>
<td>RRBM reduces breast cancer incidence</td>
<td>1b</td>
<td>A</td>
<td>++</td>
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<td>D</td>
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<td>5</td>
<td>D</td>
<td>- -</td>
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<td>1b</td>
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Types of Risk Reducing (bilateral) Mastectomy (RRBM)

Risk Reducing Mastectomy reduces breast cancer incidence; bc-spec mortality reduction likely

- Simple mastectomy
- RRBM by SSM*
- RRBM by NSM* (NAC# sparing)
- Contralateral prophylactic MX

* SSM / NSM: Skin-/Nipple-Sparing Mastectomy
# NAC: Nipple-Areola-Complex
Further information and references:

Pubmed 2003 - 2016
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:

National Institute of Health (NIH) – National Cancer Institute:
http://www.cancer.gov/cancertopics/pdq/treatment/breast/HealthProfessional/
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 Empfehlungsdiags_Stand 04.08.2016
Definition of oncoplastic surgery (3/18)

Further information:

Aesthetics must play a key role in the surgery of the breast in order to avoid deformities which could have a negative impact on a patient’s self esteem irrespective of age. With the help of oncoplastic surgery free margins due to wide excisions of malignant tumors are possible without compromising the shape of the breast thus preserving physical integrity. As a result oncoplastic surgery plays an integral role in the primary surgical treatment of BC.

No references
Oncoplastic breast conserving surgery (4/18)

No further information

References:

Algorithm of Breast Reconstruction (5/21)

No further information

References:

Breast Reconstruction - General Considerations (6/18)

No further information

References:

1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengewebe. Registernummer 015 – 075, Stand: 01.04.2015 , gültig bis 31.03.2020
Postmastectomy Reconstruction (7/18)

No further information

References:

Timing of Reconstruction (8/18)

No further information

References:


Timing of Implant Based Reconstruction and Radiotherapy (9/18)

No further information

References:

8. A single pre-operative antibiotic dose is as effective as continued antibiotic prophylaxis in implant-based breast reconstruction: A matched cohort study. Townley WA1, Baluch N1, Bagher S1, Maass SW1, O'Neil A1, Zhong T1, Hofer SO2. J Plast Reconstr Aesthet Surg. 2015 May;68(5):673-8.


**Tissue replacement techniques and Meshes (10/18)**

*No further information*

**References:**

4. Clinical outcome and patient satisfaction with the use of bovine-derived acellular dermal matrix (SurgiMend™) in implant based immediate reconstruction following skin sparing mastectomy: A prospective observational study in a single centre. Headon H¹, Kasem A¹, Manson A¹, Choy C¹, Carmichael AR¹, Mokbel K². Surg Oncol. 2016 Jun;25(2):104-10.
Lipotransfer (11/18)

Further information:

Reference:

1. AWMF-Leitlinie „Autologe Fetttransplantation“, Klasse: S2k Registernummer: 009/017, 11/2015
Postmastectomy (pedicled) Reconstruction (12/18)

No further information

References:

Free Tissue Transfer (13/18)

No further information

References:


6. Tamoxifen may increase the risk of microvascular flap complications. Surgeons should consider temporarily stopping the drug 28 days before microsurgical breast reconstruction. Kelley BP Valero V Yi M Kronowitz SJ Plast Reconstr Surg. 2012 Feb;129(2):305-14


Pedicled vs. Free Tissue Transfer (14/18)

No further information

Reference:

1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengewebe. Registernummer 015 – 075, Stand: 01.04.2015 , gültig bis 31.03.2020
Flap-Implant Combination (15/18)

No further information

References:

Skin/Nipple Sparing Mastectomy (SSM/NSM) and Reconstruction (16/18)

No further information

References:


Risk Reducing Bilateral Mastectomy in Healthy Women (RRBM) (17/18)

No further information

References:


Types of Risk Reducing Mastectomy (18/18)

No further information

References:


