Guidelines Breast
Version 2020.1

FORSCHEN
LEHREN
HEILEN

Diagnosis and Treatment of Patients with early and advanced Breast Cancer

Oncoplastic and Reconstructive Surgery

Plastic-reconstructive aspects after mastectomy

- **Versions 2002–2019:**
  Audretsch / Bauerfeind / Blohmer / Brunnert / Dall / Ditsch / Fersis / Friedrich/ Gerber / Hanf / Kümmel / Lux / Nitz / Rezai / Rody / Scharl / Solbach / Thomssen
- **Version 2020:**
  Blohmer / Kühn

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

Jeremy Howick, et al. "The 2011 Oxford CEBM Evidence Levels of Evidence (Introductory Document)". Oxford Centre for Evidence-Based Medicine. http://www.cebm.net/index.aspx?o=5653

Verwendete Guidelines zu Diagnostik und Therapie des Mammakarzinoms

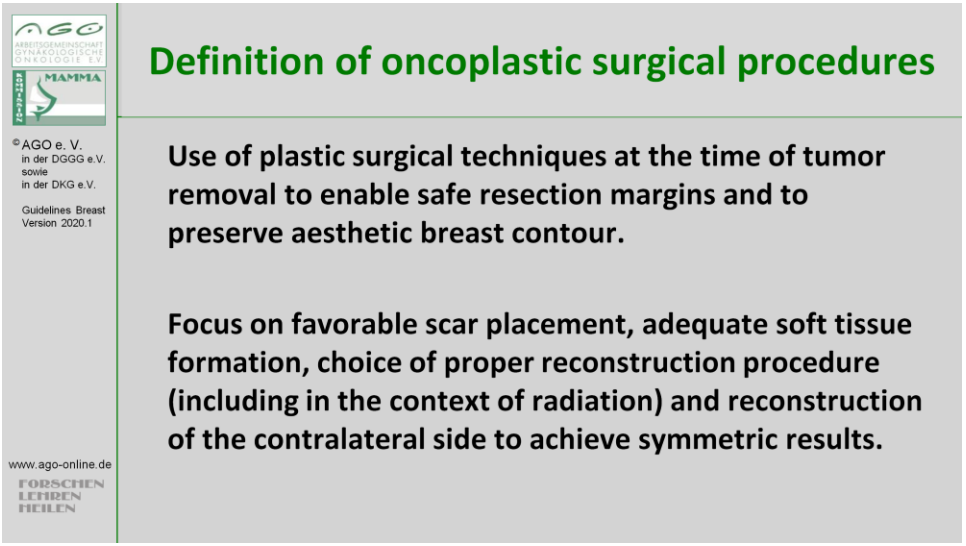
National Institute of Health (NIH) – National Cancer Institute:
http://www.cancer.gov/cancertopics/pdq/treatment/breast/HealthProfessional/

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 Empfehlungsdias_Stand 01/ 2019



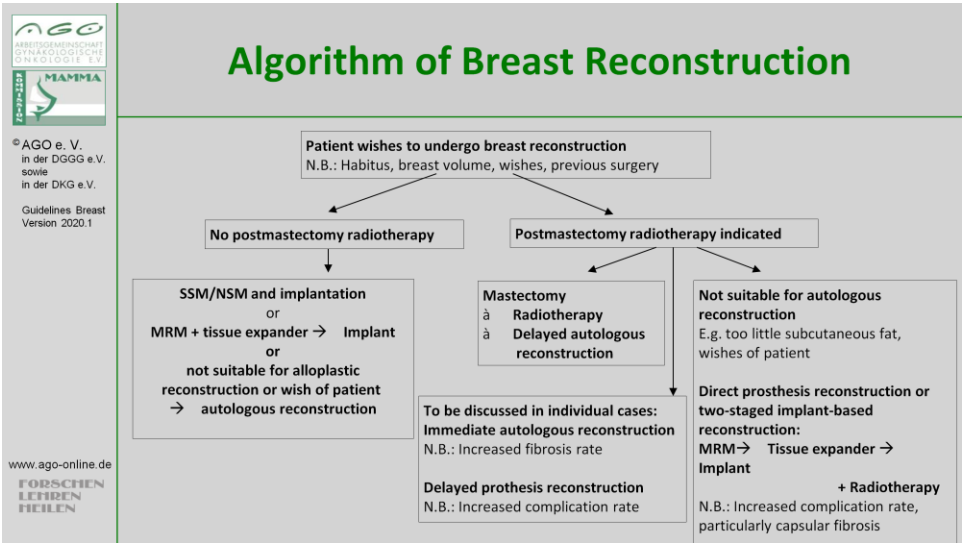
1. Oncoplastic breast surgery: comprehensive review. Bertozzi N, et al. 2017; 21(11): 2572-2585.
2. Optimizing breast cancer adjuvant radiation and integration of breast and reconstructive surgery. Kuerer H, et al. ASCO Educational Book 2017

Oncoplastic Breast Conserving Surgery

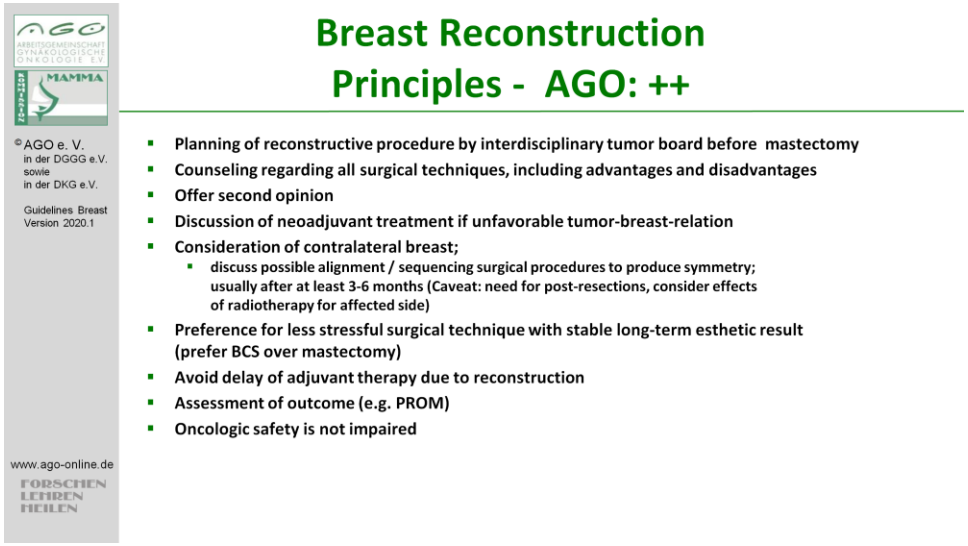
	Oxford LoE	GR	AGO
▪ Tumor-adapted reduction mammaplasty	2a	B	+
▪ Local flap techniques	2a	B	+
▪ Partial mastectomy with tissue transfer	3b	B	+/-

1. Determinants for patient satisfaction regarding aesthetic outcome and skin sensitivity after breast-conserving surgery. Dahlbäck C, et al. World J Surg Oncol. 2016; 14(1):303.
2. Oncoplastic surgery combining abdominal advancement flaps with volume displacement techniques to breast-conserving surgery for small- to medium-sized breasts. Ogawa T, et al. Breast Cancer. 2016; 23(6):932-938.
3. The role of oncoplastic breast conserving treatment for locally advanced breast tumors. A matching case-control study. Vieira RA, et al. Ann Med Surg (Lond). 2016; 10:61-8.
4. Complications of Oncoplastic Breast Surgery Involving Soft Tissue Transfer Versus Breast-Conserving Surgery: An Analysis of the NSQIP Database. Cil TD, et al. Ann Surg Oncol. 2016; 23(10):3266-71.
5. Comparative study of oncoplastic versus non-oncoplastic breast conserving surgery in a group of 211 breast cancer patients. Calì Cassi L, et al. Eur Rev Med Pharmacol Sci. 2016; 20(14):2950-4.
6. Operative and Oncologic Outcomes in 9861 Patients with Operable Breast Cancer: Single-Institution Analysis of Breast Conservation with Oncoplastic Reconstruction. Carter SA, et al. Ann Surg Oncol. 2016; 23(10):3190-8.

7. Outcomes After Oncoplastic Breast-Conserving Surgery in Breast Cancer Patients: A Systematic Literature Review. De La Cruz L, et al. Ann Surg Oncol. 2016; 23(10):3247-58.
8. Oncoplastic breast conserving surgery and oncological outcome: Systematic review. Yiannakopoulou EC, et al. 2016; 42(5):625-30.
9. Oncoplastic reduction mammoplasty for breast cancer in women with macromastia: Oncological long-term outcomes. Emiroglu M, et al. Asian J Surg. 2017; 40(1):41-47.
10. Patient-reported cosmetic satisfaction and the long-term association with quality of life in irradiated breast cancer patients. M. C. T. Batenburg1 · M. L. Gregorowitsch1 · W. Maarse · et al. on behalf of the UMBRELLA study group. Breast Cancer Research and Treatment https://doi.org/10.1007/s10549-019-05470-y

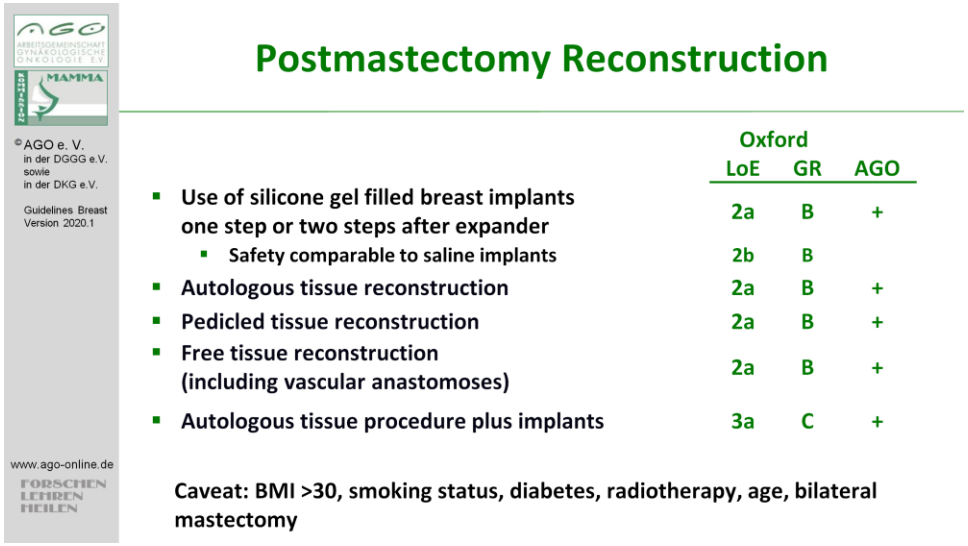


1. Radiation and breast reconstruction: Algorithmic approach and evidence-based outcomes. El-Sabawi B, et al. J Surg Oncol. 2016; 113(8):906-12.
2. Breast Reconstruction Following Cancer Treatment. Gerber B, et al. Dtsch Arztebl Int. 2015; 112(35-36):593-600
3. Optimizing breast cancer adjuvant radiation and integration of breast and reconstructive surgery. Kuerer H, et al. ASCO Educational Book 2017; Memorial Sloan Kettering Cancer Center, Fig. 2 und 3
4. What is the optimum timing of postmastectomy radiotherapy in two-stage prosthetic reconstruction: radiation to the tissue expanderor permanent implant? Cordeiro PG, et al. Plast Reconstr Surg. 2015



1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengewebe. Registernummer 015 – 075, Stand: 01.04.2015 , gültig bis 31.03.2020
2. Oncoplastic breast surgery: comprehensive review. Bertozzi N, et al. Eur Rev Med Pharmacol Sci. 2017; 21(11):2572-2585.
3. Oncologic safety of nipple-sparing mastectomy in women with breast cancer. Smith BL, et al. J Am Coll Surg
4. Nipple-sparing mastectomy and direct to implant breast reconstruction. Colwell AS, et al. Plast Reconstr Surg. 2017; 140(5S Advances in Breast Reconstruction):44S-50S.
5. Impact of Breast Reconstruction on Time to Definitive Surgical Treatment, Adjuvant Therapy, and Breast Cancer Outcomes. Brice Jabo, Ann C. Lin, Mayada A. Aljehani et al.: Ann Surg Oncol. 2018 Oct;25(10):3096-3105.
6. Patient reported outcome measures (PROMs) following mastectomy with breast reconstruction or without reconstruction: a systematic review Leonardo Z. Cordova, David J. Hunter-Smith, Warren M. Rozen. Gland Surg 2019;8(4):441-451

7. A Meta-analysis of Clinical, Patient-Reported Outcomes and Cost of DIEP versus Implant-based Breast Reconstruction. Ankur Khajuria, Max Prokopenko, Max Greenfield et al. Plast Reconstr Surg Glob Open 2019;7:e2486
8. The use of Patient Reported Outcome Measures in assessing patient outcomes when comparing autologous to alloplastic breast reconstruction: a systematic review. Robert Phan, David J. Hunter-Smith, Warren M. Rozen. Gland Surg 2019;8(4):452-460

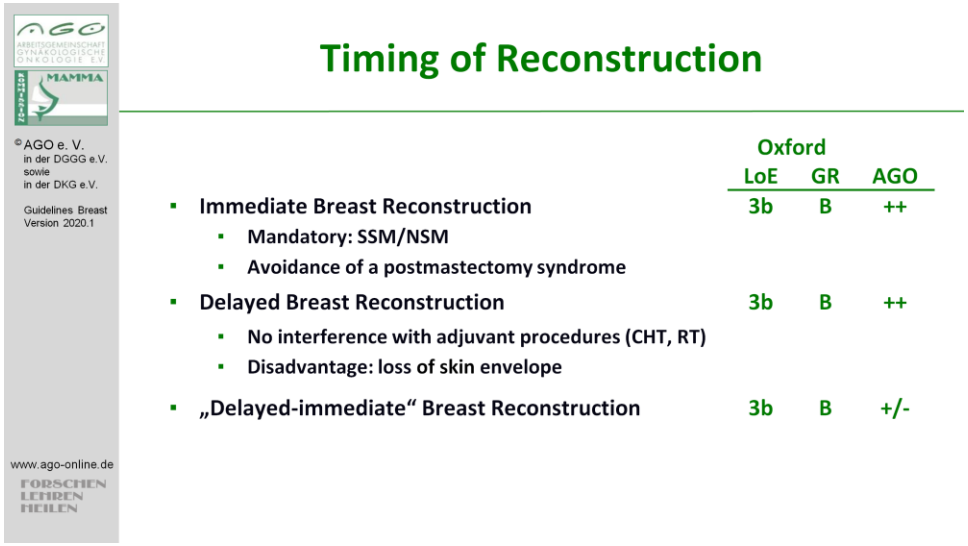


Postmastectomy Reconstruction

	Oxford LoE	Oxford GR	AGO
▪ Use of silicone gel filled breast implants one step or two steps after expander	2a	B	+
▪ Safety comparable to saline implants	2b	B	
▪ Autologous tissue reconstruction	2a	B	+
▪ Pedicled tissue reconstruction	2a	B	+
▪ Free tissue reconstruction (including vascular anastomoses)	2a	B	+
▪ Autologous tissue procedure plus implants	3a	C	+

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

1. Complications in Postmastectomy Breast Reconstruction: One-year Outcomes of the Mastectomy Reconstruction Outcomes Consortium (MROC) Study. Wilkins EG, et al. Ann Surg. 2016 [Epub ahead of print]
2. Comparison of subcutaneous versus submuscular expander placement in the first stage of immediate breast reconstruction. Zhu L, et al. J Plast Reconstr Aesthet Surg. 2016; 69(4):e77-86.
3. Five-Year Safety Data for More than 55,000 Subjects following Breast Implantation: Comparison of Rare Adverse Event Rates with Silicone Implants versus National Norms and Saline Implants. Singh N, et al. Plast Reconstr Surg. 2017; 140(4):666-679.
4. Short-term safety outcomes of mastectomy and immediate implant-based breast reconstruction with and without mesh (iBRA): a multicentre, prospective cohort study. Shelley Potter, Elizabeth J Conroy, Ramsey I Cutress, Paula R Williamson et al.: Lancet Oncol. 2019 Jan 9. pii: S1470-2045(18)30781-2.
5. Comparison of Saline Expanders and Air Expanders for Breast Reconstruction. Porter BE1, Vonu PM, Mast BA. Ann Plast Surg. 2019 Dec 19. doi: 10.1097/SAP.0000000000002154. [Epub ahead of print]



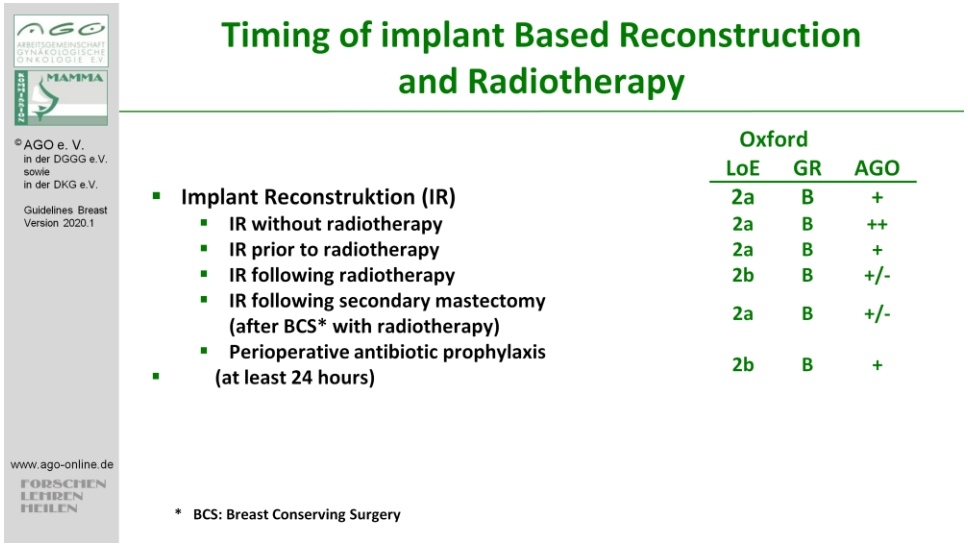
Timing of Reconstruction

	Oxford LoE	GR	AGO
▪ Immediate Breast Reconstruction	3b	B	++
▪ Mandatory: SSM/NSM			
▪ Avoidance of a postmastectomy syndrome			
▪ Delayed Breast Reconstruction	3b	B	++
▪ No interference with adjuvant procedures (CHT, RT)			
▪ Disadvantage: loss of skin envelope			
▪ „Delayed-immediate“ Breast Reconstruction	3b	B	+/-

1. Complications After Mastectomy and Immediate Breast Reconstruction for Breast Cancer: A Claims-Based Analysis. Jagsi R, et al. Ann Surg. 2016; 263(2):219-27.
2. What Is the Optimum Timing of Postmastectomy Radiotherapy in Two-Stage Prosthetic Reconstruction: Radiation to the Tissue Expander or Permanent Implant? Maione L, et al. Plast Reconstr Surg. 2016; 138(1):150e-1e.
3. Comparison of Delayed and Immediate Tissue Expander Breast Reconstruction in the Setting of Postmastectomy Radiation Therapy. Ribuffo D, et al. Ann Plast Surg. 2016; 76(6):743-4.
4. Impact of bilateral versus unilateral mastectomy on short term outcomes and adjuvant therapy, 2003–2010: a report fromt he National Cancer Data Base. Sharpe SM, et al. Ann Surg Oncol. 2014; 21:2920–7.
5. A Comparison of Surgical Complications Between Immediate Breast Reconstruction and Mastectomy: The Impact on Delivery of Chemotherapy-An Analysis of 391 Procedures. Zhong T, et al. Ann Surg Oncol. 2012; 19(2):560-6.
6. Immediate versus delayed reconstruction following surgery for breast cancer. D'Souza N, et al.

Cochrane Database Syst Rev. 2011; (7):CD008674.

7. Direct to implant versus two stage tissue expander/implant reconstruction: 2 year risks and patient reported outcomes from a prospective, multicenter study. Srinivasa DR, et al. Plast Reconstr Surg. 2017; 140(5):869-877.
8. Quality of life and patient satisfaction after one-stage implant-based breast reconstruction with an acellular dermal matrix versus two-stage breast reconstruction (BRIOS): primary outcome of a randomised, controlled trial. Vera Lidwina Negenborn, Danny Aschwin Young-Afat, Rieky Elise Gustina Dikmans et al: Lancet Oncol. 2018 Sep;19(9):1205-1214.

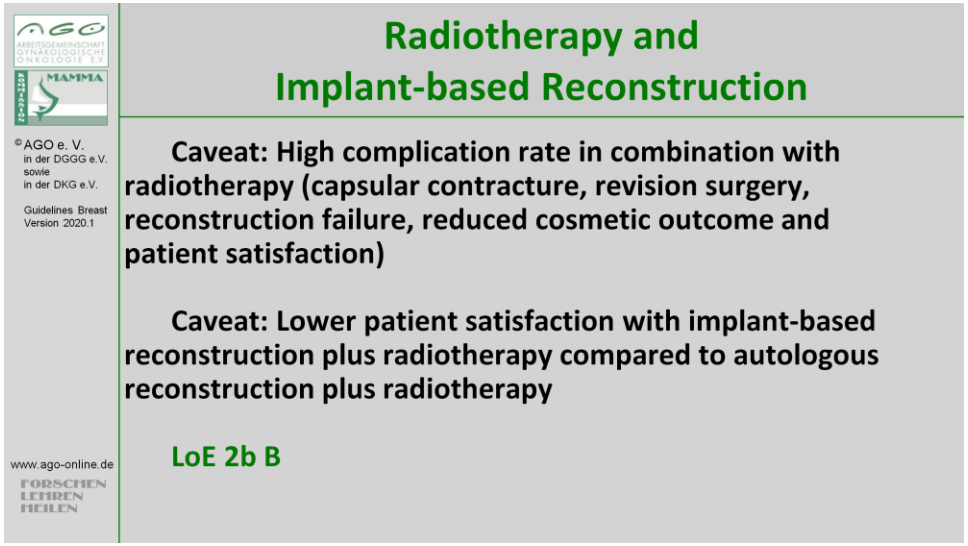


1. Postmastectomy Radiation Therapy and Two-Stage Implant-Based Breast Reconstruction: Is There a Better Time to Irradiate? Santosa KB, et al. Plast Reconstr Surg. 2016; 138(4):761-9.
2. What Is the Optimum Timing of Postmastectomy Radiotherapy in Two-Stage Prosthetic Reconstruction: Radiation to the Tissue Expander or Permanent Implant? Maione L, et al. Plast Reconstr Surg. 2016; 138(1):150e-1e.
3. Radiation and breast reconstruction: Algorithmic approach and evidence-based outcomes. El-Sabawi B, et al. J Surg Oncol. 2016; 113(8):906-12.
4. Antibiotic Prophylaxis following Implant-Based Breast Reconstruction: What Is the Evidence? Phillips BT, Halvorson EG. Plast Reconstr Surg. 2016; 138(4):751-7.
5. Discussion: Antibiotic Prophylaxis following Implant-Based Breast Reconstruction: What Is the Evidence? Hunter JG. Plast Reconstr Surg. 2016; 138(4):758-9.
6. Are Prophylactic Postoperative Antibiotics Necessary for Immediate Breast Reconstruction? Results of a Prospective Randomized Clinical Trial. Phillips BT, et al. J Am Coll Surg. 2016; 222(6):1116-24.
7. Prosthetic breast reconstruction in previously irradiated breasts: A meta-analysis. Lee KT, Mun GH. J

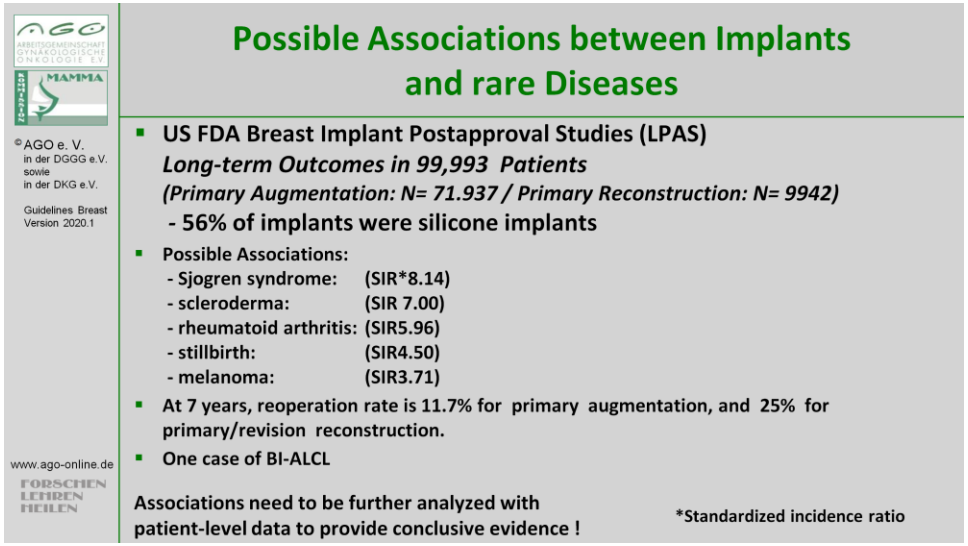
Surg Oncol. 2015; 112(5):468-75.

8. A single pre-operative antibiotic dose is as effective as continued antibiotic prophylaxis in implant-based breast reconstruction: A matched cohort study. Townley WA, et al. J Plast Reconstr Aesthet Surg. 2015; 68(5):673-8.
9. Implant breast reconstruction and radiation: a multicenter analysis of long-term health-related quality of life and satisfaction. Albornoz CR, et al. Ann Surg Oncol. 2014; 21(7):2159-64.
10. Acellular dermal matrices and radiotherapy in breast reconstruction: a systematic review and meta-analysis of the literature. Valdatta L, et al. Plast Surg Int. 2014; 472604.
11. A systematic review of morbidity associated with autologous breast reconstruction before and after exposure to radiotherapy: are current practices ideal? Kelley BP, et al. Ann Surg Oncol. 2014; 21(5):1732-8.
12. Reconstruction: before or after postmastectomy radiotherapy? A systematic review of the literature. Berbers J, et al. Eur J Cancer. 2014; 50(16):2752-62.
13. Radiotherapy in implant-based immediate breast reconstruction: risk factors, surgical outcomes, and patient-reported outcome measures in a large Swedish multicenter cohort. Eriksson M, et al. Breast Cancer Res Treat. 2013; 142(3):591-601.
14. Delayed autologous breast reconstruction after postmastectomy radiation therapy: is there an optimal time? Momoh AO, et al. Ann Plast Surg. 2012; 69(1):14-8.
15. Extended trimethoprim/sulfamethoxazole prophylaxis for implant reconstruction in the previously irradiated chest wall. Mirzabeigi MN, et al. Plast Reconstr Surg. 2012; 129(1):1e-7e.
16. Radiotherapy and breast reconstruction: a meta-analysis. Barry M, Kell MR. Breast Cancer Res Treat. 2011; 127(1):15-22.
17. Determining the outcomes of post-mastectomy radiation therapy delivered to the definitive implant in patients undergoing one- and two-stage implant-based breast reconstruction: A systematic review and meta-analysis. Magill LJ, et al. J Plast Reconstr Aesthet Surg. 2017; 70(10):1329-1335.
18. Impact of Radiotherapy on Complications and Patient-Reported Outcomes After Breast Reconstruction. Jagsi R, et al. J Natl Cancer Inst. 2018; 110(2).
19. Patient-reported cosmetic satisfaction and the long-term association with quality of life in irradiated breast cancer

patients M. C. T. Batenburg · M. L. Gregorowitsch· W. Maarse· A et al. behalf of the UMBRELLA study group.Breast Cancer Research and Treatment https://doi.org/10.1007/s10549-019-05470-y



1. Determining the outcomes of post-mastectomy radiation therapy delivered to the definitive implant in patients undergoing one- and two-stage implant-based breast reconstruction: A systematic review and meta-analysis. Magill LJ, et al. J Plast Reconstr Aesthet Surg. 2017; 70(10):1329-1335.
2. Impact of Radiotherapy on Complications and Patient-Reported Outcomes After Breast Reconstruction. Jagsi R, et al. J Natl Cancer Inst. 2018; 110(2).
3. Impact of Postmastectomy Radiation Therapy in Prepectoral Versus Subpectoral Implant-Based Breast Reconstruction. Catherine J. Sinnott, Sarah M. Persing, Mary Pronovost et al.: Ann Surg Oncol. 2018 Oct;25(10):2899-2908.



New Background slide

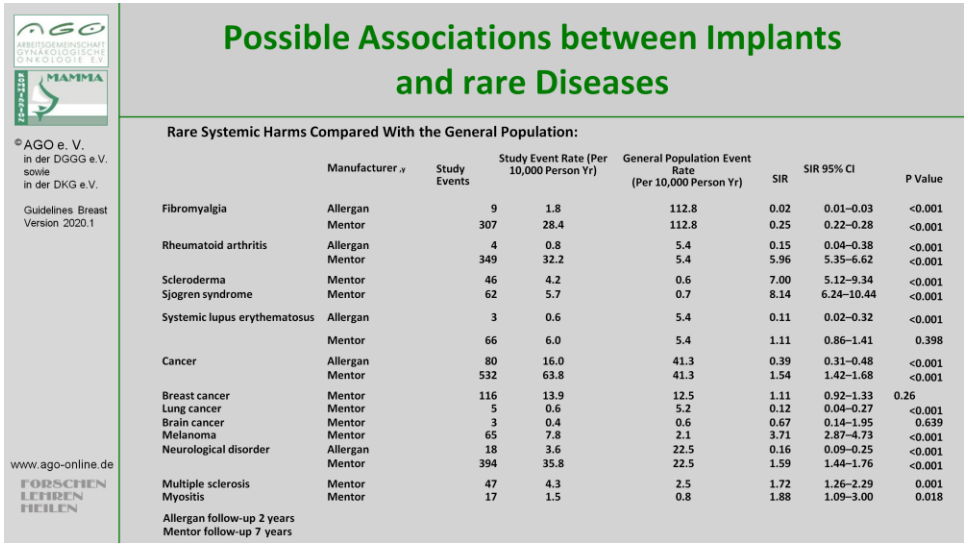
Statistical Analysis:

LPAS data is expressed relative to normative population rates using standardized incidence ratios (SIRs)

Systemic harm rates in the study population are calculated per 10,000 person-years.

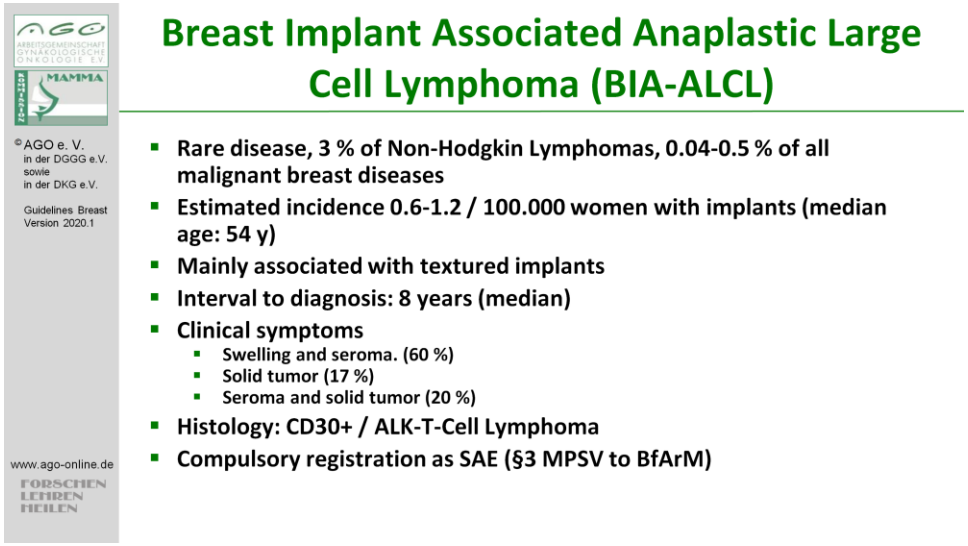
Normative population rates for systemic harms, self-harm, and reproductive outcomes are obtained from the literature; rates reflect LPAS demographics for female sex, age, and race in the United States.

1. Coroneos CJ[1], Selber JC, Offodile AC 2nd et al.: US FDA Breast Implant Postapproval Studies: Long-term Outcomes in 99,993 Patients. Ann Surg. 2019 Jan;269(1):30-36.



New Background slide

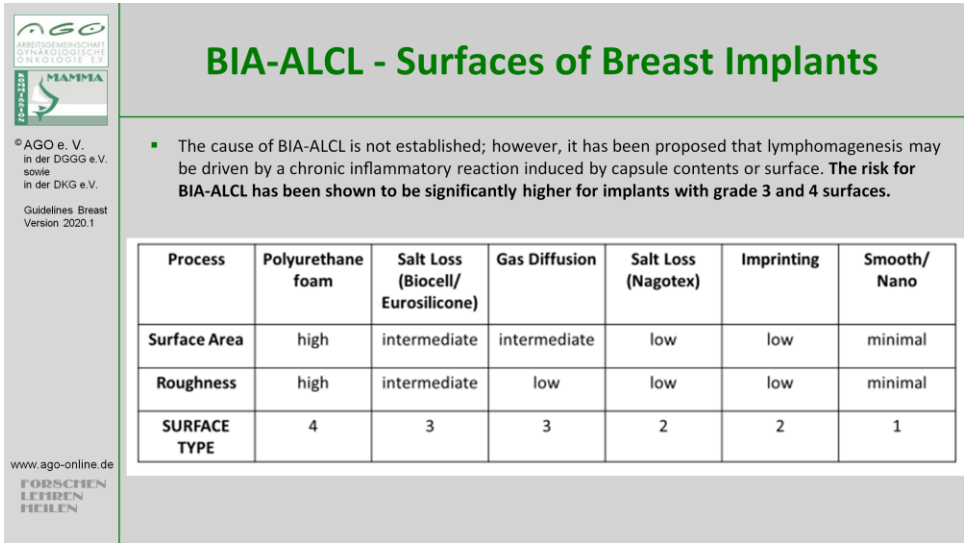
1. Coroneos CJ, Selber JC, Offodile AC 2nd et al.: US FDA Breast Implant Postapproval Studies: Long-term Outcomes in 99,993 Patients. Ann Surg. 2019 Jan;269(1):30-36.



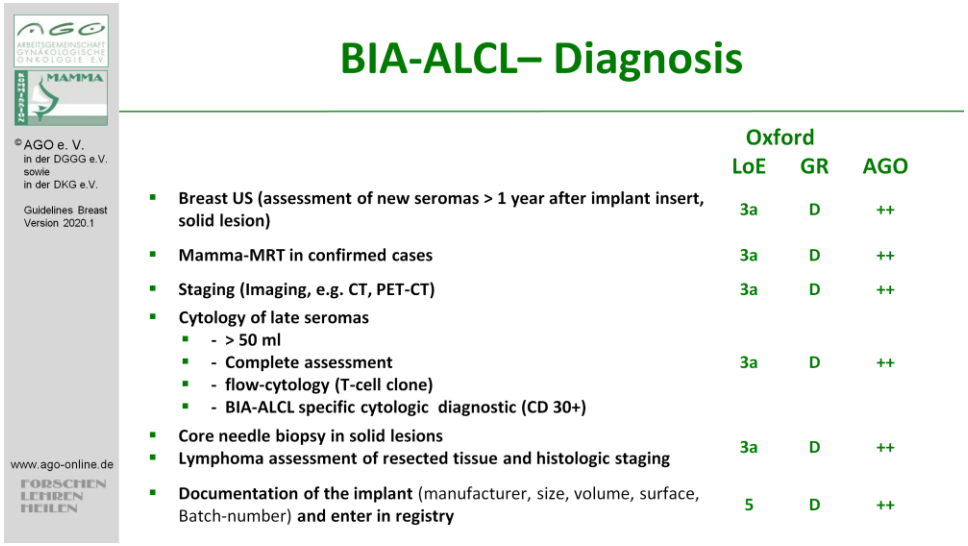
Reviews

1. Kim, B., Predmore, Z. S., Mattke, S., et al. (2015). Breast Implant-associated Anaplastic Large Cell Lymphoma: Updated Results from a Structured Expert Consultation Process. Plastic and Reconstructive Surgery. Global Open, 3(1), e296. http://doi.org/10.1097/GOX.0000000000000268
2. Eaves, F., & Nahai, F. (2011). Anaplastic large cell lymphoma and breast implants: FDA report. Aesthetic Surgery Journal, 31(4), 467–468. http://doi.org/10.1177/1090820X11407872
3. Rupani, A., Frame, J. D., & Kamel, D. (2015). Lymphomas Associated with Breast Implants: A Review of the Literature. Aesthetic Surgery Journal, 35(5), 533–544. http://doi.org/10.1093/asj/sjv016
4. Clemens, M. W., & Miranda, R. N. (2015). Commentary on: Lymphomas Associated With Breast Implants: A Review of the Literature. Aesthetic Surgery Journal, 35(5), 545–547. http://doi.org/10.1093/asj/sjv056
5. Gidengil, C. A., Predmore, Z., Mattke, S., et al. (2015). Breast implant-associated anaplastic large cell lymphoma: a systematic review. Plast Reconstr Surg, 135(3), 713–720. http://doi.org/10.1097/PRS.0000000000001037

6. Brody, G. S., Deapen, D., Taylor, C. R., et al. (2015). Anaplastic large cell lymphoma occurring in women with breast implants: analysis of 173 cases. Plast Reconstr Surg, 135(3), 695–705. http://doi.org/10.1097/PRS.0000000000001033
7. Miranda, R. N., Aladily, T. N., Prince, H. M., et al. (2014). Breast implant-associated anaplastic large-cell lymphoma: long-term follow-up of 60 patients. Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology, 32(2), 114–120. http://doi.org/10.1200/JCO.2013.52.7911
8. Blohmer, J.-U., Sinn, H.P., (2017). Zum möglichen Zusammenhang von Brustsilikonimplantatenn und dem Auftreten von Lymphomen. 243rd Statement by the German Society of Gynecology and Obstetrics (DGGG) in Response to the call for Data on the Safety of PIP Silicone Breast Implants and the Possible Association between Breast Implants and ALCL by the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER) of the European Commission. Geburtshilfe Frauenheilkd, 77(06):617, doi:10.1055/s-0043-106280.
9. Leberfinger, A.N., Behar, B.J., Williams, N.C., et al. (2017). JAMA Surg.Breast Implant-Associated Anaplastic Large Cell Lymphoma: A Systematic Review. 152(12):1161-1168. doi: 10.1001/jamasurg.2017.4026.
10. Kricheldorff, J., Fallenberg, E.M., Solbach, C., et al. (2018). Breast Implant-Associated Lymphoma. Dtsch Arztebl Int.;115(38):628-635. doi: 10.3238/arztebl.2018.0628.



1. Jones P, Mempin M, Hu H, et al. The functional influence of breast implant outer shell morphology on bacterial attachment and growth. Plast Reconstr Surg. 2018;142:837–849
2. Collett DJ, Rakhorst H, Lennox P,et al.: Current Risk Estimate of Breast Implant-Associated Anaplastic Large Cell Lymphoma in Textured Breast Implants. Plast Reconstr Surg. 2019 Mar;143(3S A Review of Breast Implant-Associated Anaplastic Large Cell Lymphoma):30S-40S. doi: 10.1097/PRS.0000000000005567.
3. Wiley J, Histopathology 2019: 75, 787–796.
4. Breast Implant-Associated Anaplastic Large Cell Lymphoma in Australia: A Longitudinal Study of Implant and Other Related Risk Factors. Anand K Deva, BSc (Med), MBBS, MS, FRACS, Anna Loch-Wilkinson, MBBS, FRACS, H Miles Prince, MD, FRACP, FRACPA, ADRACMA, MACD et al. © 2019 The American Society for Aesthetic Plastic Surgery, Inc. Reprints and permission: journals.permissions@oup.com



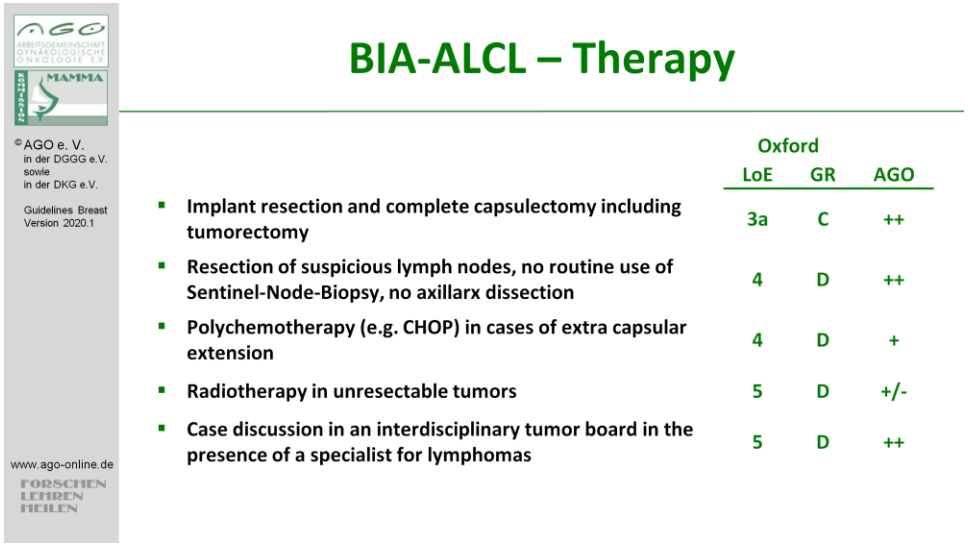
BIA-ALCL– Diagnosis

	Oxford LoE	Oxford GR	AGO
▪ **Breast US (assessment of new seromas > 1 year after implant insert, solid lesion)**	3a	D	++
▪ **Mamma-MRT in confirmed cases**	3a	D	++
▪ **Staging (Imaging, e.g. CT, PET-CT)**	3a	D	++
▪ **Cytology of late seromas** ▪ **- > 50 ml** ▪ **- Complete assessment** ▪ **- flow-cytology (T-cell clone)** ▪ **- BIA-ALCL specific cytologic diagnostic (CD 30+)**	3a	D	++
▪ **Core needle biopsy in solid lesions** ▪ **Lymphoma assessment of resected tissue and histologic staging**	3a	D	++
▪ **Documentation of the implant** (manufacturer, size, volume, surface, Batch-number) **and enter in registry**	5	D	++

1. Clemens, M. W., Medeiros, L. J., Butler, C. E., et al. (2016). Complete Surgical Excision Is Essential for the Management of Patients With Breast Implant-Associated Anaplastic Large-Cell Lymphoma. Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology, 34(2), 160–168. http://doi.org/10.1200/JCO.2015.63.3412
2. Laurent, C., Delas, A., Gaulard, Pet al. (2016). Breast implant-associated anaplastic large cell lymphoma: two distinct clinicopathological variants with different outcomes. Annals of Oncology, 27(2), 306–314. http://doi.org/10.1093/annonc/mdv575
3. Hoda, S., Rao, R., & Hoda, R. S. (2015). Breast implant-associated anaplastic large cell lymphoma. International Journal of Surgical Pathology, 23(3), 209–210. http://doi.org/10.1177/1066896915576406
4. Weathers, W. M., Wolfswinkel, E. M., Hatef, D. A. et al. (2013). Implant-associated anaplastic large cell lymphoma of the breast: Insight into a poorly understood disease. The Canadian Journal of Plastic Surgery, 21(2), 95–98.
5. Granados, R., Lumbreras, E. M., Delgado, M. C. et al (2016). Cytological Diagnosis of Bilateral Breast Implant-Associated Lymphoma of the ALK-Negative Anaplastic Large-Cell Type. Clinical Implications

of Peri-Implant Breast Seroma Cytological Reporting. Diagnostic Cytopathology, 44(7), 623–627. http://doi.org/10.1002/dc.23485

6. Talagas, M., Uguen, A., Charles-Petillon, F., et al. (2014). Breast implant-associated anaplastic large-cell lymphoma can be a diagnostic challenge for pathologists. Acta Cytol, 58(1), 103–107. http://doi.org/10.1159/000355861
7. Clemens MW, Jacobsen ED, Horwitz SM. 2019 NCCN Consensus Guidelines on the Diagnosis and Treatment of Breast Implant-Associated Anaplastic Large Cell Lymphoma (BIA-ALCL). Aesthet Surg J. 2019 Jan 31;39(Supplement_1):S3-S13.
8. Cardoso MJ, Wyld L, Rubio IT, et al EUSOMA position regarding breast implant associated anaplastic large cell lymphoma (BIA-ALCL) and the use of textured implants. Breast. 2019 Apr;44:90-93. doi: 10.1016/j.breast.2019.01.011. Epub 2019 Jan 26.
9. NCCN Consensus Guidelines 1.2020, Breast Implant-Asociated Anaplastic Large Cell Lymphoma.



BIA-ALCL – Therapy

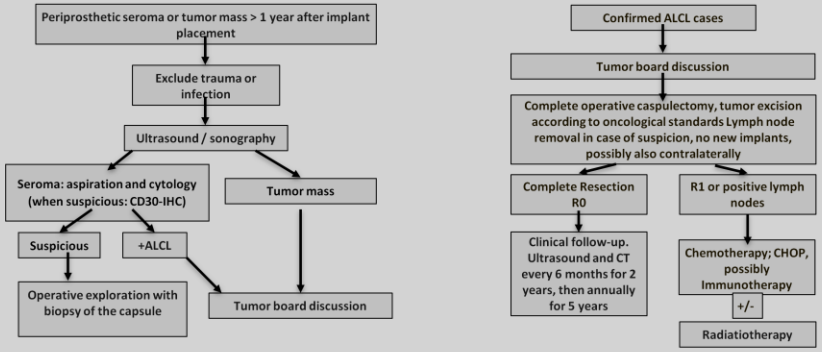
	Oxford LoE	GR	AGO
▪ Implant resection and complete capsulectomy including tumorectomy	3a	C	++
▪ Resection of suspicious lymph nodes, no routine use of Sentinel-Node-Biopsy, no axillarx dissection	4	D	++
▪ Polychemotherapy (e.g. CHOP) in cases of extra capsular extension	4	D	+
▪ Radiotherapy in unresectable tumors	5	D	+/-
▪ Case discussion in an interdisciplinary tumor board in the presence of a specialist for lymphomas	5	D	++

1. Clemens, M. W., Medeiros, L. J., Butler, C. E., et al. (2016). Complete Surgical Excision Is Essential for the Management of Patients With Breast Implant-Associated Anaplastic Large-Cell Lymphoma. Journal of Clinical Oncology : Official Journal of the American Society of Clinical Oncology, 34(2), 160–168. http://doi.org/10.1200/JCO.2015.63.3412
2. Gidengil, C. A., Predmore, Z., Mattke, S., et al. (2015). Breast implant-associated anaplastic large cell lymphoma: a systematic review. Plast Reconstr Surg, 135(3), 713–720. http://doi.org/10.1097/PRS.0000000000001037
3. Kim, B., Predmore, Z. S., Mattke, S., et al. (2015). Breast Implant-associated Anaplastic Large Cell Lymphoma: Updated Results from a Structured Expert Consultation Process. Plastic and Reconstructive Surgery. Global Open, 3(1), e296. http://doi.org/10.1097/GOX.0000000000000268.
4. Johnson, L., O'Donoghue, J.M., McLean, N., et al. (2017). Breast implant associated anaplastic large cell lymphoma: The UK experience. Recommendations on its management and implications for informed consent. Eu J Surg Oncol. 2017;43:1393-1401. doi: 10.1016/j.ejso.2017.05.004. Epub 2017 May 18.
5. Mehta-Shah, N., Clemens, M.W., Horwitz, S.M. (2018). How I treat breast implant-associated

anaplastic large cell lymphoma. Blood, 2018 Nov 1;132(18):1889-1898. doi: 10.1182/blood-2018-03-785972. Epub 2018 Sep 12.

6. Horwitz, S.M., Ansell, S.M., Ai, W.Z, et al. (2018). NCCN guidelines insights: non-Hodgkin's lymphomas, version 2.2018. J Natl Compr Canc Netw. 16(2):123-135. doi: 10.6004/jnccn.2018.0007.
7. NCCN Consensus Guidelines 1.2020, Breast Implant-Asociated Anaplastic Large Cell Lymphoma.

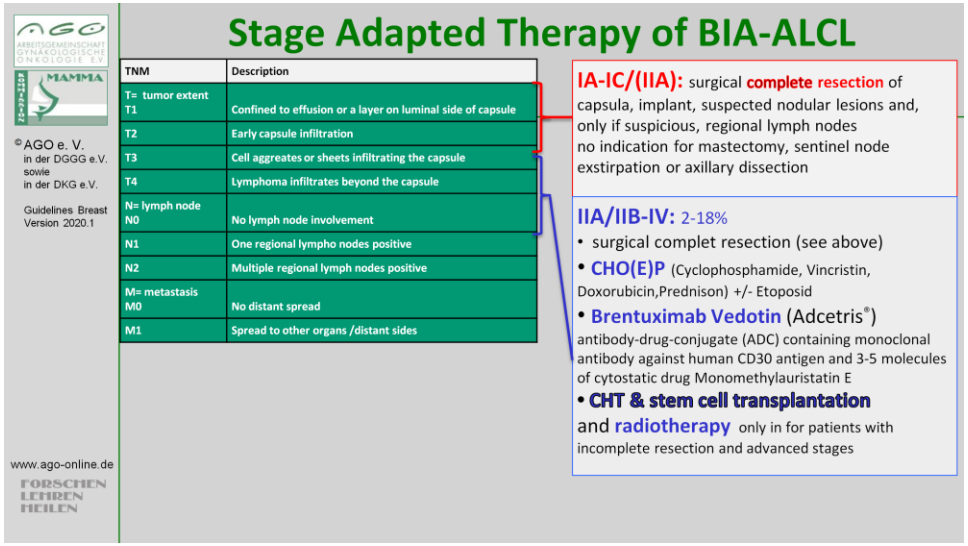
Breast Implant-Associated Anaplastic Large-Cell Lymphoma (BIA-ALCL)
- Summary of the Management (acc. to Noah 2017) -



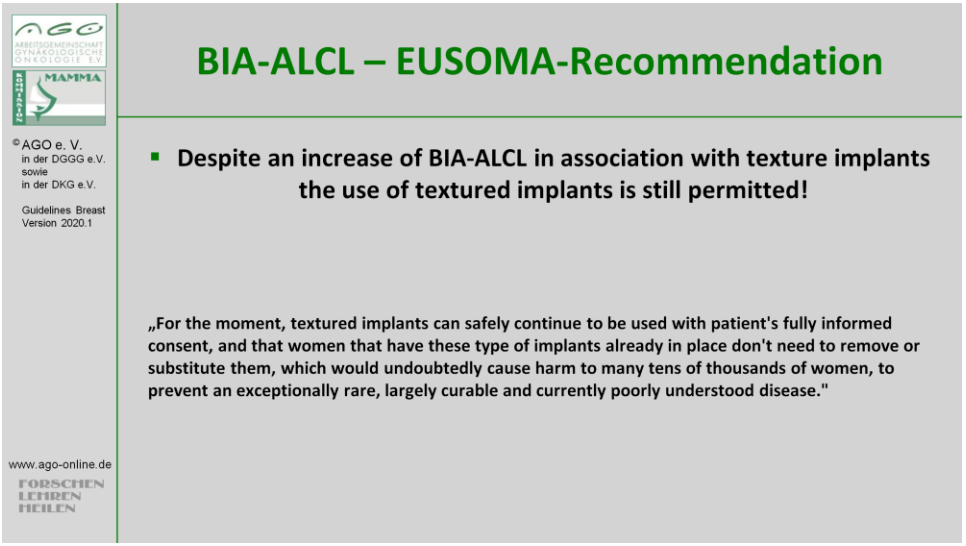
Guidelines Breast
Version 2020.1

www.ago-online.de

FORSCHEN
LEHREN
HEILEN

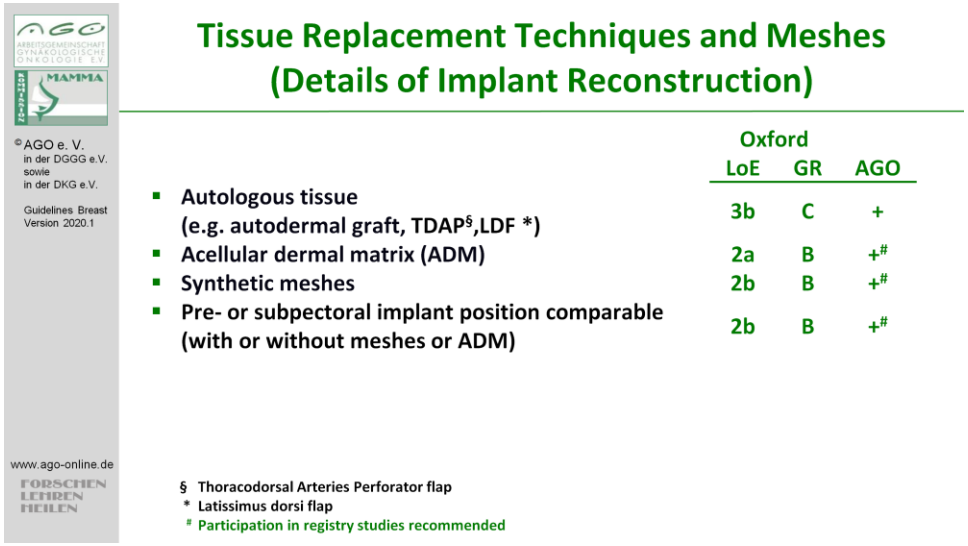


Clemens MW et al., PRS 2018; https://www.nccn.org/professionals/physician_gls/pdf/t-cell.pdf



Cardoso MJ, Wyld L, Rubio IT, et al EUSOMA position regarding breast implant associated anaplastic large cell lymphoma (BIA-ALCL) and the use of textured implants.

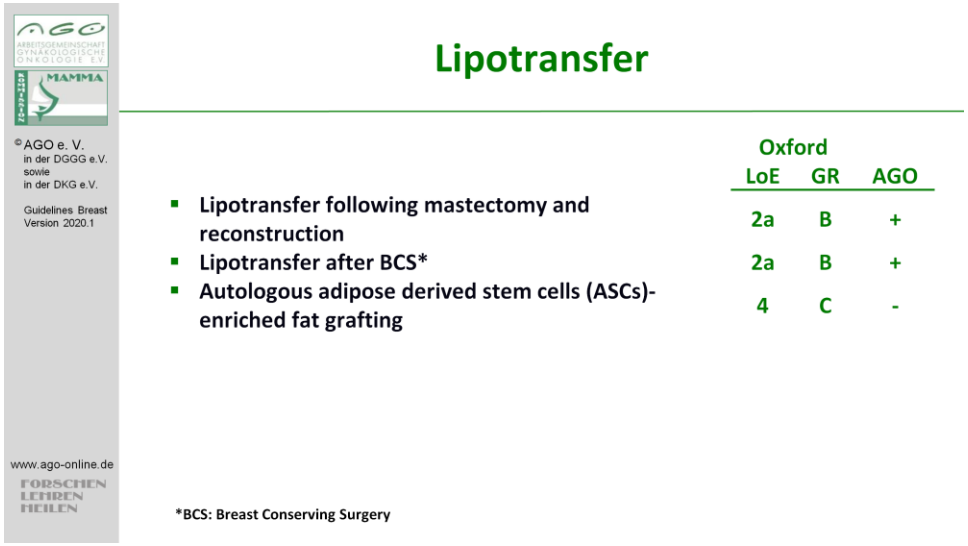
Breast. 2019 Apr;44:90-93. doi: 10.1016/j.breast.2019.01.011. Epub 2019 Jan 26.



1. The scarless latissimus dorsi flap for full muscle coverage in device-based immediate breast reconstruction: an autologous alternative to acellular dermal matrix. Elliott LF, et al. Plast Reconstr Surg. 2011; 128(1):71-9
2. Long-term outcomes following fat grafting in prosthetic breast reconstruction: a comparative analysis. Seth AK, et al. Plast Reconstr Surg. 2012; 130(5):984-9.
3. Focus on technique: one-stage implant-based breast reconstruction. Salzberg CA. Plast Reconstr Surg. 2012; 130(5 Suppl 2):95S-103S.
4. Mesh versus acellular dermal matrix in immediate implant-based breast reconstruction - A prospective randomized trial. Gschwantler-Kaulich D, et al. Eur J Surg Oncol. 2016; 42(5):665-71.
5. Single-stage breast reconstruction using Strattice™: A retrospective study. Dikmans RE, et al. J Plast Reconstr Aesthet Surg. 2016; 69(2):227-33.
6. Subcutaneous Implant-based Breast Reconstruction with Acellular Dermal Matrix/Mesh: A Systematic Review. Salibian AA, et al. Plast Reconstr Surg Glob Open. 2016; 4(11):e1139.
7. 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 H, et al. Surg Oncol. 2016; 25(2):104-10.

8. Biological and synthetic mesh use in breast reconstructive surgery: a literature review. Logan Ellis H, et al. World J Surg Oncol. 2016; 14:121.
9. Subcutaneous Tissue Expander Placement with Synthetic Titanium-Coated Mesh in Breast Reconstruction: Long-term Results. Casella D, et al. Plast Reconstr Surg Glob Open. 2016; 3(12):e577.
10. Risk-reducing, conservative mastectomy-analysis of surgical outcome and quality of life in 272 implant-based reconstructions using TiLoop(®) Bra versus autologous corial flaps. Rezai M, et al. Gland Surg. 2016; 5(1):1-8.
11. Acellular Dermal Matrix in Immediate Expander/Implant Breast Reconstruction: A Multicenter Assessment of Risks and Benefits. Sorkin M, et al. Plast Reconstr Surg. 2017; 140(6):1091-1100.
12. A Meta-analysis of Studies Comparing Outcomes of Diverse Acellular Dermal Matrices for Implant-Based Breast Reconstruction. Lee KT, Mun GH. Ann Plast Surg. 2017; 79(1):115-123.
13. Thoracodorsal artery perforator flap as an autologous alternative to acellular dermal matrix. Hashem T, Farahat A. World J Surg Oncol. 2017; 15(1):185.
14. Is single-stage implant-based breast reconstruction (SSBR) with an acellular matrix safe?: Strattice™ or Meso Biomatrix® in SSBR. Hillberg NS, Ferdinandus PI1, Dikmans REG et al.: Eur J Plast Surg. 2018;41(4):429-438. doi: 10.1007/s00238-018-1415-2. Epub 2018 Apr 24.
15. Prepectoral Versus Subpectoral Implant-Based Breast Reconstruction: A Meta-analysis. Li Y, Xu G, Yu N, Huang J, Long X. Ann Plast Surg. 2020 Jan 6. doi: 10.1097/SAP.0000000000002190. [Epub ahead of print]
16. Should obesity be considered a contraindication for prepectoral breast reconstruction Banuelos J, Abu-Ghname A, Vyas K et al. Plast Reconstr Surg. 2019 Dec 17. doi: 10.1097/PRS.0000000000006540. [Epub ahead of print]
17. Comparison of prepectoral and subpectoral breast reconstruction after mastectomies: A systematic review and meta analysis. Li L Su Y, Xiu B, Huang X, et al. Eur J Surg Oncol. 2019 Sep;45(9):1542-1550. doi: 10.1016/j.ejso.2019.05.015. Epu



Lipotransfer

	Oxford LoE	GR	AGO
▪ Lipotransfer following mastectomy and reconstruction	2a	B	+
▪ Lipotransfer after BCS*	2a	B	+
▪ Autologous adipose derived stem cells (ASCs)-enriched fat grafting	4	C	-

*BCS: Breast Conserving Surgery

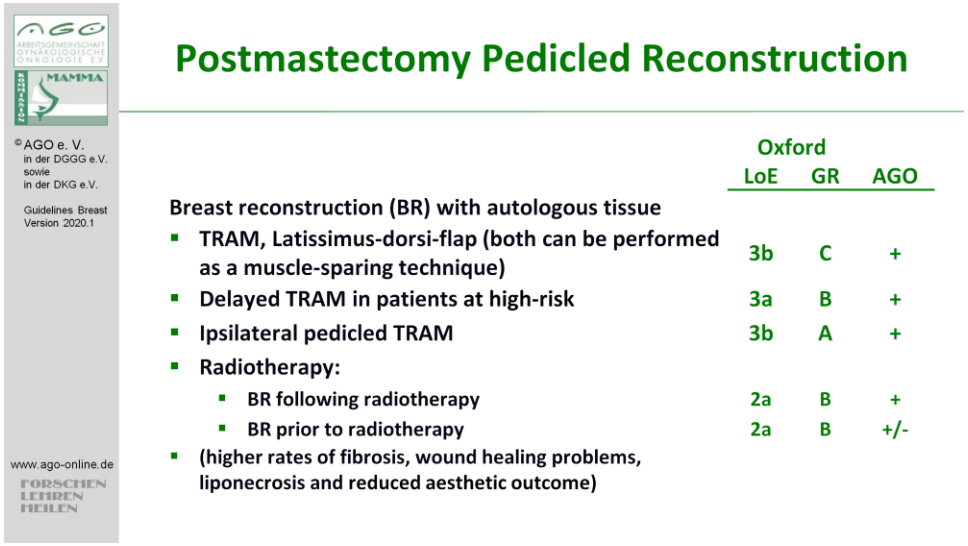
1. AWMF-Leitlinie „Autologe Fetttransplantation“, Klasse: S2k Registernummer: 009/017, 11/2015
2. Autologous fat transplantation for breast reconstruction: A literature review. Simonacci F, et al. Ann Med Surg (Lond). 2016; 12:94-100.
3. Systematic review: The oncological safety of adipose fat transfer after breast cancer surgery. Waked K, et al. Breast. 2016; 31:128-136.
4. Breast cancer and fat grafting: efficacy, safety and complications-a systematic review. De Decker M, et al. Eur J Obstet Gynecol Reprod Biol. 2016; 207:100-108.
5. Lipofilling of the Breast Does Not Increase the Risk of Recurrence of Breast Cancer: A Matched Controlled Study. Petit JY, Maisonneuve P. Plast Reconstr Surg. 2016; 138(5):937e-938e.
6. Oncological Safety of Lipofilling in Patients with Breast Cancer: A Meta-analysis and Update on Clinical Practice. Wazir U, et al. Anticancer Res. 2016; 36(9):4521-8.
7. Lipofilling of the Breast Does Not Increase the Risk of Recurrence of Breast Cancer: A Matched Controlled Study. Batista BN, et al. Plast Reconstr Surg. 2016; 138(6):1068e-1069e.
8. Oncological outcomes of lipofilling breast reconstruction: 195 consecutive cases and literature

review. Silva-Vergara C, et al. J Plast Reconstr Aesthet Surg. 2016; 69(4):475-81.

9. Lipofilling of the Breast Does Not Increase the Risk of Recurrence of Breast Cancer: A Matched Controlled Study. Kronowitz SJ, et al. Plast Reconstr Surg. 2016; 137(2):385-93.
10. Efficacy and Safety of Cell-Assisted Lipotransfer: A Systematic Review and Meta-Analysis. Zhou Y, et al. Plast Reconstr Surg. 2016; 137(1):44e-57e.
11. The Safety, Effectiveness, and Efficiency of Autologous Fat Grafting in Breast Surgery. Spear SL, et al. Plast Reconstr Surg Glob Open. 2016; 4(8):e827.
12. Autologous fat grafting in onco-plastic breast reconstruction: A systematic review on oncological and radiological safety, complications, volume retention and patient/surgeon satisfaction. Groen JW, et al. J Plast Reconstr Aesthet Surg. 2016; 69(6):742-64.
13. Indications and Controversies in Lipofilling for Partial Breast Reconstruction. Delay E, Guerid S, Meruta AC. Clin Plast Surg. 2018 Jan;45(1):101-110. doi: 10.1016/j.cps.2017.08.008. Epub 2017 Sep 18.
14. Adipose-Derived Stem Cells in Novel Approaches to Breast Reconstruction: Their Suitability for Tissue Engineering and Oncological Safety. O'Halloran N, et al. Breast Cancer (Auckl). 2017; 11:1178223417726777.
15. Lipofilling effects after breast cancer surgery in post-radiation patients: an analysis of results and algorithm proposal. Debald M, et al. Eur J Plast Surg. 2017; 40(5):447-454.
16. Determining the Oncologic Safety of Autologous Fat Grafting as a Reconstructive Modality: An Institutional Review of Breast Cancer Recurrence Rates and Surgical Outcomes. Cohen O, et al. Plast Reconstr Surg. 2017; 140(3):382e-392e.
17. Impact of Human Adipose Tissue-Derived Stem Cells on Malignant Melanoma Cells in An In Vitro Co-culture Model. Preisner F, et al. Stem Cell Rev. 2017; doi: 10.1007/s12015-017-9772-y.
18. Improved patient-reported outcomes after autologous fat transplantation and corrective surgery after breast surgery. Lindegren A Schultz I, Wickman M. et al:. J Plast Surg Hand Surg. 2019 Jan 17:1-8.
19. Efficacy of autologous fat transfer for the correction of contour deformities in the breast: A systematic review and meta-analysis. Krastev TK, Alshaikh GAH, Hommes J. et al.: J Plast Reconstr Aesthet Surg. 2018 Oct;71(10):1392-1409. doi: 10.1016/j.bjps.2018.05.021. Epub 2018 Jun 8. Review.
20. Breast-Conserving Surgery with Immediate Autologous Fat Grafting Reconstruction: Oncologic Outcomes. Aesthetic

Plast Surg. 2018 Oct;42(5):1195-1201. doi: 10.1007/s00266-018-1155-5. Epub 2018 Jun 11. Biazus JV, Stumpf CC, Melo MP et aL.

21. Autologous breast reconstruction using the immediately lipofilled extended latissimus dorsi flap. Johns N, Fairbairn N, Trail M. et al.: Plast Reconstr Aesthet Surg. 2018 Feb;71(2):201-208. doi: 10.1016/j.bjps.2017.10.015. Epub 2017 Nov 24.

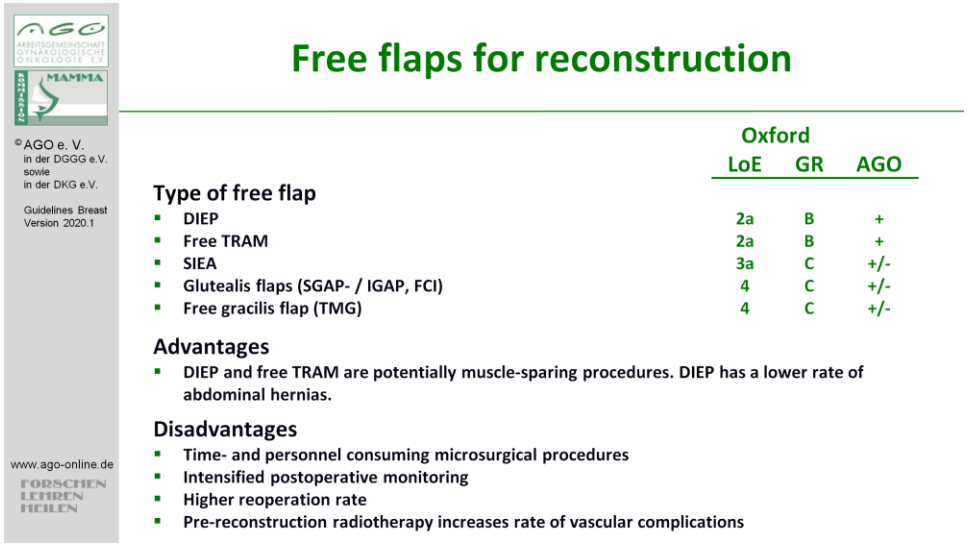


Postmastectomy Pedicled Reconstruction

	Oxford LoE	Oxford GR	AGO
Breast reconstruction (BR) with autologous tissue			
▪ TRAM, Latissimus-dorsi-flap (both can be performed as a muscle-sparing technique)	3b	C	+
▪ Delayed TRAM in patients at high-risk	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)			

1. Comparison of Outcomes following Autologous Breast Reconstruction Using the DIEP and Pedicled TRAM Flaps: A 12-Year Clinical Retrospective Study and Literature Review. Knox AD, et al. Plast Reconstr Surg. 2016; 138(1):16-28.
2. Free Versus Pedicled TRAM Flaps: Cost Utilization and Complications. Golpanian S, et al. Aesthetic Plast Surg. 2016; 40(6):869-876.
3. Quality of Life and Patient-Reported Outcomes in Breast Cancer Survivors: A Multicenter Comparison of Four Abdominally Based Autologous Reconstruction Methods. Macadam SA, et al. Plast Reconstr Surg. 2016; 137(3):758-71.
4. The Effect of Progressive-Tension Closure on Donor Site Seroma Formation in Delayed Latissimus Dorsi Flaps for Breast Reconstruction. Landis LV, et al. Ann Plast Surg. 2016; 76(2):170-3.
5. Latissimus dorsi flap versus pedicled transverse rectus abdominis myocutaneous breast reconstruction: outcomes. Teisch LF, et al. J Surg Res. 2015; 199(1):274-9.
6. Donor-Site Hernia Repair in Abdominal Flap Breast Reconstruction: A Population-Based Cohort Study of 7929 Patients. Mennie JC, et al. Plast Reconstr Surg. 2015; 136(1):1-9.

7. Latissimus Dorsi Flap for Total Autologous Immediate Breast Reconstruction without Implants. Jia Y, et al. Plast Reconstr Surg. 2015; 136(2):267e-268e.
8. Long-term evaluation of postmastectomy breast reconstruction with the pedicled transverse rectus abdominis musculocutaneous flap. Christensen BO, et al. J Plast Surg Hand Surg. 2013; 47(5):374-8.
9. Angiographic delay: a viable alternative to surgical delay. Aboutanos SZ, et al. Ann Plast Surg. 2012; 68(6):562-7.
10. Prevention of postoperative seroma-related morbidity by quilting of latissimus dorsi flap donor site: a systematic review. Sajid MS, et al. Clin Breast Cancer. 2011; 11(6):357-63.
11. Preoperative Angio-CT Preliminary study of the TRAM flap after selective vascular delay. Ribuffo D, et al. Ann Plast Surg 2007; 59(6):611-616.
12. The pedicled TRAM flap in breast reconstruction. Jones G. Clin Plast Surg. 2007; 34(1):83-104.
13. Breast Cancer Version 2.2015.Gradishar WJ, et al. J Natl Compr Canc Netw. 2015
14. Comparison of 2-Year Complication Rates Among Common Techniques for Postmastectomy Breast Reconstruction. Bennett KG, Qi J, Kim HM, et al.: JAMA Surg. 2018 Oct 1;153(10):901-908. doi: 10.1001/jamasurg.2018.1687.



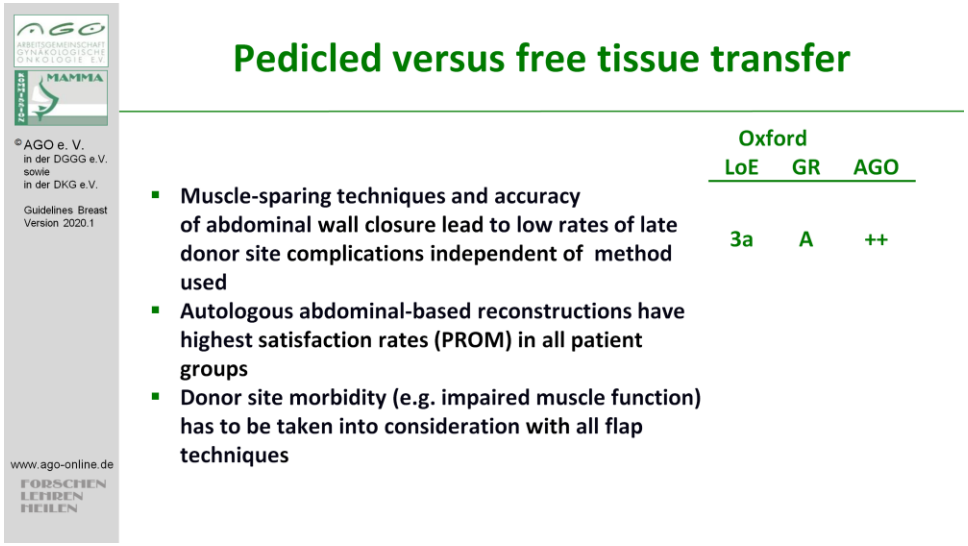
1. Effects of Obesity on Postoperative Complications After Breast Reconstruction Using Free Muscle-Sparing Transverse Rectus Abdominis Myocutaneous, Deep Inferior Epigastric Perforator, and Superficial Inferior Epigastric Artery Flap: A Systematic Review and Meta-analysis. Lee KT, Mun GH. Ann Plast Surg. 2016; 76(5):576-84.
2. Risk Factors Leading to Free Flap Failure: Analysis From the National Surgical Quality Improvement Program Database. Sanati-Mehrizy P, et al. J Craniofac Surg. 2016; 27(8):1956-1964.
3. Assessing Surgical and Medical Complications in Bilateral Abdomen-Based Free Flap Breast Reconstructions Compared With Unilateral Free Flap Breast Reconstructions. Lin IC, et al. Ann Plast Surg. 2016; 77(1):61-6.
4. The free fasciocutaneous infragluteal (FCI) flap: Outcome and patient satisfaction after 142 breast reconstructions. Struckmann V, et al. J Plast Reconstr Aesthet Surg. 2016; 69(4):461-9.
5. Impact of Time Interval between Radiation and Free Autologous Breast Reconstruction. Mull AB, et al. J Reconstr Microsurg. 2016; [Epub ahead of print]
6. Tamoxifen may increase the risk of mircrovascular flap complications. Surgeons should consider

temporarily stopping the drug 28 days before microsurgical breast reconstruction. Kelley BP, et al. J Plast Reconstr Surg. 2012; 129(2):305-14.

7. Perfusion-related complications are similar for DIEP and muscle-sparing free TRAM flaps harvested on medial or lateral deep inferior epigastric Artery branch perforators for breast reconstruction. Garvey PB, et al. Plast Reconstr Surg. 2011; 128(6):581e-9e.
8. Analysis of Complications and Patient Satisfaction in Pedicled Transverse Rectus Abdominis Myocutaneous and Deep Inferior Epigastric Perforator Flap Breast Reconstruction. Momoh AO, et al. Ann Plast Surg. 2011; [Epub ahead of print]
9. Survival Differences in Women with and without Autologous Breast Reconstruction after Mastectomy for Breast Cancer. Semple JL, et al. Plast Reconstr Surg Glob Open. 2017; 5(4):e1281.
10. Autologous reconstruction following nipple sparing mastectomy: a comprehensive review of the current literature. Shay P, Jacobs J. Gland Surg. 2018 Jun;7(3):316-324. doi: 10.21037/gs.2018.05.03. Review.
11. Patients with abdominal-based free flap breast reconstruction a decade after surgery: A comprehensive long-term follow-up study. Liu T, Freijs C, Klein HJ, Feinbaum et al.: J Plast Reconstr Aesthet Surg. 2018 Sep;71(9):1301-1309. doi: 10.1016/j.bjps.2018.06.009. Epub 2018 Jun 28.
12. Breast Reconstruction. Sbitany H. Surg Clin North Am. 2018 Aug;98(4):845-857. doi: 10.1016/j.suc.2018.03.011. Epub 2018 May 28. Review.
13. Comparison of surgical complication between immediate implant and autologous breast reconstruction after mastectomy: A multicenter study of 426 cases. Xu F, Sun H, Zhang C et al.: J Surg Oncol. 2018 Nov;118(6):953-958. doi: 10.1002/jso.25238. Epub 2018 Sep 27.
14. Secondary breast reconstruction after mastectomy using the DIEP flap. Hauck T, Horch RE, Schmitz M et al.: A. Surg Oncol. 2018 Sep;27(3):513. doi: 10.1016/j.suronc.2018.06.006. Epub 2018 Jun 26.
15. A cost-effectiveness analysis of DIEP vs free MS-TRAM flap for microsurgical breast reconstruction. Tan MG, Isaranuwatchai W, DeLyzer T et al.: J Surg Oncol. 2018 Dec 18. doi: 10.1002/jso.25325.
16. Assessing Age as a Risk Factor for Complications in Autologous Breast Reconstruction. Torabi R, Stalder MW, Tessler O et al.: Plast Reconstr Surg. 2018 Dec;142(6):840e-846e. doi: 10.1097/S.0000000000004990.
17. A Multicenter Analysis Examining Patients Undergoing Conversion of Implant-based Breast Reconstruction to

Abdominally based Free Tissue Transfer. Zhao R, Tran BNN, Doval AF, et al.: Reconstr Microsurg. 2018 Nov;34(9):685-691. doi: 10.1055/s-0038-1641680. Epub 2018 May 7.

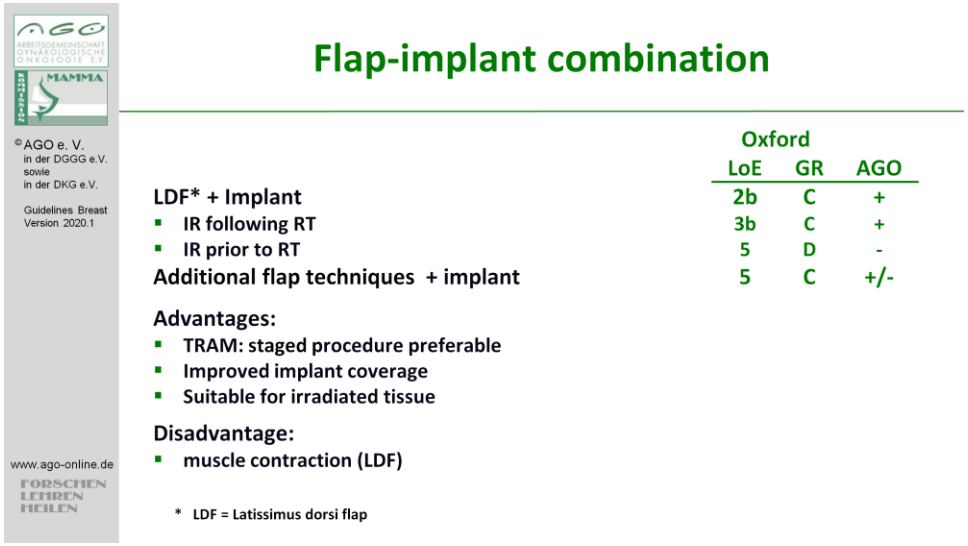
18. A systematic review of donor site aesthetic and complications after deep inferior epigastric perforator flap breast reconstruction. Nicole Lindenblatt, Lisanne Gruenherz, Jian Farhadi. Gland Surg 2019;8(4):389-398



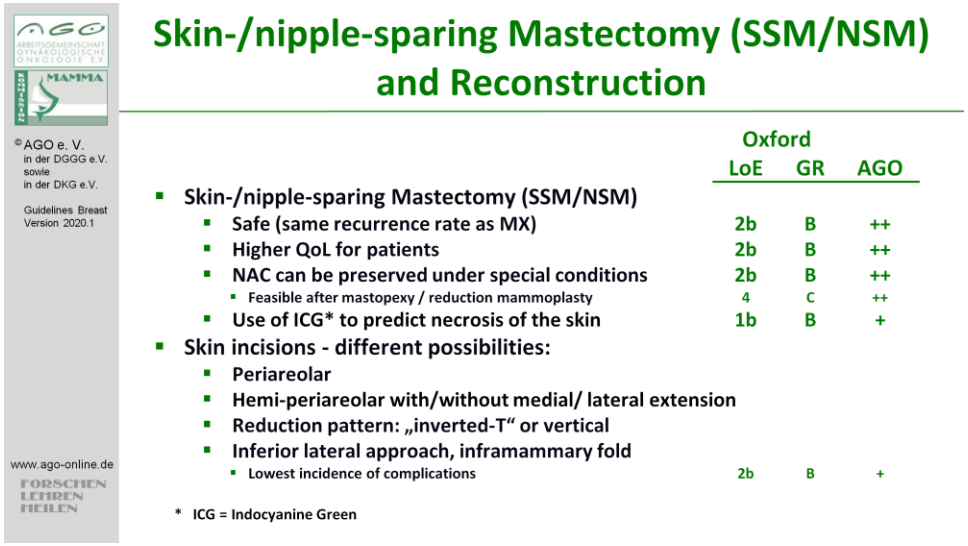
1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengewebe. Registernummer 015 – 075, Stand: 01.04.2015 , gültig bis 31.03.2020
2. NSQIP Analysis: Increased Immediate Reconstruction in the Treatment of Breast Cancer. Sabino J, et al. Am Surg. 2016; 82(6):540-5.
3. National trends in immediate and delayed post-mastectomy reconstruction procedures in England: A seven-year population-based cohort study. Mennie JC, et al. Eur J Surg Oncol. 2017; 43(1):52-61.
4. Comparison of Long-Term Outcomes of Postmastectomy Radiotherapy between Breast Cancer Patients with and without Immediate Flap Reconstruction. Lee HH, et al. PLoS One. 2016.
5. Comparison of Outcomes following Autologous Breast Reconstruction Using the DIEP and Pedicled TRAM Flaps: A 12-Year Clinical Retrospective Study and Literature Review. Knox AD, et al. Plast Reconstr Surg. 2016; 138(1):16-28.
6. Free Versus Pedicled TRAM Flaps: Cost Utilization and Complications. Golpanian S, et al. Aesthetic Plast Surg. 2016; 40(6):869-876.
7. Autologous options for postmastectomy breast reconstruction: a comparison of outcomes based on

the American College of Surgeons National Surgical Quality Improvement Program. Gart MS, et al. J Am Coll Surg. 2013; 216(2):229-38.

8. A systematic review of donor site aesthetic and complications after deep inferior epigastric perforator flap breast reconstruction. Nicole Lindenblatt1´, Lisanne Gruenherz, Jian Farhadi. Gland Surg 2019;8(4):389-398
9. The use of Patient Reported Outcome Measures in assessing patient outcomes when comparing autologous to alloplastic breast reconstruction: a systematic review. Robert Phan, David J. Hunter-Smith, Warren M. Rozen. Gland Surg 2019;8(4):452-460
10. Autologous versus implant-based breast reconstruction: A systematic review and meta-analysis of Breast-Q patient-reported outcomes. Toyserkani NM, Jørgensen MG, Tabatabaeifar S, et al.: J Plast Reconstr Aesthet Surg. 2019 Oct 2. pii: S1748-6815(19)30443-7.



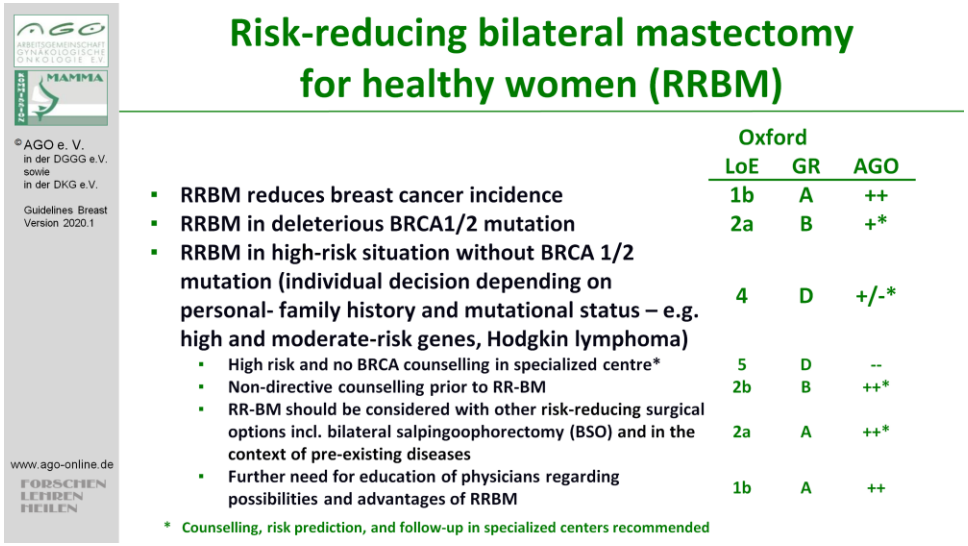
1. A Systematic Meta-analysis of Prosthetic-Based Breast Reconstruction in Irradiated Fields With or Without Autologous Muscle Flap Coverage. Fischer JP, et al. Ann Plast Surg. 2016; 77(1):129-34.
2. Temporal Trends in Postmastectomy Radiation Therapy and Breast Reconstruction Associated With Changes in National Comprehensive Cancer Network Guidelines. Frasier LL, et al. JAMA Oncol. 2016; 2(1):95-101. Erratum in: JAMA Oncol. 2016; 2(1):146.
3. Complications After Mastectomy and Immediate Breast Reconstruction for Breast Cancer: A Claims-Based Analysis. Jagsi R, et al. Ann Surg. 2016; 263(2):219-27.
4. Outcome of 122 delayed breast reconstruction following post-mastectomy radiotherapy: The scarless latissimus dorsi flap with tissue expansion technique. de Runz A, et al. Ann Chir Plast Esthet. 2016.



1. Nipple sparing mastectomy: Surgical and oncological outcomes from a national multicentric registry with 913 patients (1006 cases) over a six year period. Orzalesi L, et al. Breast. 2016; 25:75-81.
2. The Oncological Safety of Nipple-Sparing Mastectomy: A Systematic Review of the Literature with a Pooled Analysis of 12,358 Procedures. Headon HL, et al. Arch Plast Surg. 2016; 43(4):328-38.
3. Local breast cancer recurrence after mastectomy and immediate breast reconstruction for invasive cancer: A meta-analysis. Gieni M, et al. Breast. 2012; [Epub ahead of print]
4. The Impact of Skin-Sparing Mastectomy with Immediate Reconstruction in Patients with Stage III Breast Cancer Treated with Neoadjuvant Chemotherapy and Postmastectomy Radiation. Prabhu R, et al. Plast Reconstr Surg. 2012; 129(1):37e-45e.
5. Survival in breast cancer after nipple-sparing subcutaneous mastectomy and immediate reconstruction with implants: a prospective trial with 13 years median follow-up in 216 patients. Benediktsson KP, Perbeck L. Eur J Surg Oncol. 2008; 34(2):143-8.
6. Nipple-sparing mastectomy using a hemi-periareolar incision with or without minimal medial-lateral extensions; clinical outcome and patient satisfaction: A single centre prospective observational study.

El Hage Chehade H, et al. Am J Surg. 2017; 213(6):1116-1124.

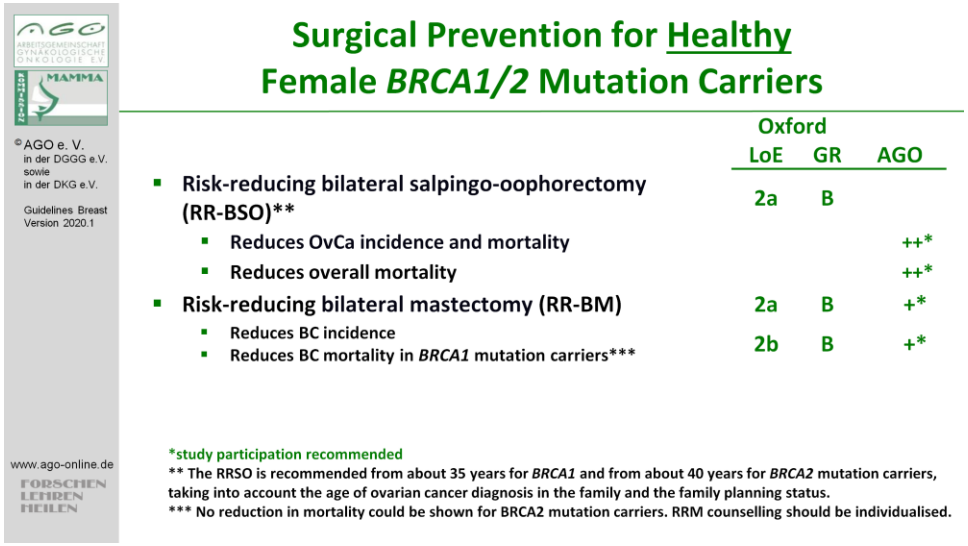
7. Prediction of Skin Necrosis after Mastectomy for Breast Cancer Using Indocyanine Green Angiography Imaging. Gorai K, et al. Plast Reconstr Surg Glob Open. 2017; 5(4):e1321.
8. Direct-to-implant breast reconstruction: Higher complication rate vs cosmetic benefits. Gschwantler-Kaulich D, Leser C, Salama M et al.:. Breast J. 2018 Nov;24(6):957-964. doi: 10.1111/tbj.13113. Epub 2018 Sep 19.
9. Assessment of Mastectomy Skin Flaps for Immediate Implant-Based Breast Reconstruction. Radu M, Bordea C, Noditi A et al.: J Med Life. 2018 Apr-Jun;11(2):137-145.
10. Quality of life and sexual well-being after nipple sparing mastectomy: A matched comparison of patients using the breast Q. Yoon-Flannery K, DeStefano LM. et al.: J Surg Oncol. 2018 Jul;118(1):238-242. doi: 10.1002/jso.25107. Epub 2018 Aug 16
11. Assessment of DIEP Flap Perfusion with Intraoperative Indocyanine Green Fluorescence Imaging in Vasopressor-Dominated Hemodynamic Support Versus Liberal Fluid Administration: A Randomized Controlled Trial With Breast Cancer Patients. Anker AM, Prantl L, Strauss C, et al. Ann Surg Oncol. 2020 Feb;27(2):399-406. doi: 10.1245/s10434-019-07758-1



1. Society of Surgical Oncology Breast Disease Working Group Statement on Prophylactic (Risk-Reducing) Mastectomy. Hunt KK, et al. Ann Surg Oncol. 2017; 24(2):375-397.
2. Quality of life among patients after bilateral prophylactic mastectomy: a systematic review of patient-reported outcomes. Razdan SN, et al. Qual Life Res. 2016; 25(6):1409-21.
3. Risk reduction and survival benefit of prophylactic surgery in BRCA mutation carriers, a systematic review. Ludwig KK, et al. Am J Surg. 2016; 212(4):660-669.
4. Is Sentinel Lymph Node Biopsy Necessary in Patients Undergoing Prophylactic Mastectomy? A Systematic Review and Meta-Analysis. Nagaraja V, et al. Breast J. 2016; 22(2):158-65.
5. Effectiveness of Prophylactic Surgeries in BRCA1 or BRCA2 Mutation Carriers: A Meta-analysis and Systematic Review. Li X, et al. Clin Cancer Res. 2016; 22(15):3971-81.
6. Improved overall survival after contralateral risk-reducing mastectomy in BRCA1/2 mutation carriers with a history of unilateral breast cancer: a prospective analysis. Heemskerk-Gerritsen BA, et al. Int J Cancer. 2015; 136(3):668-77.
7. ASCO/SSO review of current role of risk-reducing surgery in common hereditary cancer syndromes.

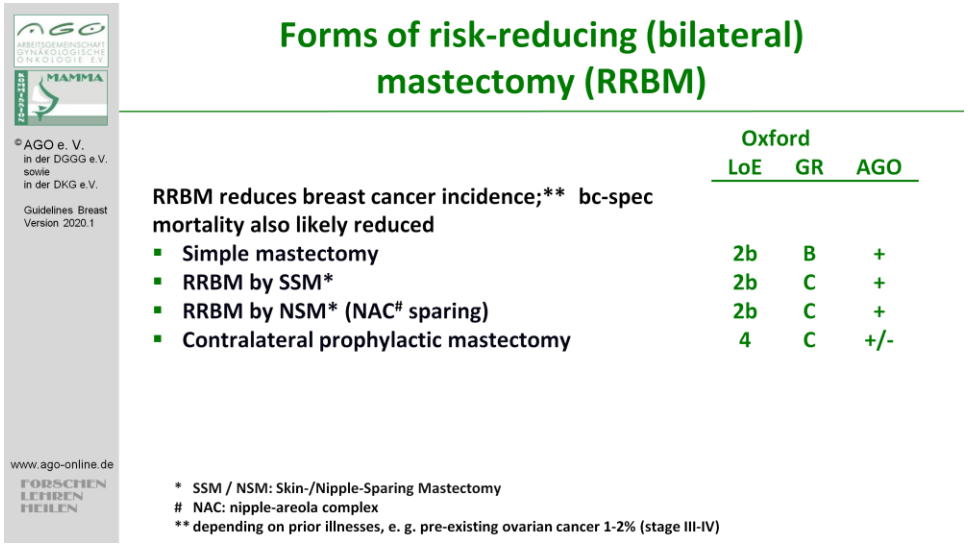
Guillem JG, et al. J Clin Oncol. 2006; 24(28):4642-60.

8. Prophylactic Surgery: For Whom, When and How? Mau C, Untch M. Breast Care (Basel). 2017 Dec;12(6):379-384. doi: 10.1159/000485830. Epub 2017 Dec 13. Review.
9. Mastectomy for risk reduction or symmetry in women without high risk gene mutation: A review. Kenny R, Reed M, Subramanian A. Int J Surg. 2018 Feb;50:60-64. doi: 10.1016/j.ijsu.2017.12.022. Epub 2017 Dec 26. Review.
10. Risk-Reducing Mastectomy and Breast Reconstruction: Indications and Evidence for Current Management Strategies. Eisemann BS, Spiegel AJ. Clin Plast Surg. 2018 Jan;45(1):129-136. doi: 10.1016/j.cps.2017.08.013. Epub 2017 Sep 29. Review.
11. Nipple-sparing mastectomy in women at high risk of developing breast cancer. Lewis RS, George A, Rusby JE. Gland Surg. 2018 Jun;7(3):325-336. doi: 10.21037/gs.2018.04.01. Review.
12. Risk-reducing mastectomy rates in the US: a closer examination of the Angelina Jolie effect. Liede A, Cai M, Crouter TF et al.: Breast Cancer Res Treat. 2018 Sep;171(2):435-442. doi: 10.1007/s10549-018-4824-9. Epub 2018 May 28.
13. Risk-reducing mastectomy for the prevention of primary breast cancer. Carbine NE, Lostumbo L, Wallace J, Ko H. Cochrane Database Syst Rev. 2018 Apr 5;4:CD002748. doi: 10.1002/14651858.CD002748.pub4. Review.
14. Trends in use of bilateral prophylactic mastectomy vs high-risk surveillance in unaffected carriers of inherited breast cancer syndromes in the Inherited Cancer Registry (ICARE). Henry DA, Lee MC, Almanza D, Ahmed KA et al.: C. Breast Cancer Res Treat. 2018 Nov 24. doi: 10.1007/s10549-018-5057-7. [Epub ahead of print] Review.
15. Oncologic Safety of Prophylactic Nipple-Sparing Mastectomy in a Population With BRCA Mutations: A Multi-institutional Study. Jakub JW, Peled AW et al.:. JAMA Surg. 2018 Feb 1;153(2):123-129. doi: 10.1001/jamasurg.2017.3422.



1. Sitzmann JV, Wiebke EA. Risk-reducing appendectomy and the elimination of BRCA1-associated intraperitoneal cancer. JAMA Surg. 2013;148(3):285-91; discussion 91.
2. Hoogerbrugge N, Bult P, Bonenkamp JJ, et al. Numerous high-risk epithelial lesions in familial breast cancer. Eur J Cancer. 2006;42(15):2492-8.
3. Rebbeck TR, Friebel T, Lynch HAT, et al. Bilateral prophylactic mastectomy reduces breast cancer risk in BRCA1 and BRCA2 mutation carriers: the PROSE Study Group. J Clin Oncol. 2004;22(6):1055-62.
4. Meijers-Heijboer H, van Geel B, van Putten WL, et al. Breast cancer after prophylactic bilateral mastectomy in women with a BRCA1 or BRCA2 mutation. N Engl J Med. 2001;345(3):159-64.
5. Domchek SM, Friebel TM, Neuhausen SL, et al. Mortality after bilateral salpingo-oophorectomy in BRCA1 and BRCA2 mutation carriers: a prospective cohort study. Lancet Oncol. 2006;7(3):223-9.
6. Lostumbo L, Carbine NE, Wallace J. Prophylactic mastectomy for the prevention of breast cancer. Cochrane Database Syst Rev. 2010(11):CD002748.
7. Domchek SM, Friebel TM, Singer CF, et al. Association of risk-reducing surgery in BRCA1 or BRCA2 mutation carriers with cancer risk and mortality. JAMA. 2010;304(9):967-75.

8. Rebbeck TR, Lynch HT, Neuhausen SL, et al. Prophylactic oophorectomy in carriers of BRCA1 or BRCA2 mutations. N Engl J Med. 2002;346(21):1616-22.
9. Kauff ND, Satagopan JM, Robson ME, et al. Risk-reducing salpingo-oophorectomy in women with a BRCA1 or BRCA2 mutation. N Engl J Med. 2002;346(21):1609-15.
10. Kotsopoulos J, Huzarski T, Gronwald J, et al: Hereditary Breast Cancer Clinical Study Group. Bilateral Oophorectomy and Breast Cancer Risk in BRCA1 and BRCA2 Mutation Carriers. J Natl Cancer Inst. 2016 Sep 6;109(1). doi: 10.1093/jnci/djw177. Print 2017 Jan.
11. Heemskerk-Gerritsen BAM, Seynaeve C, van Asperen CJ, et al.: Breast Cancer Risk After Salpingo-Oophorectomy in Healthy BRCA1/2 Mutation Carriers: Revisiting the Evidence for Risk Reduction. JNCI J Natl Cancer Inst (2015) 107(5): djv033
12. Ye-Lei Xiao, Kang Wang, Qiang Liu, et al.: Risk Reduction and Survival Benefit of Risk-Reducing Salpingo-oophorectomy in Hereditary Breast Cancer: Meta-analysis and Systematic Review. Clinical Breast Cancer, Vol. 19, No. 1, e48-65
13. Heemskerk-Gerritsen BAM, Jager A, Koppert LB et al: Survival after bilateral risk-reducing mastectomy in healthy BRCA1 and BRCA2 mutation carriers. Breast Cancer Res Treat 2019, 177(3):723-733.
14. Mavaddat N, Antoniou AC, Mooij TM et al: Risk-reducing salpingo-oophorectomy, natural menopause, and breast cancer risk: an international prospective cohort of BRCA1 and BRCA2 mutation carriers. Breast Cancer Res 2020, 22(1):8.



1. Patient Satisfaction and Nipple-Areola Sensitivity After Bilateral Prophylactic Mastectomy and Immediate Implant Breast Reconstruction in a High Breast Cancer Risk Population: Nipple-Sparing Mastectomy Versus Skin-Sparing Mastectomy. van Verschuer VM, et al. Ann Plast Surg. 2016; 77(2):145-52.
2. Nipple sparing versus skin sparing mastectomy: a systematic review protocol. Agha RA, et al. BMJ Open. 2016; 6(5):e010151.
3. Conservative mastectomies for breast cancer and risk-reducing surgery: the Memorial Sloan Kettering Cancer Center experience. Manning AT, et al. Gland Surg. 2016; 5(1):55-62.
4. Oncologic safety of conservative mastectomy in the therapeutic setting. Benson JR, et al. Gland Surg. 2016; 5(1):37-46.
5. Patient satisfaction with nipple-sparing mastectomy: A prospective study of patient reported outcomes using the BREAST-Q. Howard MA, et a. J Surg Oncol. 2016; 114(4):416-22.
6. Contralateral Prophylactic Mastectomy (CPM) Consensus Statement from the American Society of Breast Surgeons: Data on CPM Outcomes and Risks. Boughey JC, et al. Ann Surg Oncol. 2016;

23(10):3100-5.

7. Contralateral Prophylactic Mastectomy Consensus Statement from the American Society of Breast Surgeons: Additional Considerations and a Framework for Shared Decision Making. Boughey JC, et al. Ann Surg Oncol. 2016; 23(10):3106-11.
8. Nipple-sparing mastectomy in BRCA1/2 mutation carriers: an interim analysis and review of the literature. Yao K, et al. Ann Surg Oncol.; 2015; 22(2):370-6.
9. ASCO/SSO review of current role of risk-reducing surgery in common hereditary cancer syndromes. Guillem JG, et al. J Clin Oncol. 2006; 24(28):4642-60.