



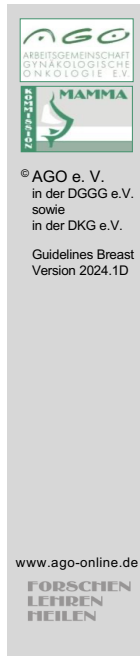
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Guidelines Breast
Version 2024.1D

FORSCHEN
LEHREN
HEILEN

Diagnostik und Therapie früher und fortgeschrittener Mammakarzinome

Komplementäre Therapie „Survivorship“



Komplementäre Therapien

Hormontherapie „Survivorship“ (Rezidiv-Prävention)

■ Versionen 2002–2023:

Albert / Bauerfeind / Blohmer / Dall / Fersis / Friedrich / Gerber /
Göhring / Hanf / Heil / Janni / Kümmel / Lück / von Minckwitz / Nitz
/ Oberhoff / Rhiem / Scharl / Schmidt / Schütz / Solomayer /
Thomssen

■ Version 2024:

Kümmel / Thomssen

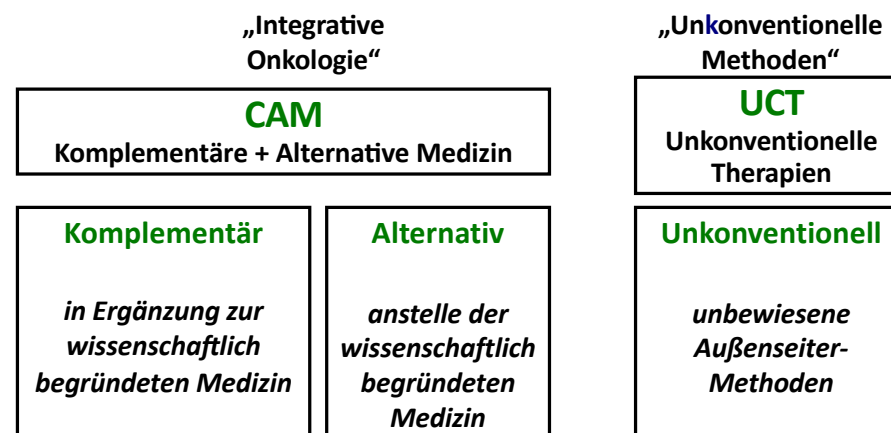
Screened Data Sources:

Pubmed	2015 - 01/2024
ASCO	2015 – 2023
SABCS	2015 – 2023
EBCC	2015 – 2023
ESMO	2023
Cochrane library:	summary Jan. 2024

-RCT, systematic review, meta-analysis

1. Leitlinienprogramm Onkologie (Deutsche Krebsgesellschaft, Deutsche Krebshilfe, AWMF): Komplementärmedizin in der Behandlung von onkologischen PatientInnen, Langversion 1.1, 2021, AWMF Registernummer: 032/055OL, <https://www.leitlinienprogramm-onkologie.de/leitlinien/komplementaermedizin/>

CAM



Komplementäre Verfahren werden parallel zur konventionellen Therapie angewendet und unterscheiden sich von alternativen Verfahren dadurch, dass sie den Wert der konventionellen Verfahren nicht in Frage stellen, sondern sich als Ergänzung verstehen

Onkoleitlinienprogramm

1. Witt CM et al.. A Comprehensive Definition for Integrative Oncology. J Natl Cancer Inst Monogr 2017;(52): lgx012
2. Leitlinienprogramm Onkologie (Deutsche Krebsgesellschaft, Deutsche Krebshilfe, AWMF): Komplementärmedizin in der Behandlung von onkologischen PatientInnen, Langversion 1.1, 2021, AWMF Registernummer: 032/055OL, <https://www.leitlinienprogramm-onkologie.de/leitlinien/komplementaermedizin/>

“Integrative oncology is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions alongside conventional cancer treatments. Integrative oncology aims to optimize health, quality of life, and clinical outcomes across the cancer care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.”



Alle Patienten sollen frühestmöglich und im Verlauf wiederholt zum Interesse an Informationen komplementärmedizinischer Maßnahmen befragt werden und bei Interesse soll auf verlässliche Informationsquellen verwiesen werden.

S3 LL "Komplementärmedizin in der Behandlung von onkologischen PatientInnen"

1. Leitlinienprogramm Onkologie (Deutsche Krebsgesellschaft, Deutsche Krebshilfe, AWMF): Komplementärmedizin in der Behandlung von onkologischen PatientInnen, Langversion 1.1, 2021, AWMF Registernummer: 032/055OL, <https://www.leitlinienprogramm-onkologie.de/leitlinien/komplementaermedizin/>

Allgemein

	Oxford		
	LoE	GR	AGO
▪ CAM anstelle lokoregionärer Interventionen	2b	B	--
▪ CAM anstelle systemischer Therapie	2b	B	--
▪ Diagnostische Verfahren im Zusammenhang mit komplementären und alternativen Therapiekonzepten ohne Evidenz (z. B. Irisdiagnostik, Bioresonanz) sollen nicht empfohlen werden.			
▪ Unter Systemtherapie: Besondere Beachtung gilt möglichen Medikamenten-Interaktionen			

1. Fremd C et al.. Use of complementary and integrative medicine among German breast cancer patients: predictors and implications for patient care within the PRAEGNANT study network. Arch Gynecol Obstet. 2017 May;295(5):1239-1245. doi: 10.1007/s00404-017-4348-2.
2. Samuels N et al.. Unmonitored use of herbal medicine by patients with breast cancer: reframing expectations. J Cancer Res Clin Oncol 2017;143:2267–2273
3. Johnson SB et al. Complementary Medicine, Refusal of Conventional Cancer Therapy, and Survival Among Patients With Curable Cancers. JAMA Oncol. doi:10.1001/jamaoncol.2018.2487
4. Johnson SB, Park HS, Gross CP et al. Use of Alternative Medicine for Cancer and Its Impact on Survival. J Natl Cancer Inst. 2018 Jan 1;110(1). doi: 10.1093/jnci/djx145.
5. Carlson LE, Bao T, Balneaves LG. Methodology Flaws and Implications of a Complementary Medicine Study. JAMA Oncol. 2019;5(3):432. doi:10.1001/jamaoncol.2018.6631
6. Keene MR, Heslop IM, Sabesan SS, Glass BD. Complementary and alternative medicine use in cancer: A systematic review. Complement Ther Clin Pract. 2019 May;35:33-47. doi: 10.1016/j.ctcp.2019.01.004.
7. Hack CC, Wasner S, Meyer J et al. Analysis of Oncological second opinions in a certified university breast and gynecological cancer center in relation to complementary and alternative medicine . Complement Med Res 2020;27(6):431-439
8. Grimm D, Mathes S, Woelber L, et al. Demand for integrative medicine among women with breast and gynecological cancer: a

multicenter cross-sectional study in Southern and Northern Germany. *Arch Gynecol Obstet*. 2021 May;303(5):1315-1330. doi: 10.1007/s00404-020-05880-0.

9. Paepke D, Wiedeck C, Hapfelmeier A, et al. Prevalence and Predictors for Nonuse of Complementary Medicine among Breast and Gynecological Cancer Patients. *Breast Care (Basel)*. 2020 Aug;15(4):380-385. doi: 10.1159/000502942.
10. Bao T, Greenlee H, Lopez AM, Kadro ZO, et al. How to Make Evidence-Based Integrative Medicine a Part of Everyday Oncology Practice. *Am Soc Clin Oncol Educ Book*. 2023 May;43:e389830. doi: 10.1200/EDBK_389830.

Komplementäre Therapien prä- und postoperativ

	Oxford		
	LoE	GR	AGO
Präoperativ			
▪ Hypnose (reduziert Ängste, Schmerz, Übelkeit)	1b	B	+
Postoperativ			
▪ Akupunktur			
▪ bei Schmerzen, Ängstlichkeit	1b	B	+
▪ bei Übelkeit, Erbrechen	2b	B	+
▪ Massage Therapie (bei Schmerzen)	2b	C	+/-
▪ Frühzeitige postoperative Bewegungstherapie beugt Dysfunktion der oberen Extremität vor. CAVE: vermehrt Wundsekret	1a	A	+
▪ Körperliche Aktivität			
▪ zur Reduktion des sek. Lymphödems	1a	A	+
▪ zur Prophylaxe eines Lymphödems	1b	B	+/-
▪ Prophylaktische Lymphdrainage	1b	B	-
▪ Yoga (bei Arm- und Schulterschmerzen)	2b	C	+
▪ Musiktherapie (Schmerzreduktion nach Mastektomie)	2b	C	+/-

General:

1. Abushukur Y, Cascardo C, Ibrahim Y, et al. Improving Breast Surgery Outcomes Through Alternative Therapy: A Systematic Review. *Cureus*. 2022 Mar 24;14(3):e23443. doi: 10.7759/cureus.23443.
2. Morrison-Jones V, West M. Post-Operative Care of the Cancer Patient: Emphasis on Functional Recovery, Rapid Rescue, and Survivorship. *Curr Oncol*. 2023 Sep 19;30(9):8575-8585. doi: 10.3390/curreoncol30090622.

Prä-Peri-operativ:

Hypnosis

1. Cramer H, Lauche R, Paul A, et al: Hypnosis in Breast Cancer Care: A Systematic Review of Randomized Controlled Trials. *Integr Cancer Ther*. 2015 Jan;14(1):5-15. Epub 2014 Sep 18.
2. Amraoui J, Pouliquen C, Fraisse J et al. Effects of a Hypnosis Session Before General Anesthesia on Postoperative Outcomes in Patients Who Underwent Minor Breast Cancer Surgery: The HYPNOSEIN Randomized Clinical Trial. *JAMA Netw Open*.;1(4):e181164. doi: 10.1001/jamanetworkopen.2018.1164.
3. Lacroix C, Duhoux FP, Bettendorff J, Watremez C, Roelants F, Docquier MA, Potié A, Coyette M, Gerday A, Samartzi V, Piette P, Piette N, Berliere M. Impact of Perioperative Hypnosedation on Postmastectomy Chronic Pain: Preliminary Results. *Integr Cancer Ther*. 2019 Jan-Dec;18:1534735419869494. doi: 10.1177/1534735419869494.

4. Zeng J, Wang L, Cai Q, Wu J, Zhou C. Effect of hypnosis before general anesthesia on postoperative outcomes in patients undergoing minor surgery for breast cancer: a systematic review and meta-analysis. *Gland Surg.* 2022 Mar;11(3):588-598. doi: 10.21037/gs-22-114.
5. Carlson LE, Ismaila N, Addington EL, et al. Integrative Oncology Care of Symptoms of Anxiety and Depression in Adults With Cancer: Society for Integrative Oncology-ASCO Guideline. *J Clin Oncol.* 2023 Oct 1;41(28):4562-4591. doi: 10.1200/JCO.23.00857.

Peri-Postoperative:

Acupuncture

1. Quinlan-Woodward J, Gode A, Dusek JA: Assessing the Impact of Acupuncture on Pain, Nausea, Anxiety, and Coping in Women Undergoing a Mastectomy. *Oncol Nurs Forum.* 2016 Nov 1;43(6):725-732.
2. Giron PS, Haddad CA, Lopes de Almeida: Effectiveness of acupuncture in rehabilitation of physical and functional disorders of women undergoing breast cancer surgery. *Support Care Cancer.* 2016 Jun;24(6):2491-6.
3. Chiu HY, Hsieh YJ, Tsai PS. Systematic review and meta-analysis of acupuncture to reduce cancer-related pain. *Eur J Cancer Care (Engl).* 2017 Mar;26(2). doi: 10.1111/ecc.12457. Epub 2016 Feb 7
4. Lu Z, Wang Q, Sun X, et al. Transcutaneous electrical acupoint stimulation before surgery reduces chronic pain after mastectomy: A randomized clinical trial. *J Clin Anesth.* 2021 Nov;74:110453. doi: 10.1016/j.jclinane.2021.110453.
5. Ben-Arye E, Segev Y, Galil G, et al. Acupuncture during gynecological oncology surgery: A randomized controlled trial assessing the impact of integrative therapies on perioperative pain and anxiety. *Cancer.* 2023 Mar 15;129(6):908-919. doi: 10.1002/cncr.34542.
6. Tong QY, Liu R, Gao Y, et al. Effect of Electroacupuncture Based on ERAS for Preoperative Anxiety in Breast Cancer Surgery: A Single-Center, Randomized, Controlled Trial. *Clin Breast Cancer.* 2022 Oct;22(7):724-736. doi: 10.1016/j.clbc.2022.04.010.
7. Huang WH, Zhang J, Ding SS, Xue JJ. Efficacy of acupuncture for nausea and vomiting after laparoscopic surgery: A systematic review and meta-analysis. *Asian Journal of Surgery.* 2023 Oct;46(10):4462-4464. DOI: 10.1016/j.asjsur.2023.04.107.

Massage

1. Dilaveri CA, Croghan I, Mallory MJ, et al, Massage compared with massage plus acupuncture for breast cancer patients undergoing reconstructive surgery. *J Altern Complement Med* 2020 26(7):602-60
2. Liu C, Chen X, Wu S. The effect of massage therapy on pain after surgery: A comprehensive meta-analysis. *Complement Ther Med.* 2022 Dec;71:102892. doi: 10.1016/j.ctim.2022.102892. Epub 2022 Oct 26. PMID: 36309174.

Postoperative exercise

General

1. Bruce J, Mazuquin B, Canaway A et al. Exercise versus usual care after non-reconstructive breast surgery (UK PROSPER) multicenter randomised controlled trial and economic evaluation. *BMJ* 2021;375:e066542
2. Heimann J, Onerup A, Wessman C, et al. Reovery after breast cancer surgery following recommended pre and postoperative physical activity: (PhysSURG-B) randomized clinical trial. *Br J Surg* 2021 Jan 27;108(1):32-39
3. Klein i, Kalichman L, Chen N et al. Effect of physical activity levels on oncological breast surgery recovery: a prospective cohort study. *Scientific reports* 2021;11:10432 doi:10.1038/s41598-021-89908-8
4. Knoerl R, Giobbie-Hurder A, Sannes TS, et al. Exploring the impact of exercise and mind-body prehabilitation interventions on physical and psychological outcomes in women undergoing breast cancer surgery. *Support Care Cancer*. 2022 Mar;30(3):2027-2036. doi: 10.1007/s00520-021-06617-8.
5. Heiman J, Onerup A, Bock D, et al. The effect of nonsupervised physical activity before and after breast cancer surgery on quality of life: Results from a randomized controlled trial (PhysSURG-B). *Scand J Surg*. 2022 Dec;111(4):75-82. doi: 10.1177/14574969221123389.

Obere Extremitäten

1. De Groef A, Van Kampen M, Dieltjens E, et al. Effectiveness of postoperative physical therapy for upper-limb impairments after breast cancer treatment: a systematic review. *Arch Phys Med Rehabil*. 2015 Jun;96(6):1140-53. doi: 10.1016/j.apmr.2015.01.006.
2. Bruce J, Mazuquin B, Canaway A, Hossain A, Williamson E, Mistry P, Lall R, Petrou S, Lamb SE, Rees S, Padfield E, Vidya R, Thompson AM; Prevention of Shoulder Problems Trial (PROSPER) Study Group. Exercise versus usual care after non-reconstructive breast cancer surgery (UK PROSPER): multicentre randomised controlled trial and economic evaluation. *BMJ*. 2021 Nov 10;375:e066542. doi: 10.1136/bmj-2021-066542.
3. Byun H, Jang Y, Kim JY, et al. Effects of preoperative personal education on shoulder function and lymphedema in patients with breast cancer: A consort. *Medicine (Baltimore)*. 2022 Sep 23;101(38):e30810. doi: 10.1097/MD.00000000000030810.
4. Lin Y, Chen Y, Liu R, Cao B. Effect of exercise on rehabilitation of breast cancer surgery patients: A systematic review and meta-analysis of randomized controlled trials. *Nurs Open*. 2023 Apr;10(4):2030-2043. doi: 10.1002/nop2.1518.

Reduction secondary lymphedema

1. Cormie P, Pumpa K, Galvao DA et al. Is it safe and efficacious for women with lymphedema secondary to breast cancer to lift heavy

- weights during exercise: a randomised controlled trial. *J Cancer Surviv.* 2013 Sep;7(3):413-24.
2. Baumann FT, Reike A, Reimer V, et al. Effects of physical exercise on breast cancer-related secondary lymphedema: a systematic review. *Breast Cancer Res Treat.* 2018 Jul;170(1):1-13. doi: 10.1007/s10549-018-4725-y. Epub 2018 Feb 22. PMID: 29470804.
 3. Baumann FT, Reike A, Hallek M, et al. Does Exercise Have a Preventive Effect on Secondary Lymphedema in Breast Cancer Patients Following Local Treatment? - A Systematic Review. *Breast Care (Basel).* 2018 Oct;13(5):380-385. doi: 10.1159/000487428.
 4. Tsai CL, Hsu CY, Chang WW, Lin YN. Effects of weight reduction on the breast cancer-related lymphedema: A systematic review and meta-analysis. *Breast.* 2020 Aug;52:116-121. doi: 10.1016/j.breast.2020.05.007. Epub 2020 May 28. PMID: 32505860; PMCID: PMC7375642.
 5. Basha MA, Aboelnour NH, Alsharidah AS, Kamel FH. Effect of exercise mode on physical function and quality of life in breast cancer-related lymphedema: a randomized trial. *Support Care Cancer.* 2022 Mar;30(3):2101-2110. doi: 10.1007/s00520-021-06559-1.
 6. Hayes SC, Singh B, Reul-Hirche H, et al. The Effect of Exercise for the Prevention and Treatment of Cancer-Related Lymphedema: A Systematic Review with Meta-analysis. *Med Sci Sports Exerc.* 2022 Aug 1;54(8):1389-1399. doi: 10.1249/MSS.0000000000002918.

Prevention lymphedema

1. Baumann FT, Reike A, Hallek M, et al. (2018) Does Exercise have a preventive effect on secondary lymphedema in breast cancer patients following local treatment – a systemic review. *Breast Care* 13(5): 380–385. DOI. 10.1159/000487428
2. Paskett ED, Le-Rademacher J, Olivieri JM et al. A randomized study to prevent lymphedema in women treated for breast cancer: CALGB 70305 (Alliance). *Cancer* 2021 Jan 15;127(2):291-299
3. Hayes SC, Singh B, Reul-Hirche H, et al. The Effect of Exercise for the Prevention and Treatment of Cancer-Related Lymphedema: A Systematic Review with Meta-analysis. *Med Sci Sports Exerc.* 2022 Aug 1;54(8):1389-1399. doi: 10.1249/MSS.0000000000002918.
4. Lin Y, Wu C, He C, et al. Effectiveness of three exercise programs and intensive follow-up in improving quality of life, pain, and lymphedema among breast cancer survivors: a randomized, controlled 6-month trial. *Support Care Cancer.* 2022 Dec 13;31(1):9. doi: 10.1007/s00520-022-07494-5.
5. Shi B, Lin Z, Shi X, et al. Effects of a lymphedema prevention program based on the theory of knowledge-attitude-practice on postoperative breast cancer patients: A randomized clinical trial. *Cancer Med.* 2023 Jul;12(14):15468-15481. doi: 10.1002/cam4.6171.

Prophylactic lymph drainage

1. Li L, Yuan L, Chen X: Current Treatments for Breast Cancer-Related Lymphoedema: A Systematic Review. *Asian Pac J Cancer Prev*. 2016 Nov 1;17(11):4875-4883.
2. Devoogdt N, Geraerts I, Van Kampen M, et al. Manual lymph drainage may not have a preventive effect on the development of breast cancer-related lymphoedema in the long term: a randomised trial. *J Physiother*. 2018 Oct;64(4):245-254. doi: 10.1016/j.jphys.2018.08.007.
3. Wanchai A, Armer JM. Manual lymphedema drainage for reducing risk for and managing breast cancer-related lymphedema after breast surgery:A systematic review. *Nurs Womens Health* 2021 oct;25(5):377-383.Doi 10.1016/j.nwh.2021.07.005
4. Paskett ED, Le-Rademacher J, Oliveri JM. A randomized study to prevent lymphedema in women treated for breast cancer:CALGB 70305 (Alliance).*Cancer* 2021 Jan15;127(2):291-299
5. Byun H, Jang Y, Kim JY, et al. Effects of preoperative personal education on shoulder function and lymphedema in patients with breast cancer: A consort. *Medicine (Baltimore)*. 2022 Sep 23;101(38):e30810. doi: 10.1097/MD.0000000000030810.

Yoga

1. Loudon A, Barnett T, Piller N,et al. The effects of yoga on shoulder and spinal actions for women with breast cancer-related lymphoedema of the arm: A randomised controlled pilot study. *BMC Complement Altern Med*. 2016 Sep 2;16(1):343. doi: 10.1186/s12906-016-1330-7. PMID: 27590865; PMCID: PMC5010718.
2. Eyigor S, Uslu R, Apaydin S, et al. Can Yoga have any effect on shoulder and arm pain an quality of life in patients with breast cancer. A randomized, controlled, single-blind trial . *Complementary Therapies in Clinical Practice* 2018;32:40-45.
3. Saraswathi V, Latha S, Niraimathi K, Vidhubala E. Managing Lymphedema, Increasing Range of Motion, and Quality of Life through Yoga Therapy among Breast Cancer Survivors: A Systematic Review. *Int J Yoga*. 2021 Jan-Apr;14(1):3-17. doi: 10.4103/ijoy.IJOY_73_19.

Music therapy

1. Li, X.M., Yan H, Zhou KN, et al. Effects of music therapy on pain among female breast cancer patients after radical mastectomy: results from a randomized controlled trial. *Breast Cancer Res Treat*, 2011. 128(2): p. 411-9.
2. Binns-Turner, P.G., Wilson LL, et al. Perioperative music and its effects on anxiety, hemodynamics, and pain in women undergoing mastectomy. *Aana j*, 2011. 79(4 Suppl): p. S21-7.
3. Ashour ASA, Abd-ElGawad M, Yohanna M, et al. Is music intervention effective in reducing anxiety and pain during breast biopsy procedure? A systematic review and meta-analysis of randomized controlled trials. *Support Care Cancer*. 2022 Dec;30(12):10379-

10389. doi: 10.1007/s00520-022-07414-7.

Komplementäre Therapien

Behandlungsphase – Einfluss auf Toxizität I

Bei laufender onkologischer Standardtherapie: CAVE: Interaktionen beachten!	Oxford		
	LoE	GR	AGO
▪ Mistellektine (<i>Viscum album</i>) zur Reduktion therapieassoziiertes Nebenwirkungen	1a	B	+/-
▪ Thymuspeptide verringern Risiko schwerer Infektionen	1a	B	+/-
▪ Ginseng verringert Fatigue; (Cave: interagiert mit P Enzymen, z. B. CYP3A4)	2b	B	-
▪ Ganoderma lucidum verringert Fatigue; (Cave: inhibiert P Enzyme, z. B. CYP3A4)	1a	B	-
▪ L-Carnitin zur Behandlung der peripheren Neuropathie zur Behandlung der Fatigue	1b 1b	B B	-- -
▪ Melatonin (verringert Fatigue, verbessert Schlaf, depressive Symptome, Gedächtnis)	2a	B	+/-
▪ Curcumin vermindert Radiodermatitis	1b	B	+/-
▪ Ingwer komplementär zu Leitlinien-gerechter Medikation gegen Chemother.-induzierte Übelkeit / Erbrechen; Cave: Wechselwirkungen	1b	C	+/-

General

1. Neuhouser ML, Smith AW, George SM: Use of complementary and alternative medicine and breast cancer survival in the Health, Eating, Activity, and Lifestyle Study. *Breast Cancer Res Treat.* 2016 Dec;160(3):539-546.
2. Farahmand L, Darvishi B, Majidzadeh-A K: Naturally occurring compounds acting as potent anti-metastatic agents and their suppressing effects on Hedgehog and WNT/ β -catenin signalling pathways. *Cell Prolif.* 2017 Feb;50(1). doi: 10.1111/cpr.12299.
3. Ben-Arye E, Elly D, Samuels N, Gressel O, Shulman K, Schiff E, Lavie O, Minerbi A. Effects of a patient-tailored integrative oncology intervention in the relief of pain in palliative and supportive cancer care. *J Cancer Res Clin Oncol.* 2021 Aug;147(8):2361-2372. doi: 10.1007/s00432-020-03506-1.
4. Jakobišć Brala C, Karković Marković A, Kugić A, Torić J, Barbarić M. Combination Chemotherapy with Selected Polyphenols in Preclinical and Clinical Studies-An Update Overview. *Molecules.* 2023 Apr 26;28(9):3746. doi: 10.3390/molecules28093746.

Mistletoe

1. Thronicke A, Steele ML, Grah C, et al.: Clinical safety of combined therapy of immune checkpoint inhibitors and *Viscum album* L. therapy in patients with advanced or metastatic cancer. *BMC CAM.* 2017;17:534.
2. Freuding M, Keinki C, Kutschan S, et al.: Mistletoe in oncological treatment: a systematic review : Part 2: quality of life and toxicity of cancer treatment. *J Cancer Res Clin Oncol.* 2019;145(4):927-939.

3. Loef M, Walach H. Quality of life in cancer patients treated with mistletoe: a systematic review and meta-analysis. *Compl Med Res*. 2019. In press.
4. Weissenstein U, Kunz M, Oufir M, et al.: Absence of herb-drug interactions of mistletoe with the tamoxifen metabolite (E/Z)-endoxifen and cytochrome P450 3A4/5 and 2D6 in vitro. *BMC Complement Altern Med*. 2019;19:23.
5. Pelzer F, Loef M, Martin DD, Baumgartner S. Cancer-related fatigue in patients treated with mistletoe extracts: a systematic review and meta-analysis. *Support Care Cancer*. 2022 Aug;30(8):6405-6418. doi: 10.1007/s00520-022-06921-x.
6. Loef M, Paepke D, Walach H. Quality of Life in Breast Cancer Patients Treated With Mistletoe Extracts: A Systematic Review and Meta-Analysis. *Integr Cancer Ther*. 2023 Jan-Dec;22:15347354231198074. doi: 10.1177/15347354231198074.

Thymus

1. Wolf E, Milazzo S, Boehm K, et al. Thymic peptides for treatment of cancer patients. *Cochrane Database of Systematic Reviews* 2012, Issue 2. Art. No.: CD003993. DOI: 10.1002/14651858.CD003993.pub3.

Ginseng

1. He M, Huang X, Liu S, et al. The Difference between White and Red Ginseng: Variations in Ginsenosides and Immunomodulation. *Planta Med*. 2018 Aug;84(12-13):845-854. doi: 10.1055/a-0641-6240.
2. Arring NM, Millstine D, Marks LA, Nail LM. Ginseng as a Treatment for Fatigue: A Systematic Review. *J Altern Complement Med*. 2018 Jul;24(7):624-633. doi: 10.1089/acm.2017.0361.
3. Sadeghian M, Rahmani S, Zendehtdel M, et al. Ginseng and Cancer-Related Fatigue: A Systematic Review of Clinical Trials. *Nutr Cancer*. 2021;73(8):1270-1281. doi: 10.1080/01635581.2020.1795691.

Ganoderma Lucidum

1. Jin X, Ruiz Beguerie J, SzeDMY, ChanGCF. *Ganoderma lucidum* (Reishi mushroom) for cancer treatment. *Cochrane Database of Systematic Reviews* 2016, Issue 4. Art. No.: CD007731. DOI: 10.1002/14651858.CD007731.pub3.
2. Zhong L, Yan P, Lam WC, et al. *Coriolus Versicolor* and *Ganoderma Lucidum* Related Natural Products as an Adjunct Therapy for Cancers: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Front Pharmacol*. 2019 Jul 3;10:703. doi: 10.3389/fphar.2019.00703.

L-Carnitine

1. Cruciani RA, Zhang JJ, Manola J et al. L-carnitine supplementation for the management of fatigue in patients with cancer: an eastern cooperative oncology group phase III, randomized, double-blind, placebo-controlled trial. *J Clin Oncol*. 2012 Nov 1;30(31):3864-9
2. Hershman DL, Unger JM, Crew K et al.: Two-Year trends of Taxane-induced neuropathy in women enrolled in a randomized trial of Acetyl-L-carnitine (SWOG S0715). *J Natl Cancer Inst* 2018 Jun 1;110(6) 669-676.
3. Momenzadeh M, Aria A, Ghadimi K, Moghaddas A. Acetyl-L-carnitine for the prevention of taxane-induced neuropathy in patients with breast cancer: a systematic review and meta-analysis. *Res Pharm Sci*. 2023 Jan 19;18(2):112-120. doi: 10.4103/1735-5362.367791.

Melatonin

1. Li W, Chi-Hei Kwok C, Chun-Wan Chan D et al. Disruption of sleep, sleep-wake activity rhythm, and nocturnal melatonin production in breast cancer patients undergoing adjuvant chemotherapy: prospective cohort study. *Sleep Med* 2019;55:14-21 DOI 10.1016/j.sleep.2018.11.022
2. Zaki NFW, Sabri YM, Farouk O et al. Depressive symptoms, sleep profile and serum melatonin levels in a sample of breast cancer patients. *Nature and Science of Sleep* 2020;12:135-149.
3. Sedighi Pashaki A, Sheida F, Moaddab Shoar L, et al. A Randomized, Controlled, Parallel-Group, Trial on the Long-term Effects of Melatonin on Fatigue Associated With Breast Cancer and Its Adjuvant Treatments. *Integr Cancer Ther*. 2023 Jan-Dec;22:15347354231168624. doi: 10.1177/15347354231168624.
4. Seo K, Kim JH, Han D. Effects of Melatonin Supplementation on Sleep Quality in Breast Cancer Patients: A Systematic Review and Meta-Analysis. *Healthcare (Basel)*. 2023 Feb 24;11(5):675. doi: 10.3390/healthcare11050675.

Curcumin

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Komplementäre Therapien

Behandlungsphase – Einfluss auf Toxizität II

	Oxford		
	LoE	GR	AGO
▪ Antioxidanzien (Suppl.)	1b	B	-
• verschied. antioxidative Extrakte (zur Minderung anthracyclinbedingter Cardiotoxizität)	1b	B	-
▪ Hochdosiert Vitamin C	1b	C	-
▪ Vitamin E	2b	B	-
▪ Selen (zur Linderung von Nebenwirkungen)	1b	B	-
▪ Co-Enzym Q 10 (Fatigue, Lebensqualität)	1b	B	-
▪ Proteolytische Enzyme (gegen Chemotherapie-induzierte Toxizität)	2b	B	-
▪ Chinesische Medizin (Besserung der Wundheilung)*	1b	B	--
▪ Sauerstoff- und Ozon-Therapie	3	C	--
▪ Kurzzeitfasten (bei 3-wöchigen Chemo-Zyklen - QoL, Fatigue)	2b	B	+/- **

* Applikation von in Deutschland nicht geprüfter Substanzen oder Kombinationen
** Studienteilnahme empfohlen

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Komplementäre Therapien unter onkologischer Therapie Behandlung von Nebenwirkungen

	Oxford		
	LoE	GR	AGO
▪ Cannabis-basierte Arzneimittel (gegen Schmerzen, Übelkeit/Erbrechen)	1b	A	+/-
▪ Chinesische Kräutermedizin* (gegen chemo-therapiebedingte und endokrine-therapie-bedingte Nebenwirkungen)	1b	B	-
▪ Homöopathische Medizin (gegen therapiebedingte Nebenwirkungen / (Placeboeffekt)	1b	B	+/-
▪ Topische Anwendung Silymarin (akute Hautreaktion unter Strahlentherapie)	2b	B	+/-
▪ Massage (zur Verbesserung von Fatigue, Schmerzen, Angst, Übelkeit)	1b	B	+/-
▪ Transkutane elektrische Nervenstimulation (TENS) (bei Karzinomschmerzen)	1a	B	+/-
▪ Hydrotherapie (zur supportiven Hautpflege)	2b	B	+/-

* Cave! Übersichten bzw. Meta-Analysen mit rein chinesisch-sprachigen Originalarbeiten sind durch die Kommission Mamma nicht überprüfbar

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Komplementäre Therapien unter onkologischer Therapie Behandlung von Nebenwirkungen

	Oxford		
	LoE	GR	AGO
Akupunktur** zur Verbesserung von			
▪ Chemotherapie-induzierter Übelkeit und Erbrechen			
▪ (Elektro/Ohr)-Akupunktur als Ergänzung zu antiemetischer Therapie	1b	B	+
▪ (Ohr)-Akupressur als Ergänzung zu Antiemetika	1b	B	+
▪ Schmerzen			
▪ Krebschmerzen	1b	B	+
▪ AI-induzierter Arthralgie	1a	B	+
▪ Fatigue			
▪ Akupressur	1a	B	+
▪ Kognitive Dysfunktion	1b	B	+
▪ Schlafproblemen	2b	C	+/-
▪ Schlafproblemen	2b	C	+/-
▪ Menopausensyndromen (unter Behandlung)	1b	B	+*
▪ zur Verbesserung v. Häufigkeit und Schwere d. Hitzewallungen	1b	B	+/-
▪ Leukopenie (Moxibustion)	2b	B	-
▪ Chemotherapie-induzierte Polyneuropathie			
▪ als Prophylaxe	1b	B	-
▪ als Therapie	2b	B	+/-
▪ Chronischem Lymphödemen nach MaCa Therapie	2b	B	+/-

* Daten nur zu Menopause nach Behandlung

** Cave! Übersichten bzw. Meta-Analysen mit rein chinesisch-sprachigen Originalarbeiten durch Kommission Mamma nicht überprüfbar.

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Menopausale Probleme

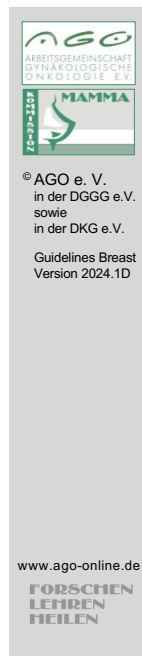
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Komplementäre Therapien

Behandlungsphase – Mind-Body Medizin I

	Oxford		
	LoE	GR	AGO
MBSR (Mindfulness-Based Stress Reduction – dt. achtsamkeitsbasierte Stressbewältigung) Programm verbessert Lebensqualität, Bewältigungsstrategien, Achtsamkeit, vermindert Stress, Angst (inkl. vor Rezidiv), Depression, Fatigue und Schlafstörung	1a	A	+
Körperliches Training / Sport (mind. 3x/Woche moderates Ausdauertraining in Kombination mit kräftigendem Gerätetraining 2x/Wo.) verbessert Lebensqualität, kardiorespiratorische Fitness, körperliche Leistungsfähigkeit, Schlaf, Schmerz, Depression, Lymphödem, Fatigue, Kognition, Gewichtskontrolle	1a	A	++

Mind-Body Medicine (MBM)

MBSR

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Komplementäre Therapien

Behandlungsphase – Mind-Body Medizin II

	Oxford		
	LoE	GR	AGO
Entspannungsverfahren Reduktion von Angst, Depressivität und Übelkeit, Verbesserung der Lebensqualität, des Schlafs, Verminderung psychischer Belastung	2b	C	+/-
Yoga Verbesserung von Lebensqualität, Schlaf, Angst, Depression, CIPN, Lymphödemen und insbesondere Fatigue	1b	A	+
Qigong Verbesserung von Lebensqualität, Fatigue, Stimmung	2a	B	+/-
Tai-Chi Verbesserung von Lebensqualität, Muskelkraft, Schlaf	2a	B	+/-
Hypnose Verbesserung von Fatigue unter Radiotherapie, Reduktion von Distress	1b	A	+

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Komplementäre Therapien Rezidivprävention / Verbesserung Gesamtüberleben I

Beeinflussbare Lebensstilfaktoren – Sport – Genussmittel

	Oxford		
	LoE	GR	AGO
<ul style="list-style-type: none"> ▪ Körperliches Training / Sport (das Äquivalent zu 3–5 Std. mäßiggradigem „Walking“ verbessert DFS und OS und kardiopulmonale Funktion) 	2a	A	++
<ul style="list-style-type: none"> ▪ Nikotinreduktion 	2b	A	+
<ul style="list-style-type: none"> ▪ Alkoholkonsum reduzieren (< 6g/die) 	2b	A	+

Physical exercise

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Improvements in DFS and OS, prevention of recurrence

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Alcohol

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Komplementäre Therapien Rezidivprävention / Verbesserung Gesamtüberleben II

Beeinflussbare Lebensstilfaktoren – Ernährung

	Oxford		
	LoE	GR	AGO
▪ Anstreben eines normalen BMI	1a	A	++
▪ Ernährung mit geringem Fettanteil (Ernährungsberatung empfohlen)	1a	B	+
▪ Ballaststoffhaltige Lebensmittel (u. a. Saaten, z. B. Leinsamen)	2a	B	+
▪ Beachten genereller Ernährungsempfehlungen (z. B. von DGE, WCRF) im Sinne einer mediterranen (Vollwert-)Ernährung	2a	B	++
▪ Nächtliche Nahrungskarenz	2b	C	+/-
▪ Diät-Extreme	2a	B	--

Anstreben eines normalen BMI

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Geringer Fettanteil

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Komplementäre Therapien

Rezidivprävention / Verbesserung Gesamtüberleben III.1

Pflanzliche Therapieansätze – Nahrungsergänzung

	Oxford		
	LoE	GR	AGO
Bei laufender onkologischer Standardtherapie:			
Interaktionen beachten!			
▪ Nach Systemtherapie – Vitamine / Antioxidanzien scheinen nicht mit einem erhöhtem Rezidivrisiko assoziiert	2b	B	
▪ Raucher haben ein höheres Bronchial-Ca-Risiko unter Antioxidanzien	1b	A	
<u>Prävention eines Brustkrebs-Rezidivs</u>			
▪ Antioxidanzien	2a	B	+/-
▪ Vitamine (zusätzlich zu ausgewogener Ernährung; Vitamine C, E)	2a	B	+/-
▪ Vitamin D (nach Vit. D Spiegel)	2b	B	+/-
▪ Sojaprodukte (Phytoöstrogene)	2a	B	+/-
▪ Phytoöstrogene Konzentration ≥ 100 mg Isoflavone pro Tag	2a	B	-
▪ Traubensilberkerze (Cimicifuga racemosa)	3b	C	+/-
▪ Antioxidative Supplemente nach Beendigung der Radiotherapie	2b	B	+/-
▪ Grüner Tee	3a	C	+/-
▪ Selen	2b	B	+/-

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Komplementäre Therapien

Rezidivprävention / Verbesserung Gesamtüberleben III.2

Pflanzliche Therapieansätze – Nahrungsergänzung

Bei laufender onkologischer Standardtherapie: Interaktionen beachten!

	Oxford		
	LoE	GR	AGO
▪ Spurenelemente und Mineralstoffe	2b	B	-
▪ Karotenoide	2b	B	-
▪ Proteolytische Enzyme (Papain, Trypsin, Chymotrypsin)	3b	B	-
▪ Mistlektine (Viscum album)	1b	C	-
▪ Thymuspeptide (Einfluss auf Überleben)	2a	B	-
▪ Sauerstoff- und Ozon-Therapie	5	D	--
▪ Laetrile (Aprikosenkernextrakt, Amygdalin, „Vitamin B17“)	1c	D	--
▪ Methadon	5	D	--
▪ TCM-Kräuter*	2b	C	--
▪ Cancer bush (<i>Sutherlandia frutescens</i>), Devil's claw (<i>Harpagophytum procumbens</i>), Rooibos Tee (<i>Aspalathus linearis</i>), Bambara-Erdnuss (<i>Vigna subterranean</i>)	4	C	-
▪ Weihrauch	5	D	-
▪ Curcuma, Curcumin	2b	C	-

* Cave! Übersichtsarbeiten mit chinesischen Originalstudien und Kräutermischungen ohne Kenntnis der Wechselwirkungen

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Laetril

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