Diagnosis and Treatment of Patients with early and advanced Breast Cancer

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Guidelines Breast
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Options for Primary Prevention: Modifiable Lifestyle Factors

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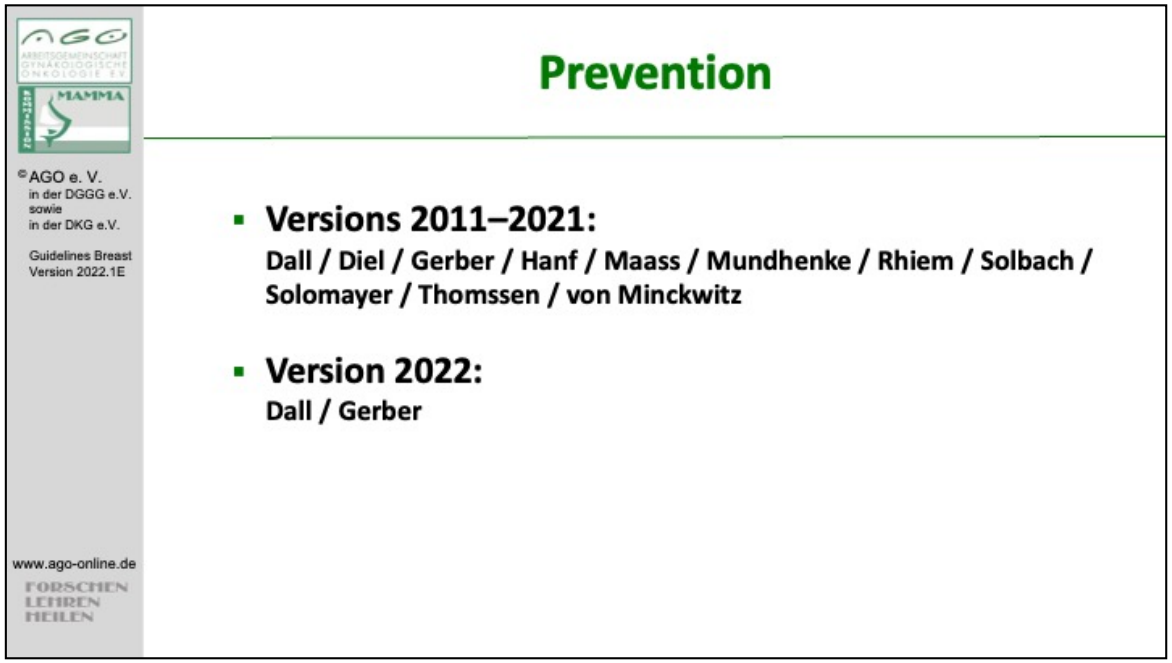
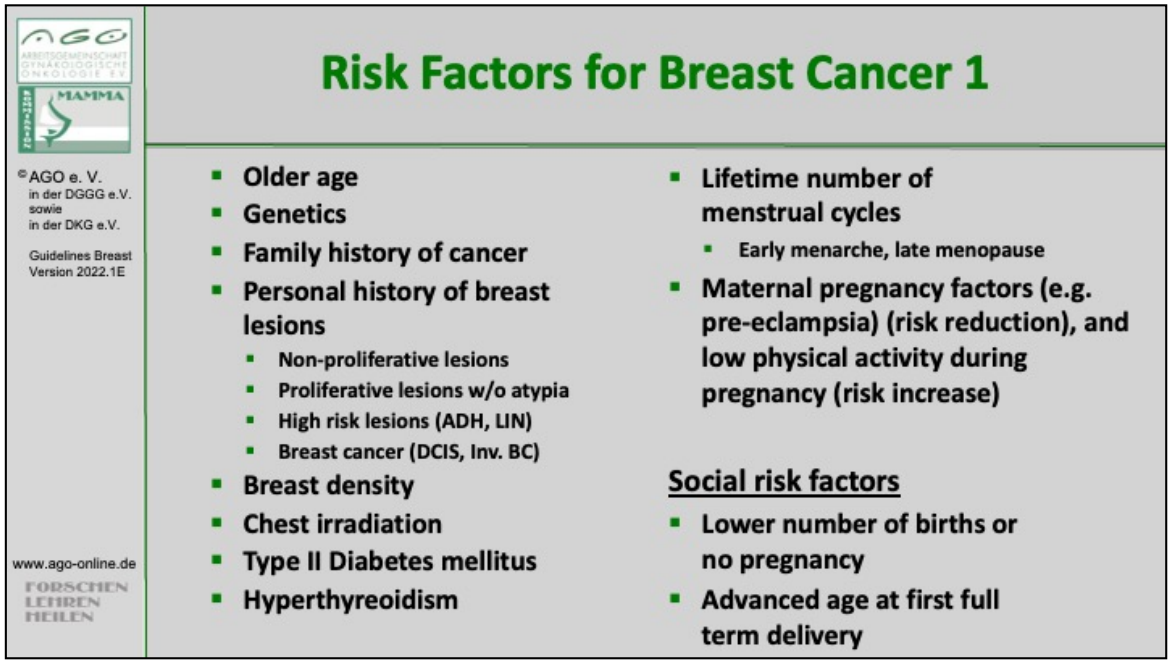


Screened data bases

Pubmed 2005 – 2021, ASCO 2012 – 2021, SABCS 2012 – 2021, Cochrane data base 2021



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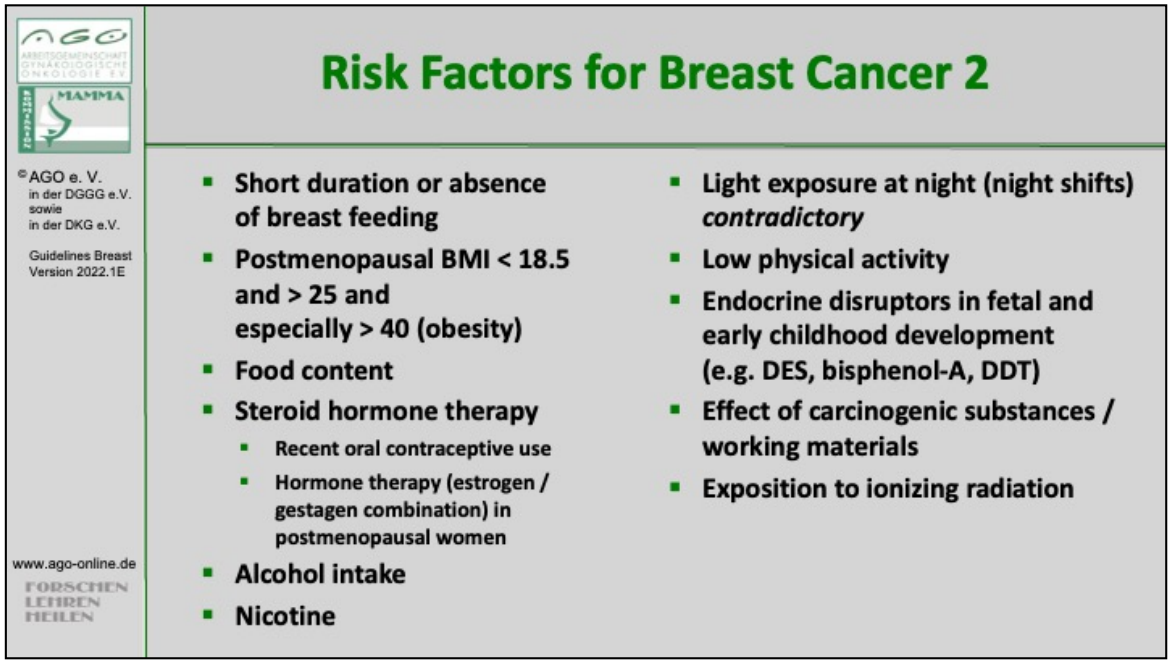

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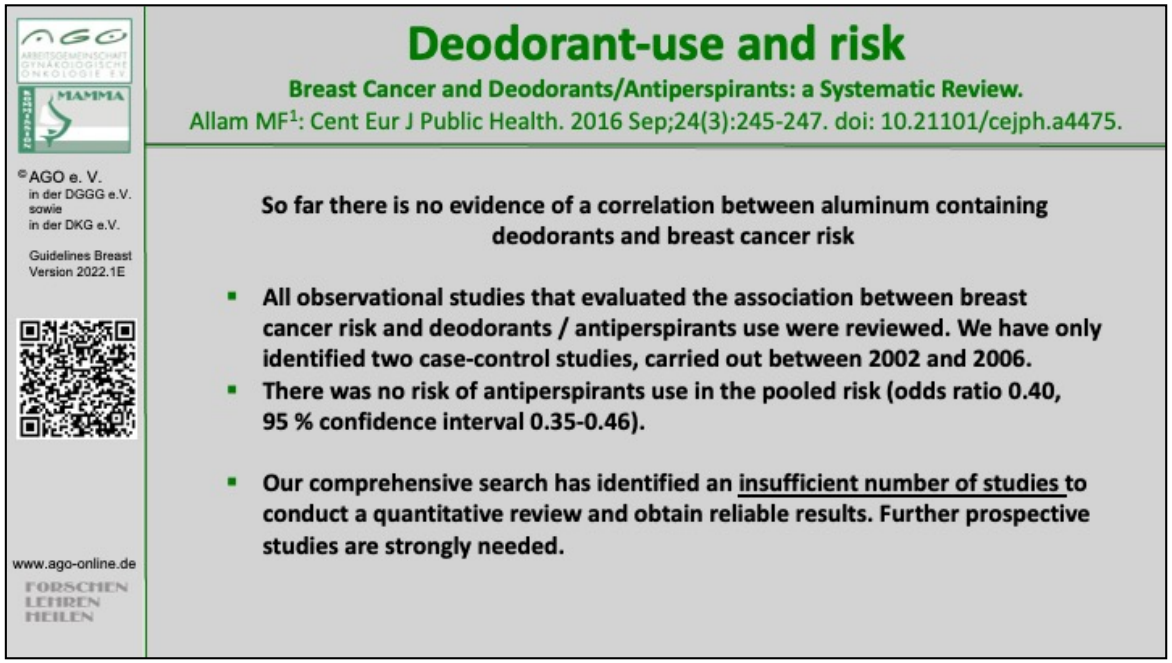

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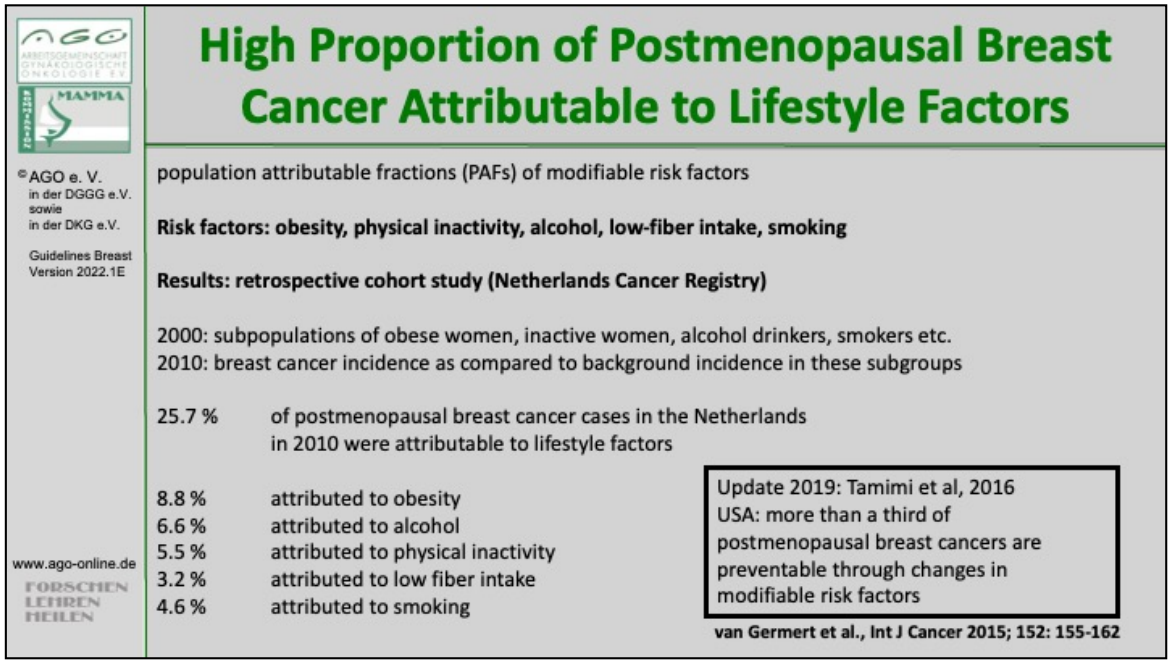

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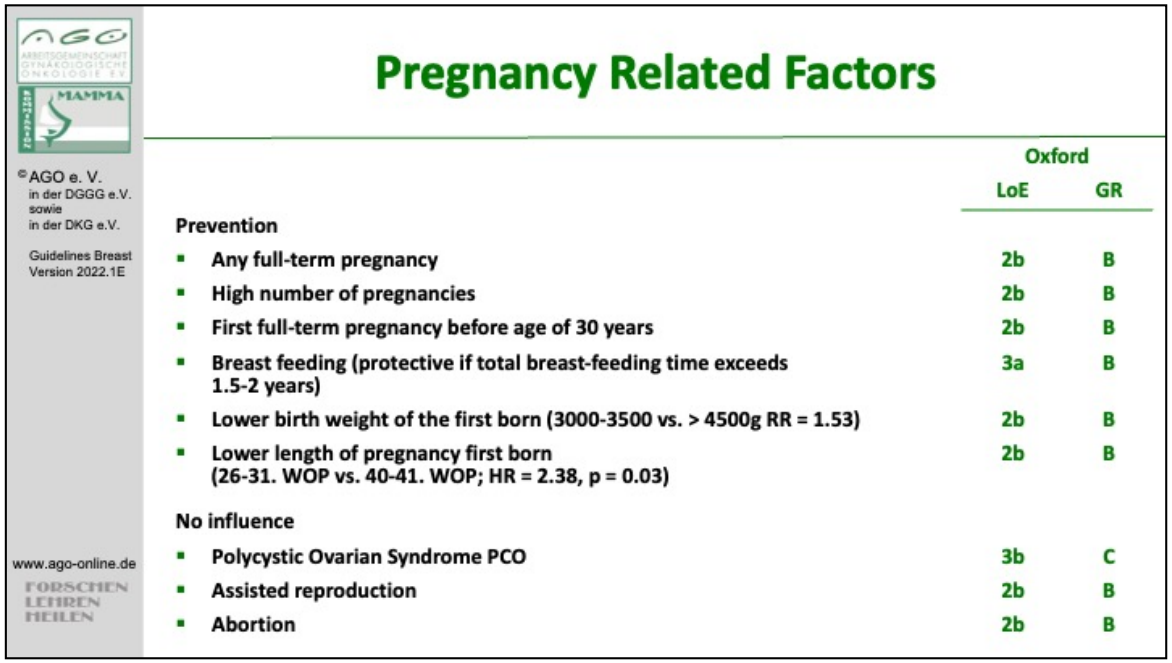

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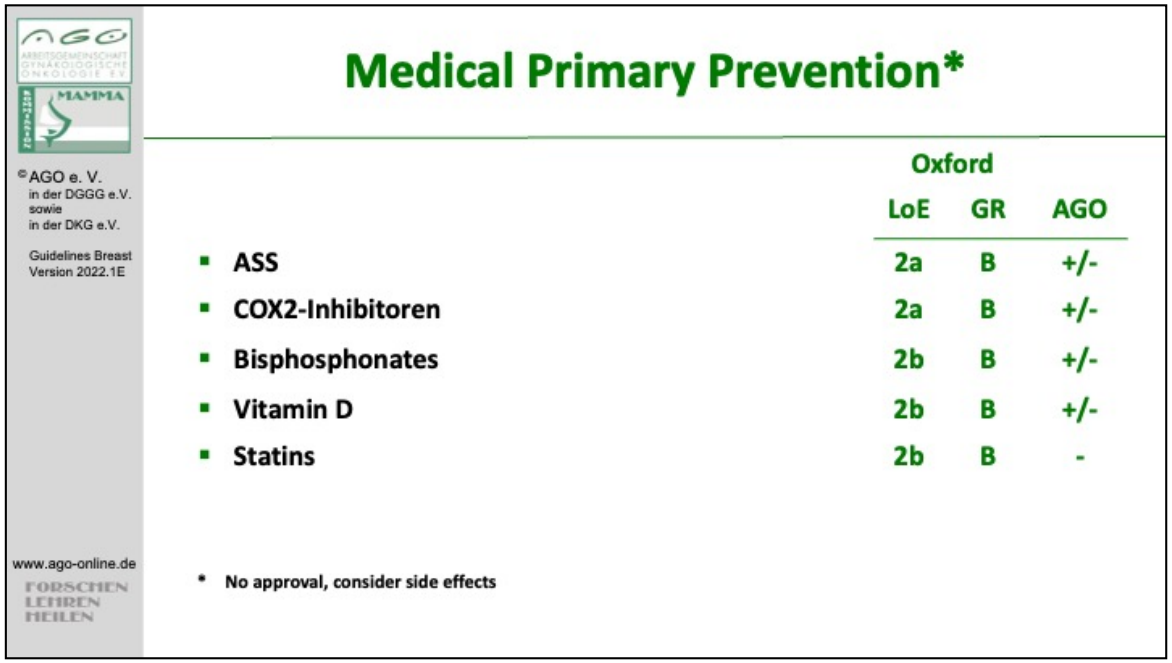

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Kehm RD et al., Regular use of aspirin and other non-steroidal anti-inflammatory drugs and breast cancer risk for women at familial or Genetic risk: a cohort study, Breast Cancer Res. 2019 Apr. 18;21(1):52

Prospective multinational cohort study, n = 5606, healthy women questionaire, regular intake of ASS, NSAID, COX2-inhibitors

Regular ASS-intake: HR 0.61, CI 0.33-1.14, breast cancer incidence
Regular COX2-inhibitors : HR 0.39, CI 0.15-0.97, breast cancer incidence other NSAIDs: n.s.
[independent of BRCA-status]

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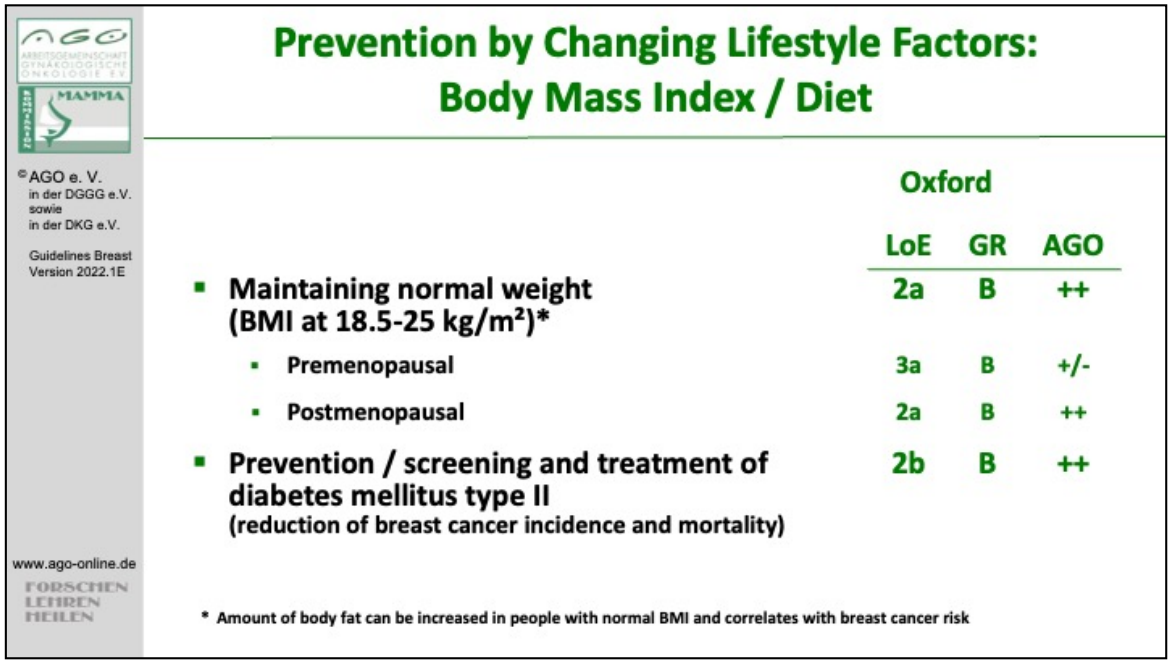

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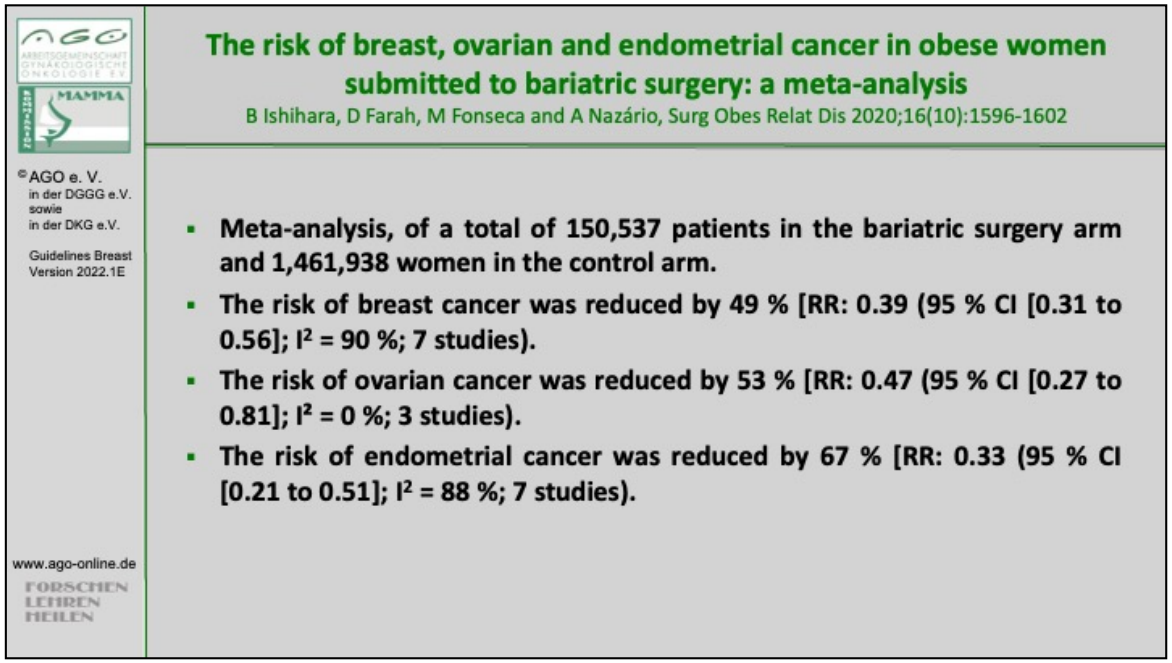

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Association of Body Fat and Risk of Breast Cancer in Postmenopausal Women With Normal Body Mass Index: A Secondary Analysis of a Randomized Clinical Trial and Observational Study.

Iyengar NM et al.: JAMA Oncol. 2019 Feb 1;5(2):155-163

- **WHI substudy**
- **Among the 3460 women included in the analysis (mean [SD] age, 63.6 [7.6] years), multivariable-adjusted hazard ratios for the risk of invasive breast cancer were 1.89 (95 % CI, 1.21-2.95) for the highest quartile of whole-body fat and 1.88 (95 % CI, 1.18-2.98) for the highest quartile of trunk fat mass.**
- **The corresponding adjusted hazard ratios for ER-positive breast cancer were 2.21 (95 % CI, 1.23-3.67) and 1.98 (95 % CI, 1.18-3.31), respectively.**

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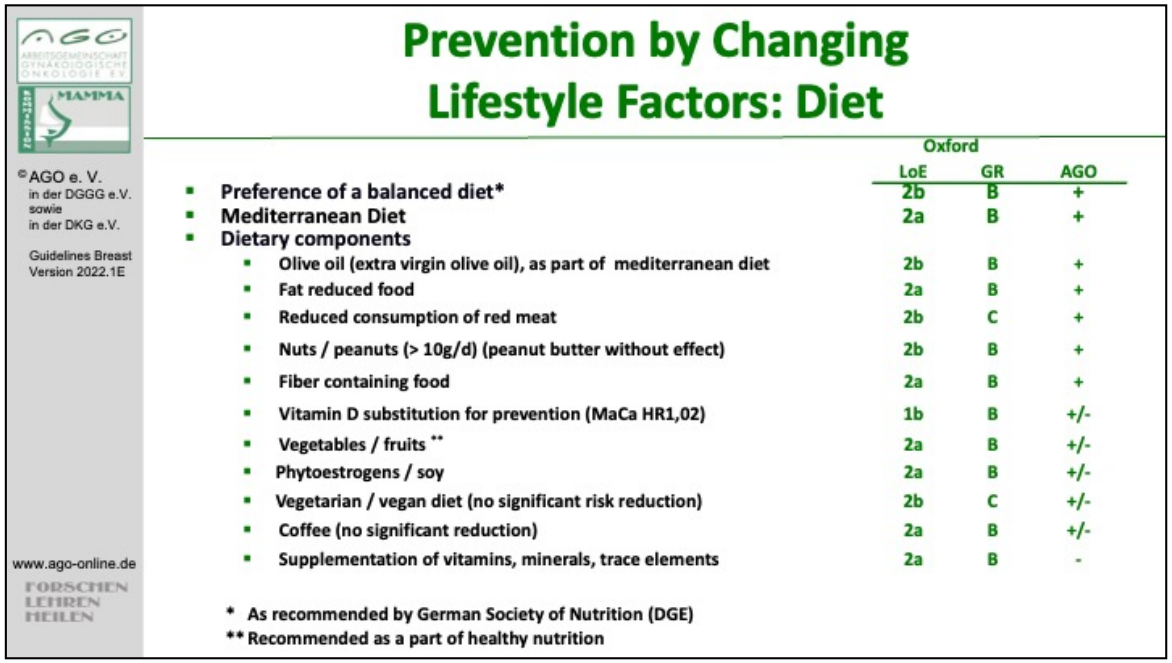

Prevention by Changing Lifestyle Factors: Diet

	Oxford LoE	GR	AGO
▪ Preference of a balanced diet*	2b	B	+
▪ Mediterranean Diet	2a	B	+
▪ Dietary components			
▪ Olive oil (extra virgin olive oil), as part of mediterranean diet	2b	B	+
▪ Fat reduced food	2a	B	+
▪ Reduced consumption of red meat	2b	C	+
▪ Nuts / peanuts (> 10g/d) (peanut butter without effect)	2b	B	+
▪ Fiber containing food	2a	B	+
▪ Vitamin D substitution for prevention (MaCa HR1,02)	1b	B	+/-
▪ Vegetables / fruits **	2a	B	+/-
▪ Phytoestrogens / soy	2a	B	+/-
▪ Vegetarian / vegan diet (no significant risk reduction)	2b	C	+/-
▪ Coffee (no significant reduction)	2a	B	+/-
▪ Supplementation of vitamins, minerals, trace elements	2a	B	-

* As recommended by German Society of Nutrition (DGE)
** Recommended as a part of healthy nutrition

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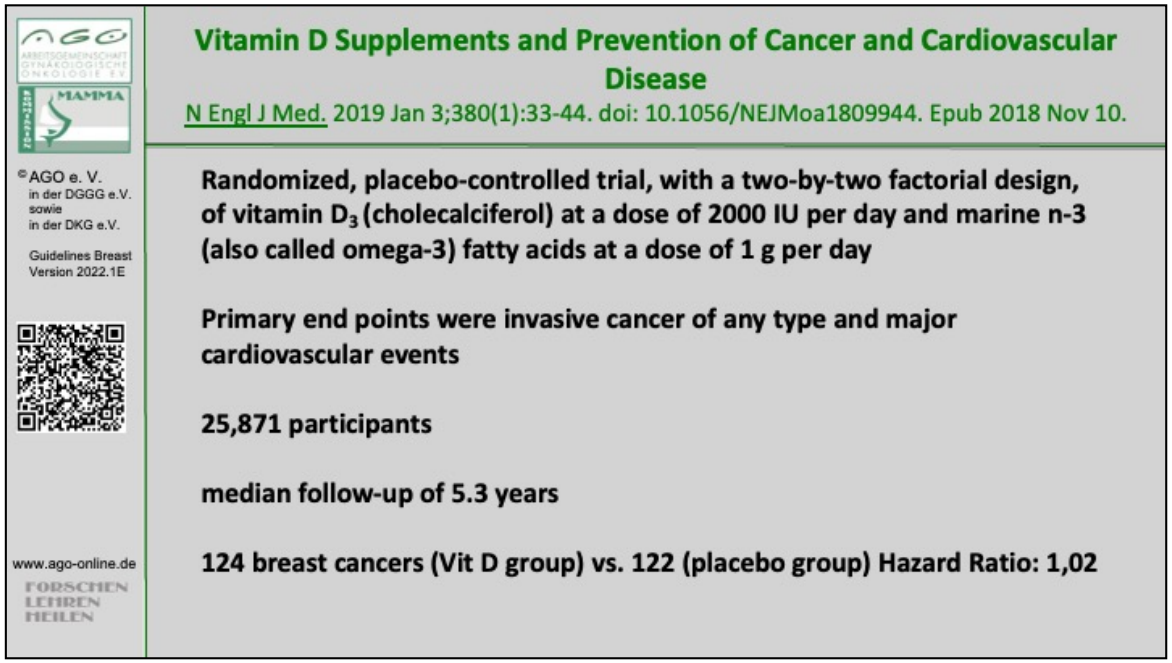

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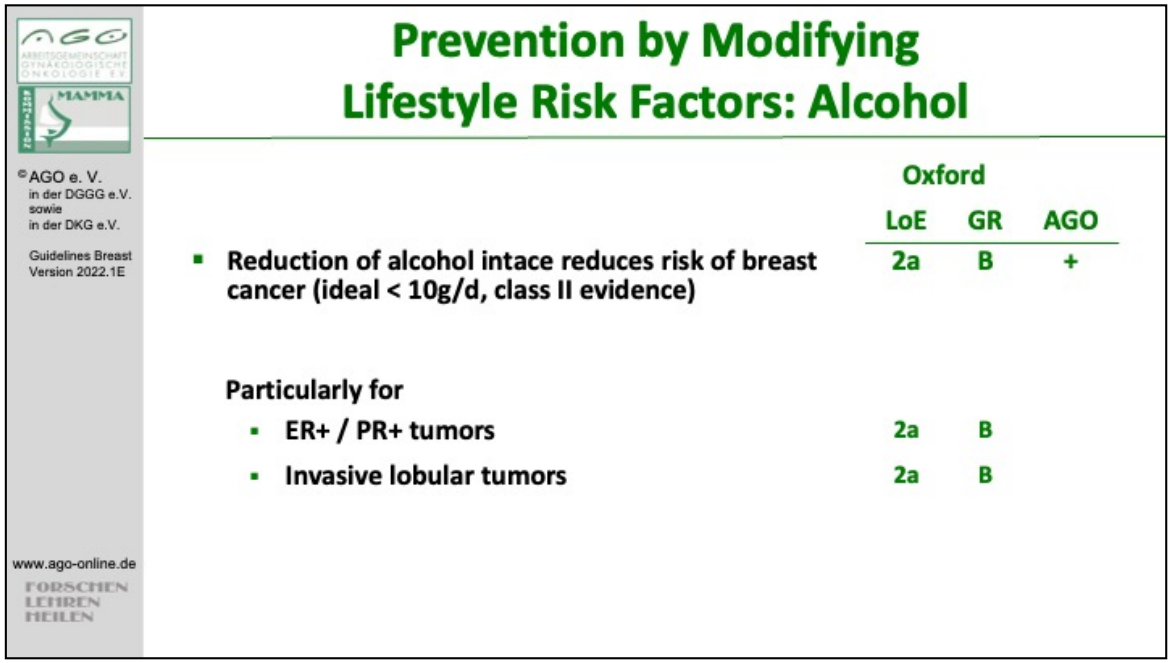

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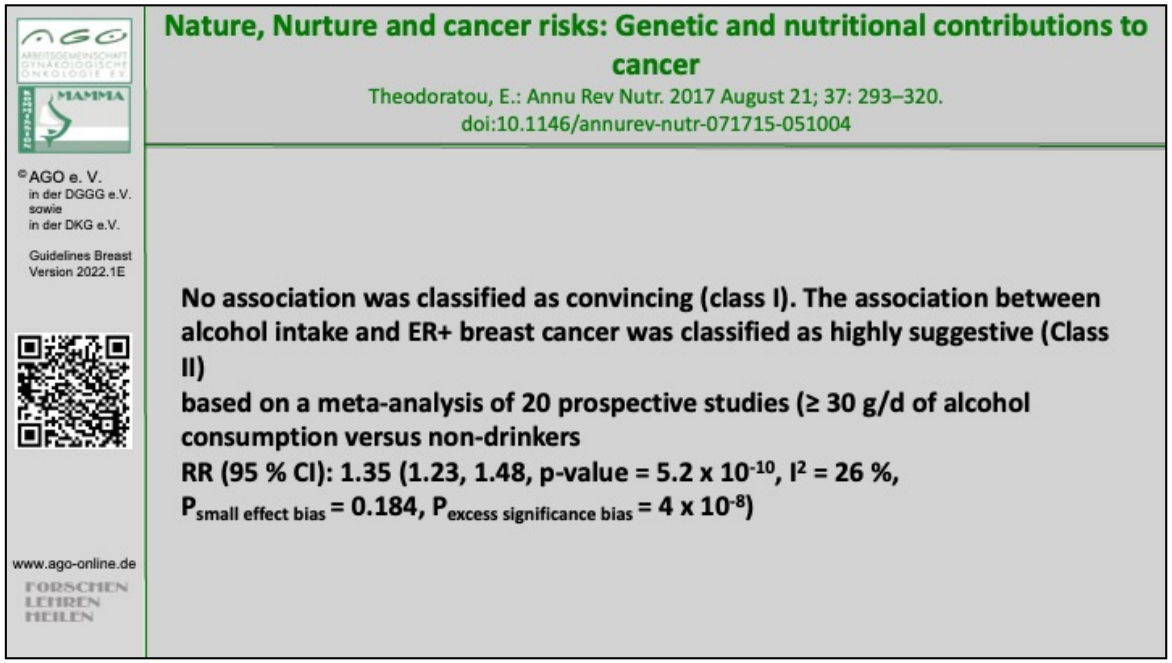

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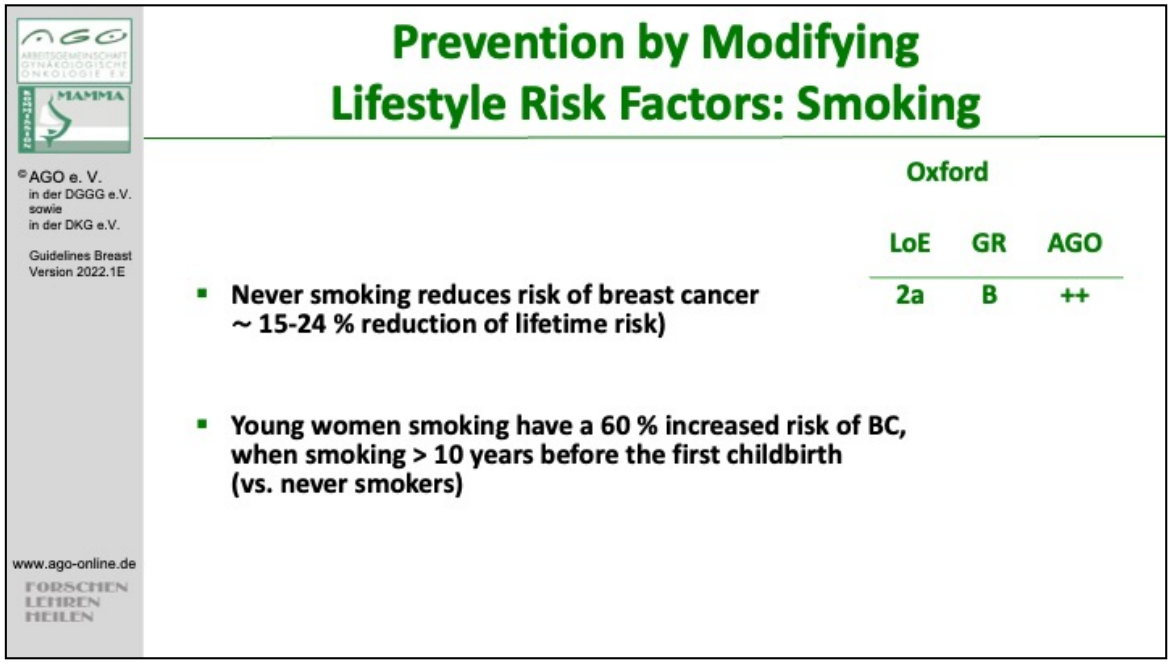

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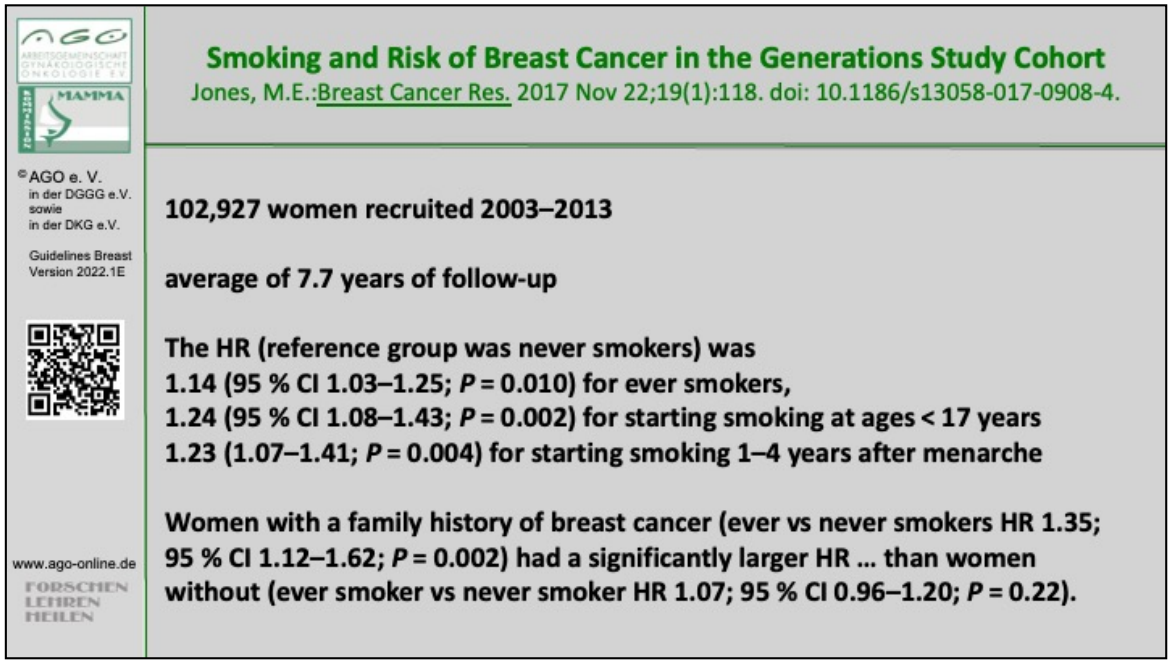

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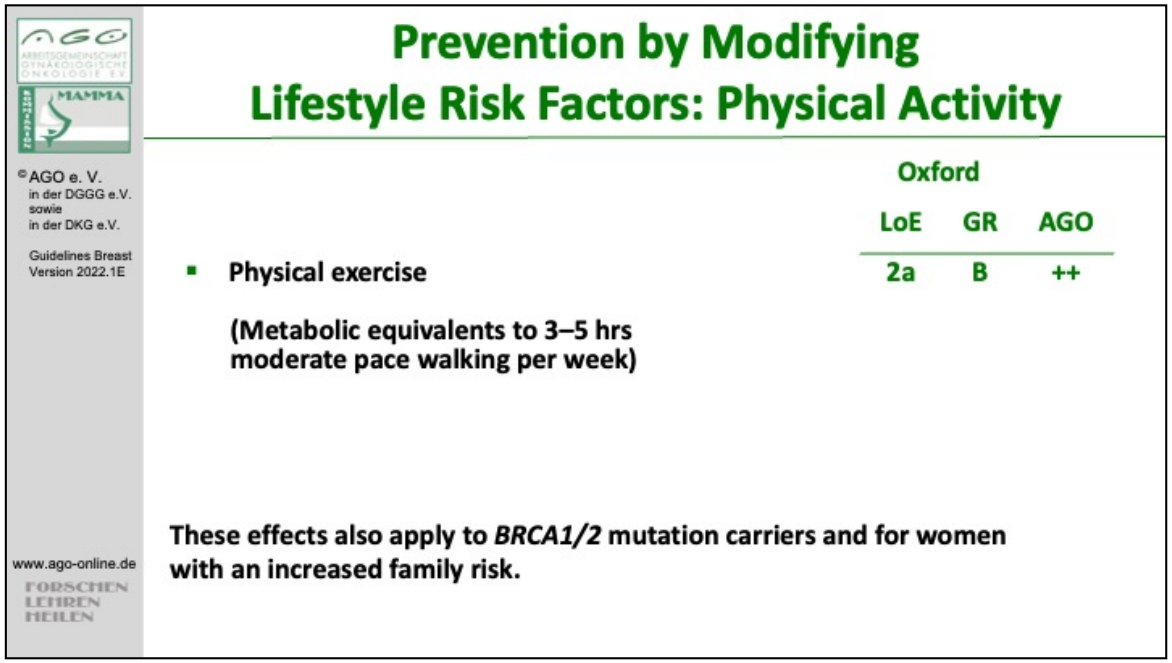

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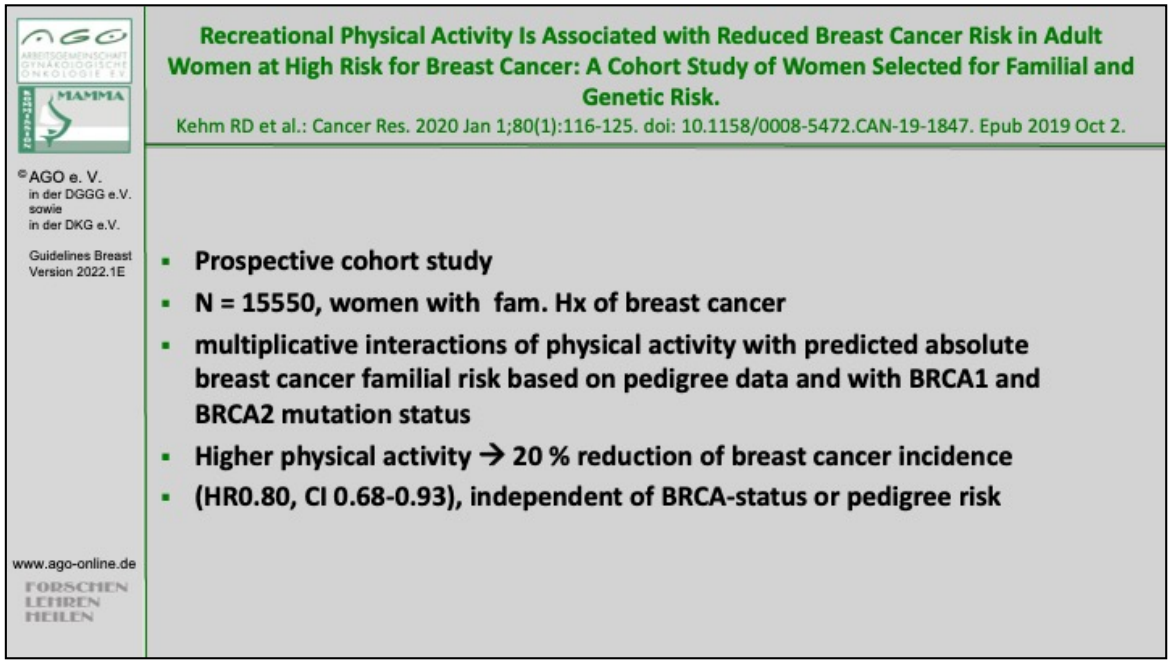
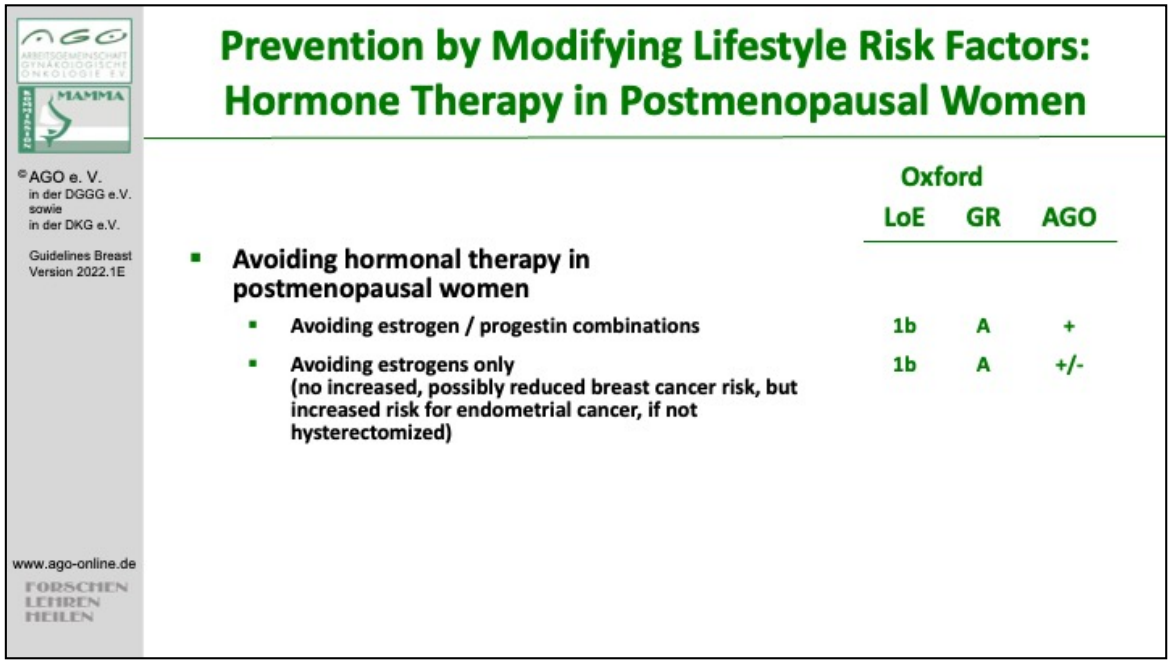


We examined associations of adult and adolescent recreational physical activity (quintiles of age-adjusted total metabolic equivalents per week) with breast cancer risk using multivariable Cox proportional hazards regression, adjusted for demographics, lifestyle factors, and body mass index. We tested for multiplicative interactions of physical activity with predicted absolute breast cancer familial risk based on pedigree data and with BRCA1 and BRCA2 mutation status. Baseline recreational physical activity level in the highest four quintiles compared with the lowest quintile was associated with a 20% lower breast cancer risk (HR, 0.80; 95% confidence interval, 0.68-0.93). The association was not modified by familial risk or BRCA mutation status (P interactions >0.05). No overall association was found for adolescent recreational physical activity. Recreational physical activity in adulthood may lower breast cancer risk for women across the spectrum of familial risk.



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Epigenome-wide association study for lifetime estrogen exposure identifies an epigenetic signature associated with breast cancer risk.

Johansson A et al.: Clin Epigenetics. 2019 Apr 30;11(1):66.

Epidemiological data from EPIC-Italy (n = 31,864)
Study: estimated lifetime estrogen exposure

Method: epigenome-wide association study, blood DNA samples, N = 216 , and 440 healthy controls

Results: an estimated 5 % increase in breast cancer risk per 1-year longer ELEE (OR = 1.05, 95 % CI 1.04-1.07, P = $3x10^{-12}$) in EPIC-Italy.
694 CpG sites were associated with ELEE (FDR Q < 0.05)

Prevention of Hormones in Postmenopausal Patients

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	N	MC-RR (95%CI)	Further information
WHI WHI: JAMA 2002, JAMA 2017	~ 27 000	1.3 (1,0-1,6)	1.3 (1.1-1,6) coronary events 1.4 (1,1-1,9) insults 2.1 (1,4-3,3) pulmonary embolism 2.1 (1,5-2,9) deep vein thrombosis
HERS Hulley S: JAMA 2002	I 2763 RCT, med. 4.1 yrs. II 2321 open-label, 2.7 yrs.	1.2 (0.95-1.5)	med. age 67 yrs. no secondary prevention side effects as comp. to WHI + cholcystectomy↗
Million Women Beral V: Lancet 2003	1.084 110 ~ 50 % HRT 4.1 J. follow-up	1.66 (1.6-1.8)	EPC > E mode of applic. not relevant duration > 5 yrs. Tibolon RR 1.45 (1.2-1.7)
EPIC Int J Cancer 2010	1.153 747 person-years	1.4 (1.2-1.6) 1.8 (1.4-2.2)	E-Mono EPC > E
Metaanalyse Nelson HD: JAMA 2002	16 Studies	1.21-1.40	side effects as compared to WHI +

Chlebowski et al., Climacteric 2015, 18:336-8
Chlebowski et al., J Natl Compr Canc Netw 2015, 13:917-24
Manson JE et al., JAMA 2017; 318: 927-938

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Prevention of Hormones (EGC) in Postmenopausal Patients

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	N	MC-RR (95% CI)	Further statements
CLEAR-study (NSW)	**1236 BC cases**	2.09 (1.57-2.78)	current user
		1.03 (0.82-1.28)	past user
Case-Control-Study, retrospect. Australia		2.62 (1.56-4.38)	E/P combination
		1.80 (1.21-2.68)	E only

Salagame et al., Int J Cancer. 2016;138(8):1905-14

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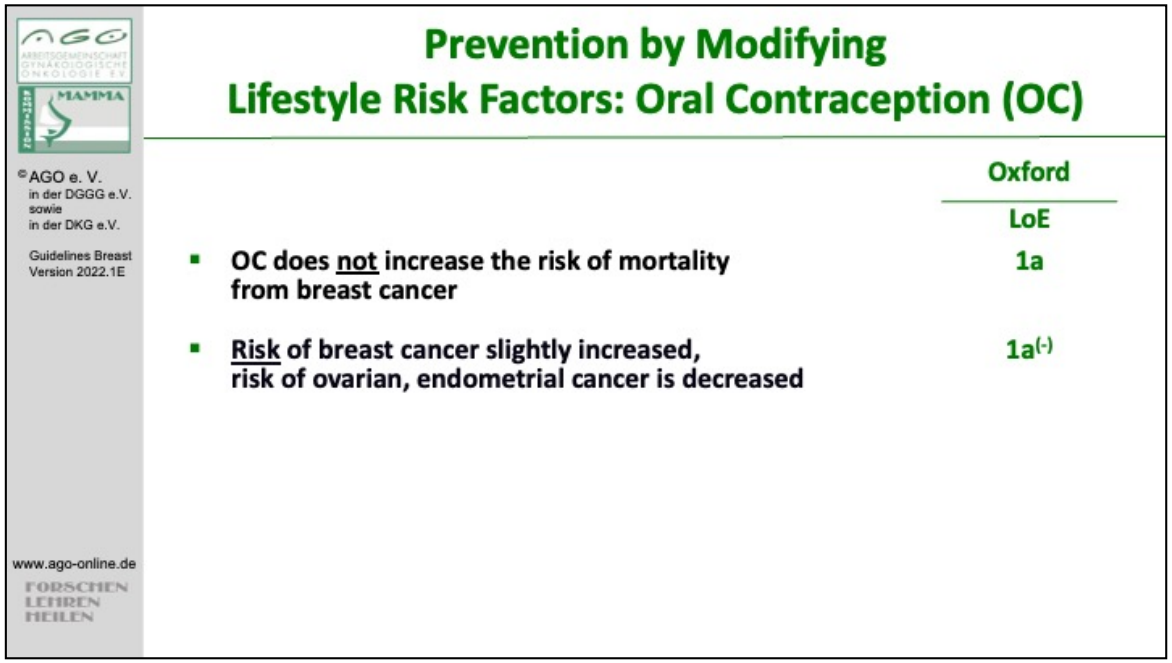

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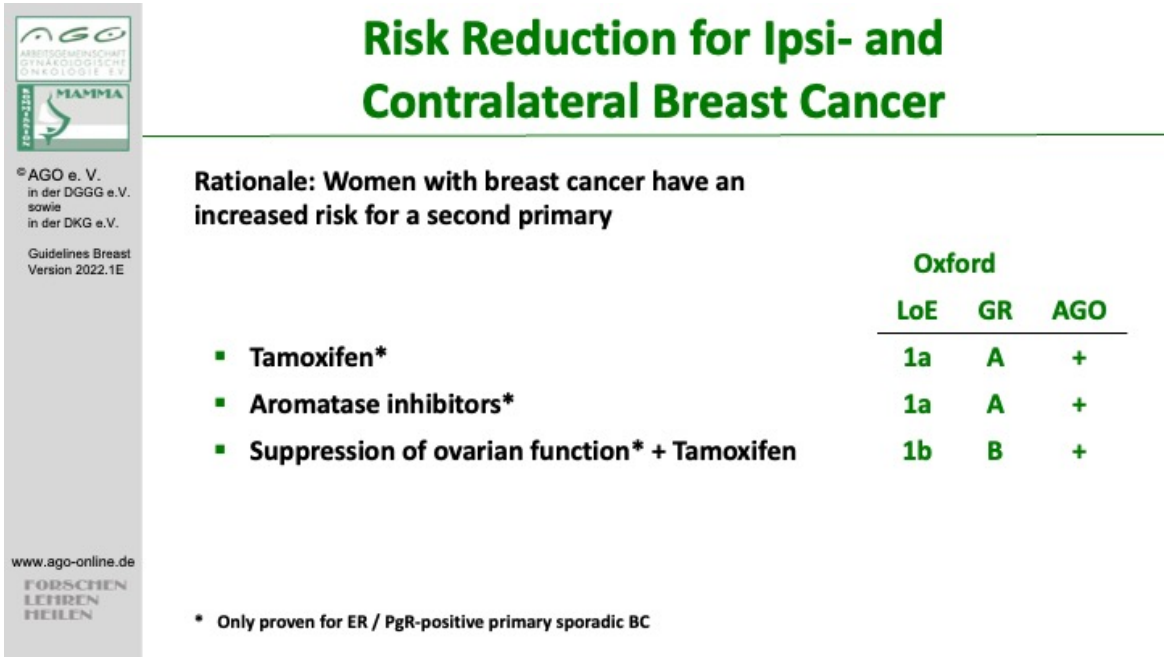

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