Optionen der primären Prävention:
Veränderbare Lifestyle-Faktoren
Screened data bases

Prävention

- **Versionen 2011–2018:** Dall / Diel / Gerber / Maass / Mundhenke / Solbach / Thomssen / von Minckwitz

- **Version 2019:** Hanf / Solomayer


8. Pizot C, Boniol M, Mullie P et al. Physical activity, hormone replacement therapy and breast cancer risk: A meta-analysis of

BMI and Epigenetics
Link between Obesity and Breast Cancer?

Changing the ESR1-promoter activity by methylation of CpG-islands

n = 120 breast tissue samples of cancer free patients

ESR1-promoter methylation

BMI > 30 > BMI 25–29 > BMI 25 kg/m²  (p < 0.001 resp.)

postmenopausal > premenopausal  (p = 0.046)

[ multivariate analysis ]

BMI and Epigenetics
Link between Obesity and Breast Cancer?

- The epigenetic code (methyl marks) determines how the genome functions, dictating which genes are turned on and which genes are turned off
- Development is the critical period when this programming occurs, directing cell and organ development

Waller, CL, SABCS 2011


Coffee Consumption and Risk of Breast Cancer: An Up-To-Date Meta-Analysis
Xiu Juan Li: PlosOne, January 2013 | Volume 8 | Issue 1 | e52681

49497 breast cancer cases
26 studies (16 cohort and 10 case–control studies)

The pooled RR showed a borderline significant influence of highest coffee consumption (RR = 0.96; 95% CI 0.93–1.00), low-to moderate coffee consumption (RR = 0.99; 95% CI 0.95–1.04), or an increment of 2 cups/day of coffee consumption (RR = 0.98; 95% CI 0.97–1.00) on the risk of breast cancer.

In stratified analysis, a significant inverse association was observed in ER-negative subgroup. However, no significant association was noted in the others.

randomized, placebo-controlled trial, with a two-by-two factorial design, of vitamin D₃ (cholecalficrol) at a dose of 2000 IU per day and marine n-3 (also called omega-3) fatty acids at a dose of 1 g per day

Primary end points were invasive cancer of any type and major cardiovascular events

25,871 participants

median follow-up of 5.3 years

124 breast cancers (Vit D group) vs. 122 (placebo group) Hazard Ratio: 1.02

Conclusions and further perspectives
...probably the most apparent relationship prevails for consumption of isoflavones, whereas beneficial effects seem to be expressed only at high intake levels typical to Asian women ... compared to Western countries where the intake of soy products is remarkably low.

Protective activities of isoflavones might appear only in females consuming soy foods since their early age as childhood and adolescence can be crucial periods of exposure.

At present: “recommendations for consumption of high-dose isoflavones ... to reduce the individual susceptibility towards breast carcinogenesis are still premature and can also be not completely without .. risks.”


No association was classified as convincing (class I). The association between alcohol intake and ER+ breast cancer was classified as highly suggestive (Class II) based on a meta-analysis of 20 prospective studies (≥ 30 g/d of alcohol consumption versus non-drinkers).

RR (95% CI): 1.35 (1.23, 1.48, p-value = 5.2 x 10^{-10}, I^2 = 26%, Psmall effect bias = 0.184, P excess significance bias = 4 x 10^{-8})


102,927 women recruited 2003–2013

average of 7.7 years of follow-up

The HR (reference group was never smokers) was
1.14 (95% CI 1.03–1.25; P = 0.010) for ever smokers,
1.24 (95% CI 1.08–1.43; P = 0.002) for starting smoking at ages < 17 years
1.23 (1.07–1.41; P = 0.004) for starting smoking 1–4 years after menarche

Women with a family history of breast cancer (ever vs never smokers HR 1.35; 95% CI 1.12–1.62; P = 0.002) had a significantly larger HR ... than women without
(ever smoker vs never smoker HR 1.07; 95% CI 0.96–1.20; P = 0.22).


# Prevention of Hormones in Postmenopausal Patients

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>MC-RR (PENCE)</th>
<th>Further information</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHI</td>
<td>NHN JAMA 2002, JAMA 2017</td>
<td>27,000</td>
<td>1.3 (1.0-1.6) coronary events</td>
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<td></td>
<td></td>
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<td>1.4 (1.3-1.9) insulin</td>
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<td></td>
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<td>2.1 (1.4-3.3) pulmonary embolism</td>
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<td></td>
<td></td>
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<td>2.3 (1.3-2.9) deep vein thrombosis</td>
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**HERS**

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<thead>
<tr>
<th></th>
<th>RCT, med. 4.1 J II 2321 open-label, 2.7</th>
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<tbody>
<tr>
<td>WHI</td>
<td>2763</td>
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<tr>
<td></td>
<td>med. age 67</td>
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<td></td>
<td>no secondary prevention</td>
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<td></td>
<td>side effects comp. to WH on cholecystectomy</td>
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<td>EPC &gt; E</td>
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<td>mode of applic. not relevant duration &gt; 5 yrs.</td>
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<td>T bols RR 1.85 (1.3-1.7)</td>
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<tr>
<td></td>
<td>E EPC &gt; E</td>
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<tr>
<td>Million Women</td>
<td>1084 110</td>
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<td></td>
<td>~ 50% never</td>
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<td></td>
<td>4.1 J follow-up</td>
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<tr>
<td>Million Women</td>
<td>1647</td>
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<td></td>
<td>~ 50% ever</td>
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<td>4.1 J follow-up</td>
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<tr>
<td>EPIC</td>
<td>1153 747 person-years</td>
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<td>T bols RR 1.85 (1.3-1.7)</td>
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<td>Metaanalyse</td>
<td>16 Studies</td>
</tr>
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<td>121-1.40</td>
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<tr>
<td></td>
<td>side effects compared to WHI +</td>
</tr>
</tbody>
</table>

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
## Prevention of Hormones (EGC) in Postmenopausal Patients

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

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