Options for Primary Prevention: Modifiable Lifestyle Factors
Prevention

- **Version 2011**: Gerber / Thomssen
- **Version 2012–14**: Dall / Diel / Maass / Mundhenke
- **Version 2015**: Gerber / Mundhenke
Non-modifiable Risk Factors for Breast Cancer

- Older age
- Genetic risk factors
- Family cancer history
- Personal history of breast lesions
  - Non-proliferative lesions
  - Proliferative lesions w/o atypia
  - High risk lesions (ADH, LIN)
  - Breast cancer (DCIS, InvBC)
- Breast density
- Chest irradiation
- Lifetime number of menstrual cycles
  - Early menarche, late menopause, mat. pregnancy factors (e.g. preeclampsia (risk reduction), gestational diabetes (risk increase))

Reproductive risk factors
- Lower number of births or no pregnancy
- Higher age at first full term delivery
Modifiable Risk Factors for Breast Cancer

- Less breast feeding
- BMI < 18.5 and > 25 and especially > 40 (obesity)
- Diabetes mellitus Type II
- Food content
- Steroid hormone therapy
  - Recent oral contraceptive use
  - Hormone therapy in postmenopausal women
- Alcohol intake
- Smoking
- Light exposure at night (night shifts)
- Low physical activity
- Toxic agents in fetal and early childhood development (DES, polyfluoroalkyls)
Prevention by Changing Pregnancy Related Factors

- Any full term pregnancy
- Number of pregnancies
- First full term pregnancy before age of 30 years
- Breast feeding
  (protective if total breast feeding time exceeds 1.5–2 years)

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<table>
<thead>
<tr>
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<th>Oxford</th>
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<tbody>
<tr>
<td>Any full term pregnancy</td>
<td>2b</td>
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<td>Breast feeding (protective if total breast feeding time exceeds 1.5–2 years)</td>
<td>3a</td>
<td>B</td>
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Prevention by Changing Lifestyle Factors: Body Mass Index / Diet

- Maintaining normal weight (BMI at 18.5 – 25 kg/m²)
  - Premenopausal 3a B ++
  - Postmenopausal 2a B ++

- Prevention/Screening and treatment of diabetes mellitus type II (reduction of breast cancer incidence and mortality) 2b B ++
Prevention by Changing Lifestyle Factors: Diet

Preference of a healthy diet

Dietary components

- Fat reduced food (unsaturated > saturated fatty acids) 2a B +
- Reduced consumption of red meat 2a B +
- Supplementation of vitamins, minerals, tracer elements 2a B -
- Vitamin D substitution for prevention 3a B +/-
- Vegetables / fruits 2a B +/-*
- Phytoestrogens / Soya 2a B +/-
- Fiber containing food 1b A +

* Recommended as a part of healthy nutrition
Prevention by Modifying Lifestyle Risk Factors: Alcohol

- Reduction of alcohol intake reduces risk of breast cancer

Particularly for:
- ER+/PgR+ tumors
- Invasive lobular tumors
Prevention by Modifying Lifestyle Risk Factors: Smoking

- Never smoking reduces risk of breast cancer (~15-24% reduction of lifetime risk)
- Young women smoking have a 60% increased risk of bc, when smoking > 10 years before the first childbirth (vs. never smokers)

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2a B ++
Prevention by Modifying Lifestyle Risk Factors: Physical Activity

- Physical exercise

(Metabolic equivalents to 3–5 hrs moderate pace walking per week)
Avoiding hormonal therapy in postmenopausal women

- Avoiding estrogen / progestin combinations
- Avoiding estrogens only
  (no enhanced breast cancer risk with estrogen only therapy, maybe even risk reduction, but increased risk for endometrial cancer)

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1b A +

1b A +/-
## Prevention

### Hormone (EGC) in der Post-MP

<table>
<thead>
<tr>
<th>Study</th>
<th>N</th>
<th>MC-RR (95%CI)</th>
<th>Weitere Aussagen</th>
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</table>
| WHI                          | ~ 27 000   | 1.3 (1.0-1.6) | 1.3 (1.1-1.6) koronare Events
1.4 (1.1-1.9) Schlaganfälle
2.1 (1.4-3.3) Lungenembolien
2.1 (1.5-2.9) Thrombosen     |
| WHI: JAMA 2002               |            |               |                                                                                 |
| HERS                         | I 2763     | 1.2 (0.95-1.5)| Med. Alter 67 J
keine sekundäre Prävention
Newkg. wie WHI + Cholzystektomien† |
| Hulley S: JAMA 2002          | II 2321    |               |                                                                                 |
| Million Women                | 1.084 110  | 1.66 (1.6-1.8)| EPC > E
Art der Anwendung egal
Einnahmedauer > 5 Jahre
Tibolon RR 1.45 (1.2-1.7) |
| Beral V: Lancet 2003         | 4.1 J. follow-up |             |                                                                                 |
| EPIC                         | 1.153 747  | 1.4 (1.2-1.6) | E-Mono
EPC > E                                                                             |
| Int J Cancer 2010            | person-years |             |                                                                                 |
| Metaanalyse                  | 16 Studien | 1.21-1.40    | Newkg. wie WHI +                                                                 |
| Nelson HD: JAMA 2002         |            |               |                                                                                 |

Chlebowski SABCS 2010
Prevention by Modifying Lifestyle Risk Factors: Oral Contraception (OC)

- Overall, OC does not significantly increase risk of cancer

- Risk of breast cancer may be slightly increased, risk of ovarian, endometrial cancer is decreased

Oxford LoE 1a

1a(−)
Options for Primary Prevention: Modifiable Lifestyle Factors (2/13)

Further information and references:

Screened databases:

Screened guidelines:
ASCO (American Association of Clinical Oncology, Practice Guidelines, 2014)
CMA (Canadian Medical Association, 2014): http://www.cmaj.ca/cgi/content/full/158/3/DC1
NCCN (National Comprehensive Cancer Network, 2014):
Non Modifiable Risk Factors for Breast Cancer (3/13)

No further information

References:

Modifiable Risk Factors for Breast Cancer Risk (4/13)

No further information

References:

References:


Prevention by Changing Life Style Factors: Body Mass Index / Diet (6/13)

No further information

References:

Prevention by Changing Life Style Factors: Diet (7/13)

No further information

References:

Prevention by Modifying Life Style Risk Factors: Alcohol (8/13)

No further information

References:

Prevention by Modifying Life Style Risk Factors: Smoking (9/13)

No further information

References:

**Prevention by Modifying Life Style Risk Factors: Physical Activity (10/13)**

*No further information*

**References:**


Prevention by Modifying Life Style Risk Factors: Hormone Therapy in Postmenopausal Women (11/13)

No further information

References:

7. Manson JE: Menopausal hormone therapy and health outcomes during the intervention and extended poststopping phases of the Women's Health Initiative randomized trials. JAMA. 2013 Oct 2;310(13):1353-68.
Prevention: Hormone (EGC) in der Post-MP (12/13)

No further information

No references
Prevention by Modifying Life Style Risk Factors: Oral contraception (13/13)

No further information

References: