

Scientists identify avoidable breast cancer risk factors

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Many risk factors for breast cancer are well studied and documented. Thus, scientists are sure by now that early first menstrual period, late onset of menopause and a family history of breast cancer are associated with an increased breast cancer risk.

However, neither an individual woman nor medicine can influence whether family members develop [breast cancer](#) or at what age [menopause](#) starts - these are risk factors on which we have no influence. Scientists of the German Cancer Research Center in the team of Associate Professor (PD) Dr. Karen Steindorf and Professor Dr. Jenny Chang-Claude, jointly with Professor Dr. Dieter Flesch-Janys of Hamburg Eppendorf University Hospitals, have been searching for risk factors which can be influenced by changes in lifestyle and behavior.

"58,000 women in Germany are diagnosed with breast cancer each year," says Jenny Chang-Claude. "Therefore, a key question is whether there are behavioral changes that might help to lower the disease risk. Our study aims to determine the percentage of cases where these avoidable risk factors are responsible."

The researchers focused on aspects such as taking hormones for relief of menopausal symptoms ([hormone replacement therapy](#)), physical activity, overweight and alcohol consumption. All these [lifestyle factors](#) have been identified in prior studies as possible risk factors for the development of breast cancer.

In their current MARIE study, which is supported by Deutsche Krebshilfe (German Cancer Aid), the epidemiologists studied 6,386 female controls along with 3,074 patients who had been diagnosed with breast cancer after the onset of menopause. On the basis of these data, the scientists calculated the percentage of cancer cases that is attributable to a particular risk factor (or a particular combination of several risk factors).

Of the modifiable lifestyle factors, it is primarily hormone replacement therapy and a lack of physical activity which increase a woman's risk of developing breast cancer. [Alcohol consumption](#) and overweight were found to have less influence on [breast cancer risk](#). Thus, 19.4 percent of invasive postmenopausal breast cancer are attributed to hormone replacement therapy; 12.8 percent to a lack of physical activity. Both factors together are responsible for 29.8 percent of breast cancer cases. When the investigators took a separate look at the group of patients whose tumors have receptors for sex hormones (hormone receptor-positive breast tumors), they determined an even higher value of 37.9 percent. The study leaders emphasize that these results reflect the situation in Germany with our typical lifestyle and may differ in countries with other lifestyles.

Non-modifiable factors such as family history or age at first and last menstrual period account for 37.2 percent in total of all malignant postmenopausal breast cancers. "That means that two factors which each woman has in her own hands are responsible for a similar number of postmenopausal breast cancer cases as the non-modifiable factors," Karen Steindorf says. "If behavioral changes in these two areas could be brought about, almost 30 percent of breast cancers after menopause could be prevented." Therefore, the DKFZ researchers recommend women to take more exercise and to refrain from hormone replacement therapy, unless it is absolutely necessary.

More information: Population attributable risk of invasive postmenopausal breast cancer and breast cancer subtypes for modifiable and non-modifiable risk factors. Benjamin B.E. Barnes, Karen Steindorf, Rebecca Hein, Dieter Flesch-Janys and Jenny Chang-Claude: *Cancer Epidemiology* 2010, [DOI: 10.1016/j.canep.2010.11.003](https://doi.org/10.1016/j.canep.2010.11.003)

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