

# Vitamin D and breast cancer risk

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A connection between vitamin D level and the risk of developing breast cancer has been implicated for a long time, but its clinical relevance had not yet been proven. Sascha Abbas and colleagues from the working group headed by Dr. Jenny Chang-Claude at the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ), collaborating with researchers of the University Hospitals in Hamburg-Eppendorf, have now obtained clear results: While previous studies had concentrated chiefly on nutritional vitamin D, the researchers have now investigated the complete vitamin D status.

To this end, they studied 25-hydroxyvitamin D (25(OH)D) as a marker for both endogenous vitamin D and vitamin D from food intake.

The result of the study involving 1,394 breast cancer patients and an equal number of healthy women after menopause was surprisingly clear: Women with a very low blood level of 25(OH)D have a considerably increased breast cancer risk. The effect was found to be strongest in women who were not taking hormones for relief of menopausal symptoms. However, the authors note that, in this retrospective study, diagnosis-related factors such as chemotherapy or lack of sunlight after prolonged hospital stays might have contributed to low vitamin levels of breast cancer patients.

In addition, the investigators focused on the vitamin D receptor. The gene of this receptor is found in several variants known as polymorphisms. The research team of the DKFZ and Eppendorf Hospitals investigated the effect of four of these polymorphisms on the

risk of developing breast cancer. They found out that carriers of the TaqI polymorphism have a slightly increased risk of breast tumors that carry receptors for the female sex hormone estrogen on their surface. No effects on the overall breast cancer risk were found. A possible explanation offered by the authors is that vitamin D can exert its cancer-preventing effect by counteracting the growth-promoting effect of estrogens.

Besides its cancer-preventing influence with effects on cell growth, cell differentiation and programmed cell death (apoptosis), vitamin D regulates, above all, the calcium metabolism in our body. Foods that are particularly rich in vitamin D include seafish (cod liver oil), eggs and dairy products. However, the largest portion of vitamin D is produced by our own body with the aid of sunlight.

Source: Helmholtz Association of German Research Centres

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