

Webinar Highlights

Reducing Breast-Cancer Risk by Eliminating Parabens and Phthalates

Personal care products (PCPs) such as shampoo, deodorant, and fragrance often contain xenoestrogens (chemicals, such as parabens and phthalates, which have estrogenic activity). Estrogenic overstimulation can be carcinogenic in human breast tissue.

In this webinar, **Dr. William Goodson** described recent research to identify the effects in human tissues of reducing exposure to xenoestrogens through personal care products. Since it is not ethical to intentionally expose people to chemicals of concern, this study was designed to eliminate certain exposures in individuals who were already exposed.

The study was a community-based participatory research project, in which breast cancer survivors worked with breast cancer researchers to design and conduct research assessing the effects of reducing specific chemical exposures. **Polly Marshall, JD**, the Community Principal Investigator for the study, spoke about the community-based participatory research process.

Featured Speakers: William Goodson, MD, Senior Clinical Research Scientist at the California Pacific Medical Center Research Institute and **Polly Marshall, JD**, breast cancer prevention advocate and founder of Breast Cancer Over Time, speaking May 17, 2023.

This fact sheet has been created by CHE based on information presented in an EDC Strategies Partnership webinar. Selected quotes in bold are from the webinar speaker(s). For the full set of resources provided by the webinar presenters, see the [webinar page](#), where you'll also find associated Slides & Resources.

The Problem

Dr. Goodson presented evidence that breast cancer rates have been increasing since 1937. He stressed that this increase cannot be explained away by increased mammography, because those screenings largely started in the 1980's. Hormone replacement therapy (HRT) also cannot be the only cause, because breast cancer rates have been increasing for younger women who have not received HRT. For example, one study showed that the

annual incidence of breast cancer in women under 40 increased, on average, every year from 2004 to 2017:

“Breast cancer in younger women and breast cancer across the board is increasing and you have to look for other reasons.”

Xenoestrogens, including parabens and phthalates, are suspected of being one of the factors driving this increase. These chemicals behave like estrogen in our bodies and have been associated with increased breast cancer risk. These chemicals are commonly used in PCPs.

The study looked at the effects of reducing participants’ exposures to the xenoestrogens present in their usual PCPs. Study participants discontinued their use of PCPs containing parabens or phthalates for a full 28-day period. The researchers collected pre- and post-intervention fine needle aspirates of breast tissue from the participants. They examined gene expression in these samples. They also examined whole cells for cancer-associated phenotypes.

Key findings:

- Parabens and phthalate metabolites decreased in the participants’ urine, indicating that the intervention reduced their exposure to these chemicals.
- Study participants who eliminated their use of these products had a reversal of cancer-associated phenotypes. Cells sampled at the end of the study showed a shift away from behavior that is typical of malignant cells.
 - Breast cancer cells typically have fewer activated Erβ estrogen receptors than healthy cells. The study showed that participants’ cells had an increase in activated Erβ estrogen receptors after the intervention.
 - Apoptosis is normal programmed cell death that removes damaged or unnecessary cells. Cancerous cells often evade apoptosis. The study showed reduced apoptosis evasion in the study participants’ cells after the intervention.
 - The tissue samples taken from these study participants also showed changes in gene expression associated with the reduction in exposure.

Recommendations

These results help to demonstrate that reducing exposure to hormonally active chemicals can reduce pro-carcinogenic phenotypes at the cellular level. The findings provide insight into opportunities to reduce breast cancer risk by reducing or eliminating certain chemical

exposures. Other researchers could adapt this methodology to study the health effects of other kinds of exposures.

Dr. Goodson emphasized the need for additional research to better understand the changes in gene expression. He noted that several studies have examined differential gene expression across types of breast cancer, and a limited amount of work has compared benign breast tissue to cancer, but all the studies examine different sets of genes. For this research to move forward, it is necessary for research groups to “compare results, identify points of difference in methodology, and then agree on a plan that can be implemented by two or more groups collectively.”

Ms. Marshall noted that the US FDA does not test or regulate personal care products for these chemicals. Until that changes, consumers need to protect themselves:

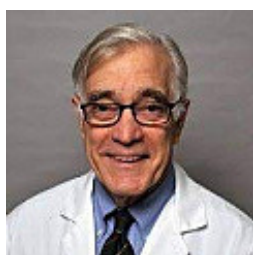
“You need to pay attention to what's in your products. There are many ways you can look it up, and there are healthy products coming out every day.”

Ms. Marshall also stressed that other places, such as the European Union and Japan, have stronger regulations to protect consumer safety from parabens and phthalates. Restricting or eliminating these chemicals in personal care products in the US could contribute to breast cancer prevention.

To Find Out More

- Watch the May 17, 2023 webinar: [Reducing Breast Cancer Risk by Eliminating Parabens and Phthalates](#)
- Read the study: [Reduction of daily-use parabens and phthalates reverses accumulation of cancer-associated phenotypes within disease-free breast tissue of study subjects](#) and an article about the study: [Get phthalates, parabens out of the bathroom drawer to reduce breast cancer risk](#)
- Visit the Environmental Working Group’s website to find safe personal care products: <https://www.ewg.org/skindeep/>

About the Speakers



William Goodson, MD graduated from Harvard Medical School and has over 35 years of experience in the diagnosis and care of breast diseases. With Dr. Shanaz Dairkee, he co-leads a team at the California Pacific Medical Center Research Institute studying how environmental chemicals affect women’s and children’s health. He is also a

spokesperson for The Halifax Project that has raised awareness of the inadequacy of testing environmental chemicals individually instead of in mixtures. Dr. Goodson is an emeritus member of the Society for Surgical Oncology, the American College of Surgeons, the American Society of Breast Surgeons, and the American Society for Clinical Oncology.



Polly Marshall, JD worked for 30 years as an attorney, specializing in affordable housing development, and also served for 35 years as a commissioner on the San Francisco Rent Control Board. Polly was diagnosed with breast cancer in 2009, and began training and working as a breast cancer prevention advocate. She founded Breast Cancer Over Time, a nonprofit controlled by breast cancer survivors and dedicated to supporting scientific research into breast cancer prevention. Polly has a BA degree from UC Santa Cruz and a law degree from UC Berkeley. She is the mother of two.