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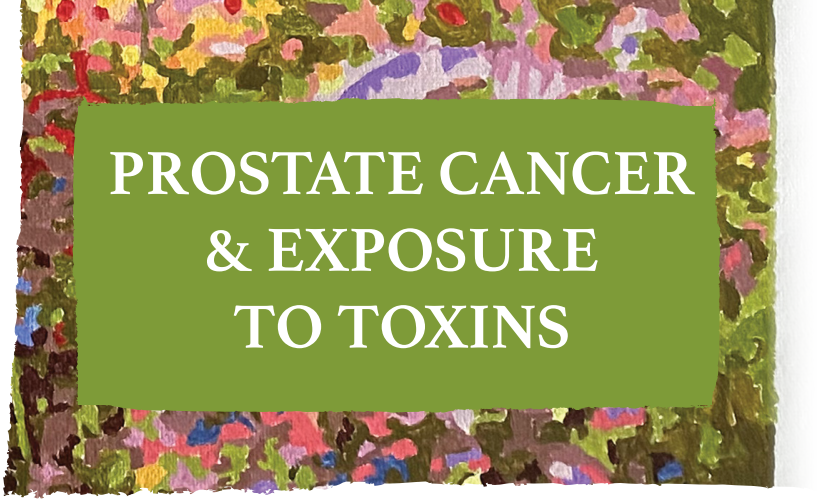
Functional Medicine



PROSTATE CANCER & EXPOSURE TO TOXINS

Prostate cancer forms in the tissues of the prostate gland that sits just below the bladder, usually occurs in older men according to the National Cancer Institute[1]. About 60% of all prostate cancer diagnosed in men over the age of 65, and aggressive prostate cancer in men hundred 40 is virtually nonexistent. African American men have the highest risk. White, Hispanic, American Indian, Alaskan, Scandinavian, and Asian men follow with increasing risk. Western diets are being seen as a factor in developing prostate cancer, fatty diets especially those diets high in red meat and higher fat dairy products increase the risk. Environmental exposures to toxins increase the risk of prostate cancer in men who are exposed to products of combustion in firefighters. Farmers are at increased risk because of exposures to agricultural chemical toxins[2].

During embryonic development we are exposed to these toxins, while inside mother's uterus, exposures have been reported to be associated with obstruction of the male reproductive organs and dysregulation of prostate cancer associated genes. It has been proven that embryos are vulnerable to environmental contaminants[3]. These exposures contribute to toxin bioaccumulation in our lifetimes. During pregnancy, mothers need to be very concerned about their intake of toxins and limit exposures to toxins in the diet and in the environment.

Endocrine disruptors discussed in "breast cancer and toxins" can also mimic or block naturally occurring hormones in prostate cancer. These chemicals include bisphenol A (BPA), dichlorodiphenyltrichloroethane (DDT), and polychlorinated biphenyls (PCBs) which accumulate in not only mammary tissues but the prostate as well. These toxic chemicals are released from products such as food cans, cosmetics, plasticizers, thermal paper, and even medical devices. Metals, industrial chemicals, and pesticides are on the list of high-risk for exposure. Principal sources of exposure occur with intake of contaminated food and direct contact with inhalation from polluted air. The massive use of these compounds is widely scattered in the environment and they bio accumulate, building up in our bodies over time. Endocrine disruptors and their cancer-causing potential are a high priority in a functional oncology-based treatment plan.

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Extensive research has been done on emphasizing the effects of bisphenol A on the structure and functions of mitochondria and the mitochondrial damage that results from exposure[4].

Exposure to multiple heavy metals have also been investigated and have been found to increase prostate cancer risk . Heavy metals act as endocrine disruptors (EDC's), because heavy metals have similar chemical structure with hormones, interaction is enabled with specific receptors and activates hormone based signaling pathways. Any interferences in hormone and receptor production and metabolism caused by exposure to EDCs generate endocrine alterations that can impair homeostasis of the prostate cells leading to disturbances in the gland. The prostate of murine models is a target gland for heavy metal toxicity. Exposure to heavy metals induces mitochondrial dysfunction and inflammatory processes[7].

Mitochondrial alterations are common in cancer, including prostate cancer, leading to their altered functions. Abnormal mitochondrial function affects gene expression and cell signaling promoting a tumor-supportive environment remodeling cells and increasing cancer growth[8].

Standard of care oncology does not address these high-risk toxic exposures, nor do they place their patients on a detoxification plan or give them any education on avoidance and removal of these toxins from the body. These are critical roots contributing to and causing disease that need to be addressed in prostate cancer and all cancers.

Hyperion functional medicine educates all patients on details surrounding their specific toxin exposures, the risks associated with those exposures, and places those patients enrolled in the Phase 1 Functional Oncology Program in a targeted detox plan based on their lifetime exposure history. Exposures to chemicals, heavy metals and other toxins are cumulative and they bio accumulate in our bodies causing disease. Detoxification protocols must be put into place to remove accumulation of toxins as much as possible.

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[1]https://www.cancer.gov/publications/dictionaries/cancer-terms/def/prostate-cancer
[2]https://www.hopkinsmedicine.org/health/conditions-and-diseases/prostate-cancer/prostate-cancer-risk-factors
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