



## BENEFITS OF MICRONUTRIENT SYNERGY IN PROSTATE CANCER



Prostate cancer is one of the most common cancers affecting men worldwide and is the second most common cancer in men globally. It is a significant health concern, specifically in men 65 and older, as one in every eight men will be diagnosed with prostate cancer in their lifetime.

The prostate gland is a small walnut-shaped organ that produces seminal fluid, which in turn contains many enzymes including prostate-specific antigen (PSA) and contributes to the fluidity of semen. Increase in the PSA levels is one of the main indicators of either prostate cancer or benign prostatic hypertrophy. Although screening may help earlier diagnosis of prostate cancer, treatment options are still confined to surgery, hormone therapy, and radiation, with high cost, serious side effects, and limited efficacy.

The hallmark of cancer is uncontrolled growth and the spread of abnormal cells. Cancer cells spread by degrading the surrounding connective tissue barrier using collagen-digesting enzymes, called matrix metalloproteinases (MMPs). MMPs have been implicated in all cancers including prostate cancer due to their ability to promote tumor growth, invasion, and metastasis. However, none of the conventional treatment options address this mechanism of metastasis. Increased levels of specific MMPs, such as MMP-2 and MMP-9, have been associated with aggressive prostate cancer. Several micronutrients such as vitamin C, green tea extract (specifically the polyphenol EGCG), the amino acids lysine and proline, selenium, soy isoflavones, and plant compounds including lycopene and curcumin are known to have anticancer properties.

The scientists at the Dr. Rath Research Institute studied the in vivo effects of these and other specifically chosen combinations of micronutrients on tumor growth, secretion of MMPs and other factors supporting cancer using the prostate cancer cells. The group supplemented with micronutrients developed 47% smaller tumors than the control group. Specific staining of these tumors

showed lower ability to form new blood vessels (angiogenesis) than the control group. Our previous in vitro studies have also demonstrated that the micronutrient combination is able to inhibit the MMP enzymes by 100%, strengthen the connective tissue structure and help in effectively limiting spread of prostate cancer cells. The activity of specific collagen digesting enzymes, such as MMP-9 and urokinase plasminogen activator (u-PA), has been associated with the aggressiveness of cancer. In our studies, we have also demonstrated that the micronutrient combination is able to inhibit secretion of enzymes MMP-9 and u-PA by 100%, and at the same time increase production of their natural inhibitors. In addition, these micronutrients can strengthen the connective tissue thereby limiting the spread of prostate cancer cells. Our studies have shown that the micronutrients work better when used in synergistic combinations than when used alone.

Some other micronutrients combinations such as lycopene and selenium, green tea and soy isoflavones (genistein) also have potent anticancer actions in the prostate gland. Lycopene and selenium work together to inhibit cancer cell growth, reduce oxidative stress, and modulate immune responses, potentially enhancing their protective effects. Green tea polyphenols and genistein suppress inflammation, inhibit proliferation, and induce apoptosis (cell death) in prostate cancer cells.

Micronutrient synergy, unlike an individual nutrient or a drug, can simultaneously affect multiple mechanisms that cancer uses to overpower the body. This strategy limits the ability of cancer to adapt and escape the treatment, which is often the case with pharmaceutical approaches. Hence prostate cancer management should also include micronutrient synergy as a safe, and effective possibility for millions of men worldwide

Ref:

- MW Roomi, et al. *Res Comm Mol Path Pharma*, 2004
- MW Roomi, et al. *In Vivo*, 2005
- MW Roomi, et al. *Onco Rep*, 2011

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The ground-breaking nature of this research poses a threat to the multi-billion dollar pharmaceutical "business with disease". It is no surprise that over the years the drug lobby has attacked Dr. Rath and his research team in an attempt to silence this message. To no avail. During this battle, Dr. Rath has become an internationally renowned advocate for natural health. Says he: "Never in the history of medicine have researchers been so ferociously attacked for their discoveries. It reminds us that health is not given to us voluntarily, but we need to fight for it."

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