

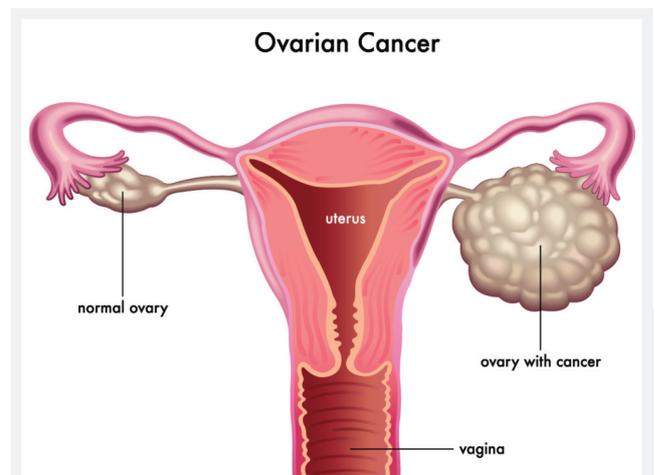


The ovaries are part of the female reproductive system and are located on each side of the uterus. They are responsible for the storage and release of an egg every month during a woman's childbearing years, and the production of the hormones estrogen and progesterone. Estrogen and progesterone control the menstrual cycle and pregnancy, and have protective effects on the heart, bones and multiple organ systems in women.

# Benefits of Micronutrients in Ovarian Cancer

Cancer of the ovaries is the fifth leading cause of cancer deaths in the US. Due to the lack of specific symptoms, it is usually diagnosed in advanced stages of the disease. According to the American Cancer Society's 2015 estimates, approximately 21,000 women will be diagnosed with ovarian cancer in the US this year. Women over 60, those who are obese and those who have taken hormone treatments for fertility or menopause are at a higher risk of developing ovarian cancer. A woman's risk of developing ovarian cancer increases if a biological relative has or had ovarian or breast cancer, because it is likely that they would share a similar genetic mutation associated with the BRCA gene. While there are different types of ovarian cancers depending on the cell of origin, cancer arising from the cells lining the ovaries (epithelial) are the most common type of ovarian cancer. The standard treatment methods of surgery, radiation and chemotherapy fail to effectively treat cancer that has already spread to other organs. This decreases the chances of recovery because there currently is no effective treatment for the spread of cancer (metastasis).

The ability of cancer to metastasize is due to cancerous cells being able to destroy the surrounding connective tissue barrier and travel to other areas of the body. Matrix metalloproteinases (MMPs) are collagen digesting enzymes and play



**Ovarian cancer is one of the most common and aggressive forms of cancer in women. Studies carried out at the Dr. Rath Research Institute show that micronutrients are effective in inhibiting the spread of ovarian cancer cells.**

## Benefits of Micronutrients in Ovarian Cancer

a crucial role in the growth and metastasis of all cancers by destroying the surrounding connective tissue. We studied the ability to block MMP enzymes with a combination of specific micronutrients including vitamin C, lysine, proline, green tea extract and others which are important in strengthening the connective tissue<sup>1</sup>. Our results showed that the micronutrients completely blocked the MMP enzymes and, combined with their strengthening connective tissue effect, were effective in stopping the spread of cancer cells by 100%. In normal cells, the MMPs' activity is regulated by various substances (e.g. cytokines and certain hormones) from the surrounding tissues. However, this regulatory pattern drastically changes in cancer. In another study we also compared the effects of various regulatory chemicals that increase the secretion of MMPs, and the effects of micronutrients<sup>2</sup>. We observed that the micronutrients significantly inhibited the secretion of MMPs even in the presence of these compounds. In addition, the micronutrients could reduce the growth of ovarian cancer cells and their potential to metastasize.

More than 70% of ovarian cancers have already spread at the time of diagnosis, and there is no effective method to treat them. Our work documents that micronutrients act at various stages of cancer progression. The micronutrients reduce the growth of ovarian cancer cells, induce cancer cell death (apoptosis), decrease their metastasis potential, and thus they may provide hope for thousands of women.

Ref:

1. MW Roomi, et al., *Journal of Obstetrics and Gynaecology Research* 2006, 32(2):148-154.
2. MW Roomi et al., *Oncology Reports* 2010, 23: 605-614.

## Important Health Information for All

This information is provided to you courtesy of the Dr. Rath Research Institute. Led by two former colleagues of two-time Nobel Laureate Linus Pauling († 1994) this Institute has become a leader in the breakthrough of natural health research in the field of cancer, cardiovascular disease and other common diseases. The Institute is a 100% subsidiary of the non-profit Dr. Rath Foundation.

The groundbreaking 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 saying, "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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