



## Review Article

## Preventive measures for endometrial cancer by proper diet

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## Abstract

Cancer is a complex disease affecting various parts of the body and is the second most common global disease. Factors contributing to cancer development include lack of immunity, gene mutation, heredity, industrialization, pollution, lifestyle, and food habits. Endometrial cancer, the most common gynecological cancer in women, is the most common. India faces a double burden of malnutrition, with obesity rates of 6.2% among adult women and 3.5% among adult men. A healthy diet, regular exercise, and a healthy lifestyle can help uterine cancer survivors. Keywords including "endometrial cancer," "diet," "nutrition," and "cancer diet" were utilized to search for open-access scholarly literature for the study presented herein. Apart from medication and care, proper diet planning is essential for endometrial cancer patients at any age. Poor lifestyles and diet are always responsible for any cancer. Moderate physical activity, bearing children, delayed menopause, and lutein-rich foods can protect against obesity, hyperinsulinemia, metabolic syndrome, and type 2 diabetes, which are often reported as comorbidities of cancer. Alcohol consumption may increase or reduce EC risk, but more evidence is needed for meta-analysis. Clinical trials support dietary and lifestyle changes, but more research is required. In conclusion, a proper antioxidant-rich diet is necessary to co-prescribe to any EC patient.

**Keywords:** Hyperinsulinemia, Endometrial cancer, Cervix, Prostate, Endometrial cancer**Received:** 12-02-2025; **Accepted:** 15-03-2025; **Available Online:** 28-07-2025

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## 1. Introduction

Cancer is a complex disease affecting any part of the body and is classified into stages I to IV. It is the second most common disease globally and significantly impacts the Indian economy. There are various types of cancer, including skin, lungs, liver, breast, blood, bladder, esophagus, cervix, prostate, uterus, rectum, stomach, and mouth. Factors contributing to cancer development include lack of immunity, gene mutation, heredity, industrialization, pollution, lifestyle, and food habits.<sup>1</sup> Endometrial cancer, also known as uterine cancer, is the most common gynecological cancer in women. Symptoms include abnormal bleeding, pain, nausea, loss of appetite, and tiredness. Factors such as obesity, diabetes, hypertension, estrogen therapy, faulty eating habits, early menarche, late menopause, failure of ovulation, polycystic ovarian syndrome, and conservative treatment for childbearing increase the risk of developing endometrial cancer.<sup>2,3</sup>

Nutritional status is a crucial factor in determining a person's health, and it can be assessed through various

methods such as anthropometrics, biochemical examinations, clinical assessments, and dietary surveys. India faces a double burden of malnutrition, with obesity rates of 6.2% among adult women and 3.5% among adult men. Endometrial cancer is prevalent in Western countries but comparatively low in India. Diet is a significant cause of endometrial cancer, with Western diets containing high fat, sugar, and calories and a lack of plant-based food. Overeating and being overweight can increase the risk of developing cancer. A healthy diet and regular exercise can help survivors of uterine cancer. Alcohol use, high-fat sugar, contraceptive medicine, smoking, and alcohol pose a threat to public health. Regular intake of antioxidants from fruits and vegetables can also reduce the risk of uterine cancer.<sup>3,4</sup>

## 2. Materials and Methods

Some related keywords, such as "endometrial cancer," "diet," "nutrition," and "cancer diet," were used to search open-

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access scholarly articles for the critical analysis of the topic as discussed herewith.

### 3. Discussions

The World Health Organisation defines cancer as a generic term for a large group of diseases that can affect any part of the body. Cancer is a complicated disease that is formed from a malignant tumor. It is typically classified into I to IV stages. The last stage is considered the most serious stage among the other stages. Initially, there is no cancer; only abnormal cell growth is there; then, in the first stage, there is a small tumor; in the second and third stages, it becomes large and encounters lymph nodes; and in the last Stage, it spreads to other body parts.<sup>1,3</sup>

#### 3.1. Endometrial cancer and comorbidities

Research shows that cancer is now a significant threat to us globally, which is having a great impact on the Indian economy as well. The Indian mortality rate caused by cancer is increasing day by day. It is the second most common disease, due to which the death rate is the highest. There are different types of cancer found among Indians, like skin, lungs, liver, breast, blood, bladder, esophagus, cervix, prostate, uterus, rectum, stomach, mouth, etc. Different factors can be associated with developing this disease in other body parts. It may be intrinsic factors or extrinsic factors. Intrinsic factors include lack of immunity, gene mutation, heredity, and extrinsic factors such as industrialization, pollution, lifestyle, food habits, etc.<sup>2</sup>

Uterine cancer starts to form cancerous cells in the epithelial lining of the womb (uterus). It is also known as Endometrial cancer. Endometrial malignancy is the most common gynecological cancer found in women in developed and developing countries. The common symptoms of uterine cancer are abnormal or unusual bleeding, pain in the pelvic region, nausea, loss of appetite, tiredness, etc. Postmenopausal bleeding is a significant marker of endometrial cancer.<sup>3,4</sup> Studies reveal that there are some additional reasons like obesity, diabetes mellitus, hypertension, excessive exposure of endometrium to estrogen therapy, faulty eating habits, early menarche, late menopause, failure of ovulation or infertility, polycystic ovarian syndrome, that have a significant role in the development of endometrial cancer. Women who have experience with tamoxifen therapy, nulliparity, hereditary nonpolyposis colorectal cancer, and conservative treatment for childbearing are at a high risk of developing uterine cancer.<sup>5</sup>

The rate of incidence of endometrial cancer is highest in Delhi and lowest in Pune. The prevalence of cancer is double in Madhya Pradesh as compared with that in Uttar Pradesh. Research shows that in the year 2019, 91640 women died due to uterine cancer, 435, and 041 women were diagnosed with new cases of endometrial cancer globally. The Age-

Standardised Rate (ASIR) for endometrial cancer peaks from the age of 65 to 69 years in women. The risk of developing endometrial cancer increases significantly from the age of 40 to 60 years. The mortality rate of endometrial cancer among non-Hispanic Black women increased from 2001 to 2018. The net mortality rate of uterine cancer has increased since 1997 in the United States.<sup>6</sup>

#### 3.2. Role of diet and nutrition

Nutritional status can be measured by assessing a person's health based on their food, diet, body height, weight, and other parameters. Lifestyle, nutrition, diet, economic condition, and health services directly relate to a person's nutritional assessment. Nutritional assessment can be assessed by anthropometric assessment, biochemical examination, clinical assessment, and dietary survey. When a person gets the daily required nutrition, it leads to optimum nutrition. Deficiency, excess, and imbalance of required nutrition lead to malnutrition, which can be classified into undernutrition and overnutrition. India is now facing a double burden of malnutrition, where undernutrition and overnutrition coexist at the same time.<sup>7</sup> Global nutrition report reveals that the rate of obesity is approximately 6.2% among adult women and approximately 3.5% among adult men in India. More than 40% of both adult women and men are now overweight and obese among 2.2 billion people. Studies reveal that endometrial cancer is prevalent in Western countries, and it is comparatively low in India. According to GBD, 2019, it was also found that the rate of occurrence and mortality of uterine cancer is highest in Europe. The rate of cases of uterine cancer may increase by about six hundred thousand by the year 2044.<sup>8</sup> An analytical epidemiological study reveals that diet is a significant cause of endometrial cancer. Western diets, including intake of high fat, sugar, and calories with a lack of plant-based food, may increase the rate of developing gynecological cancer. Young adult women are very much interested in eating junk and fast food daily. Tobacco users are found to be at higher risk of developing endometrial cancer. However, the result supports more plant-based food and a lack of fatty foods, which can lower the risk of uterine cancer and have a direct effect on body mass index.<sup>9</sup> Overeating and continuously being overweight may increase the risk of endometrial cancer. Unhealthy diet and Lifestyle are directly related to the development of tumors and cancer. It is preferable to intake fresh fruits, plant-based protein, green leafy vegetables, and other vegetables to prevent and delay cancer development. A case-control study was conducted in Switzerland and Northern Italy. It was found that there was a relationship between diet and endometrial cancer. Nowadays, diet is highly influenced by Food eating habits, fast foods, and junk food, which can affect the reproductive health of women. For this reason, good nutritional status and a balanced daily diet are essential to prevent the development of endometrial cancer.<sup>10</sup> Women who use alcohol have a higher risk of gynecological cancer. It can affect the infection of malignant lesions due to the

intake of high-fat sugar, the use of contraceptive medicine, smoking, and alcohol. Smoking and alcohol, both separately and combined, are a threat to Public Health.<sup>11,14</sup> A healthy diet and regular exercise can empower uterine cancer survivors. Food preferences, modification in eating habits, lifestyle changes, and weight loss can lower the risk of cancer. Regular intake of Beta carotene, vitamin E, vitamin C, and vitamin A from fruits and vegetables provides antioxidants that can reduce the risk of uterine cancer.<sup>12,13</sup> Selective foods that boost the immune system are usually affordable and accessible in Indian states. Some popular diet patterns are micronutrient-rich diets like Neutropenic, Nordic, and traditional Asian, which have proven effective against HIV-induced cancers.<sup>14</sup> Diabetes Mellitus and hypertension negatively impact survival in endometrial cancer patients, emphasizing the importance of addressing these comorbid conditions in healthcare and policy.<sup>15</sup> Dietitians play an essential role in proper diet planning. Nutrition monitoring and evaluation are crucial in nutrition care, with dietitians following institutional protocols but lacking in private settings. Consistent monitoring directs patient follow-ups for optimal dietary outcomes.<sup>16</sup> Various factors, including pregnancy, breastfeeding, hormonal contraceptives, weight loss, and physical activity, can reduce endometrial cancer risk. Estrogen levels decrease during pregnancy and breastfeeding, and the risk is lower in women who have had children. Combining estrogen and progestin birth control pills can also reduce the risk of endometrial cancer. However, women with a higher risk of blood clots, stroke, and heart attack may be at higher risk. Bariatric surgery may also reduce the risk of endometrial cancer. A diet rich in fruits, vegetables, phytoestrogens, soy, and vitamin D has not been found to affect endometrial cancer risk.<sup>14,16</sup> Elevated oestrogen levels are the primary determinant of endometrial cancer, but diet may also play a role in its prevention by modifying oestrogen availability. A lower incidence of endometrial cancer has been associated with the Mediterranean diet, which is defined by frequent use of fruits, vegetables, cereals, fish, sea food, olive oil as a seasoning fat, moderate alcohol consumption, and a limited intake of meat and dairy products. Endometrial cancer risk is positively impacted by a high consumption of fruits, vegetables, cereals, legumes, and seafood, but a high animal and saturated fat intake increases it.<sup>17,18</sup> About 10% of endometrial cancers may be prevented by following the typical Mediterranean diet consisting of fruits, vegetables, white meat, fish, and whole grains. However, research has not found a link between the risk of endometrial cancer and a Mediterranean diet. Additionally, there was no decrease in the risk of endometrial cancer in the Women's Health Initiative Dietary Modification Randomised Controlled Trial. While a Canadian study discovered a modest inverse relationship between endometrial cancer risk and plant-based diets, American case-control studies revealed no association between endometrial cancer risk and plant-based, western, ethnic, or phytoestrogen-rich dietary patterns.<sup>19,20</sup> As women age, their

physical activity decreases, leading to changes in body mass and increased fat deposition, causing obesity. This increases the ability of adipose tissue to synthesize oestrogens, which stimulate cells in the uterus. Physical activity may decrease the risk of erectile dysfunction (EC) by reducing serum oestradiol levels and increasing sex hormone binding globulin (SHBG), a binding protein for oestradiol.<sup>21,22</sup>

#### 4. Conclusion

Endometrial cancer can be prevented by avoiding risk factors such as endometrial hyperplasia, estrogen, and tamoxifen, as well as increasing protective factors like pregnancy, hormonal contraceptives, weight loss, and physical activity. Clinical trials are ongoing to explore new cancer prevention methods.

#### 5. Source of funding

None

#### 6. Conflict of interest

None

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**Cite this article:** Das S. Preventive measures for endometrial cancer by proper diet. *IP Arch Cytol Histopathol Res*. 2025;10(2):55-58.