



## SHORT OVERVIEW MELATONIN & CANCER

Melatonin, a hormone primarily produced by the pineal gland, regulates sleep-wake cycles and has been extensively studied for its potential role in cancer prevention and treatment.

Here's what we know so far:

### 1. Melatonin as an Anti-Cancer Agent

- **Antioxidant Properties:** Melatonin is a potent antioxidant that scavenges free radicals and reduces oxidative stress, which is a key factor in cancer development.
- **Anti-Inflammatory Effects:** Chronic inflammation is linked to cancer progression. Melatonin reduces inflammation by downregulating pro-inflammatory cytokines.
- **Immunomodulation:** Melatonin enhances immune system function by stimulating natural killer (NK) cells and other immune responses that help destroy cancer cells.
- **Anti-Proliferative and Pro-Apoptotic Effects:** Studies show that melatonin can inhibit cancer cell growth and promote apoptosis (programmed cell death) in various cancers, including breast, prostate, and colorectal cancers.
- **Anti-Angiogenic Effects:** Melatonin can prevent the formation of new blood vessels (angiogenesis) that tumors need for growth.

### 2. Melatonin and Specific Cancers

- **Breast Cancer:** Some research suggests that melatonin reduces estrogen production, which may help in hormone-related breast cancer cases.
- **Prostate Cancer:** Melatonin has been shown to inhibit prostate cancer cell proliferation and enhance the effectiveness of existing treatments.
- **Colorectal Cancer:** Studies suggest melatonin may reduce tumor growth and improve response to chemotherapy.
- **Lung Cancer:** Melatonin may enhance the efficacy of chemotherapy and radiation while protecting normal cells from damage.
- **Brain Tumors (Glioblastoma):** Preclinical studies indicate melatonin may slow tumor growth and improve survival rates.

### 3. Melatonin as a Supportive Therapy

- **Reduces Chemotherapy and Radiation Side Effects:** Melatonin may help protect healthy cells from damage caused by chemotherapy and radiation therapy, reducing side effects like fatigue and insomnia.

- **Enhances Treatment Efficacy:** Some studies suggest melatonin may enhance the effectiveness of conventional cancer treatments by increasing cancer cell sensitivity to chemotherapy and radiation.
- **Improves Sleep and Quality of Life:** Cancer patients often experience sleep disturbances, and melatonin supplementation can help improve sleep quality and overall well-being.