



Alternative Therapies Not Proven to Be Effective for Primary Cancer Therapy

Examples include: ivermectin, mebendazole and high-dose vitamins

The mitochondria and stem cell connection (MSCC) protocol to treat cancer is based on the theory that changes in the mitochondria of stem cells (cells that can repair and make more of themselves) contribute to cancer growth.¹ Cancer cells also depend on glucose (sugar) and glutamine (an amino acid) to survive and grow.

MSCC theory treatments aim to cut off energy sources that fuel cancer growth using combined high-dose vitamins, off-label medications (medications not approved for use to treat human cancers) and lifestyle changes as cancer treatment.¹

While these treatments may have positive impacts in certain settings; in cancer, they have been used in laboratory studies and small case reports, but no large-scale studies in humans. It is unknown if these treatments work for most patients with cancer. While some medications used in the protocol have been evaluated in cancer, **currently none have been proven to be effective, especially as the main treatment:**

- **High-Dose Vitamin C:** Studied in cancer patients for decades but not shown to be effective in treating cancer.
- **Ivermectin:** Phase 1 and 2 trials show limited or no antitumor activity in humans with advanced cancer.

- **Mebendazole:** Phase 2 trial shows no anticancer activity in gastrointestinal cancers.⁶
- **Vitamin D and other vitamins and minerals:** May be combined with traditional cancer treatments after all drugs have been reviewed for possible drug-drug interactions.

In addition to the lack of data supporting the efficacy of these treatments, there are potential side effects and risks with these medications. Some specific risks associated with the MSCC theory are as follows:

- High-dose vitamin C given intravenously can potentially cause kidney stones or heart problems.
 - Vitamin C is an antioxidant which can sometimes promote cancer growth.
- Vitamin D overdose can lead to dangerous calcium buildup and kidney failure.
 - Vitamin D deficiency may be linked to an increased risk of developing certain cancers. It is important to have levels checked and replaced as indicated based on the individual patient's needs but too much vitamin D may be dangerous.²

- Ivermectin in high doses can cause neurological side effects.
- Mebendazole can cause liver damage or low white blood cell counts, making infections worse.
- A ketogenic diet may cause nutrient deficiencies and muscle loss in some patients and can be unsafe in combination with certain disease states. Follow a balanced diet that feels right for you, especially while undergoing treatment.

It is important to review all the facts before determining if an alternative treatment is

right for you. The MSCC protocol is still experimental and may result in serious side effects including organ damage. False hope in a treatment that has not been shown to be safe and effective can potentially delay the start of a therapy proven to be effective leading to unfavorable outcomes including worsening cancer symptoms and early death.

Depending on your cancer diagnosis and genetic testing, treatment selection will vary. Current approved treatments have been tested in robust clinical studies and have shown to be effective. In some cases, a controlled clinical trial with close monitoring may be an option.

General Treatment Recommendations

1. Maintain a healthy, balanced diet focusing on whole foods and limit intake of highly processed products or high-sugar food items.³ Florida Cancer Specialists & Research Institute has a team of dedicated registered dietitian nutritionists (RDNs) specialized in oncology available for consulting. To learn more, visit: FLCancer.com/Nutrition-and-Wellness/.
2. Research shows that regular exercise, including walking, yoga, Pilates, etc. may improve your quality of life (increase energy, engage in enjoyable hobbies, decrease side effects, etc.).⁴
3. Various vitamin, mineral, or herbal supplements may be **complementary** to your treatment regimen. **Inform your healthcare providers of any new vitamins, supplements, or alternative treatment PRIOR to starting** to accurately investigate any interactions that may exist with your treatment regimen.
4. Daily doses of vitamins and minerals should remain within the recommended dietary allowance set by the NIH, which can be found at: <https://ods.od.nih.gov/HealthInformation/nutrientrecommendations.aspx#dri>
5. Aromatherapy with essential oils, meditation, or other alternative practices may assist in decreasing adverse effects as an add-on to your prescribed treatment regimen and improving quality of life.

References:

1. <https://www.mdpi.com/2218-1989/14/4/229>
2. <https://isom.ca/article/targeting-the-mitochondrial-stem-cell-connection-in-cancer-treatment-a-hybrid-orthomolecular-protocol/>
3. <https://www.myplate.gov/>
4. <https://www.cancer.org/cancer/survivorship/be-healthy-after-treatment/physical-activity-and-the-cancer-patient.html>
5. <https://pmc.ncbi.nlm.nih.gov/articles/PMC11008553/>
6. <https://www.nature.com/articles/s41598-021-88433-y>