Complementary Approaches: Coenzyme Q10

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Classified as
Vitamin

Also called
CoQ10, vitamin Q10, ubiquinone, ubidecarenone,
2,3-dimethoxy,5-methyl, 6-polyisoprene parabenzoquinone

Structure of Coenzyme Q10

Intro and Background

Coenzyme Q10 is a natural compound that is essential to the body's natural production of energy. 1 In 1957, researchers at the University of Wisconsin won the Nobel Prize for discovering the role this vitamin plays in the body. Meat and poultry are the primary sources of dietary CoQ10, while supplements are also widely available. 1 Researchers have found that cancer patients usually have lower levels of CoQ10 in their blood plasma than healthy individuals. 2 This finding serves as a basis for research into CoQ10 treatment. In order to see a significant increase in coenzyme Q10 levels, about 100mg/day need to be taken in supplement form. 3

Scientific Research

There is a limited number of trials in which CoQ10 is used to treat cancer in humans, and even these are not assuringly conclusive in their results. Nonetheless, low levels of CoQ10 have become an important way to determine the risk of melanoma progression. 4 CoQ10 can inhibit cancer cell proliferation during in vitro 5 as well as animal experiments. 6 Another study shows that the combined effect of CoQ10 and a cancer drug (Tamoxifen) can help suppress the growth of breast cancer cells in rats. 7 CoQ10 has also shown the ability to block some of the toxicity, or negative side effects, of chemotherapy which can help improve a patient's quality of life. 8 In a study involving people diagnosed with melanoma and treated with CoQ10 (and interferon), CoQ10 treatment resulted in a smaller likelihood for the melanoma to reappear. This same study also showed that patients experienced an increase quality of life with CoQ10 intake.9 Another study involving supplementation with CoQ10, as well as L-carnitine and amino acids, suggests that the combination may improve cancer-related fatigue.10 In contrast, another randomized, controlled trial showed that CoQ10 taken with Vitamin E did not improve quality of life or fatigue levels.11

There are currently no clinical trials investigating Coenzyme Q10 as a cancer treatment. 12 For information about ongoing clinical trials involving coenzyme Q10, please visit our section on Finding Clinical Trials.

For Further Reading

The National Cancer Institute has published a Physician Data Query (PDQ) summary on Conenzyme Q10.

US Food and Drug Administration Approval

There is not enough evidence to support CoQ10's effectiveness as a cancer treatment, and the FDA has not approved CoQ10 for the treatment of any medical condition.13 It is available commercially because it is sold as a dietary supplement, and dietary supplements do not require FDA approval unless the seller claims that they can cure or prevent disease.14

Please be sure to see our notice on complementary therapies. To better understand and evaluate the research described above, read our Introduction to Scientific Research.

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