



This monograph was prepared by The Ottawa Integrative Cancer Centre (OICC), in collaboration with the Complementary Medicine Education and Outcomes (CAMEO) Research Program. It is part of a series of monographs being developed to share results of a review of the research evidence related to common therapies and products used within cancer patient care.

The following monograph is designed to summarize evidence-based research and does not advocate for or against the use of a particular therapy. Every effort is made to ensure the information included in this monograph is accurate at the time it is published.

Please note that this monograph does not include an exhaustive list of all potential adverse events; individuals may experience unique side effects. The information in this monograph should not be interpreted as medical advice nor should it replace the advice of a licensed health care provider. Prior to using a new therapy or product, always consult a licensed health care provider.

For the safe use of natural health products, please consider the following:

- Consult a licensed health care provider prior to using a natural health product and make a plan to monitor its effectiveness and any side effects. This is particularly important for pregnant or breast-feeding women and people with serious medical conditions.
 - To help prevent interactions with your prescribed medication, ensure your health care provider is aware of any drugs or natural health products you may be using. Make sure to note all natural health ingredients listed in compound products.
 - Read and follow all instructions on the product label.
- If purchasing natural health products in Canada, look for Health Canada approved products. Look for Natural Product Number (NPN) or Homeopathic Medicine Number (DIN-HM) on the label to identify licensed products. Avoid internet pharmacies, as the quality of products cannot be guaranteed and products might not be licensed for sale through Health Canada. For more information, visit <http://www.hc-sc.gc.ca/dhp-mpps/prodnatur/about-apropos/cons-eng.php>

Please note: While the aim was to draw from the most extensive research, in some circumstances the information used was limited by the selection and caliber of available research studies. Full references are available in the corresponding full-length monographs found on the CAMEO website.

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Patient Resource: Breast Cancer

Vitamin D₃



Overview

Vitamin D is an essential nutrient and fat-soluble vitamin obtained mainly through sun exposure. Vitamin D is used in helping prevent primary cancer as well as cancer recurrence, improving cancer treatment outcomes and survival, the treatment of musculoskeletal pain, and in preventing loss of bone density resulting from hormone (anti-estrogen) therapies. Vitamin D also aids in the absorption of calcium and the prevention of bone density loss.

What is vitamin D?

Vitamin D, also known as cholecalciferol or “the sunshine vitamin”, is a fat-soluble vitamin found in small amounts in some foods including fatty fish such as tuna. Additionally, vitamin D is sometimes added to dairy products and juices to make the vitamin more available; however most of our exposure to vitamin D comes from natural sunlight.

What is vitamin D used for?

Vitamin D is used in helping prevent primary cancer as well as cancer recurrence, improving

cancer treatment outcomes and survival, the treatment of musculoskeletal pain, and in preventing loss of bone density resulting from hormone (anti-estrogen) therapies. Vitamin D also aids in the absorption of calcium and in preventing bone density loss, generally.

Does vitamin D work?

Research from a large randomized study found that 1100 IU vitamin D with calcium taken daily over 4 years reduced the risk of all cancers by 60% (effects on individual cancers were not available). In 3 other studies, higher blood levels of vitamin D appeared to protect against cancer recurrence or metastasis..

One cohort study found that vitamin D reduced musculoskeletal symptoms associated with aromatase inhibitor therapy, and similarly it reduced musculoskeletal pain. Three other studies also found that vitamin D supplementation equivalent to between 7000 and 10,000 IU per day over a period of 4 months led to significant improvements in pain resulting from aromatase inhibitor therapy.

How does vitamin D work?

The way vitamin D works in the body is complex, as the vitamin D receptor is present on most types of cells in the body. In cancer, vitamin D is thought to regulate cell “proliferation” or division, to inhibit uncontrolled growth. Vitamin D is required for the regulation and absorption of calcium in the body. It also plays an important role in maintaining bone health.

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What are some possible side effects of vitamin D?

Vitamin D appears to have a good safety profile. Most people do not experience side effects with vitamin D. It is possible to have elevated levels of calcium in the blood or urine with high vitamin D dosing, however this is very rare. For this reason, women should be monitored by their health care provider when taking high doses of vitamin D.

Is vitamin D safe?

Vitamin D appears to be safe when taken orally in recommended amounts as determined by a licensed health care provider. Vitamin D has been shown to be safe at dosages up to 4000 IU per day during pregnancy and up to 6400 IU during lactation. High dose vitamin D (i.e., greater than 4000 IU) should not be taken without proper assessment and monitoring by a licensed health care professional.

Safety specific to hormone-sensitive cancers

Vitamin D does not have estrogenic effects and does not bind to the estrogen receptor. Vitamin D acts to regulate cell growth and division through effects on the vitamin D receptor present in cells throughout the body.

Are there interactions with vitamin D?

There is little research available on potential interactions between vitamin D and chemotherapy drugs. Vitamin D may decrease joint pain caused by aromatase inhibitors (such

as Anastrozole).

If you choose to use vitamin D:

Most vitamin supplements contain 400 IU of vitamin D. Although high doses of vitamin D have been shown to be quite safe, amounts greater than 4000 IU per day should not be taken without consulting your health care provider. It is possible that higher dosages may be preferred for people with cancer, especially those undergoing treatment with aromatase inhibitors. However this should be determined with the aid of a health care provider.

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