



DIM-Evail™

HIGHLY ABSORBABLE DIINDOLYLMETHANE
60 SOFTGELS | NPN80049016 | DIM060-CN

Plant indoles, also called glucosinolates, found in cruciferous vegetables provide health benefits to humans. Cruciferous vegetables are known for their ability to help reduce the risk of cancer and many chronic diseases. Two such indoles provided by cruciferous vegetables are I3C (Indole-3-Carbinol) and DIM (Diindolylmethane). DIM is not naturally present in these plants. It gets released with the help of enzymes upon crushing of the broccoli, cauliflower, cabbage or Brussels sprouts or during human digestion.^{1,3} Stomach acid, or HCl, can also aid the joining of two indole 3 carbinols to make diindolylmethane. Lack of HCl will hinder one's ability to make DIM from I3C.²

Basically, DIM is two molecules of I3C combined together. I3C in a capsule is not shelf stable because it is sensitive to light, heat and moisture. I3C is irritating to the stomach and research tells us that it can have very negative side effects in doses over 300 mg daily such as dizziness and unsteady gait which may be due to nervous system toxicity. One study shows evidence that 90% of orally consumed I3C converts to other compounds. Perhaps it is these other compounds that cause these side effects. One compound I3C converts to is ICZ, or indolocarbazole. This compound causes DNA damage.⁴ DIM studies show no toxicity when given triple the dose in humans.

The Designs for Health Evail™ Process

Due to its crystalline structure, absorption of DIM is minimal when given orally. For this reason, DIM-Evail™ is manufactured utilizing the new Designs for Health Evail™ process, which is an all-natural formulation that improves the absorption of DIM. This process uses a proprietary blend of MCT oils, non-soy derived lecithin, and vitamin E, without the use of potentially harmful surfactants.

What Actions Does DIM Have on the Body that Make it Beneficial to our Health?

It has been suggested that a low level of the 2-hydroxyestrone metabolites (2-OHE) and a high level of 16 alpha-hydroxyestrone (16 alpha-OHE1) is associated with an enhanced risk of breast cancer. DIM increases 2 hydroxyestrone and therefore improves the 2/16 hydroxyestrone ratio, making it very protective for women at high risk for this condition.⁶

Research by Bradlow says that DIM also reduces availability of 4-androstenedione for aromatization to estrone.⁷ He concludes that DIM is more potent than I3C at protecting against mammary carcinoma due to decreased formation of 16 alpha-hydroxyestrone from estrone.⁶

Doesn't Research Support the Use of I3C for Cancer Prevention Such as Breast Cancer?

There are positive studies on supplementation of I3C because they are looking at limited parameters such as improvement in the 2/16 hydroxyestrone ratio. When we take a broader look, however, I3C raises 4-hydroxy estrogen with the potential of aggravating cancers such as breast, endometrial and prostate cancer. I3C increases 4-hydroxy estrogen production in animals and in humans.⁸ DIM does not. 4-hydroxy estrogens and CYP1B1, the only CYP source of 4-hydroxy estrogen, have both been implicated in the causation of prostate and breast cancer in humans. 4-hydroxy estrogens and CYP1B1 are also implicated in the causation and growth of uterine fibroid tumors and endometriosis.

Researchers from the Department of Pathology, Sasaki Institute, Tokyo, Japan concluded the following: "These results suggest that induction of the CYP 1 family in the liver and sequential modulation of estrogen metabolism to increase 4HE might play a crucial role in promoting the effects of dietary I3C on endometrial adenocarcinoma development."⁸

What About Toxicity Studies?

In acute toxicity studies in mice, "DIM produced no observable 24-hr acute toxicity up to 4 g/kg body weight, except for a slight decrease in haematocrit. However, I-3-C exhibited a dose-dependent toxicity above 100 mg/kg body weight, including a decrease in hepatic reduced glutathione after 2 hr and severe neurological toxicity, and the release of liver enzymes to the plasma at 24 hr."⁹

Bottom Line: Supplementation of DIM should be recommended over supplementation of I3C for safety purposes.

DIM is a More Potent Antioxidant Than I3C

When tested side by side with I3C, DIM was shown to be a more potent antioxidant with greater activity than vitamin E because of its hydrogen (electron) donating ability.

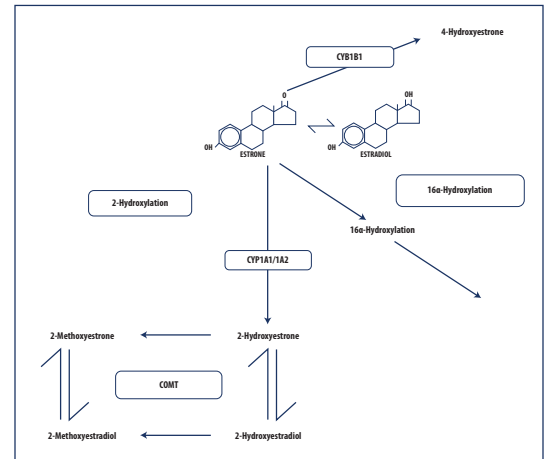
Should We Just Eat Cruciferous Vegetables?

Eating two pounds of cruciferous vegetables like raw cabbage or broccoli can ultimately supply, via I3C conversion into DIM, about 20-30 mg of DIM. Therefore, supplementation is ideal along with consuming cruciferous vegetables.

What Does DIM Do?

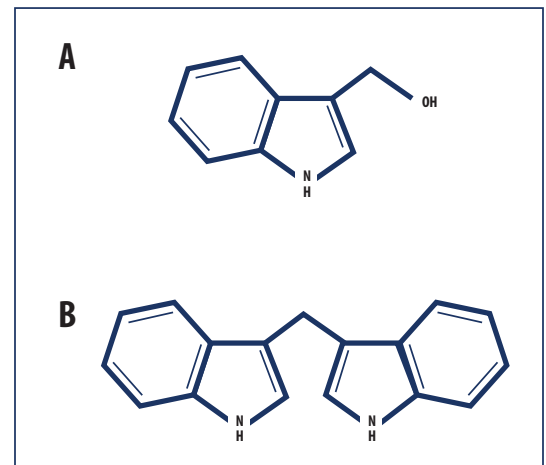
Research clearly shows that 4 hydroxy estrogen and 16 hydroxy estrogen are not favourable when elevated. Many doctors are now performing clinical tests on their patients to screen for risk of breast cancer. Low risk for breast cancer is marked by a high 2/16 ratio (2 hydroxy to 16 hydroxy estrogen). It is clearly established by research that DIM raises the 2/16 ratio without elevating 4 hydroxy estrogen. DIM helps men too because it is an aromatase inhibitor. DIM helps to block the conversion of testosterone to estrogen.¹⁰ Regarding dosing, I3C needs to be given at 3-4 times the dosage of DIM to provide the same positive benefits. (Note: 300-400 mg I3C as compared to 60-100 mg DIM). I3C in low doses, like the amounts found in cruciferous vegetables is safe. I3C ingested at higher doses needed to shift estrogen ratios may be problematic.

DIM's proven safety means that DIM can be used by women wishing to get pregnant but should be discontinued during pregnancy and lactation. There are no known contraindications for DIM supplementation.



Should Men Take DIM?

Research published in the British Journal of Cancer, 2004 states, "Prostate cancer mortality results from metastases to the bones and lymph nodes and progression from androgen-dependent to androgen-independent disease. Although androgen ablation was found to be effective in treating androgen-dependent prostate cancer, no effective life-prolonging therapy is available for androgen-independent cancer." Results of this study suggest that DIM induces apoptosis in PC3 cells, through the mitochondrial pathway suggesting that DIM is hopeful as a therapeutic strategy for the treatment of androgen-independent prostate cancer.¹¹ According to UC Berkeley researchers, "DIM exhibits potent antiproliferative and antiandrogenic properties in androgen-dependent human prostate cancer cells. DIM suppresses cell proliferation of LNCaP cells and inhibits dihydrotestosterone (DHT) stimulation of DNA synthesis." DIM is a strong competitive inhibitor of DHT binding to the androgen receptor. This study is titled: Plant-derived 3,3'-Diindolylmethane Is a Strong Androgen Antagonist in Human Prostate Cancer Cells.¹⁰ An in vivo study in rats showed that DIM cut in half testosterone 16 alpha and 2 alpha-hydroxylation.¹²



A = Molecular structure of I3C / B = Molecular structure of DIM

Medicinal Ingredients (per softgel):

DIM (Diindolylmethane) (*Brassica oleracea var. botrytis*-Whole plant, *Brassica oleracea var. capitata*, *Brassica oleracea var. italica*-Whole plant, *Brassica oleracea var. gemmifera*-Whole plant) 100 mg

Non-Medicinal Ingredients: Bovine gelatin, purified water, medium chain triglycerides, glycerine, tocotrienols, tocopherol, annatto (color), sunflower lecithin. **Recommended Dose:** Adults: Take 1 softgel per day with a meal, or as directed by your health care practitioner. For use beyond 3 weeks, consult a health care practitioner.

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DIM-Evail™ provides 100 mg of DIM (Diindolylmethane) -a type of compound known as a 'plant indole.' Plant indoles are found in cruciferous vegetables such as broccoli, cabbage and cauliflower and are among the nutrients that give these vegetables their well-known healthful properties.

The primary plant indole found in cruciferous vegetables is known as Indole 3 Carbinol (I3C), which converts to DIM in the body. I3C and DIM have been studied for their health-promoting benefits when used as supplements. While both may help support healthy estrogen metabolism, DIM may be a better option as it does not produce the unwanted side effects of I3C (including possible nausea and equilibrium issues).

How Does Dim-Evail™ Offer Superior Absorption?

DIM is made up of a crystalline structure that makes it difficult for the body to absorb. To overcome this hurdle, DIM-Evail™ is manufactured using an all-natural process that helps to optimize the absorption of this nutrient by the body. This delivery technology increases the absorption rate and reduces the absorption time for DIM, and as a result, it may allow for superior effects through lower dosages.

DIM and Hormone Balance

Both women and men produce many different forms of estrogen. Research suggests that the ratio of two specific forms – 2 hydroxy estrogen and 16 hydroxy estrogen – is important for optimal health. DIM helps support a more optimal balance of these two estrogens, thereby providing a protective effect on the body. DIM also acts as an 'aromatase inhibitor' – meaning it can block some testosterone from converting to estrogen, making more testosterone available in the body. This could have a positive influence on sexual desire and athletic performance in both men and women.

Benefits of DIM-Evail™

- Helps maintain beneficial ratio of 2 hydroxy estrogen to 16 hydroxy estrogen (also known as a higher '2/16 ratio')
- Supports healthy balance of testosterone and estrogen
- Provides antioxidant properties. DIM has been shown to help protect cells in the body from the damaging effects of oxidation.
- Has none of the side effects associated with I3C
- Specifically formulated for maximum absorption and bioavailability

Recommended Dose:

Take one softgel per day with a meal, or as directed by your health care practitioner.

