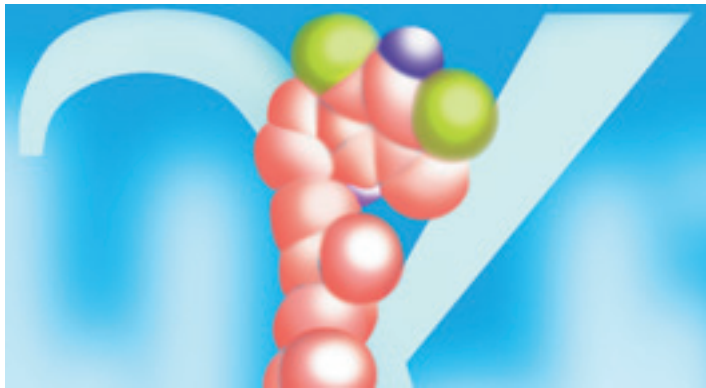


**“Gamma-Tocopherol: a New Player in Prostate Cancer Prevention?”**

In our last issue, we explained that calling alpha-tocopherol “vitamin E” is really a bit misleading. **Vitamin E is not one molecule, but eight** — a complex, like the B-complex, composed of four **tocopherols** and four **tocotrienols**.



We discussed the fact that while the different vitamin E molecules share some properties in common, each also has properties unique to itself, for which the other E family members can't substitute. We also shared some of the exciting research on the many benefits of members of the E complex *other* than alpha-tocopherol (See “There’s No Such Thing as ‘Vitamin E!’” in *The Holistic Lifestyle* 1[4]). And the article suggested that, because serious research into E vitamins other than alpha-tocopherol was only in its infancy, “even more exciting discoveries may be just around the corner.”

Just as that issue came back from the printers’, one of those discoveries struck us like a lightning flash.

A study published in the December 20, 2000 edition of the *Journal of the National Cancer Institute*<sup>1</sup> looked the relationship between levels of the antioxidant mineral **selenium**, as well as two different E complex vitamins (**alpha-** and **gamma-tocopherol**) in men’s bodies, and their development of prostate cancer. Comparing the men who ultimately developed prostate cancer to others in the same group who did not (a “nested case-control study”), the researchers came to a

striking conclusion: **men whose plasma levels of gamma-tocopherol were in the top 20% had** fivefold lower odds of developing prostate cancer in the next seven years.

Intriguingly, the new study found that the men received no significant or consistent reduction in prostate cancer risk from having high levels of alpha-tocopherol or selenium in their bodies — *except* in the presence of high plasma **gamma-tocopherol** levels. In other words, **alpha-tocopherol and selenium were only found to be protective** when gamma-tocopherol levels were also high.

An accompanying editorial<sup>2</sup> pointed out that this finding might explain some of the paradoxes and inconsistencies seen in previous studies on alpha-tocopherol supplements and prostate cancer.

Reviewing their own results, and the results of previous studies, the authors concluded that, **since “supplementation with alpha-tocopherol may lower gamma-tocopherol concentrations in plasma and tissues<sup>3,4</sup>, consideration should be given to supplementation with combined alpha- and gamma-tocopherols in future prostate cancer prevention trials.”**

**Reports: Conflict of Interest Rampant in FDA, USDA**

An investigative study on United States Food and Drug Administration, and a court ruling against the US Department of Agriculture, reveal the presence of widespread

conflicts of interest in people chosen as “expert advisors” in setting public policy.

The *USA Today* study found that advisors hired to counsel the FDA on issues ranging from the design of clinical trials to test new drugs, through to the safety and efficacy of those drugs, whether those drugs will be approved for sale, and on to the text of warning labels those drugs will carry, had a some form of direct financial interest in the subject of their advice in over half (54%) of cases. Conflicts typically ranged from receiving research grants or consulting fees from the drug’s manufacturers to personal stock ownership.

Restrictions do exist in American law to prevent the hiring of such experts, but in the period between the beginning of 1998 and the release of the study in June 30, 2000, the report found that the FDA had sidestepped the regulation on more than 800 occasions. **At least one member of an FDA advisory committee meeting in the time frame had a conflict of interest in 92% of cases**, the September 25, 2000 press release stated.

Just a week later, US District Judge James Robertson ruled that the USDA has been in violation of federal legislation by keeping secret the conflicts of interest among its



advisory committee's experts.

The Dietary Guidelines Advisory Committee puts together official Dietary Guidelines for Americans, which shape public policy and are the basis for all US Government food programs. Outrageously enough, of the eleven members of the Committee, five members had conflicts of interest which the USDA *openly admitted*.

But according to an October 2, 2000 press release put out by the Physicians' Committee for Responsible Medicine, who had brought the USDA to court, the judge ruled that **the USDA had deliberately withheld information on the conflicts of a sixth member of the Committee.**

Conflicts of interest included financial ties to the egg, dairy, and meat industries.

### Yes, You Absorb Quercetin!

**Quercetin** is a bright-yellow flavonoid antioxidant found in onions and red wine.

**Quercetin** inhibits the release of histamine from the body's immune cells,<sup>5</sup> so many people use **quercetin** as a natural antihistamine for their allergies.

Research also suggests that eating plenty of foods rich in **quercetin** may be protective against some cancers<sup>6,7</sup> as well as heart disease;<sup>8</sup> some scientists, in fact, believe that **quercetin** is one of the reasons that red wine seems to be so heart-healthy.<sup>9</sup> And recent studies suggest that **quercetin** may provide an effective natural alternative for those suffering with **asthma**.<sup>10</sup>

But for a while now there's been some question as to whether **quercetin** and many other flavonoids are actually absorbed by the body. The reason for this is that **quercetin** is mostly found in the "glucoside" form — that is, in a form bound to a sugar group. And a while a study in ileostomy patients<sup>11</sup> had suggested that **quercetin** could be well-absorbed, there was no direct measurement of absorption used in the study. By contrast, a test tube study<sup>12</sup> suggested that the glucoside form might not be absorbed at all. If this were true, only a small fraction of **quercetin** — the part that was present in its

free form — would be taken up by the body.

As a result, some people have been put off of using **quercetin** supplements or seeking out **quercetin**-rich foods. And some companies have added digestive enzymes like bromelain to their **quercetin** products "to enhance absorption," evidently not understanding that the enzymes they were adding digest *proteins*, and would in no way affect the presence of the offending sugar on a **quercetin** molecule.

But fortunately, a new trial<sup>13</sup> has shown, by *direct* measurement, that the common glucosides of **quercetin** are easily broken down by specialized enzymes (**beta-glucosidases**) in the digestive juices, and then mostly (64.5-80.7%) absorbed in the gut.

French onion soup, fine red wine, and apple strudel just became a lot more like health food.

French onion soup, fine red wine, and apple strudel just became a lot more like health food.

### CLA Cuts Body Fat ... in Humans! Conjugated Linoleic Acid (CLA) is a differently-shaped

cousin of the more common essential fatty acid, **linoleic acid** (see **Figure 1**). When **CLA** was first identified in the late 1987, it was regarded as a sort of crazy joke invented by Nature to mess up human nutritionists' recommendations: imagine, a fat found almost exclusively in cooked meats (especially grilled ground beef) with potent *anti-cancer* properties!

Well, after a decade and a half of scientific research, no one thinks **CLA** is a joke anymore. **CLA's ability to prevent cancer — especially breast cancer — has been shown again and again in lab animals, as has its remarkable ability to enhance fat loss while preserving lean body mass.**<sup>14</sup> Combine this with **CLA's ability to prevent diabetes** in lab rodents,<sup>15</sup> lowering insulin levels and improving glucose tolerance, and it's no wonder that **CLA** is the weight-loss supplement of choice for so many people who are both managing their weights and concerned about broader health issues.

But up until recently, all the important work on **CLA** has been done on lab animals — especially rodents and pigs. So the question remained: *will CLA work in humans?*

A new trial in humans<sup>16</sup> says that, when it comes to losing body fat, the answer is: *yes*.

Dr. Henrietta Bankson and her colleagues at Scandinavian Clinical Research in Norway conducted a randomized, double-blind, placebo-controlled trial of **CLA** in 60 overweight volunteers. The subjects received either an olive oil dummy pill or **CLA**, in dosages from 1.7 to 6.8 g daily, for twelve weeks. Bodyfat was determined before, during, and after the trial using DEXA, a full-body x-ray technique.

**Subjects taking CLA experienced statistically significantly more body fat loss** than those receiving placebo, with the greatest reductions occurring among those receiving 3.4 g **CLA** or greater each day. While subjects on the placebo actually *increased* their fat mass over the course of the trial by 1.47 kg (3.2 *extra* pounds of fat!), the group receiving 3.4 g **CLA** per day *lost* 1.73 kg of fat over the course of the trial. The groups receiving higher doses of **CLA** also lost fat, but not significantly more than was lost by the other **CLA** groups — and this, despite the fact that the 6.8 g **CLA** group was actually exercising harder than the other groups in the study!

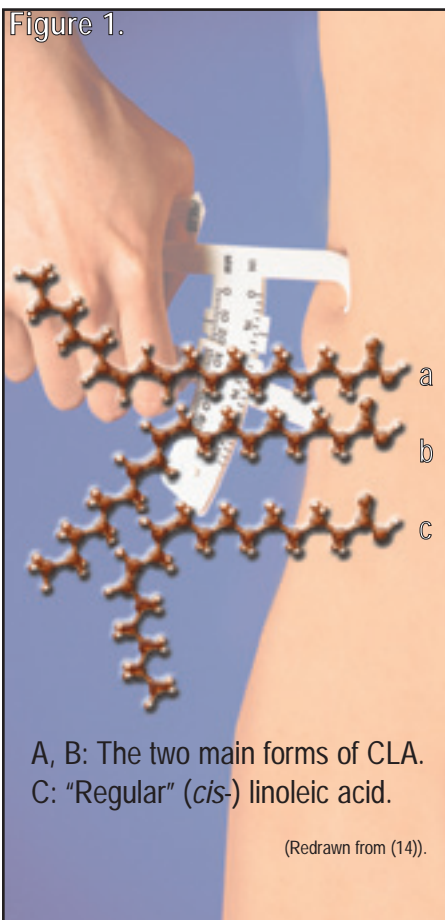
Interestingly, the total body mass was statistically no different after the trial in the groups receiving **CLA**, suggesting that **subjects taking CLA may have gained some lean even as they lost the load:** exactly this effect has been reported in animal studies.<sup>17</sup> While **CLA**-takers' HDL cholesterol was lowered on the supplement, their LDL "bad" cholesterol was lowered even more, thus improving the overall bloodwork profile. And the side effects were no more frequent or bothersome for the **CLA**-takers than for those given the olive oil dummy pill.

Because **CLA** is difficult to find in foods (meat from today's feedlot-fed cows contains only a quarter as much **CLA** as the grazing cattle of the 1960s, and the milk from such cattle is only a third as **CLA**-rich), supplementation is an attractive option to ensure adequate **CLA** intake. It's important to know what you're buying, however: many products have the letters "**CLA**" emblazoned on their labels, but

actually contain nothing but sunflower or safflower oil.

These products contain virtually no **CLA**. They are able to get away with confusing labelling because they *do* contain *cis*-linoleic acid — that is, the omega-6 fatty acid found in most vegetable oils, and with which the typical North American diet is already overloaded. True **CLA** is *made from cis*-linoleic acid, by exposing it to alkali and warmth, but **CLA** and *cis*-LA are two different fats with drastically different effects on the body. In fact, one of the main mechanisms whereby **CLA** reduces cancer risk is believed to be **CLA**'s ability to put the brakes on the body's processing of *cis*-LA.<sup>18</sup> Don't confuse the two!

A product which contains true **CLA** will



typically list both the total softgel weight and the actual **CLA** content on the label. The best quality **CLA** products are 75% **CLA** by weight, so that they contain 750

*Cancer. J Natl Cancer Inst. 2000 Dec 20;92(24):2018-2023.*

2. Giovannucci E. *Gamma-Tocopherol: a New Player in Prostate Cancer Prevention? J Natl Cancer Inst. 2000 Dec 20;92(24):1966-1967.*

3. Lehmann J, Rao DD, Canary JJ, Judd JT. *Vitamin E and relationships among tocopherols in human plasma, platelets, lymphocytes, and red blood cells. Am J Clin Nutr. 1988 Mar;47(3):470-4.*

4. Vatassery GT, Morley JE, Kuskowski MA. *Vitamin E in plasma and platelets of human diabetic patients and control subjects. Am J Clin Nutr. 1983 Apr;37(4):641-4.*

5. Middleton E Jr, Drgewiecki G, Krishnarao D. *Quercetin: an inhibitor of antigen-induced human basophil histamine release. J Immunol. 1981 Aug;127(2):546-50.*

6. Dorant E, van den Brandt PA, Goldbohm RA, Sturmans F. *Consumption of onions and a reduced risk of stomach carcinoma. Gastroenterology. 1996 Jan;110(1):12-20.*

7. Le Marchand L, Murphy SP, Hankin JH, Wilkens LR, Kolonel LN. *Intake of flavonoids and lung cancer. J Natl Cancer Inst. 2000 Jan 19;92(2):154-60.*

8. Hertog MG, Feskens EJ, Hollman PC, Katan MB, Kromhout D. *Dietary antioxidant flavonoids and risk of coronary heart disease: the Zutphen Elderly Study. Lancet. 1993 Oct 23;342(8878):1007-11.*

9. Pace-Asciak CR, Hahn S, Diamandis EP, Soleas G, Goldberg DM. *The red wine phenolics trans-resveratrol and quercetin block human platelet aggregation and eicosanoid synthesis: implications for protection against coronary heart disease. Clin Chim Acta. 1995 Mar 31;235(2):207-19.*

10. Shoskes DA, Zeitlin SI, Shabed A, Rajfer J. *Quercetin in men with category III chronic prostatitis: a preliminary prospective, double-blind, placebo-controlled trial. Urology. 1999 Dec;54(6):960-3.*

11. Hollman PC, de Vries JH, van Leeuwen SD, Mengelers MJ, Katan MB. *Absorption of dietary quercetin glycosides and quercetin in healthy ileostomy volunteers. Am J Clin Nutr. 1995 Dec;62(6):1276-82.*

12. Wälgren RA, Walle UK, Walle T. *Transport of quercetin and its glucosides across human intestinal epithelial Caco-2 cells. Biochem Pharmacol. 1998 May 15;55(10):1721-7.*

13. Walle T, Otake Y, Walle UK, Wilson FA. *Quercetin glucosides are completely hydrolyzed in ileostomy patients before absorption. J Nutr. 2000 Nov;130(11):2658-61.*

14. Pariza MW, Park Y, Cook ME. *Conjugated linoleic acid and the control of cancer and obesity. Toxicol Sci. 1999 Dec;52(2 Suppl):107-10.*

15. Houseknecht KL, Vanden Heuvel JP, Moya-Camarena SY, Portocarrero CP, Peck LW, Nickel KP, Belury MA. *Dietary conjugated linoleic acid normalizes impaired glucose tolerance in the Zucker diabetic fatty fat/fa rat. Biochem Biophys Res Commun. 1998 Mar 27;244(3):678-82.*

16. Blankson H, Stakkestad JA, Fugertun H, Thom E, Wadstein J, Gudmundsen O. *Conjugated linoleic acid reduces body fat mass in overweight and obese humans. J Nutr. 2000 Dec;130(12):2943-8.*

17. Park Y, Albright KJ, Liu W, Storkson JM, Cook ME, Pariza MW. *Effect of conjugated linoleic acid on body composition in mice. Lipids. 1997 Aug;32(8):853-8.*

18. Banni S, Angioni E, Casu V, Melis MP, Carta G, Corongiu FP, Thompson H, Ip C. *Decrease in linoleic acid metabolites as a potential mechanism in cancer risk reduction by conjugated linoleic acid. Carcinogenesis. 1999 Jun;20(6):1019-24.*

CLA



The new healthy fat

-HIGH-POTENCY:  
750 mg (75%) CLA per capsule

-QUALITY SOURCE:  
Tonalin,<sup>®</sup> the material source used in human trials.

-Supports your weight management lifestyle

-Helps maintain normal cell growth