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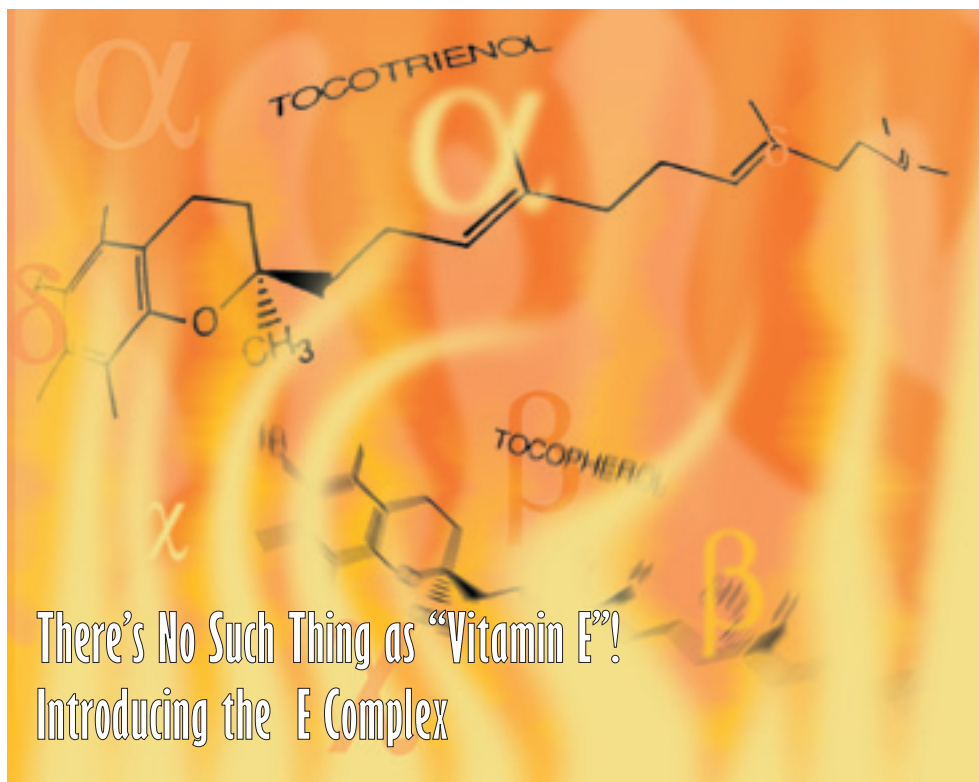
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# The Holistic Lifestyle

Volume 1

Issue 4

January 2000



Imagine walking into your local health food store and seeing a bottle on the shelf labeled "Natural Vitamin B." Not "Natural Vitamin B-Complex" or "Natural Vitamin B-6" -- just "Natural Vitamin B." You'd be a little puzzled, wouldn't you? Maybe even curious enough to pick up the bottle and see just what the label meant.

Next imagine that the ingredients list declared that the product contained just *one* B vitamin: niacin, say, or pantothenic acid. What would you think? That the supplement was mislabeled? That the manufacturers didn't know what they were doing? That someone was trying to dupe the gullible?

*After all, you'd think, there's no such thing as "Vitamin B."*

Exactly. While there are *B vitamins*, there is no one molecule that is "vitamin B." Rather, the B vitamins are a *family*: the "B complex." The B complex works as a synergistic whole. You need the full team on your side to enjoy the health benefits of the B complex. Just because you're getting plenty of *one* B vitamin -- say, riboflavin -- doesn't mean that you can forget about thiamine, or folic acid, or the rest. In fact, supplementation with just *part* of the B complex can even create an artificial deficiency in other B vitamins!



W  
elcome  
Readers

## The Holistic Lifestyle

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Holistic International, manufacturers and distributors of the most exciting lines of envelope-pushing nutritional supplements in Canada, welcomes you to this issue of *The Holistic Lifestyle*, published bimonthly. *The Holistic Lifestyle* is designed to provide our customers with essential information and news of breakthrough research to help you make the best decisions to meet your health goals through supplements and lifestyle choices.

The Holistic Lifestyle also provides news about Holistic International and its products, along with trade shows, retailer information, and government regulations and their impact on your health freedom.

Comments? Questions?  
We want to hear from you!

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Most health-conscious people already know all of this. The irony is that nearly every one of us is making the exact same mistake with their "vitamin E."

### Introducing the E Complex

Have a look at your "Natural Vitamin E" supplement. The label probably reads something like this: "d-alpha tocopherol ... 400 IU." That seems perfectly appropriate: that's what vitamin E *is* -- isn't it?

No, it's not -- anymore than pyridoxine "is" vitamin B. **Vitamin E, like "Vitamin B," is a complex** -- a family of eight molecules (four tocopherols and four tocotrienols) which work together in the body to support its health<sup>2</sup>. Each member of the family (or each "vitamer," as they're called) has its own, unique functions. No one family member can fully substitute for another.

"But," you say, "*my vitamin E says it contains 'Natural Mixed Tocopherols.'* So my supplement is complete, right?" Unfortunately not -- for two reasons.

First, you're still missing a full half of the complex: the **tocotrienols**. Tocotrienols and tocopherols are very closely-related molecules, but the tocotrienols' unique chemical structures allow them to move around more freely in cell membranes. As a result, tocotrienols can rush in to intercept incoming free radicals more efficiently than can tocopherols. The tocotrienols' greater mobility also allows them to get "recharged" more quickly (by **vitamin C** and **coenzyme Q<sub>10</sub>**) when they fall down in the free-radical fight. This "recharging" effect -- which marks E complex as a part of the body's five member, elite **antioxidant network** -- is vital to E vitamins' antioxidant powers. In fact, **when antioxidant recycling fails, E complex vitamins can actually become free radicals themselves**, accelerating damage through a process known as **tocopherol-mediated peroxidation (TMP)**<sup>1a</sup>. The bottom line on this "first in,

first out" effect: **in biological membranes, the tocotrienols are forty to sixty times more potent antioxidants than the tocopherols**<sup>3</sup>.

Second, the dose of tocopherols in most "mixed tocopherol" supplements is completely unbalanced. These products contain about six times as much alpha-tocopherol as the other three tocopherols combined. It's now known that taking too much alpha-tocopherol both depletes your body of other E complex vitamins<sup>4</sup> and also tends to blunt the other E vitamins' unique effects<sup>5</sup>.

So just what can these *other* vitamin E molecules do that alpha-tocopherol can't?

### The Blood Pressure Regulator

Ever since the 1960s, researchers have been searching for the substance in the body which allows the body to release excess water held in the space between its cells (**extracellular fluid**). Finding this factor is not just a scientific curiosity, because **retaining too much extracellular fluid raises your blood pressure, as well as your risk of congestive heart failure, cardiac fibrosis, and cirrhosis of the liver**.

The factor was finally identified in 1996: it's a substance called **LLU-alpha**, which is made in the body from gamma-tocopherol, and nothing else<sup>6</sup>.

### E Complex Against Breast Cancer?

Two groups of scientists have now reported that **delta-tocopherol, as well as all four tocotrienols, can cause breast cancer cells to commit "cellular suicide"** in a test tube. Alpha-tocopherol does not have this power<sup>7,8</sup>.

### The Smog Protector

Peroxyntirite is a vicious free radical which is a major component of smog, and is also responsible for much of the tissue damage caused by the inflammation process. **Alpha-tocopherol cannot effectively**

# There is no such thing as Vitamin E!

## Introducing the E Complex

remove peroxynitrite without gamma-tocopherol as a partner.<sup>9</sup>

### Plaque Reversal

Double-blind, placebo-controlled trials have shown that high-dose tocotrienol complex can help restore cholesterol balance in people whose levels are too high<sup>10</sup>. In one such trial, **tocotrienols actually reversed the thickening of the arteries leading into the brain** in patients with advanced carotid stenosis.<sup>11</sup>

### COX-2 Inhibitor

**Cyclo-oxygenase (COX)** is an enzyme involved in making the cellular micro-hormones called **eicosanoids**. Eicosanoids play a vital role in health, affecting the function of every cell in the body. There are two forms of COX, understandably named **COX-1** and **COX-2**, which are similar in name and structure, but have very

because inflammation is sometimes needed for the body's immune response. But as people with *chronic* inflammation from **sports injuries** or **rheumatoid arthritis** know, inflammation caused by COX-2 can become a self-perpetuating, vicious circle. If you can block the chronic activation of the COX-2 enzyme, you can inhibit chronic inflammation. Many anti-inflammatory drugs (such as aspirin and **Non-Steroidal Anti-inflammatory Drugs (NSAIDs)**) work because *part* of their action is to block the activation of COX-2..

Unfortunately, these drugs also inhibit the essential COX-1, which is a major part of the reason they cause such side-effects as **stomach ulcers** and **kidney damage**: while interfering with the inflammation caused by COX-2, they simultaneously block the vital maintenance properties of COX-1. New "COX-2 inhibitor" drugs like celecoxib (**Celebrex**®) and rofecoxib (**Vioxx**®) are designed to block COX-2 activity while having less effect on COX-1.

The benefits of blocking COX-2 go beyond fighting pain and easily-detected inflammation. Chronic, low-level inflammation is also involved in the processes of **atherosclerosis** and **carcinogenesis**. Many scientists believe – and randomized, double-blind, placebo-controlled trials are now proving -- that **substances which inhibit COX-2 also potently reduce a person's odds of having a heart attack<sup>12</sup> and developing various kinds of cancer.<sup>13</sup>**

Researchers have recently reported that

**gamma-tocopherol, but not alpha-tocopherol, is an effective COX-2 inhibitor.<sup>14</sup>** The important gamma-tocopherol metabolite, **LLU-alpha**, was also found to have COX-2 inhibitor powers. The report focuses on work done in test tubes, but the researchers also mention that "the current finding is consistent with our recent [unpublished] observation that **g[amma] T[ocopherol] supplementation attenuated inflammation-induced damage in rats.**"

### Which E For the Heart?

The winter of 1999-2000 was a big disappointment for many fans of vitamin E. Two large-scale, well-designed studies published in this period -- the **HOPE**<sup>18</sup> and **GISSI**<sup>19</sup> trials -- reported that **alpha-tocopherol (400 IU/day) did not give any protection against new heart attacks** to people who had already had one. Numerous objections have been raised against these trials -- most notably the doses used, which may be adequate for healthy people but not for folks who've already had one heart attack -- but the real problem may have been that **alpha-tocopherol alone may be the wrong "vitamin E" for heart health.**

When you consider all the heart-protective properties of the "other" E vitamins -- cholesterol-lowering, anti-inflammatory, blood-pressure reducing, etc. -- you might expect that alpha-tocopherol, administered *alone*, is not going to be the heart cure-all many people expect it to be. It's interesting, therefore, that several studies have found that **low plasma levels of gamma-tocopherol -- but not alpha tocopherol - area found in patients with atherosclerosis.<sup>20,21</sup>** Likewise, some studies have found that vitamin E from food, but not supplements, protect women against risk of death from heart disease.<sup>22</sup> Interestingly, the most common form of vitamin E in the diet is gamma-tocopherol, while most supplements are overbalanced

Figure 1.<sup>23</sup>

	E Complex in Different Food Sources					Tocotrienols (ppm)					Total T+T (ppm)
	Tocopherols (ppm)					a-T <sub>3</sub>	b-T <sub>3</sub>	q-T <sub>3</sub>	d-T <sub>3</sub>	%-T <sub>3</sub>	
	a-T	b-T	q-T	d-T	%-T						
Corn oil	122	50	602	18	100	-	-	-	-	0	782
Soybean oil	101	-	583	264	10	-	-	-	-	0	958
Rice oil	125	40	50	-	22	184	21	570	-	78	989
Palm oil	279	-	61	-	31	274	-	398	69	69	1081
Olive oil	51	-	-	-	100	-	-	-	-	0	51
Coconut oil	5	-	-	6	31	5	1	19	-	69	36
Lard	12	-	7	73	7	-	-	-	-	27	26
Wheat	14	7	0	0	36	33	0	0	0	64	59
Wheat germ	239	90	0	0	72	30	100	0	0	28	459
Wheat bran	16	10	0	0	28	13	55	0	0	72	94
Corn	6	0	45	0	86	3	0	5	0	14	59
Oat	5	1	0	0	32	11	2	0	0	68	19
Rye	16	4	0	0	47	15	8	0	0	53	43
Rice, white	1	0	1	0	42	1	0	2	0	58	4
Rice, brown	6	1	1	0	35	4	0	10	0	65	22
Ricebran	6	1	0	8	49	1	4	4	6	51	30
Barley	2	4	0	1	31	11	3	2	0	69	23
Barley bran	11	16	36	4	42	36	25	19	11	58	158

different effects on the body. **COX-1 is essential to normal cell function**, and is always active in healthy cells: it performs essential "housekeeping" functions, preserving cell health against the ravages of ordinary metabolism. By contrast, **COX-2 forms pro-inflammatory eicosanoids**, and is thus normally kept in check until it is specifically needed to play its part of the inflammation process.

COX-2 is thus important in the short term,

with alpha.

### Saving Brain Cells

Our brains have a love/hate relationship with a chemical messenger known as **glutamate**. Glutamate is a stimulating messenger which is essential for the formation of long-term memories. Unfortunately, it can be too stimulating: excessive glutamate can lead to brain cell death, and research suggests that abnormal glutamate metabolism plays a major part in the loss of neurons in Parkinson's<sup>15</sup> and Alzheimer's<sup>16</sup> diseases.

Scientists tested members of the E complex to see what effect they would have on brain cells exposed to glutamate in a test tube. They found that **alpha-tocotrienol, but not alpha-tocopherol, could block brain cell death** caused by glutamate.<sup>17</sup> Interestingly, the effect was caused by an unique mechanism involving alpha-tocotrienol's effects on brain cells' internal messenger systems, rather than the its antioxidant properties.

### The Tip of the Iceberg

Researchers have only begun to explore the properties of the "missing" E complex vitamins, so even more exciting discoveries may be just around the corner. For instance, researchers recently reported that **tocotrienols can extend the average lifespan of flatworms**,<sup>18</sup> what might this bode for mammals?

### Dosage, Ratios, Synergy

Make sure your vitamin E arsenal is complete. The exact, ideal proportions of the E complex members required for optimal health has not yet been worked out, but the rule of thumb is that **for every IU of alpha-tocopherol you take, you need roughly an equal number of milligrams of other tocopherols and tocotrienols combined**. That is, if you're taking 400 IU of alpha-tocopherol, you should be taking between 300 and 500 milligrams of other tocopherols plus tocotrienols, including all

eight vitamin E molecules.

This guideline matches recommendations made by scientists like Dr. Lester Packer, head of the Packer Lab studying antioxidants at UC Berkeley; Dr. Andreas Papas, Senior Scientific Advisor to the Cancer Prevention Group at the Harvard School of Public Health; and Dr. Roy Walford, the world's greatest authority on the anti-aging effects of caloric restriction, and Professor Emeritus of Pathology at UCLA.

**A complete, balanced vitamin E supplement program must provide all eight vitamin E molecules:** alpha-, beta-, gamma-, and delta- tocopherols and tocotrienols. Further, the E vitamers must be present in a balanced ratio -- either balanced in itself, or formulated to balance out the heavy alpha-tocopherol content of most multivitamins and "vitamin E" supplements. People taking E-complex vitamins should also ensure that they are getting enough **vitamin C** and **Coenzyme Q<sub>10</sub>**, because (as noted above) these nutrients play a vital role in "recharging" E vitamins to their active antioxidant form when they are deactivated in the battle against free radicals.

Vitamin E is an orchestra, not a soloist: eight molecules, not one.

#### Keep Up to Date!

**Dr. Andreas Papas**, author of the invaluable *The Vitamin E Factor* (HarperCollins, June 1999), maintains a website devoted to the complete vitamin E complex, and includes regular updates on breaking research news. Follow the latest discoveries at:

<http://www.vitamine-factor.com>

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