

Does Everything Cause Cancer? A Tale of Toxins

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There are risks in every activity, including eating and breathing. And I am not talking about the risks of eating contaminated food or polluted air. The very act of eating or breathing creates chemical reactions that can damage our bodies.

If you are familiar with the Metabolic Model of Agingⁱ, you know that the human body has an astounding ability to repair the damage that is inherent in living. The Univera family of companies, known as the ECONET, is dedicated to growing, researching and developing products that support repair and reduce damage. In so doing, we believe that risk of illness and injury can be reduced. In fact, consistent use of Univera products can enable you to dramatically alter the way you experience the aging process, since aging is characterized by failing repair and increasing damage.

The design and development of Univera products is a painstaking process, often involving years of research by what could arguably be called the world's best natural products R&D organization. I base that claim on the fact that I do not know of another natural products company with greater scientific and agricultural resources, more patents and published studies. See www.univerascience.com, click on *Univera's Scientific Advantage*.

With more than 50 full-time scientists, including 20 with advanced degrees in botany, organic chemistry, molecular biology, genomics and complimentary medicine, we are able to create advanced formulations with incomparable quality and purity, containing ingredients that are thoroughly tested, often with randomized, double-blind, placebo-controlled human clinical trials.

So I am surprised at critics who casually dismiss the Univera product line because of a single ingredient that they happen to dislike, and I am more than willing to explain, in minute detail, the rationale behind each ingredient in every product.

I did this with our choice of sucralose as a sweetener in AgelessXtra, creating a white paper that described the safety and benefits of this remarkable sweetener. See www.univerascience.com, click on *The Sweet Truth*. For those who *still* believe there is something dangerous about this sweetener, I would simply point out that *none* of the naysayers' dire predictions have come to pass. In the last twelve years, sucralose has been tested and studied by research labs in nine countries, including the US, Canada, Japan, Australia and the European Union. It has been approved by every nation that reviewed it, with no cautions or warnings. It is approved for individuals of all ages, including pregnant and nursing women. It does not accumulate in any tissue of the human body, is great for diabetics, and has no association with headaches, allergy, or any illness or disease.

Why then do some people become so upset when they see this ingredient?

Reason 1. The Internet is timeless. I'm sure you have noticed how urban legends are recycled on the Internet. Some worry point is soundly debunked and it disappears – but only for a time; because the original issue remains in that eternal storehouse of information known as cyberspace. So a few years down the road, someone “discovers” the issue, does not bother to check its validity, forwards it to his or her entire mailing list, and voila, the issue is reborn.ⁱⁱ

Reason 2. There are people with a vested interest in perpetuating the “issue.” Some of the nonsense printed about sucralose is funded by the sugar industry. Other misinformation is promoted by self-appointed guardians of public health who feel that admitting a mistake would reduce subscriptions or tarnish their aura of infallibility. Real science, however, is not about always being right. It is about challenge and consensus; the unfolding of truth as revealed by careful research and discovery. That's what we do every day.

Now, what about the parabens in the Linitie moisturizing cream?

Hopefully, you're getting the big picture here, understanding that I am not turning a blind eye to the industrial poisons that are poured into our environment. On the contrary, I am trying to focus attention on the exposures that can and do overwhelm our ability to repair and detoxify. These would be the massive occupational and environmental

exposures that we see around us, spewing from the tail pipes of cars and trucks, and the smokestacks of coal-burning power plants; the industrial and agricultural chemicals that increase risk for the people who handle them on a daily basis.

It would **not** be the minute amount of parabens found in your moisturizer. No reasonable evidence exists to suggest that we should be concerned about this.

Question: But what about studies showing that parabens have estrogen-like activity?

Stephen: Those studies were conducted by *injecting* parabens into lab rats. And the estrogen-like activity was quite weak; about the same as eating a small portion of soybeans. Moreover, follow-up studies in which parabens were fed to rodents produced no measurable estrogen-like activity.

Question: But what about the study in the UK that found parabens in breast cancer biopsies?

Stephen: This study, published in 2004 set off a flurry of knee-jerk reactions in the popular press, and I don't think it is cynical to point out that alarmist headlines sell.

Scientists took a different view, pointing out the limitations and flaws of the research:

- The study was small - samples were taken from only 20 women.
- There were no controls - normal breast tissue was not investigated for comparison.
- No other tissues were studied – since parabens are fat-soluble, perhaps they exist in all fatty areas of the body. Since they inhibit the growth of bacteria and fungi, this may be a good thing. You will also find vitamins A, E and D in breast tumors, along with calcium, sodium, potassium and a raft of other compounds; but no one suggests that these cause cancer.
- The source of the parabens was not identified - no one knows if they came from skin care products, antiperspirants, or possibly an ingested source.

As flawed as this study was, it raised a legitimate question: whether there is a cause and effect relationship between parabens and cancer incidence. So for a period of more than 4 years, animal and human studies were conducted by multiple labs, using oral and topical administration. In 2008, the data was published in the *International Journal of Toxicology*. This exhaustive review by an expert committee found that parabens, even in massive doses, are not carcinogenic, do not accumulate in the blood or tissues, and pose no significant health risk. The panel concludes:

Parabens do not accumulate in the body. Serum concentrations of parabens, even after intravenous administration, quickly decline and remain low. Acute toxicity studies in animals indicate that parabens are not significantly toxic by various routes of administration. ⁱⁱⁱ

Rational and Irrational Fear

In my white paper entitled *The Truth About Preservatives*; see www.univerascience.com, I suggested that the phrase "food additive" never be used because it is too broad to have any meaning. Food additives include dangerous chemicals like artificial colors, which never appear in nature, as well as beneficial chemicals such as benzoic and sorbic acids that appear all over the plant kingdom.

Each additive, in other words, has to be evaluated on its own risk/reward ratio. With preservatives, the reward is huge. Preservatives are probably the most important advance in public health since the refrigerator. At the same time, the safety record of these natural preservatives is remarkable, backed by thousands of scientific studies and use by millions of people for more than half a century.

The issue, however, goes beyond preservatives. It has to do with the common fear of ingredients with complex names, as well as confusion regarding natural and synthetic.

People often ask me if my diet is "all natural." I reply that, of course, the vast majority of the nutrients I ingest are derived from fruits, vegetables, whole grains, nuts, seeds, beans, essential fats, fish, poultry, and an occasional serving of meat.

My response is framed that way because it is essential to understand that nutrition has to do first and foremost with one's *food* intake. And that should be as nutritious as possible. Supplements, as the word clearly states, are meant to supplement a highly varied diet of whole, unprocessed foods. I have an extensive organic garden and orchard

and I am committed to supporting organic farming as the only sustainable alternative to agribusiness.

“Very well,” questioners often reply, “but how about *the nutritional supplements* you create?”

Univera products are all from natural sources. But some of them are derived from natural sources in a laboratory.

Huh?

The fact is that all foods, vitamins, and minerals are chemicals. I’m not trying to be cute here, but I want to establish a basic understanding for this discussion, and help people avoid the errors of simplistic thinking. Many health food enthusiasts automatically condemn any substance that has a chemical sounding name. They would be aghast for example, at the thought of eating something containing hydrogen oxide, cellulose, hemicellulose, malic acid, dextrose, pectin, sucrose, amylopectin, and citric acid. Yet these are all natural ingredients of an organic apple.

All natural potatoes contain a chemical called solanine...which is a poison. The average American eats about 100 lbs of potatoes a year, which contains over *two times the lethal dose*. Celery contains a potent carcinogen which is actually a risk factor for packagers who handle the vegetable. There are two points to be made from these examples.

1. Don’t eat 50 pounds of potatoes at one time.
2. The value and safety of a chemical cannot be determined by where it comes from.

Which brings me to the research of Dr. Bruce Ames, professor of Biochemistry & Molecular Biology at UC Berkeley, and Director of the National Institute of Environmental Health Science. His remarkable career (hundreds of published studies) has been devoted primarily to a risk evaluation of diet and lifestyle factors. A few quotes:

- Humans should eat 5 portions of fruits and vegetables per day, yet only 9% of the U.S. population eats that much. Studies show that the incidence of most types of cancer is double among people who eat few fruits and vegetables as compared to those who eat about five portions per day.
- The **three main causes of cancer** are **smoking**, dietary

- imbalances (**excess fat and calories**; inadequate intake of fruits, vegetables, fiber, and calcium), and chronic infections leading to **chronic inflammation** (hepatitis B and C viruses, Helicobacter pylori infection, etc.). *Chronic inflammation* is a major cause of cancer in the world.
- Past **occupational exposures** might cause about 2% of current human cancer, a major part being asbestos exposure in smokers.
 - Industrial or **synthetic chemical pollution** causes less than 0.1 % of cancer cases. The age-adjusted cancer death rate in the U.S. for all cancers combined (excluding those attributable to smoking) has been remaining steady since 1950.
 - Animal cancer tests, which are done at the maximum tolerated dose (MTD), are being misinterpreted to mean that low doses are thereby relevant to human cancer. Animal cancer tests are mainly done on synthetic chemicals and industrial pollutants, yet **half of all natural chemicals** that have been tested at the MTD are rodent carcinogens.
 - It is argued that the explanation for the high frequency of positive results in animal cancer tests is that high dose animal cancer tests are mainly **measuring increases in cell division**; this is a high dose effect that **does not occur at low doses**.
 - One does not expect, nor does one find, a general difference between synthetic and natural chemicals in their carcinogenicity.^{iv}

There are many in the natural products arena who do not like Bruce Ames. They want the world to be black and white. Everything natural is good. All chemicals are bad.

But what if everyone behaved that way? Well, for starters, you'd never leave your house. Because many of our daily activities carry risk levels that are *hundreds of times greater* than applying a preservative to your skin. Every time you step into your kitchen, your risk for serious injury is hundreds of times greater than lifetime use of topical preservatives. Getting into a motor vehicle is ten thousand times more dangerous, and according to the National Center For Injury Prevention, you are a hundred times more likely to be injured walking down a flight of stairs.^v

Your Miraculous Body

Here is another perspective that I think will help clarify the issue.

The number of chemicals in the Linitie moisturizing cream. 10
The number of chemicals in a cup of coffee: 1,120.

Of these, more than 30 are rodent carcinogens, meaning that the purified chemical fed to rodents in massive doses will increase cell divisions (which may lead to cancer). But every day, Americans drink more than 440,000 cups of coffee. Are these people taking a terrible risk? On the contrary, moderate coffee consumption is associated with *lower* risk for a number of cancers, including colon cancer, the second most common cause of cancer death.

So how can a beverage loaded with carcinogens actually lower cancer risk? To answer that, you have to understand the principle of *hormesis*, which you will be happy to hear, is part of (perhaps the second level of) the Metabolic Model of Aging.

Humans (and to some extent all animals) are equipped with what are called *inducible* repair mechanisms, including DNA repair enzymes and powerful detox pathways such as conjugation, methylation, sulfation, acetylation and glucuronidation. "Inducible" means that these repair and detox systems are induced or upregulated when we are exposed to toxins, whether natural or man-made.

The principle of hormesis could be summarized in the statement, "What doesn't kill you makes you stronger." That is because exposure to manageable amounts of toxins – which we all experience in the process of living – induce remarkably effective repair and detox systems.

The key word in that last sentence is *manageable*. A cup of coffee in the morning appears to induce DNA repair mechanisms that reduce your risk for colon cancer. We don't know, however, what 12 cups of coffee will do... thus my book on this subject entitled *Caffeine Blues*.

Conclusion

We all have to make choices regarding health risks. Cigarette smoking is the leading cause of preventable death in the world, and yet, more than 40 million Americans smoke. I am sure that no one reading this white paper is a smoker, but consider all of the risks we are exposed to on a daily basis. At Univera, we are dedicated to reducing those risks as much as possible.

1. Many **pesticides** do bio-accumulate. What's more, foods are

- often sprayed numerous times in one growing season, delivering a significant amount of known carcinogens that can overwhelm the body's detox and repair functions. Exposure to these chemicals has been positively linked to Parkinson's disease and some types of cancer. Univera has a zero tolerance policy on pesticides and tests *every product* through independent labs with the most sensitive and comprehensive assays.
2. **Artificial colors.** More artificial colors have been banned by the FDA than any other class of chemicals, and with good reason. Univera does not use artificial colors in any product.
 3. **Bisphenol A (BPA)** Plastic bottles used by Univera are BPA-free, with recycle number 2 or simply listed as HDPE (High Density Polyethylene). BPA is used to harden plastic items such as some water bottles and plastic toys. Plastic containers that contain BPA usually have the recycling number 7 on the bottom.
 4. **Organic agriculture.** ECONET currently has more than 7,000 acres under cultivation, all of which is organic or transitional organic.

REFERENCES

ⁱ See *The Metabolic Plan* (Random House 2003) by Stephen Cherniske, or go to www.Univerascience.com

ⁱⁱ I still get emails referring to the *Sucralose Toxicity Information Center*, even though that impressive-sounding organization was found to be nothing more than the opinions of a single person with no formal training in any of the biological sciences. Heck, I still get emails warning me of the dangers of microwave ovens. That hoax is 30 years old! NOTE: If you water your plants with microwaved water, they *don't* die.

ⁱⁱⁱ Int J Toxicol. 2008;27 Suppl 4:1-82. Final amended report on the safety assessment of Methylparaben, Ethylparaben, Propylparaben, Isopropylparaben, Butylparaben, Isobutylparaben, and Benzylparaben as used in cosmetic products.

^{iv} Bruce Ames, PhD. The Causes and Prevention of Cancer. http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/A/Ames_Causes.html

^v <http://www.healthfinder.gov/orgs/hr2725.htm>