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THE PHYSICIAN'S CONCISE GUIDE TO:

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Soy Fiction

What you don't know can harm you!

There is simply no one better in the 21st century at developing practical health-related solutions based on the world's leading medical and nutritional science. **"Science – Not opinion" is Brian's trademark.** When Brian is through explaining a topic it is "case closed!" When he says it, you "can take the information to the bank!"

Unlike most of his peers' recommendations, Brian's health and nutritional recommendations have stood the test of time. **Brian has never had to reverse or significantly alter any of his medical reports—reports that have tackled everything from the dangers of soy, to the wrongly popularized need for fiber in the diet, to his warning about the potential harm of supplementing with copious amounts of omega-3**. In 1995 he published the report "Fiber Fiction" and finally, eleven years later, others in research are acknowledging the silliness of recommending fiber in the diet of a human being. Brian's latest crusade is to warn of the dangers of excess omega-3 (in particular, fish oil) and how it will lead to increased cases of skin cancer. The list goes on and on…

Brian received an appointment as an Adjunct Professor at Texas Southern University in the Department of Pharmacy and Health Sciences (1998-1999). **The former president of the University said of his discoveries: "...His nutritional discoveries and practical applications through *Life-Systems* Engineering are unprecedented."** Brian earned his Bachelor of Science degree in Electrical Engineering from Massachusetts Institute of Technology (MIT) in 1979. Brian founded the field of *Life-Systems* Engineering Science in 1995. This field is defined as *The New Science of Maximizing Desired Results by Working Cooperatively with the Natural Processes of Living Systems*. To many, Brian is THE MOST TRUSTED AUTHORITY ON HEALTH AND NUTRITION IN THE WORLD.

Brian continues to be a featured guest on hundreds of radio and television shows both nationally and internationally. His sheer number of accomplishments during the last decade of the 20th century and into the 21st century are unprecedented and uniquely designate him as the #1 authority in the world of what really works and why. Forget listening to the popular press or most popular so-called health magazines. Their editors simply don't understand the complicated science that they write about – they merely "parrot" what everyone else says without independent scientific verification. Their recommendations often have no basis in reality of how the body works, based on its physiology.

Brian has dedicated his life to provide the truth – which is almost always opposite to what everyone says. Here's why Brian is the #1 man in America to listen to when it comes to your health.

Questions and Answers

(Actual paper follows.)

Q: Is soy a good source of protein - can it replace meat?

A: No. No vegetable or grain has an amino acid bioavailability effectiveness close to meat. At best - pound-for-pound - it is only 25% as effective as meat. There is about half the amino acid content, and those amino acids are significantly bound with cellulose (indigestible). Furthermore, soy protein (like any plant protein) is "incomplete" meaning that it does not contain the eight "essential" amino acids that humans must have. Soy alone cannot meet the protein requirements of human beings. It must be combined with other foods that supply the missing amino acids.

Q: Has today's soybean been modified by genetic engineering?

A: Yes. The claim that the soybean was "mutated" in the mid 1950s by researchers in Sweden may be misleading. Mutation involves genetic changes – either random (natural) or man-made (engineered). There could only have been hybridization - genetic engineering wasn't around back then. However, today things are changing: Monsanto has genetically engineered the soybean to be resistant to very potent herbicides. However, one problem with "genetic engineering" is that the full results of it won't be known for decades. Is this safe? The scientific fact is that no one yet knows.

Q: A physician asks, Does unfermented soy interfere with digestion by inhibiting trypsin? (Trypsin is a digestive enzyme that allows conversion of insulin-like growth factor.)

A: Yes, unfermented soy does inhibit trypsin, making the enzyme much less effective. It has been known for 35 years (*Archives of Biochemistry and Biophysics,* 1966; 115, 257-270) that soybeans contain **s**oybean **t**rypsin **i**nhibitors (STIs). STIs can undergo considerable chemical and heat abuse and still be quite harmful to humans (see reference on page 10). STIs inhibit an important chemical process involving insulin-like growth factor IGF-1 (*Endocrinology*, Dec. 1997; 138(12): 5630-6). It is estimated that trypsin accounts for 40% of the growth inhibition from raw soy (*Arch Latinoam Nutr,* Dec. 1996; 44(4 Suppl 1):

48S - 54S). Trypsin inhibition upsets natural pancreatic[1] function and is linked to pancreatic hypertrophy (excess growth) and hyperplasia (abnormal cell structure) - the underlying cause of abnormal (stunted) growth - in the rat (*J Nutr,* Mar. 1995; 125 (3 Suppl): 744S - 750S). Since human infants experience the same growth-stunting from soy, it appears the animal/human analogy is appropriate in this case.

Q: Do unfermented soybeans help or hurt absorption of minerals?

A: Soybeans contain phytates, which bind minerals (making them unusable). This leads to critical deficiencies of zinc and other essential minerals. All phytates (such as inositol) are inhibitors (chelators) of mineral absorption (*J Am Diet Assoc*, 1988, Dec; 88(12): 1562-6). Since we must have those minerals to remain healthy, **soybean *phytates* can't be described as "good."** In chemical terms, the negative charges of their phosphate group bind the mineral. Phytates bind minerals in the following order (most actively to least actively): copper, zinc, iron, calcium (*Role of Phytates in Mineral Absorption,* Purdue University). Phytic acid is found in the bran of any grain. In a study, vegetarians had a net 35% decrease (or 35% less) in **zinc** absorption compared to the meat-eaters (*Am J Clin Nutr* March 1998, 67(3): 421-430). Many Americans already don't get enough **copper** in their diets. Since phytate binds copper and other minerals and prevents them from being nutritionally available when we do eat them, this presents an additional problem. (*Adv Exp Med Bio*, 1989; 258: 81-93). **Zinc and copper are critical to manufacture of the body's natural anti-oxidant SOD.**

Q: Are soybeans and soy products good for my thyroid? I've been told they are a good source of isoflavones?

A: No and yes. Soybeans are a source of isoflavonoids, including genistein and daidzein." The following comes from *Biochemical Pharmacology,* Vol. 54, 1087-1096, 1997: "Soybeans contain compounds (genistein and daidzein - the 'active ingredients') that inhibit [interfere with] *thyroid peroxidase* (TPO) -which is essential to thyroid hormone synthesis [production]." So soybeans are NOT good for the thyroid!

1. "Pancreatic" refers to the pancreas, one of the endocrine system's organs. Failure of the pancreas is directly linked to diabetes!

Genistein and daidzein are the active **endocrine-disrupting compounds in soybeans** . Here's what a biochemical journal has to say: TPO in the presence of hydrogen peroxide (**hydrogen peroxide is always present in the body from normal reactions**) causes "… *irreversible inactivation* of the enzyme [TPO] **unless** iodide is in the reaction. In this case the TPO is inactivated [but only temporarily]…. The active ingredients were not destroyed by boiling for 2 hours or by digestion…. Any compound that inhibits TPO production is a *potential* thyroid carcinogenic." [**It could cause or contribute to cancer**] The active compounds in soy do inhibit [interfere with] TPO. "The levels of total isoflavonoids observed in **human** plasma [blood] following consumption of soy foods approach the concentrations required for **inhibition**."

Analysis: Soybean's isoflavonoids block TPO's binding to iodide. We cannot see how we can be sure that **iodide** (derived from iodine) is always present (in sufficient quantities) to stop this potential blocking - since many Americans are **iodine**-deficient. Eating **"iodized"** salt doesn't necessarily prevent the TPO disruption. TPO inhibition contributes to thyroid problems. ***Un*processed** soybean consumption allows for these problems. Furthermore, it doesn't take much soybean to cause these effects (50% TPO inhibition results from eating just a few ounces of soybean). Occasional small servings of soybean should cause no problem, but many Americans are probably eating too much. Excessive soybean consumption, even with normal **iodine** intake, may lead to *hypo*thyroidism because the isoflavones will dominate.

Infants on "soy formula" have experienced thyroid problems. Isoflavonoids will contribute to high TSH (thyroid-stimulating hormone) levels of the thyroid. Over time, this constant stimulation could increase the likelihood of getting cancer and thyroid disease (There is now an epidemic of thyroid dysfunction). Perhaps even worse is an 18% higher incidence in autoimmune thyroid disease in infants who are fed soy formula (*J Am Coll Nutr* 1990, Apr; 9(2): 164-167). Furthermore, a study showed that soy-formula infants went on to become diabetic twice as often compared to breast-fed infants (*J Am Coll Nutr*, 1986; 5(5): 439-441).

Q: Is soy good for the blood?

A: No! **Soy contains *hemaglutinin*, which causes red blood cells to "clump" together.**

Soy promotes increased adhesion (sticking) of red blood cells to each other! In this study, hemaglutinin made the platelets 5% more "sticky." You do not want this effect, because it leads to arterial blockage. (*Thromb Haemost,* Nov. 1999; 82(5): 1522-1527).

Q: Is soy "milk" a healthy alternative to cow's milk? Will an infant's allergies be reduced with soy?

A: No, to both questions. There are almost as many cases of **allergies to soy "milk"** as there are to cow's milk (*Int Arch Allergy Immunov*, 1994, Oct; 105(2): 143-149). If soy "milk" were consumed in the same quantity, soy-related allergies would far exceed milk-related ones. The process of making soy "milk" includes the following steps: Soak the bean in alkali solution (to remove as much of the phytate as possible), then pressure-cook it (attempting to destroy most of the anti-nutrients). The end product has little nutrition. Zinc deficiency in soy-fed infants is noted. High-phytate diets in children render them "thin and scrawny." Mineral absorption is less effective with soy (*Prog Food Nutr Sci,* 1985; 9(1-2): 35-62). Aluminum content in soy "milk" is significantly higher than in non-soy infant formula and from 10 to 100 times higher than in real milk (there is no "safe" level for aluminum in your body). The aluminum in soy results from the chemical processes of production.

Soy formula has no cholesterol. Cholesterol is a required nutrient for an infant's brain and nerve development. Compared to breast-fed infants, infants who were fed **hydrolyzed soy (processed) protein** showed significant reduced growth in weight and length, as well as total blood protein (*Acta Paediatr* Suppl, Sept. 1994; 402: 100-104, and *Eur J Clin Nutr,* Sept. 1995; 49 Suppl 1: S26-38). Soy-based infant products often contain double the amount of protein supplied by mother's milk. (This is not good the baby is *supposed* to get fats, *not* excessive protein.) **Soy formula is clearly not a proper "substitute"** (*Adv Exp Med Biol,* 1991; 289: 389-402). In fairness, soy formula is no worse than **hydrolyzed (processed) protein-based formulas**. (*Scand J Gastroenterol*, Mar. 1997; 32(3): 273-277). In this study, both soy formula and hydrolyzed protein formula were equally inferior to mother's milk.

Q: Is fermented, or processed but unfermented, soybean superior to the "unprocessed" (raw) bean?

A: Absolutely. The information above, in the discussion of isoflavones and TPO, clearly shows **trypsin inhibition decreases with processing**. The problem is that the methods used to remove or decrease the isoflavones can create troublesome side-effects for man. For example, the excessive heat from processing creates *lysinoalanine,* which is poisonous to the kidney (*Vet Hum*

Toxicol, Feb. 1982; 24(1): 25-28). **Processing** is more of a chemical procedure than cooking: Cook the soybeans, "treat" the mashed bean with calcium sulfate, and you have "**tofu**." Do you really want to eat this?

Q: Is soybean worse than other beans or grain?

A: Concerning isoflavonoid problems, no. Millet (grain) has very high levels of isoflavonoids, too. Concerning phytates, *all* brans (from grain) have them. However, soy has more phytate content than most foods. Even "dephytinized [phytate removed] brans still bound the minerals" (*Plant Foods Hum Nutr,* 1997; 51(4): 295-310). A "high fiber" diet chelates (negatively binds) minerals regardless of phytate content; so a high-fiber, high-phytate, vegetarian diet is awful for mineral retention. Low-phytate maize (used to make tortillas) was found to increase iron absorption by 49% compared with regular maize (*Am J Clin Nutr,* Apr. 1998; 69(4);743). In any case, maize is <u>not</u> good for humans because of the high carbohydrate content. The vegetarian movement has helped to convince consumers that soy "milk," soy baby formula, soy "ice cream," etc., is more healthful than the "real thing." The processing often adds "flavor enhancers," such as MSG, to mask the "bean-like" taste of soy.

Q: What about the claimed anti-cancer properties of soybeans?

A: This *guess* as to "anti-cancer" properties may be related to the demonstrated ability of genistein and daidzein (both of which are found in soy) to bind estrogen. Estrogen is an important hormone. Estrogen is naturally produced and regulated by a woman's body. It has been suggested that too-high levels of estrogen cause cancer. While the levels of estrogen—especially during or after menopause, when estrogen levels naturally drop—may contribute to or aggravate cancer, that is not the basic <u>cause</u>. Therefore, adjusting the level of estrogen cannot bring about a <u>cure</u>. Natural estrogen levels do not cause cancer—the cause of the cancer lies elsewhere.[2] **(In July 2002 the investigators in a major health study announced that estrogen "therapy" in post-menopausal women has been conclusively shown <u>not</u> to reduce the risk of heart disease and will likely be discontinued.)**

Only in fermented form could the soybean have a *possible* beneficial effect. **Un**fermented soy (**tofu**, soy "milk," etc.) can have no positive effect.

2. Tamoxifen is another example of an "anti-cancer" guess; it is a drug developed on the hypothesis (guess) that binding the estrogen sites will decrease cancer risk. It did NOT reduce cancer among Europeans who took it.

One study even showed an increase of breast cancer with soy products. Studies have confirmed that soy offers neither protective nor preventive benefits on prostate cancer. Other studies are, at best, merely "suggestive or associative."[3]

Misreading statements such as the following could help explain how so many people have become convinced that soy could prevent some forms of cancer. "There is much evidence suggesting that compounds present in soybean can prevent cancer …. The evidence for specific soybean-derived compounds having a suppressive [anti-] effect on carcinogenesis [causing cancer] is limited, however." *Journal of Nutrition,* Mar. 1995; 125 (3 Suppl): 733S - 743S.

Translation of previous statement: "Soybeans may possess anti-cancer properties; however, we researchers cannot find anything specific in the soybean that fights cancer."

We were shocked to find something so wishy-washy published in a respected professional journal. Do not expect soy to protect you from cancer!

Analysis: This hypothesis that soy prevents cancer remains unproven and is in direct contradiction to its physiological effects on your body.

Q: What about the claimed anti-cholesterol properties of soybeans?

A: Regarding cholesterol-lowering properties, studies involving soy have yielded *in*consistent results.[4] The EFA profile of the soybean is favorable until the bean is processed. But it is nearly always processed in this country. Therefore, any possible benefit in this area must be discounted also.

Q: Do any products have "hidden" soybean?

A: Yes, many do, including some "non-dairy coffee creamers" or "lighteners," cooking oils, mayonnaises, salad oils, margarines, bakery products, candies, dietary products, pharmaceuticals, and others.

3. "Suggestive" or "associative" are meaningless terms for describing a cause-effect relationship. For example, you wake up at 6 am and the sun rises at the same time. This "study" might suggest that you caused the sun to rise — and this study could get published!

4. *J Nutr*, Oct. 1998; 128(10): 1589-92), *American Journal of Clinical Nutrition*, 68 (6 suppl.): 1431S - 1435S, Dec. 1998; *Bailliers Clinical Endocrinology & Metabolism*, 12(4): 707-728, Dec. 1998; *American Journal of Clinical Nutrition*, 70 (3 suppl.): 464S - 474S, Sept. 1999.

Q: Why does soy flour smell and taste so bad?

A: Mother Nature gave us an appetite for food that smells and tastes good. You would never eat the rind of a fruit on your own. Someone has you tell you to do it, and attempt to explain why doing so is good. In this case, it isn't. Soy both smells and tastes awful because it was never meant to be a food for humans. There is no simpler or more logical explanation.

Q: Can soybeans be considered "good" for human consumption?

A: Given the preceding science, we can't possibly see how.

In many non-scientific articles we have been assured of the benefits of soybeans and soy products. We have been told that isoflavones are very good for us and that soy is loaded with them. **For instance, <u>All Things Considered</u>, a very popular series on National Public Radio, is supported in part by ADM—"Supermarket to the World" & makers of a soy product called "Silk." They call the product a good source of isoflavones—"Silk is soy."** But a science-based article in *Reuters Health*, April 4, 2000, disagreed that isoflavones are good for us. The title of the article was, "**Isoflavone-*depleted* soy *reduces*** experimental **breast tumor** growth." In preventing cancer, the soy protein **without** isoflavones was found to be **more effective** than the soy protein enriched with isoflavones.[5]

Keep reading and you will soon learn that soy is not a "wonder food"; it is **one of the worst foods you can eat**.

How can we be so **misled**? It's not difficult to do when the right forces are at work. Recall how, just a short time ago, the computer industry scared us into thinking that the world would end with the "Y2K" issue. What happened? Nothing. How much money was made by scaring us? Billions of dollars.

Have you heard the claim that isoflavones in **soy help prevent osteoporosis?** That, too, is false. This is an extraordinarily groundless claim, because, as you will learn in the discussion of phytates below, soy blocks the absorption of minerals, including calcium, and can lead to vitamin D deficiencies.[6]

5. Isoflavones are "phytoestrogen" substances — usually a combination of genistein and daidzein. This is the ***opposite*** of what we have been told by non-scientific sources. Women have been told how wonderful phytoestrogens are.

6. Calcium cannot work properly without vitamin D.

Our deception is often connected with misinterpreted studies. "Meta-studies" are frequently used to compare several (often 10-20) individual studies and attempt a better interpretation than the individual studies. In most cases, this cannot be done correctly. There is no sound way to merge several mediocre studies into a "good" or "better" one.[7]

The frequent substitution of flawed statistics for good science has led to a consistently awful state of affairs. Too often, you aren't getting science. You are getting misapplied statistics - that's all.

One of these "meta-studies" was done with soy in 1994. The author "conveniently" neglected to include in the meta-study the study showing that soy was linked to an increased rate of pancreatic cancer! An impartial analysis often shows that a study's conclusion is something entirely different from what is claimed, reported, or supported by the facts!

Non-professional articles and well-meaning "experts" have told the public again and again to consume *isoflavones* because they "protect" us against cancer. Isoflavones are found mostly in the legume family of plants (soy, lentils, chick peas, beans, etc.)

What's the history of soy? Don't Asians attribute better health to it? No! Not at all. The soybean has been in Asia for thousands of years, but they only use small amounts - and only if it is fermented. In that part of the world, soy is used mainly as a condiment, not as a food. There is a very big difference between using a condiment (a small amount of flavoring or garnish) and eating a full serving.

Here are some important facts about soybeans, or soy.

- The Chinese never ate raw soy until recently. They knew better. Soy was not even used as a human food until the Chou Dynasty (1134-246 BC), when fermentation was discovered. *Fermentation* deactivates the enzyme inhibitors almost completely. However, even in fermented products including tofu and bean curd, the liquid still contains these harmful inhibitors.
- Did you know that a significant decline in mental ability was found in people eating just 2 or more servings of soy a week? This was published in 1999, but few in the medical and nutritional fields wanted to hear it. This same study also found a greater incidence of Alzheimer's disease

7. For one example, it is rare for 2 studies to examine the same population under the same circumstances. For another, few studies focus on the same factors (differences in diet, behavior, treatment, etc.). Investigators differ from study to study, as do settings, methods, and so on.

among regular soy users.

- Did you know that no Asian country traditionally uses soy as a "meat-replacement?" It is only used as a condiment, and in very small quantities. Compare this limited use to the incredible extreme to which America — and now the world — has embraced soy as a meat-substitute.

For centuries, soy was used primarily for manufacturing chemicals and animal feed. It has only been recently that the soy industry leaders figured that they, too, could benefit from the "health food" explosion. So long as the food had little fat and little cholesterol, (and even better if it was vegetarian) a financial bonanza was assured. They didn't "need" science. Makers and distributors of soy products succeeded financially.

Today, soy is the second largest cash crop in the U.S. — a $14 BILLION commodity. This "miracle" didn't just happen. This entirely new market for human consumption was "developed" at the expense of your health.

Soybeans are used extensively in the poultry- and hog-raising industries. Soy oil margarine, processed cooking oil, soy "milk," soy meat replacement, soy flour, and soy-based products, such as imitation bacon bits, all support this soy industry.

However, the industrial uses of soy-derived products may surprise you, including: putty, resin, waterproof cement, epoxy (glue), and varnish, to name a few.

Soy protein isolate (isolated soy protein) is now processed and produced from what was considered a waste product - "high-protein" chips with the fat (oil) removed. Because many people find that this product smells and tastes unpleasant, soy protein isolate is extensively processed with chemicals, **including MSG**.

Soy became the new "miracle food" marketed to the "health-conscious," the wealthy, and especially to women. Any health claims for soy are nothing short of propaganda.

The varieties of soybeans are immense. There are over 10,000 varieties, with over 4,000 new varieties having been introduced by W.J. Morse and P.H. Dorsett between 1929 and 1931. In recent years, numerous soybean varieties have been "engineered" for greater yields.

I call this paper "soy fiction" but here are some soybean facts that you need to know:

- Unfermented soy (the way we usually see it in the U.S.) *inhibits* trypsin, a very important digestive enzyme. In other words, soy interferes with digestion and stresses

your pancreas to produce more enzymes. How hard is it to prevent this harmful effect? Very hard, and this was known in 1966: "It is clear that STI [soy trypsin inhibitor — one of soy's harmful components—see discussion above] can tolerate considerable chemical alteration and still largely recover…." (*Archives of Biochemistry and Biophysics*, 115, 257-270, 1966).

- It's interesting that soy-free dog food products are promoted as "highly digestible." Are they implying that, **with the soy**, their dog food would be **hard to digest and assimilate**? This is a logical conclusion that one can draw by "reading between the lines."

Soy has significant concentrations of *phytates*. Phytates inhibit mineral absorption![8] You will learn more about this in the "Phytate Papers" which are being published separately. This is the opposite of what we need. *Phytic* acid in soy has been described as beneficial. You need to know that phytic acid is not an antioxidant. **It is a mineral-blocker**. All phytates inhibit mineral usage (uptake and absorption) in our bodies. Phytates interfere with the following minerals, listed in order of the most damaging first: copper, then zinc, then cobalt, then iron,[9] and then calcium. If the "experts" are right about many Americans not having enough calcium, the phytates that most of us eat could be a major reason for the deficiency. It remains to be seen just how many of the "experts" know about the phytate-mineral connection. Zinc is crucial for making enzymes and hormones work efficiently. Zinc and copper are used to make your body's most potent natural antioxidant, called "SOD."

- These **phytates are present in the bran and hull of all seeds, including the psyllium** that many women take in "bulk laxatives." Grain- and legume (bean)-based diets are naturally high in phytates and **cause widespread mineral deficiencies** in third-world countries. This, too, has been published extensively, but have you been told?
  By the way, all grains contain these harmful phytates. Soy is not any worse in this respect than grains or brans including: wheat, rice, corn, oats, barley, or rye; but it is certainly no better than grains. Phytates are **anti-nutrients**.

8. The negative chemical charges of the phosphate group form insoluble (unusable) salts.
9. Iron deficiency is called "anemia."

- Adults are not the only victims of soy's harmful interference with minerals. Infants given soy-based formulas become deprived of zinc and many become ill. Does this seem like something you want to give to your infant?
- It was known as far back as 1982 and published in 1995 that soy contained phytoestrogen isoflavones (*daidzein* and *genistein*). Four (4) or more birth control pills a day are needed to disrupt a woman's menstrual cycle. The "recommended" daily amount of infant soy-formula contains **at least 3 times the levels** of phytoestrogens in the woman's birth control dosage! Are you aware that you are unknowingly giving your infant a birth control compound?

  In 1986 the published Puerto Rican Premature Thelarche study **concluded** that the **most significant** dietary association with **premature** sexual development (a significant concern nowadays) was **soy infant formula**. On the contrary, mother's milk has virtually none of the **harmful compounds** found in soy-based formula. Cow's milk has only trace amounts. Remember that, in addition to the harmful phytoestrogens, soy contains the harmful isoflavones. If your child is on soy "formula" these isoflavones are circulating in your child at levels **thousands of times greater** than the natural hormone estradiol (one of the three forms of estrogen naturally found in a female child's body!).

  In 1998 investigators reported that daily exposure of infants to isoflavones in soy infant formula is as much as **6-11 times higher** on a body-weight basis than the dose that causes hormonal disruption to an adult! You need to know that approximately ¼ (25%) of all bottle-fed infants in the U.S. are now given soy formula**. If you have given your infant these formulas, you should be very concerned and you need to stop.**
- Regardless of what you may have been told, soy protein is not a suitable substitute for animal protein. Here's why: To start with, as we have seen, soy—a plant—does not supply all the amino acids that are essential for humans. Then, to process soy for human consumption, it requires heating in a

pressure-cooker. The heating damages the essential amino acids, and they become virtually worthless ("denatured") rendering the protein even more "incomplete." We can supplement these lost amino acids from animal-based foods, such as steak, eggs, or cheese, but the protein value of this processed soy is insignificant.

You deserve to know that all protein isolates (including whey, which many bodybuilders drink on a daily basis) are produced via a similar process. The denatured protein in them is of very little value. The main reason that "liquid protein" drinks became popular is because of the "low-fat" standards of the great 50-year carbohydrate eating *experiment*.

- Not only does **soy** contain little usable protein, it actually **interferes** with digestion of other proteins! This is another instance wherein a warning has been published, but you were not told: "Soy proteins interact…. These interactions, depending on processing, can ***decrease the bioavailability*** *of minerals and proteins*" (*Crit Rev Food Sci Nutr*, June 1997; 37(4):361-391).
- *Hemaglutinin*, a substance in soy, promotes the clumping together of red blood cells (as they do with Sickle Cell disease). This clumping increases the risk of heart attack and stroke. In spite of our doing many things right, like exercising more and smoking less, if we are eating a lot of soy, we may be canceling the positives and harming our health. With regard to children, please know that hemaglutinin is a growth depressant–it slows the natural growth process.
- Your pancreas produces enzymes that are essential in the digestion of fats, proteins, and carbohydrates. Phytates found in beans, grains, and legumes, including soy, destroy digestive enzymes. By eating soy, you are forcing your pancreas to make more enzymes! Can this be another reason why so many of us are becoming diabetic? Heavy consumers of soy often have enlarged pancreases. When your pancreas fails, you have diabetes or even worse: death.

- Soy has more phytates than any other grain or legume - the worst. Too many people are *mis*led into eating far too much soy. Please don't be one of the victims. There are almost as many soy-related allergies as with cow's milk. Nothing in soy can be considered "well-tolerated," despite health claims by the makers of soy-based baby formulas and milk substitutes.
- Is soy "milk" real milk? No. It is an awful "food." Soy "milk" has no cholesterol—mother's milk does. No plant-based foods contain cholesterol. Despite the hype, cholesterol is essential to life; if your body gets too little in your food, your body tries to make it. Cholesterol is especially critical to the development of a baby's brain. If you don't know this, you are being misinformed again.
- During processing for human consumption, soybeans are soaked in an alkaline solution. This produces *lysinealine* - a potential carcinogenic substance.[10] Lysinealine also reduces the cystine (an essential amino acid) content left in the bean, which is already low to begin with - making the protein even less useful. If you are eating soy, you will need to eat more meat, eggs, or real dairy cheese to make up the deficiency. Otherwise, your protein intake is incomplete and inadequate. In 1999, $300 million was spent on soy "milk." Parents, are you (*un*knowingly) harming your newborn by feeding them this stuff?
- The soybean is nothing "special" compared with other beans. All beans are classed as legumes. They are just cheap and have been marketed and promoted as "special" because people don't know much about them. How do you make tofu? Start with the soybeans and add calcium sulfate (used to make plaster of Paris) or magnesium sulfate (Epsom salts). This puree of cooked soybeans is processed (actually it is precipitated out of solution, sticks together, and sinks to the bottom of the solution) with the chemical sulfate, and a "special" paste is made. Does this process sound appetizing? Centuries ago, natural products, such as yeast, were used for natural processing. Ask a marketing specialist the first step to get consumers

10. Carcinogens are substances that cause or contribute to cancer.

to purchase a new product, and he will say: Come up with a unique or special-sounding name. That's precisely what occurred: "Let's give the stuff a nice, marketable name like "bean curd" or "tofu" and convince you that it is somehow special."

- Processed soy, including fermented tofu, is not well-digested. Processed soy has a high phosphate content, so less calcium is absorbed (a process called "bio-competition"). This decrease in absorption is compounded by the phytate content - a double calcium-leaching whammy! If you consume soy and take calcium supplements, the extra calcium is being essentially deactivated.
- Soy is the Number 1 raw material from which cooking oil is made. The oil produced from soy is usually the hydrogenated variety, which is full of *trans*fats. *Trans*fats contribute to cancer and heart disease.
- After extracting the oil, what do processors do with the leftover solids to make more money? They turn them into soy protein isolate (isolated soy protein) – an awful product (elsewhere in this article you will find why it is "awful") with virtually no nutrition.
- Soybean consumption is suspected of causing or worsening goiter (a serious thyroid condition). That is according to the National Center for Toxicological Research, (FDA) in Jefferson, Arkansas (*Biochem Pharmacol* 54;10:1087-1096,1997).

  Soybeans are processed using an acid methanolic extract that inhibits *thyroid peroxidase* (TPO – an energy-producing hormone made by your thyroid). The bottom line: If you are eating or drinking soy, you are interfering with your thyroid and may be *un*knowingly harming it!

  It is a biochemical fact that the supposedly "good" isoflavones genistein and daidzein, in the presence of iodide, blocked the formation of TPO.[11]

  It was known and published as early as 1956 that genistein in soy causes endocrine (hormone) disruption in animals. I often wonder whether the people promoting isoflavones

11. They both inhibited TPO-catalyzed iodination of tyrosine. They are very potent inhibitors (blocking agents) of TPO.

and soy understand any science whatsoever? Apparently not. But then, most of the field of nutrition hasn't been based on science. It's been based on opinion.

- Soy is commonly touted as a "protein-rich" vegetable source. Vegetable protein is, at best, 25% as metabolically active as animal-based protein. It is not a complete protein like meat is. This is doubly misleading: minimal protein plus minimal bioavailability!

Most soy products contain soy protein *isolate*, which I mentioned earlier. Baby formula and some brands of soy "milk" contain this. What you aren't told is that the processing they use to make it includes: grinding, high-temperature, solvent extraction of the oils with solvents, and addition of alkali and sugar (to remove the fiber). Finally, the resulting stuff is neutralized with an acid wash, then spray-dried at high temperature to bring you the "high quality protein powder." You can see **one** inconsistency **among claims by nutrition experts** - fiber is supposedly good for you (it really isn't), but the manufacturers remove it from this product line!

Some soy protein isolate undergoes high-temperature, high-pressure extrusion (pressing it through holes to make it look more like ground meat) to produce "textured vegetable protein" (TVP). Did you know that MSG (monosodium glutamate) is often added to enhance the taste and that it is rarely listed as an ingredient?

Soy protein isolate can hardly be called "healthy" or "natural" by any stretch of the imagination. On the contrary, soy isolate is a highly refined, manufactured product. Neither soy isolate nor soy baby formula can be considered "the answer" to any health issue. Soy isolate and processed soy are harmful to any human, young or old. If you desire radiant health, then soy must be kept to a minimum! In 1994 a warning about soy "formula" was published in a medical journal outside of the U.S.A. (*Acta Paediatr* Suppl, 1994 Sept;402:105-108.). Unfortunately, few American parents were ever told of these findings.

That is not the worst news. Soy protein isolate has never met the legal requirements under the GRAS (General Recognized As Safe) Act like most other foods have. It only has approval for industrial use as a binder in cardboard boxes. Does this stop the soy promoters? No, and our government isn't doing a thing about it.

In controlled experiments (women were given just 60 grams a day for a month), **soy** protein isolate **disrupted their menstrual cycle** during that

month and as long as 3 months after they stopped eating the soy. This is a long-term, significant residual effect.

How much soy do the Japanese eat per day? You've been misled again. The answer is, on average, a mere 8 grams - only 1/6th of the amount Americans are encouraged to eat! **Where does the traditional Asian diet use soy? Only as a condiment - a seasoning.**

Did anyone tell you about Dr. White's study of Japanese-Americans living in Hawaii? Someone should have, because there was a significant negative finding among those eating more than two servings of tofu (soy) per week. Those people showed accelerated brain aging, lower cognitive functions, and more Alzheimer's and senile dementia. This awful result is completely consistent with what soy is made of and how it's processed. Do you still think that soy is "healthy"?

Men, beware — The **celibate monks use a lot of soy** because they have found it **dampens the libido** (diminished sex drive).

Women, have you been told that soy prevents breast cancer? Sorry! In 1996, researchers found that women consuming **soy protein isolate had increased hyperplasia** (a condition often leading to malignancy – cancer – of the uterus). A year later, in another study, dietary genistein (found in soy) was found to **affect women's breast cells negatively**, leading the authors to conclude *that women should not consume soy products to prevent breast cancer.*

Here are a few key points about soy and the thyroid gland from an article titled "Anti-Thyroid Isoflavones From Soybean" (National Center for Toxicological Research, Jefferson, AK, USA, 1997):

1. Any compound that inhibits TPO thyroid hormone production is a potential thyroid carcinogenic (causes cancer).

2. The widespread use of soy in infant food formulas and in vegetarian diets requires the closer evaluation and examination of the anti-thyroid activity of the soybean.

3. The anti-thyroid activity of soy is not destroyed by boiling or during digestion.

4. When you're eating soy, the total isoflavone level (including genistein and daidzein) in your bloodstream is likely to reach the level needed for inhibition of TPO-catalyzed reactions. In other words, the level is reached to trigger the cancer-causing process.

5. So long as you are not iodine-deficient, occasional or low doses of soy isoflavones will not present an issue. That's why the Chinese and

> Japanese cultures don't have problems eating a *limited amount* of it. However, if you are iodine-deficient, then soy isoflavones can become a big problem. Infants and children are now getting goiter (a thyroid disease that usually strikes adults). Consuming foods containing iodine helps to alleviate the problem.

In 1990, the *Journal of the American College of Nutrition* reported that soy formula was associated with significantly more frequent thyroid dysfunction in children.

In 1986, the *Journal of the American College of Nutrition* reported that soy formula was associated with significantly higher rates of diabetes in children. Also, the thyroid antibody rate (a measure of how the body is tricked into attacking your thyroid as a foreign intruder) was 250% greater among soy-formula infants than among those infants not fed soy formula.

In 1980, the *Journal of Biological Chemistry* (1980 Jul 25;225(14):6529-31) reported that soy, because of its trypsin-like protease inhibitor, "blocks insulin action on the plasma membrane." This means that **more and more** insulin is required to get the excess sugar out of the body. This forces the pancreas to produce more insulin. There is an explosion in diabetes in the U.S. and around the world. Could one reason be that more Americans are eating soy-based products?

Analysis says "yes." Why aren't any of these side-effects reported by the soy advocates? They need to go back to school and learn some biochemistry and medical ethics before "parroting" outdated opinions not based on science.

Millet (a grain) contains high levels of anti-thyroid isoflavonoids (isoflavones), too. **Soy isn't the only food that does**.

The demonstrated estrogen-binding properties of soy's genistein and daidzein also need to be considered. This causes additional toxicological consequences - too much circulating estrogen.

Much of this was known and published in 1959 and 1960.

This is not new knowledge, but knowledge that has been "buried" or hidden by proponents of soy products.

It was reported that infants who were fed the soy-collagen hydrolysate formula had <u>significant</u> <u>decreases</u> in growth, weight, length, head circumference, total blood protein, and <u>increases</u> in blood urea (nitrogen) compared to those were weren't fed the soy (*Acta Paediatr Suppl* (1994 Sept;402:100-104)). Unfortunately, few parents were ever told of these findings, either.

In 1995, the *European Journal of Clinical Nutrition* (Sept. 1995;49 Suppl. 1:S26-38) reported that all tested infant formulas were *unhealthful*: whey protein hydrolysate, soy-collagen, and whey-casein hydrolysate. None of them was considered even close to acceptable, because they all caused significant undesirable differences in blood chemistry, etc., compared with natural mother's milk. There are many different whey hydrolysate formulas, some much worse than others. The bottom line is that no man-made food even begins to compare to the nutrition that mother's milk will provide an infant. The EFAs which mother's milk supplies, are needed even more at that critical stage of growth and development.

The British government's report on phytoestrogens failed to find significant evidence of benefit and actually warned against their adverse effects, but America's Food and Drug Administration didn't investigate further and now lets soy proponents claim that soy protects your heart and bones.

As a nation, the Japanese (and other Asians) eat much less soy than Americans now do. They have less cancer of the breast, uterus, and prostate; but they have a higher rate of diseases of the esophagus, stomach, pancreas, liver, and high rates of thyroid cancer! They are among the world leaders in stroke death! We've been *mis*led again.

The food industry touts the "cancer-preventing" properties of soy. While it is *possible* that the "aglycones" in <u>fermented</u> soy products may have an anti-cancer property, there is no possible way that an *un*fermented soy product, like tofu or soy "milk," has these anti-cancer properties; the fermenting is what makes the aglycones effective. The end result? No anti-cancer properties in an <u>un</u>fermented soy product. In 1975, the *Canadian Journal of Biochemistry* (1975 Dec;53(12):1337-41) reported that "soybean trypsin inhibitor was found to inhibit transformation of human lymphocytes…." Translation: the soybeans actually weaken your immune system. Here's why: Trypsin is an enzyme used in digesting protein. An inhibitor is something that disables the trypsin. So a trypsin inhibitor prevents the protein you eat from being fully utilized. Because of bad advice, many women, especially, have decreased the amount of protein they consume.[12]

Now, with the addition of soy, the little protein you do eat gets compromised, so the deficiency is even greater! Take a good look around you. Many women have begun to take on abnormal shapes because their

12. When you reduce dietary fat, you often reduce protein along with it.

hormones aren't working correctly and the protein they eat isn't being utilized. Once again, observe the real-life results of following non-scientific advice (opinion not based on facts).

Is there anything beneficial in soy? Yes and no. Unprocessed (unfermented) raw soybeans contain more (compared to other legumes) omega 3 EFAs. However, the processing required to make the bean palatable ruins those EFAs. Also, while soy contains protein (made up of amino acids), like all vegetable sources, the protein is not complete: some of the essential amino acids are missing. It is an incomplete protein – essentially worthless unless the missing amino acids are supplied from meat, fish, eggs, or real dairy products.

Protein Technologies is a division of Dupont Chemicals. They have an interest in promoting the use of soy. They make lots of soy-based products. Many of the claims about soy's cholesterol-lowering properties are based on a study sponsored by Protein Technologies! You will learn later why not to believe a study sponsored by a party who wants to see a certain result.

Results from human studies concerning cholesterol-lowing properties have been inconsistent. Animal studies may be used to suggest this "lowering" property in humans. Or an "association" is implied that is simply not true (review the Timeline Special Report). What you may not have been told is that, once the harmful *trans*fats are minimized in the diet, most of the cholesterol takes on its proper structure instead of the defective form that may be the exact cause of many health problems. The result is that the cholesterol—in its natural form— isn't harmful anymore. Few processors in the food industry encourage study about their **anti-nutritional properties because that would harm their profits**. Regardless, the topic of soy has led to numerous articles. "Effects of processing on antinutritional factors in legumes: the soybean case," was published in 1994 (*Arch Latinoam Nutr,* 1996 Dec;44(4 Suppl 1):48S-54S). In 1995 an article titled, "Possible adverse effects of soybean anticarcinogens," stated that the "so-called protease inhibitors (enzymes that block the digestion of protein) in soybean caused pancreatic hypertrophy (enlargement) and hyperplasia (abnormal cells) in rats, the underlying cause for inhibition of growth in these animals." Soy stunted their growth. When a negative result occurs, humans should proceed with caution! Please don't make soy the basis of anything in your diet. Although rat studies should be used with caution and always making certain that the condition studied is physiologically applicable to humans.

Referring to the world's decline in health, a friend of mine made the observation that soy products and additives are "the straw that broke the

camel's back." Fast food loads you with *trans*fats (which contribute to cancer and heart disease) and overdoses you on processed carbohydrates (which contribute to the twin epidemics of diabetes and obesity). Now, processed soy, common in many foods that you eat — including children's school lunch programs, commercial baked goods, and diet beverages — comes along as one of the "world's greatest nutrients," but they should call it an "anti-nutrient"!

Be warned: A successful fast-food industry and over-consumption of convenience foods will cause a decline in world health greater than any we have ever seen. Your best chance of survival with good health is to learn the science of how your body really works.

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