



IMPLICATIONS OF SOY PROTEIN IN THE IDEAL PROTEIN WEIGHT LOSS METHOD

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EXECUTIVE SUMMARY

The question: 'Is soy good for you, or is soy bad for you?' has been a sort of conundrum for both the traditional medical as well as the alternative medical communities. This applies to the layperson as well as the medical professional. The concern of soy products in the diet, particularly when one has a history (family or personal) of cancer – especially uterine, breast or ovarian is certainly a valid one. There are also concerns about soy's ability to block mineral absorption and negatively impact thyroid function. As a practicing clinical pharmacist, I will attempt to give an objective overview on the facts of this matter and encourage any "Ideal Protein Dieter" or prospective dieter to discuss them with her (his) physician or healthcare provider. Hopefully then, one will be able to make an informed choice rather than one based on generalizations. The "Bottom-Line" is this: Soya beans are not the only legume that contain phytosterols, in fact most other legumes also contain these compounds. While on the IDEAL PROTEIN DIET, the dieter will not be consuming any other legume, hence their total *phytosterol* consumption will be appreciably less than it was prior to beginning our protocol. Also these compounds **are not proteins!** Our labs only extract the *protein fraction* from the "green parts" of the soya plant so there are precious few - if any- phytosterols in our products.

SOY ISOFLAVONES

The components of soy that generate the most controversy with respect to reproductive cancers are the *isoflavones*, particularly *genistein* and *diadzein*. It is very important to understand that these chemicals *are not proteins...they are "phytosterols" (basically waxy alcohols...i.e. carbohydrates)*. These phytochemical compounds are generally regarded as *weak estrogen receptor agonists* – meaning they can bind to the estrogen receptors in the body and *mildly stimulate them*. In pharmacology, we believe they exert their effects in the following manner. When they are present in the body *with physiological amounts of naturally occurring estrogens*, they act as "blockers" that is binding to the estrogen receptors and exerting less of an effect than if estradiol (or estrone or estriol) would have occupied that receptor site. The net effect is that there is *less overall estrogen stimulation* in the woman's body than if they were not present. This could be very important if the woman has a history of reproductive cancer (personal or familial). In postmenopausal women, these same compounds may actually *increase overall estrogen activity* because now there is a much lower physiological amount of estrogen in her system. Thus, weakly stimulating the receptors that would have otherwise been "vacant" causes a great overall estrogenic response than would otherwise be expected. So basically they have the ability to stimulate or block estrogen activity, depending of the woman's circulating amounts of natural estrogens.

Confused? Well it's a little more complicated. There is a prescription drug, tamoxifen citrate (*Nolvadex™*), which works in exactly the same way. It is indicated for treatment of metastatic, estrogen receptor-positive breast cancer, following either surgery, radiation and/or chemotherapy. The drug manufacturer had to submit proof to the FDA that treatment with this medication actually improved patient outcomes over treatment with placebo (the 'sugar

pill'). Having proved that, they also had to admit that the medication *did* seem to statistically increase the risk for endometrial cancer. Wow, that really clears things up...not! We still have to talk about the amounts of these compounds that are generally taken, but for now, erring on the side of caution, let's say, **in this area**, these compounds **probably are not a good idea to take if you have a concern about certain female cancers. But read on, there are other aspects to this that we must consider.**

AMOUNTS OF ISOFLAVONES IN FOOD

The following table shows the amounts of soy isoflavones in different soy products.¹

<u>SOY PRODUCT</u>	<u>PORTION</u>	<u>ISOFLAVONES (mg)</u>
Raw Soybeans	½ cup (34 g)	176
Roasted Soybeans (soy nuts)	½ cup (30 g)	167
Tempeh	4 oz.(19 g)	61
SOY PROTEIN	1 oz. (26 g)	57
Soy Flour	¼ cup (8 g)	44
Tofu	4 oz. (18 g)	38
Textured Soy Protein	¼ cup (18 g)	28
Soy Milk	8 oz. (10 g)	20

¹Castleman, M. The New Healing Herbs; □Rodale, 2001: p378.

Now, using the above table as a reference, let's see if we can roughly figure out the amount of isoflavones in the Ideal Protein foods. Remember, Ideal uses a soy protein **isolate**. This is **not** the whole protein powder, so **most of the isoflavones have been filtered out**, they are only concerned with the amino acid profile of the protein. **But again, on the side of caution, let's use the complete protein's content.**

First, the six IDEAL drinks (Yogurt Wild Berry, Cappuccino, Peach-Mango, Banana-Pineapple, Blueberry, pomegranate, cranberry, and the Cocoa drink contain **NO SOY** whatsoever. You *could* do the diet using these six products and nor have to worry at all about the "soy controversy", albeit your variety would be somewhat compromised.

The **Chocolate Cake / Pancake** contains 18 grams of proteins from a combination of soybean protein, whey protein and egg albumen. Assuming the soybean protein has an isoflavone content close to that of the whole bean, and it accounts for 1/3 of the total protein content, that would be about 30 mgs. of isoflavones per packet.

Soups: All three of the Ideal Protein soups use *only* the soy protein isolate as their protein source and contain 18 grams per packet. That would roughly correspond to 39 mgs. of isoflavones going by the chart (if 26 g has 57 mgs, then 18 g would be about 39 mgs). Again, the chart shows the content for the *whole soy protein powder – not an isolate, so the amount of 39 mgs is the absolute maximal content (in fact it really is probably much lower).*

Puddings: Contain 20 g of total protein from 2 sources; milk protein concentrate and soy protein isolate. If half of the protein is from the soy, then this would be a maximum of 22 mgs of isoflavones per packet. The **Strawberry Cake** has 18 g of total protein from the same 2 sources, which could correspond to about 20 mgs of isoflavones.

Orange Pancake: Total protein content 18 g from 3 sources; milk protein, soy isolate, and egg albumen. If 1/3 (or 6 g) is from the soy protein, then maximum isoflavone content would be approximately 13 mgs. The **Maple Oatmeal** uses protein from 3 sources, milk concentrate, soy protein isolate and whey protein for a total protein content of 18 g. Assuming 1/3 is from the soy protein, then total isoflavone content would be no more than 13 mgs also.

ISOFLAVONES IN OTHER LEGUMES

The soy bean is not the only bean to contain these phytochemicals. The following chart (in *parts per million*) from the same source² shows the relative amounts these substances in other beans. Consuming say a 4 oz. portion of any one of these could easily add up to more isoflavones than contained in most IDEAL food packets. A 4 oz. portion is not particularly large – think of a 16 oz. can of baked beans (you would get 4 "kid size" portions). The take home message is this: if other beans were part of your "pre-IDEAL diet" and now you are not consuming them (because they are not on the diet), but using IDEAL foods instead, then your "total isoflavone consumption" would probably remain fairly constant.

<i>Legume:</i>	<i>Genistein</i>	<i>Daidzein</i>	<i>Total</i>
Soybeans	24	38	62
Black beans	45	0	45
Pinto beans	22	23	45
Lima beans	40	0	40
Kidney beans	29	3	32
Red lentils	25	5	30
Fava beans	20	5	25
Great Northern beans	17	7	24
Black-eyed peas	23	0	23
Mung beans	22	0	22

²Ibid; P.380.

OTHER CONSIDERATIONS CONCERNING CANCER

If you have been diagnosed with cancer, whether active or in remission, it is of utmost importance that you have a consultation with your oncologist before starting on *any* dietary regimen. The primary focus of medical treatment for cancer is the elimination of all cancer cells from the body. This may be accomplished through surgery, chemotherapy, radiation or a combination thereof. These techniques, which have proven very effective, often leave the patient with a weakened or depressed immune system. Proper nutritional support therefore becomes very important in the patient's "post treatment phase" in order to insure the best chance for a successful outcome. Nutritional support for the immune system is certainly of paramount importance, but changing the body's internal environment in order to make it as 'inhospitable' to cancer cells should also be addresses. With that in mind, there are three aspects of the "IDEAL Diet" that are of particular importance.

Cancer Cells Produce Energy Differently than Normal Cells

The fundamental difference between normal cells and cancer cells is the way they produce energy (i.e. their metabolism). Normal cells 'burn oxygen', a process called *oxidative phosphorylation* or Krebs Cycle metabolism. Cancer cells on the other hand use *fermentation* to produce energy. That is they ferment sugar (glucose). This is a very primitive form of energy production and lower life forms (yeasts, molds) also employ this method. A diet restricting sugar (carbohydrates) actually helps cut off cancer's food supply and thus helps create an environment "unfriendly" to this disease. The late Dr. Johanna Budwig of Germany insisted her cancer patients absolutely avoid sugar and simple carbs and consume a diet primarily of protein and natural, unadulterated omega 3, 6 and 9 oils (sounds like the IDEAL Diet doesn't it?). She had remarkable success with her patients – many of whom were told 'there was nothing more medically that could be done for them'.

Cancer Hates Oxygen!

It is a biochemical fact that the presence of oxygen stops fermentation. You see fermentation requires *anaerobic* (without oxygen) conditions in order to function. One of my father's hobbies was wine making and as kids, we had to help. I recall him yelling at us to "make sure those fermentation locks are air tight" as we dripped wax around the cork seals of the glass carboys. These locks had water in them so the carbon dioxide produced by the fermentation process could escape but air (i.e. oxygen) could not enter. If oxygen got in there, fermentation would stop and the wine would turn to vinegar! In our bodies two things prevent oxygen from adequately entering our cells. One is the presence of hydrogenated and partially hydrogenated oils and trans fatty acids – commonly found in most 'prepared or processed foods'. The body treats these "chemically altered" fats as natural fats and incorporates them into the cellular membranes. However *they do not function as natural fats*, they are in reality *plastics* and when incorporated into the cell's membrane, they act as *cellophane* and reduce the amount of oxygen that can enter the cell. Dr. Otto Warburg showed, in his Nobel Prize winning work on respiratory enzymes, in 1931 that when the oxygen concentration of the cell drops 35%, the cell either dies or turns cancerous. His experiments have been repeated many times over and the results are always the same – cell death or cancer. Incidentally, Johanna Budwig was on his research team at the Max Planck Institute in Berlin.

Acid / base balance also plays an important role in adequate oxygenation. The IDEAL DIET, with its high alkaline mineral content and required supplements, help keep the blood's bicarbonate level high and thus allows the body to handle its metabolic acid wastes. Acid decreases oxygenation of tissues and leads to many chronic problems (osteoporosis, gout, kidney and gallstones and vascular calcifications) as well as setting up an environment conducive for carcinogenesis.

Insulin Causes Cells to Divide

The pituitary gland produces growth hormone. This hormone has some relatively minor effects of its own but the major effects produced when the liver transforms this single substance into its more active components. These are known as IgF₁, IgF₂, IgF₃, and IgF₄. IgF means 'insulin-like growth factor'. You see, these hormones are almost identical in structure to insulin. When insulin levels are chronically high (due to a diet high in carbohydrates) insulin can stimulate with some of the same receptors that these hormones do. One of the effects is that they can cause cells to divide. We say this (insulin) causes *cell proliferation* because it cross-reacts with IgF receptors. One can easily see how this would play a role in the development of cancer – cells that are characterized by rapid cell division. This is yet another reason to keep circulating levels of insulin as low as possible and the IDEAL Diet accomplishes this marvelously as proved by the decreased fasting insulin levels of our patients using it.

"The Perfect Storm"

We have seen cancer go from the eighth leading cause of death in the U.S. in 1971 to the number one cause of death in 2006. This has happened in spite of all the wonderful knowledge and the trillions of dollars spent on research. Once and for all we must look at the foods we are eating! High levels of carbohydrates (i.e. sugar) that feed the fermentation process, "bad" *unnatural* oils that are plastics and seal oxygen off from our cells, plus poor acid / base balance that further robs oxygen and helps create the *anaerobic* environment necessary for fermentation. Now add chronically high levels of a substance that causes cells to divide quickly and you have created the "perfect storm" for the development of cancer! Speaking as a licensed medical professional, I feel the IDEAL Diet Program addresses the root causes of all chronic diseases more completely than and other product or program (prescription or over-the-counter) currently available. They have become a cornerstone of our medical practice **and it is our opinion that the total benefit is so great, any possible concerns about the "soy fraction" are inconsequential.**