

The first century of Gerson's dietotherapy: From salt-and-water management to immunotherapy

Gar Hildenbrand

Lecture and PowerPoint presentation

to the American Academy of Anti-Aging Medicine Fellowship
in Integrative Cancer Therapy: Module V;

May 20, 2010;

Boca Raton, FL

Fellowship Dir: Mark Rosenberg, M.D.



Gerson Research Organization
7807 Artesian Rd
San Diego CA 92127

<http://www.gerson-research.org>
garhildenbrand.com
email: ghildenbrand@earthlink.net

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Abstract

The pioneering approach to host resistance and immunity introduced by German physician Max Gerson is approaching the century mark. Originally conceived as a salt-and-water management for skin tuberculosis (lupus vulgaris), Gerson's dietotherapy evolved empirically to embrace emerging scientific knowledge. Vitamin feeding emerged as a rationale, as did protein/calorie restriction, metabolism, and finally immunology. Following Gerson's death in 1959, additional putative mechanisms of action have been identified. Following is a discussion of the clinical measures with guidelines for implementation, a discussion of strengths and limitations, and possible directions for further investigation.

Introduction

I'm happy to be back. I was telling Paul Yutsis his group of physicians is outside the bell curve, beyond the tails; that standard practice is actually an acculturated way of thinking, and that there's so much more to know.

This talk of antioxidants made me think of Linus Pauling — and I said this back when we were doing the module on Coley — I love Linus Pauling. He got up in front of an audience in Tulsa; the Cancer Centers of America had a nutrition forum and, actually, what they wanted to do was sell TPN. But what Dr. Pauling was there for was to be honored and have the first Pauling Award given out; that went to Mark Levine. Many of you know his wonderful work at National Heart Lung and Blood with vitamin C mechanisms for anti-cancer effect.

Dr. Pauling got up to talk, and his handlers had to help him up onto the stage; I mean, the guy... he had prostate cancer by that time. He was ninety-three years old and he had a quaver in his voice which I love to imitate, so I'm going to. He explained to us the rules of using what he called "overheads" — that's what we now call PowerPoint — remember overhead transparencies? Dr. Pauling says, "They told me I needed to bring an overhead, so I brought one. Put it up please. You will notice that it is black print on a white background. There's nothing more infuriating than white print on a black background except, perhaps, when the speaker puts up a slide and it says something else."

So what I do, because I'm interested in neuro-linguistic programming, is I actually read what is up on the screen and interpret it, so that we don't have cognitive dissonance. Those of you who find this a little bit kindergartenish, forgive me, you are very high visual. For those of you who are high auditory, you will appreciate it.

Section I

Let me just say that Gerson's therapy comes from a time before standardization in medicine cost us pluralism — that was the price for standardization — it was pluralism. It also cost us a healthy dollop of logic and incisive reasoning. We talk about food components, and we test food components called phytochemicals, minerals, vitamins, etc. The last time that I recall seeing a whole food trial published of any significance was when Dean Ornish showed the world that you can regress coronary heart disease with diet — with diet.

So, the slide that's up there says: *The pioneering approach to host resistance and immunity introduced by German physician Max Gerson is approaching the century mark. His dissertation was 1912. Originally conceived as a salt-and-water management for skin tuberculosis (lupus vulgaris), Gerson's dietotherapy evolved empirically to embrace emerging scientific knowledge. Vitamin feeding emerged as a rationale, as did protein/calorie restriction, metabolism, and finally immunology. Following Gerson's death in 1959, additional putative mechanisms of action have been identified. Following is a discussion of the clinical measures with guidelines for implementation, a discussion of strengths and limitations, and possible directions for further investigation.*

But first, the Office of Technology Assessment attempted to study unconventional cancer treatments and, in doing so, heightened the contradiction between the forces of industry and the forces of science, *per se*. Dr. Patricia Spain Ward was the campus historian for the Colleges of Medicine, Nursing and Dentistry for the University of Illinois in Chicago. She was hired as a contractor for the OTA. She was asked to write about Gerson. Dr. Ward's papers were covered up. They were not delivered to the advisory panel. There were quite a few of us: Herb Oettgen from Sloan Kettering was there; Ralph Eyerly, the long-time head of the Unproven Treatments Committee for the ACS was there; Grace Powers Monaco, one of the well-known busters — the quackbusters; Andrew Weil was there as an advisor; Michael Lerner from Common Wheal. None of them knew that the contract paper on Gerson's work had been withheld. The day after the second session of the advisory panel, I walked up the avenue, Pennsylvania Avenue, to the OTA's office and I confronted Hellen Gelband. That's Hellen with two "Is". That's my comment. It's true though. It's spelled with two "Is". She was the chief policy advisor, and she confessed that Dr. Ward's paper had not been circulated. She said, "But we read it, and we included our interpretation of it in the draft, and that's the same as if the advisors had read it." I said, "Can I read it please?" She said, "Yes, but you can't take it with you and you can't photocopy it."

So I sat in her office while she ate out of Tupperware and talked to her boyfriend on the phone. And this is what I read, this is Dr. Ward. *It is one of the least edifying facts of recent American medical history that the profession's leadership so long rejected as quackish the idea that nutrition affects health. And you will note that she cites the JAMA and Maurice Shimkin from Memorial. Ignoring both the empirical dietary wisdom that pervaded western medicine from the pre-Christian Hippocratic era until the late nineteenth century and a persuasive body of modern research in nutritional biochemistry, the politically minded spokesmen of organized medicine in the U.S. remained long committed to surgery and radiation as the sole acceptable treatments for cancer.*

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Slide 1

History of the Gerson therapy
Contract report prepared for the U.S. Office of Technology Assessment
Ward PS
OTA-H-405, U.S. Government Printing Office, 1988

It is one of the least edifying facts of recent American medical history that the profession's leadership so long rejected as quackish the idea that nutrition affects health (JAMA 1946 1949, 1977; Shimkin, 1976). Ignoring both the empirical dietary wisdom that pervaded western medicine from the pre-Christian Hippocratic era until the late nineteenth century and a persuasive body of modern research in nutritional biochemistry, the politically minded spokesmen of organized medicine in the U.S. remained long committed to surgery and radiation as the sole acceptable treatments for cancer.

Slide 2

The historical record shows that progress lagged especially in cancer immunotherapy - including nutrition and hyperthermia - because power over professional affiliation and publication (and hence over practice and research) rested with men who were neither scholars nor practitioners nor researchers themselves, and who were often unequipped to grasp the rapidly evolving complexities of the sciences underlying mid-twentieth-century medicine. This commitment persisted, even after sound epidemiological data showed that early detection and removal of malignant tumors did not "cure" most kinds of cancer. You probably are all familiar with George Crile's and John Cairns' papers on the subject.

Nowhere is this maladaptation of professional structure to medicine's changing scientific context more tragically illustrated than in the American experience of Max B. Gerson, a founder of the best-known nutritional treatment for cancer of the pre-macrobiotic era. A scholar's scholar and a superlative observer of clinical phenomena, Gerson was a product of the German medical education which Americans in the late 19th and early 20th centuries considered so superior to our own that all who could afford it went to Germany to perfect their training.

A few words about the author of the next slide (please, don't look at this one any more; we're done with it): Ferdinand Sauerbruch developed Sauerbruch's cabinet. It was the first time sterile surgeries could be performed in tuberculosis, and it was the technology that led to being able to relax one tuberculous lung so that the other could improve.

Sauerbruch bragged in his autobiography that he had encountered a patient of Gerson's on a train to Davos, and that the patient had said, "I am going to see Dr. Gerson because he's cured me of skin tuberculosis," to which Sauerbruch said, "That's impossible, no one can be cured of skin tuberculosis." And the man opened his shirt, showed the scars of perfectly healed skin tuberculosis, at which point Sauerbruch sent for Gerson — that's the story. The fact of the matter is that Gerson had been involved and had early publications out there, and I don't know exactly how Sauerbruch became aware of him, but Sauerbruch did in fact send for Gerson after committing his colleague, Adolf Herrmannsdorfer, to study Gerson's work.

Here we see the announcement by Ferdinand Sauerbruch. The paper is called *The general clinical basis for dietary treatment of inflammatory diseases. Experience of the Surgical Clinic Munich*, and Sauerbruch explains (this is 1925): *At my request, Dr. Herrmannsdorfer spent more than two years dealing with the practical and fruitful implementation of these plans* — In saying, "these plans," he is referring to the fact that he and Herrmannsdorfer had set out to see whether any type of changes in nutrition could affect post-surgical wound healing and the rate of intercurrent infections. And the answer was yes. So that's what he means by "these plans." — *and came to remarkable results, which was already reported in a paper "Wound Infection, Wound Healing and the Method of Nutrition" and details will be published soon in an essay coming to the Deutsche Zeitschrift für Chirurgie.*

Ward, OTA-H-405, U.S. Government Printing Office, 1988 (cont)

Slide 3

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Ward, OTA-H-405, U.S. Government Printing Office, 1988 (cont)

Slide 4

Nowhere is this maladaptation of professional structure to medicine's changing scientific context more tragically illustrated than in the American experience of Max B. Gerson (1881-1959), founder of the best-known nutritional treatment for cancer of the pre-macrobiotic era. A scholar's scholar and a superlative observer of clinical phenomena, Gerson was a product of the German medical education which Americans in the late 19th and early 20th centuries considered so superior to our own that all who could afford it went to Germany to perfect their training (Bonner, 1963).

General clinical basis for dietary treatment of inflammatory diseases. Experience of the Surgical Clinic Munich.

Ferdinand Sauerbruch

Münchener Medizinische Wochenschrift 1926;2(3)

Lectures, held in the meeting of the Medical Associations of Munich on December 2, 1925, with demonstration of patients, x-rays, color photographs and tables.

Slide 5

At my request, Dr. Herrmannsdorfer spent more than two years dealing with the practical and fruitful implementation of these plans and came to remarkable results, which was already reported in a paper "Wound Infection, Wound Healing and the Method of Nutrition" and details will be published in an essay coming soon to the *D. Zschr. f. Chir* 135, H. 3.4. It was shown that it is possible through special design of the diet to influence the nature and quantity of the bacteria on granulating wounds and even to achieve transformation.

It was shown that it is possible through special design of the diet to influence the nature and quantity of the bacteria on granulating wounds and even to achieve transformation. Coincidentally, I was made aware of the method of Dr. Gerson of Bielefeld, whose rationales coincide approximately with the above views, which we began. I welcomed the opportunity to learn more about Dr. Gerson's approach. First, two members of the Clinic, Professors Dr. Schmidt and Dr. Herrmannsdorfer, were instructed go to Bielefeld to gain insight into the working method. They came back with the conviction that an investigation was appropriate, and that the medical practitioner who was creative — referring to Gerson — in difficult circumstances should be afforded access to a hospital.

This is something we tried to do out of the Office of Alternative Medicine. We had a methodology conference in which Ernst Wynder was one of the key-note speakers, and I was the other one, on methodology issues. We tried to encourage the NIH that going into the field was the appropriate thing to do. One should not try to take, from the practitioner or the developer, the treatment and take it back to NIH and study it, but instead study it in its native surroundings, and see what the developer could do. Nowhere else in the history of the development of medical technologies and materials is it ever suggested that the developer should be separated from the process of development, other than the alternatives.

Dr. Gerson was asked then to create the conditions for the application of his method to advanced tuberculosis patients of all types, selected by him personally. Soon, we were able to convince ourselves that improvements had occurred. This resulted in a commitment now to detailed scientific testing of the procedure. The Bavarian Ministry of Culture and the Bavarian Ministry of Finance, as well as the Emergency Association of German Science were in full understanding of the scope of such investigations and immediately ready to lend the necessary funds.

This is what we call the Golden Age of German medicine, where such a thing could happen. Gerson was allowed to speak briefly at this conference because it was not established yet. It was going to be tested, so he spoke; and he spoke about his rationales for proceeding with this type of treatment. Gerson's words:

The idea to influence diseases by dietary changes is not new, but in tuberculosis, it has not been pursued in this particular form. My aim from the outset was to bring to the approach salts of various kinds in the body; my attention was mainly the cations. My first attempts many years ago on tuberculosis with the addition of calcium and silicon compounds achieved little. I had more success later in all sorts of nervous disorders. I noticed coincidentally, that tuberculous foci are improved and even healed. So I focused my interest more and more on the treatment of tuberculosis.

Sauerbruch, 1926 (cont)

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Slide 6

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Slide 7

General clinical basis for dietary treatment of inflammatory diseases.
Experience of the Surgical Clinic Munich.
Max Gerson
Münchener Medizinischen Wochenschrift 1926;2(3)

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Slide 8

The body weight gain of our patients is not based on fluid restriction. This can be seen in the dry state of the wound granulation and the minimization of secretion. The healing process that takes place is particularly evident in lupus, in bursts. The surprising improvements, that the surgical clinic could see for themselves as well as I, are hard to interpret. I believe that the altered diet affects the general life processes of the body and thus also the healing term. Years of work will be necessary to bring about scientific verification.

So, after this conference, Sigwald Bommer was chosen to be the principal investigator because he owned and directed the largest tuberculosis sanatorium in all of Europe. In other words, he was the best man at the best facility and it was logical for political purposes to put him in but, in this case, he was also a very thoughtful clinical observer and experimentalist.

We're going to take a trip in the "way-back" machine here and visit an early demonstration of a practical form of immunotherapy against infectious tuberculosis, with graphic descriptions of the response and I have to apologize ahead of time, I translated this myself and ich finde die Übersetzung sehr schwer, ja? (*I find translation very difficult, okay?*) I hope you can track with it, I think it's quite fascinating. Here's Sigwald Bommer:

Occupied with the dietary management of wound healing, and taken by its favorable influence, Sauerbruch and Herrmannsdorfer became aware by chance of a special diet with which Dr. Gerson, a general practitioner in Bielefeld — That's actually, that's not true. He was a neurosurgeon trained by Felix Fleischner as well as an internist. — (Dr. Gerson) treated nervous diseases and tuberculosis. Gerson developed his diet from ideas such as those that are peculiar to naturopathic medicine. He viewed salt as a toxic and harmful substance for the body, to which he attributed a number of diseases, including cancer and tuberculosis.

Gerson went from very general ideas and intentions. By a retuning — I looked then for another word, but there is no other word for retuning — by a retuning of mineral metabolism and by an approach altering salts in the body he wanted to effect the healing of diseases. A harmful role was also attributed to meat consumption, — I'm going to send this to Colin Campbell, because I know he's going to love it. — and he sought to limit the consumption of animal protein whenever possible. This concept also included three main aspects of the Gerson diet: Vegetarian diet, withdrawal of salt, and medical administration of a salt mixture, which according to the data of Gerson was manufactured under the name "Mineralogen". This was really just a broad spectrum mineral supplement.

Initially, on January 23rd, ten female lupus patients were started on the dietetic treatment. The selection criteria were gravity, and extent of the process, and its resistance to earlier treatment measures.

Gerson, 1926 (cont)

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Slide 9

The nutritional therapy of skin tuberculosis after Gerson-Sauerbruch-Herrmannsdorfer
Sigmund Bommer
Münchener medizinischen Wochenschrift 1928;37:1599

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Slide 10

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Slide 11

Bommer, Münchener medizinischen Wochenschrift 1928;37:1599 (cont)

Initially, on January 23, 10 female lupus patients were started on the dietetic treatment. The selection criteria were gravity and extent of the process, and its resistance to earlier treatment measures. Only very serious and widespread cases of lupus vulgaris were selected, 4 of those that had already received one or more treatments in the sanatorium, and where the outbreaks had been recalcitrant to other treatment, especially against the action of light. The chosen patients were treated from this moment on only with the new nutrition, which was applied exactly according to the guidelines of Sauerbruch and Herrmannsdorfer.

Slide 12

So we've got three of them, extent of disease, we've got the serious nature of the disease, and we've got the refractory nature of the disease. *Only very serious and widespread cases of lupus vulgaris were selected, four of those that had already received one or more treatments in the sanatorium, and where the outbreaks had been recalcitrant to other treatment, especially against the action of light.* You all know about solar therapy and UV therapy for tuberculosis. *The chosen patients were treated from this moment on only with the new nutrition, which was applied exactly according to the guidelines of Sauerbruch and Herrmannsdorfer.*

At the disease foci — you're going to find this is very delicious — at the disease foci the following was observed: At the start of the treatment, the disease consisted in the different patients of sometimes more or less extensive ulcers on the skin, some of which were larger areas of skin from those previously described lupus-infected nodules. After about fourteen days, all patients presented acute bright redness in the area of each nodule, in one case more, in another less, pronounced. This increased redness lasted approximately two weeks, and then gradually subsided and created an increased area of desquamation.

At about 3 weeks, the focus peeled more aggressively; then the scales began to slacken and now each lupus infiltrate and its surroundings clearly lightened. The skin that surrounded each nodule was no longer flushed now, but perfectly pale. Surrounded by non-reactive pale skin, lupus nodules were each more distinct than before.

The ulcers in the area of tuberculous disease of the skin had already started 3-4 weeks after the start of the diet treatment to dry. Thick crusts were formed on them, which fell off after approximately three weeks more, and left a slightly reddened tender scar. You are reading the historical evidence of a demonstration of antitubercular immunotherapy, and it is remarkable. It's breathtaking, actually.

Eight to ten weeks after the start of the treatment came the disappearance of individual lupus nodules. Here and there in the disease foci, the number of nodules decreased, as they absorbed from the environment and disappeared without a trace. First, and in increased measure, this incremental regression of lupus infiltration took place in the central parts of the lesion. Only gradually was the periphery involved in the healing process. Here, however, individual lupus infiltrates stubbornly stayed for a relatively long period. After a number of foci of disease in the nodule had disappeared, it frequently came to an initial standstill in the healing process.

At which point I would remark that a number of investigators who tried it dropped it — but not Bommer.

Then suddenly a new thrust of regression phenomena began. It was not, as in the beginning, initial redness of the environment and increased desquamation; instead, the lupus nodules started to be

Bommer, *Münchener medizinischen Wochenschrift* 1928;37:1599 (cont)

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At about 3 weeks the focus peeled more aggressively; then the scales began to slacken and now each lupus infiltrate and its surroundings clearly lightened. The skin that surrounded each nodule was no longer flushed now, but perfectly pale. Surrounded by non-reactive pale skin, lupus nodules were each more distinct than before. The ulcers in the area of tuberculous disease of the skin had already started 3-4 weeks after the start of the diet treatment to dry. Thick crusts were formed on them, which fell off after approximately three weeks more, and left a slightly reddened tender scar.

Slide 14

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Bommer, *Münchener medizinischen Wochenschrift* 1928;37:1599(cont)

Then suddenly a new thrust of regression phenomena began. It was not, as in the beginning, initial redness of the environment and increased desquamation; instead, the lupus nodules started to be absorbed and disappear. The type of remission described was always the same, only the time over which it took place was different for each patient; just as with other measures of lupus treatment, one subject will be more rapidly responsive than another. With all the diet therapy patients, however, these healing processes occurred; the treatment did not fail any of them.

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Bommer, *Münchener medizinischen Wochenschrift* 1928;37:1599 (cont)

However, especially impressive were scattered cases in which lupus nodules affecting large areas of skin had resisted earlier measures of treatment, above all the rays of the sun and artificial light sources, which could be brought to remission now only by this new nutrition. Particularly impressive results were also achieved in such processes of nodular tuberculosis of the skin, which took place on elephantiasis thickened legs.

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Bommer, *Münchener medizinischen Wochenschrift* 1928;37:1599 (cont)

Localization in the lower leg, the location of the worst circulation disturbances, caused an especially stubborn behavior of lupus foci, making their elimination especially difficult. Such lower legs overwhelmed by lupus infiltrates could be transformed by the dietotherapy to become, for the most part, free of disease foci.

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Bommer, *Münchener medizinischen Wochenschrift* 1928;37:1599 (cont)

In addition, in most cases we observed shortly after the beginning of the diet a clear incrementally increasing rise of the weight curve, even in those patients who had not achieved such weight gain during prior treatments in the sanatorium. Herrmannsdorfer also emphasizes the weight gain of his patients. We recorded them together with an improvement of the general condition without putting special emphasis on the weight gain.

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Bommer, *Münchener medizinischen Wochenschrift* 1928;37:1599 (cont)

In addition to the 10 patients who started nutritional therapy in January, we admitted another 20 patients at the beginning of March, and another 10 were added in the beginning of April, so we have 40 cases in which the observation period extends over more than three months. On the whole, we currently treat 75 lupus patients with the new diet.

Slide 20

absorbed and disappear. The type of remission described was always the same, only the time over which it took place was different for each patient; just as with other measures of lupus treatment, one subject will be more rapidly responsive than another. With all the diet therapy patients, however, these healing processes occurred; the treatment did not fail any of them. Wow.

However, especially impressive were scattered cases in which lupus nodules affecting large areas of skin had resisted earlier measures of treatment, above all the rays of the sun and artificial light sources, which could be brought to remission now only by this new nutrition. Particularly impressive results were also achieved in such processes as nodular tuberculosis of the skin, which took place on elephantiasis thickened legs.

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In addition to the ten patients who started nutritional therapy in January, we admitted another twenty patients at the beginning of March, and another ten were added in the beginning of April, so we have forty cases in which the observation period extends over more than three months. On the whole, we currently treat seventy-five lupus patients with the new diet.

After 3-months of exclusively diet treatment we have moved to combining the nutrition therapy with general tanning, and in part to isolated light exposure of the disease foci. It is certain today, according to experience, that a combination of diet and sunbathing causes general outbreaks to disappear more quickly than the diet therapy alone. It is equally certain that with solar treatment only, the degree of healing was never equal to that which could be achieved with concomitant nutritional treatment.

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Slide 21

So let's have a look at the diet that was described by Herrmannsdorfer before the trial began. You're down to some practical basics, here, now that you've seen the relative impossibility of the intervention in advanced, refractory lupus, with a remarkable outcome: What did it?

First of all, they stopped the table salt and the preserved foods and the smoked and seasoned meat, sausage and ham, smoked or salted fish, vinegar for reasons I don't understand, and bouillon cubes — later revisions found vinegar at home in the diet therapy.

In the beginning, and this I find this interesting, 500 grams of fresh meat were allowed as well as viscera and fish; pepper which is noncontroversial as everyone knows now; Liebig's meat extract — let's think about that for a second. Justin Liebig is the reason for our century-long obsession with protein for building strong, healthy bodies. Right? You build the body by eating meat, and then you fuel the muscle you made with the meat by eating grain. He also developed the first commercial fertilizer. It was a financial failure because it didn't work — connect the dots. The protein thing was wrong from the outset. But the next one, beer, that sounds good; and Malaga, a dessert wine. You could only use red wine as a cooking ingredient. You could drink some Malaga. You could have coffee, tea and cocoa, but only enough to color the milk.

The reasons for these choices are not at all immediately obvious and a systematic review of the literature of the time would be required to understand the decision making. But certainly Gerson's principles, his central principles, don't require a great deal of understanding.

All right: milk — about one to one and a half liters every day in every form: raw milk, sour milk, milk chocolate, milk pudding with rice, cream, kephir, low-salt cheese, quark, cottage cheese. Butter was okay. And fruit of any kind, as much raw as possible. It also allowed compotes and jams and jellies and juices and so on.

I'm not going to read the list, but you can see what it is. It says, vegetables, do not blanch, just steam. These are the vegetables that were available in Germany and Austria and the surrounding countries. So, some that are available now are not included on the list — that doesn't mean anything. It's about plants versus animal products, is really what the story is.

Slides 22-25, right

General clinical basis for dietary treatment of inflammatory diseases. Experience of the Surgical Clinic Munich.
A. Herrmannsdorfer
Münchener Medizinischen Wochenschrift 1926;2(3):108-112

From March 1925, according to this view, we aim to treat tuberculosis of all kinds by Gerson's guidelines. For the choice of food, the following statements:

Forbidden foods

Table salt
Preserved foods of all types
Smoked and seasoned meat
Sausage and ham
Smoked or salted fish
Vinegar
Bouillon cubes

Herrmannsdorfer, *Münchener Medizinischen Wochenschrift* 1926;2(3):108-112 (**cont**)

Limited allowed food

Fresh meat (500 g each week)
Viscera (sweetbreads, brains, liver, lung, kidney, spleen)
Fresh fish
Pepper
Liebig's meat extract
Beer ("Heilbier" or malt beer)
Malaga, red wine (as an ingredient in the food)
Coffee, tea, cocoa – only enough to color the milk

Herrmannsdorfer, *Münchener Medizinischen Wochenschrift* 1926;2(3):108-112 (**cont**)

Allowed foods

Milk: about 1 - 1-1/2 liters every day in every form (especially raw milk, as well as sour milk, milk chocolate, milk pudding or rice, cream, kephir, low-salt cheese, quark, cottage cheese)

Butter: Salt-free dairy butter

Fruit of any kind: as much raw as possible, but also cooked fruit compote, jams, fruit jellies, fruit juices, soft drinks, cider, fruit wines, fruit salad, baked apples

Herrmannsdorfer, *Münchener Medizinischen Wochenschrift* 1926;2(3):108-112 (**cont**)

Salad and Vegetables: Vegetables do not blanch, just steam! Only fresh vegetables. (Also raw juices from vegetables as an addition to soups and other dishes), tomatoes, yellow turnips, turnips, black radish, potatoes, kohlrabi, leeks, red beets, beet, asparagus, cauliflower, red and white cabbage, sauerkraut, cabbage, kale, cress, endive, field and head lettuce, rhubarb, sorrel, spinach, peas, beans, lentils, mushrooms, cucumbers, pumpkins, melons, carrots especially raw, rubbed with sugar.

Bommer was a philosopher and he wanted to remind us, really, of Kussmaul's dictum, that "the result at the bedside is decisive," when he wrote: *Modern vitamin research is mainly advanced by chemical and experimental-biology investigations. But we must not forget that their starting point lays elsewhere, namely the sick people. Similarly, hormone research and modern pediatric nutrition have taken their origins from sick people and sick children. If our knowledge in these areas today has grown to such an extent that we can hope to accomplish effective prophylaxis, and with it to get closer to the ultimate goal, to avoid illnesses and morbidities, we will do well to remember this starting point over and over again.*

I just threw that in there because it was so beautiful. Okay. The call to expand investigations was answered worldwide, including in the United States. We will review a couple of statements here. Those of you who were in the earlier module with the Coley and Gerson business will have seen some of these. I apologize for the repetition, but they are important.

Edgar Mayer and I.N. Kugelmass were pillars of the tuberculosis research community in the United States. They published in the *Journal of the AMA* in 1929. They were very solid. Mayer writes: *My own experiences very largely agree with the evaluation of it — being the diet therapy or vitamin feedings — made by the Hamburg Medical Congress that the diet is a distinct therapeutic advance as an aid generally effective in the treatment of lupus vulgaris and occasionally in bone and joint tuberculosis, and that its value in other forms, more particularly pulmonary tuberculosis, is yet to be determined... The leading authorities report favorable effects from this diet in the treatment of lupus vulgaris.*

I grew up forty miles from Lincoln, Nebraska, where Clarence Emerson was an attending physician in the tuberculosis department of Lincoln General Hospital and published in the *Nebraska State Medical Journal* in 1929, *It may be further stated that the "Munich diet" has become in the Lincoln General hospital almost the routine medical management of tuberculosis by members of the staff. Dr JM Mayhew, chief of staff and head of the Department of Internal Medicine, and others in that department report very favorably on it.*

A.L. Banyai, head of the Sanitarium at Lake Saranac in Wisconsin, wrote: *Favorable results were seen in 36% of our pulmonary cases. Gain in weight, decrease in cough, expectoration, temperature and pulse rate, improved appetite, and complete or partial abatement of subjective and objective symptoms were recorded. Considering the fact that 82% of our pulmonary cases had far-advanced tuberculosis, with serious complications in many instances, we feel that the beneficial results found justify the further application of the Sauerbruch, Herrmannsdorfer, Gerson diet in the treatment of tuberculosis.*

Low-Salt Food and the Vascular System
Sigwald Bommer
Klinische Wochenschrift. 13. Jahrgang, Nr. 43: 1542-1548

Slide 26

Modern vitamin research is mainly advanced by chemical and experimental-biology investigations. But we must not forget that their starting point lays elsewhere, namely the sick people. Similarly, hormone research and modern pediatric nutrition have taken their origins from sick people and sick children. If our knowledge in these areas today has grown to such an extent that we can hope to accomplish effective prophylaxis, and with it to get closer to the ultimate goal, to avoid illnesses and morbidities, we will do well to remember this starting point over and over again.

Basic 'vitamin' feeding in tuberculosis
Mayer E, Kugelmass IN
JAMA. 1929;93(24):1856-1862.

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My own experiences very largely agree with the evaluation of it made by the Hamburg Medical Congress that the diet is a distinct therapeutic advance as an aid generally effective in the treatment of lupus vulgaris and occasionally in bone and joint tuberculosis, and that its value in other forms, more particularly pulmonary tuberculosis, is yet to be determined...
The leading authorities report favorable effects from this diet in the treatment of lupus vulgaris.

Treatment of tuberculosis by altering metabolism through dietary management (Gerson-Sauerbruch-Herrmannsdorfer method)
Emerson C
Nebraska State Medical Journal. 1929;14:10-107.

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The dietary treatment of tuberculosis
Banyai AL
Ann Rev Tuberc. 1931;23:546-575.

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And finally, W.H. Goeckerman from Mayo in Rochester. Goeckerman developed the psoriasis treatment based on coal tar and UV light that a number of you are familiar with. Goeckerman was famous and so it was something for him to say: *Although the last word on the (Gerson) diet as such, or on the mechanism by which it acts, probably has not been said, it must be conceded that good clinical results have been obtained.*

Now we turn to the grand dean of dermatology in the United States, Erich Urbach, who was at the University of Pennsylvania and from 1939, was the Chief of Allergy at Jewish Hospital, Philadelphia. He was the author of many publications, including a very popular book called "Allergy" that he wrote with P.M. Gottlieb. *The treatment of tuberculosis of the skin has been immeasurably enriched by the dietetic methods of Gerson as well as Sauerbruch and Herrmannsdorfer. It is true that Struwe as long as 100 years ago, prescribed a salt-poor diet for the treatment of cutaneous tuberculosis and that H Straub emphasized long ago the importance of chloride-poor nutrition for various diseases, but it is to Gerson's everlasting credit that he profited by a fortuitous observation to inaugurate the dietotherapy of tuberculosis of the skin and carefully studied the influence of a salt-restricted and vitamin-rich dietary on the clinical course of this disease.*

I would parenthetically note that this research, this way of doing medicine, was perhaps the greatest cost of World War II; that what happened when the research and development throne of the world shifted from Germany to the United States was the sudden involvement of speculative capital and product development and the derailing of meaningful biomedical research, especially in uncontrollable, non-patentable areas like general nutrition. It's no wonder you feel like you're living in a sort of an 'other world' or 'anti-world' or 'backwards world' as physicians. Everything around you is the next advertisement on television, "buy the purple pill," "have some Viagra." So, Urbach says in 1932: *Since both dietaries (Gerson, and Sauerbruch and Herrmannsdorfer) have successfully stood trial in the largest Austrian and German hospitals and institutions over a period of 6 years, it is safe to say that dietotherapy constitutes one of our best weapons in fighting cutaneous tuberculosis.*

And in 1946, Urbach waxes poetic: *It is interesting that Job, who suffered from a persistent itching and weeping dermatitis, seems to have been cured, finally, merely by adhering to a salt-free diet (The Book of Job, chapter 6, verses 6 and 7). The earliest account of the etiology, symptoms, and treatment of vitamin deficiency appeared about A.D. 392, when St. Jerome described a skin disease suffered by St. Hilarion as the result of four years of diet limited to barley bread and vegetables cooked without oil. It appears that addition of oil to the diet was followed by recovery.*

Effect of a diet low in salt in cases of tuberculosis of the skin
Goeckerman WH
Proceedings of the Staff Meetings of the Mayo Clinic. 1932;7(6):73-78.

Although the last word on the (Gerson) diet as such, or on the mechanism by which it acts, probably has not been said, it must be conceded that good clinical results have been obtained."

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Skin Diseases and Nutrition: Including the Dermatoses of children
Urbach, E
Vienna; Wilhelm Maudrich; 1932:183

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Skin Diseases and Nutrition: Including the Dermatoses of children
Urbach, E
Vienna; Wilhelm Maudrich; 1932:186

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Skin Diseases, Nutrition and Metabolism
Urbach, Erich and LeWinn, Edward
New York; Grune & Stratton; 1946:1-2

It is interesting that Job, who suffered from a persistent itching and weeping dermatitis, seems to have been cured, finally, merely by adhering to a salt-free diet (The Book of Job, chapter 6, verses 6 and 7). The earliest account of the etiology, symptoms, and treatment of vitamin deficiency appeared about A.D. 392, when St. Jerome described a skin disease suffered by St. Hilarion as the result of four years of diet limited to barley bread and vegetables cooked without oil. It appears that addition of oil to the diet was followed by recovery (Taylor)...

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Urbach, 1946:1-2 (cont)

There is nothing new under the sun. Twenty-five hundred years before Gerson's time, an unknown, obscure physician prescribed a salt-free diet for a patient with dermatitis, and fifteen hundred years ago the clinical picture of vitamin A deficiency was described.

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Urbach, 1946:4 (cont)

The question of nutritional therapy in skin diseases was again placed in the spotlight when Gerson, alone at first, and then in collaboration with Sauerbruch and Herrmannsdorfer, demonstrated that a low salt diet brought excellent results in certain forms of skin tuberculosis. This dietary was soon tried in other acute and chronic inflammatory conditions of the skin, sometimes with very good results.

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Urbach 1946:530 (cont)

(Gerson's) dietary therapy for cutaneous tuberculosis has been **extensively tested and approved by the majority of authors** (Jesionek, Jesionek and Bernhardt, Bommer, Volk, Wichmann, Jadassohn, Stuempke and Mohrmann, Brunsgaard, Scolari, Dundas-Grant, Stokes, and others).

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Urbach 1946:530 (cont)

Particularly noteworthy are the investigations which Jacobson and Brill and Gawalowski carried out over a number of years on extensive material. The Russian authors treated 124 patients who were under observation for five years, while the Czechoslovak investigator followed 127 cases. Both groups showed marked improvement. Interesting, too, is the report submitted by Simon and Kaplanskaja which shows the necessity of adhering to the salt-poor diet for an adequate period of time.

Slide 37

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I couldn't help it. This whole list is just in there just to say, you know, you don't have to be timid about saying that this was a good thing, or thinking it was a good thing, or being interested in it as a good thing. The authors — If you look at Jesionek, Jesionek and Bernhardt, Bommer, Volk, Wichmann, Jadassohn, Stuempke and Mohrmann, Brunsgaard, Scolari, Dundas-Grant, and Stokes, you will be amazed at their productivity; at their place in the literature.

Particularly noteworthy are the investigations which Jacobson and Brill and Gawalowski carried out over a number of years on extensive material. I love how they say 'material' instead of people. The Russian authors treated 124 patients who were under observation for five years, while the Czechoslovak investigator followed 127 cases. Both groups showed marked improvement. Interesting, too, is the report submitted by Simon and Kaplanskaja which shows the necessity of adhering to the salt-poor diet for an adequate period of time.

Sauerbruch and Herrmannsdorfer continued (Gerson's) investigations on more extensive material and introduced some minor modifications of Gerson's original diet. Therefore, as discussed at some length we are now in possession of two dietary procedures which are not quite identical, but which have in common the restriction of the intake of table salt, the requirement of great quantities of vitamin-rich, fresh vegetables, and a change in the proportionate composition of

the diet with regard to protein, fat and carbohydrates.

Urbach, 1946:65 (cont)

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Now, what you can see here is the main differences are that Sauerbruch continued to allow 500 grams a week of protein and Gerson at most 100 grams a week of meat. Gerson prohibited the viscera; Gerson put a ceiling of 70 grams a week on fish. He capped milk at a cup a day. You know, the protein in the one diet, 40 grams, in the other, 90 grams — a big difference in protein intake, and I'll bet some of you are remembering Colin Campbell's wonderful murine models in which he demonstrated that an aflatoxin challenge was greeted by tumor formation in animals fed a 20% casein diet, and in 0% tumor take in animals fed a 5% casein diet. It's not the choice of the materials; it's the amount of the material that is persuasive in that case.

Gerson, of course, prohibited cream and, as you see at the very bottom, began to push juices. He was up to one-and-a-half to two liters of raw fruit and vegetable juice a day; whereas in Sauerbruch-Herrmannsdorfer, the actual vegetable intake was held to quite modest levels. So we see an important divergence of Gerson from the heavy use of animal products; and the hyperalimentation of plant foods, especially through the addition of juices. These were moves that Gerson strengthened as he headed into cancer management.

With that said, this is Gerson's first publication in the US literature or in the world literature frankly, in cancer, *The Review of Gastroenterology*. I would note that *Experimental Medicine and Surgery* and the *Review of Gastroenterology* were home to a lot of cool research; UV Blood irradiation, for example, being found in the pages of those journals.

"*Dietary Considerations in Malignant Neoplastic Diseases: a preliminary report*" included some case histories. Gerson was modest and said nobody was actually cured, but we shrank some metastases and disappeared a few, and some primaries stopped growing, and the patients felt better and looked better, and Karnofsky would have said that they had a higher performance status.

So, what were the essentials? We were saltless, fatless, poor in animal proteins, rich in minerals of the potassium group because we were feeding fruits and vegetables. And Gerson did like to give his dicalcium phosphate. He was very, very big on dicalcium phosphate; he was also very big on vitamin D as it was known then, which was viosterol, which was irradiated ergosterol, and also the earlier form.

Urbach, 1946:65 (cont)

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| | <u>Gerson Diet</u> | <u>Sauerbruch-Herrmannsdorfer</u> |
|------------------|--|--|
| Meat..... | At most 100 gm/week..... | 500 gm/week |
| Viscera..... | Prohibited..... | Spleen, liver, sweetbread, brain, lung, kidney |
| Fish..... | Only about 70 gm/week..... | Permitted |
| Milk..... | 250 cc daily..... | 1,250 cc daily |
| Protein..... | Daily average about 40 gm... | Daily average about 90 gm |
| Fat..... | Moderate amounts..... | 160-200 gm daily |
| Cream..... | Prohibited..... | About 250 cc daily |
| Carbohydrate.... | Generous amounts..... | About 200-240 gm daily |
| Potatoes..... | Generous amounts..... | Not more than 125 gm daily |
| Egg..... | Only yolk of eggs..... | Whole eggs |
| Raw Food..... | Predominant constituent of diet: 1,500-2,000 cc raw fruit juices and raw vegetable juices daily | Subordinant constituent of diet: 100 gm raw vegetables and 375 gm raw fruit daily |

Dietary Considerations in Malignant Neoplastic Diseases: A Preliminary Report
Gerson MB
Review of Gastroenterology. 12(6):1945

Essentials of the Diet (*Modified Gerson Diet*)

1. **Saltless** (no salt, no sodium bicarbonate, nor other minerals belonging to the Na-group).
2. **Fatless** (all vegetables or foods containing fats, fatty acids or lecithin are excluded).
3. **Poor in animal proteins** (the first six weeks without any protein, later milk products in limited quantities).
4. **Rich in minerals of the K-group** (Dicalcium phosphate and selected fruits and vegetables rich in the minerals of the K-group).

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Carbohydrate feeding emerges as a theme in his first cancer publication, and forcing of fluids, abundant fluids; his vegetable soup and his various juices. He couldn't help but sound rich in vitamins, because by that time we'd gotten into vitamins. This was 1945: vitamins were the talk of the town. And we see *rich in liver substance*. Liver is a theme that appears again and again in Gerson's work. He found, according to his own clinical observations that liver did not cause the problems that muscle meats or other viscera caused — liver was entirely different — and that he could use it to advantage and accelerate the healing process. But its timing was very, very tricky. One had to be a capable clinician. And, of course, this is all about ten-finger medicine, which is what this group really is about — it's about getting back to the clinical values.

The medications: dicalcium phosphate with viosterol, again that's the Vitamin D. Niacin — so here you see Abram Hoffer being preceded by Gerson — niacin 50 mg eight to ten times a day. Nobody else was using those kinds of doses except the people who were curing pellagra with niacin. Remember that? Pellagra was a disease that you could prevent with a native diet that contained very tiny amounts of bound niacin that could be released when you soaked your corn in water with chalk. But if you used milled corn in the population, they developed a skin disease that became a central nervous system disease, which was pellagra, which had its own legs. And it took 3 grams, 3000 mg of niacin, the pellagra-preventive factor, to cure it — three grams — from which came Abram Hoffer's — may he rest in peace, we lost him last year — Abram Hoffer's brilliant use of niacin in acute onset schizophrenia, which was quite effective.

Lubile was dried bile from young animals. There are less noxious versions of this type of thing on the market now in Mexico. You don't repeat bile when you take them, and they have the same adsorptive effect for toxins.

Liver powder with iron: I would note here that modern physicians would most likely chose to omit iron as a supplement because of its role in the promotion of cancers and infections. Most of you are probably aware of Eugene Weinberg's contribution's regarding the iron-withholding-defense mechanism of chronic inflammatory diseases and would no sooner give your patients with inflammatory disease iron than you would shoot them in the head.

Gerson, 1946 (*cont*)

5. **Rich in carbohydrates from plants and fruit.**
6. **Abundant fluid** (vegetable soup and various juices).
7. **Rich in vitamins** (by adding **Brewer's Yeast**, fresh fruit and vegetables as well as fruit juice and vegetable juices).
8. **Rich in some liver substances and enzymes** (including defatted liver powder from young animals, 3-5 capsules a day, and **injections of Crude Liver Extract** -- 10cc. equal to 10 U.S. units. The first few weeks, 2 cc. daily, then every other day, later twice weekly; injected intra-muscularly, best in the *glutaeus medius*).

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Gerson, 1946 (*cont*)

Medication

The patient receives in addition the following substances:

1. **Dicalcium Phosphate with Viosterol**, 6 tablets a day, well chewed.
2. **Niacin**, 50 mg. 8 to 10 times a day, *after* meals or juices, dissolved on the tongue. In severe cases we start with one table every hour, day and night for a few weeks and then repeat this for three days in intervals of one week and during the flare-ups, but patients are not to be disturbed when asleep.

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Gerson, 1946 (*cont*)

3. **Lubile** (dried powdered bile from young animals) or **Desicol**, 2 capsules 4 to 5 times a day -- after the first half of the special soup or juice.
4. **Liver powder with iron**, 1 capsule 3 times a day.
5. **Vitamin A & D capsules**, concentrated; twice 2 capsules.

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Gerson, 1946 (cont)

6. **Liver injections, crude liver extract (Lilly)**, 10 units per 10cc., 2cc. intramuscularly daily. After six weeks, Dicalcium Phosphate with Viosterol has to be changed to 6 teaspoons of Phosphorus Compound, which is the same composition without viosterol. In severe cases, we add at the beginning one teaspoon of Phosphorus Compound to each glass of juice for a few weeks in addition to the Dicalcium Phosphate.

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Effects of combined dietary regime on patients with malignant tumors
Gerson MB
Exper Med Surg 1949;7:299-317.

A few changes have been made in this since we first published it, and are added here. The essentials are as follows:

1. A potassium rich diet (vegetables, fruits, salads, fruit and vegetable juices).
2. Sodium poor diet (saltless, unsmoked foodstuffs).
3. **A diet entirely made up of fresh food** (no canned, no preserved, no bottled, no frozen food). **Apple and carrot juice, freshly prepared as often as possible, was used in greater quantities.**
4. A fatless diet (no oils, no aromatic acid, etc).

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Gerson 1949 (cont)

5. For the **first six weeks, a diet free of animal proteins** is used; **after six weeks fat free proteins of milk products**, e.g. buttermilk, skimmed milk, yoghurt, pot cheese are added.
6. Fat soluble vitamins A and D are added.
7. Medication: niacin, brewer's yeast, vitamins A and D, lubile (fresh de-fatted bile in capsules), liver and iron capsules, dicalcium phosphate and viosterol, injections of crude liver extract intramuscularly.

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Gerson also used liver injections and crude liver extract was the choice material, and he used a lot of it. He'd give two cc's a day by IM. You can read the slide later, but you can see he was always wanting to have more phosphorus in the diet. Of course Gerson had an early knowledge — remember it was in 1947 that Krebs' original paper on the Krebs Cycle was refused for publication by *Nature* — so Gerson was aware of it when it was an obscure topic in a textbook buried on the back shelf in the biomedical library. And he acted on it.

Very few changes have been made, Gerson says in 1949 in *Experimental Medicine and Surgery*, since we first published, and here they are: he announces the diet as entirely made up of fresh food, *apple and carrot juice, freshly prepared as often as possible, used in greater quantities.*

Another change: *for the first six weeks, a diet free of animal proteins is used; after six weeks fat free proteins of milk products.*

He added Lugol's solution and thyroid — I'll get into the mechanisms on that a little bit later. I would just point out that this is high-dose thyroid. This is 5 grains loading dose for about ten days, and then dropping to a lower dose. Also, an addition of 10% solution of potassium monophosphate, acetate and gluconate. He also added pancreatic enzymes and vitamin C, bless his heart. He was really ahead of the pack there.

Gerson 1949 (cont)

8. For the last 3½ years, **we have added Lugol solution and thyroid extract** to the above, as it has been our impression that the patients are benefited more rapidly by this addition.
9. For the last 2 years, **we have added** generally a **10% solution of potassium phosphate, acetate, gluconate aa.** and **pancreatin** (Armour) and **vitamin C** in far advanced cases

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And he also began to speak, in 1954 in *Medizinische Klinik*, of calorie restriction. He wrote: *The monograph of W. Caspari gives a more condensed survey and specifically turns away from local causes, more in the direction of metabolism. — A decrease in calorie-intake as a famēs cura was already familiar to the ancient physicians, and is described by Cornelius Nepos.*

Modern experimental studies on the effect of dietary restrictions have been carried out particularly by Albert Tannenbaum and have been corroborated by F. R. White et al, H. P. Rush et al, and Larsen & Heston. Of Tannenbaum's conclusions the following are the most valuable: "as yet no tumor has been found that does not respond to a restricted diet" and: "the inhibition involved both a decrease in the total number of tumors and a delay in the average time of appearance."

Now this, of course, was taken forward by Robert Good, formerly of Memorial and then University of South Florida at Tampa and St. Pete's. Good, in his day — we lost him five or six years ago or more — was the most published pathologist in the western medical literature and he contributed mightily to our understanding of protein and calorie restriction in the stimulation of anti-disease immunities.

I threw this one in here because I just love Roy Walford and what he was doing, and what he was trying to do here. Bob Good actually went to the Biosphere and received this paper for publication in the *Proceedings of the National Academy of Sciences*, through the air lock of the Biosphere, which is just a tasty little tidbit, isn't it? Bob Good, going to the Biosphere and receiving the paper from Roy Walford.

There is some human evidence here: *The calorically restricted low-fat nutrient-dense diet in Biosphere 2 significantly lowers blood glucose, total leukocyte count.* There are those of you who know we have artificially increased or leukocytic blood. Cholesterol was lowered, and blood pressure. That was published in 1992.

Now, returning to Gerson with a later publication; 1954: *The fundamentals of my cancer diet are briefly: Forbidden items: nicotine* — I'll have a special comment on that a little later — *salt, sharp condiments, tea, coffee, cocoa, chocolate, alcohol, white sugar, white flour, candy, ice cream.* You've got the picture. For complex reasons, Gerson removed berries and pineapples because he was afraid of aromatic acids at the time. Modern phytochemical research has vindicated those materials, and the intelligent physician who is going to recommend a plant food diet is going to hand his patient T. Colin Campbell's stuff, and say here's a list of stuff you can have, and here's the stuff we'd rather you not have.

(Christeene: You should make a note on the mushrooms; what kind of mushrooms we know about.)

Oh, yeah. You know Paul Stamets, the mushroom guy, Professor

Cancer, a problem of metabolism
Gerson M.
Med. Klin. June 25, 1954;49(26):1028-1032

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The monograph of W. Caspari (6) gives a more condensed survey and specifically turns away from local causes, more in the direction of metabolism. - A decrease in calorie-intake as a *famēs cura* was already familiar to the ancient physicians, and is described by Cornelius Nepos (7).

6. Caspari W, *Nutrition et Cancer*, Herman & Co., Paris, 1938.
7. Cornelius Nepos: *Vitae, Atticus*, Cap. XXI, XXII.

Gerson, June 1954 (cont)

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Modern experimental studies on the effect of dietary restrictions have been carried out particularly by Albert Tannenbaum (8) and have been corroborated by F. R. White (9) et al, H. P. Rush (10) et al, and Larsen & Heston (11). Of Tannenbaum's conclusions the following are valuable: "as yet no tumor has been found that does not respond to a restricted diet" and: "the inhibition involved both a decrease in the total number of tumors and a delay in the average time of appearance."

8. Tannenbaum A. *Am. J. Cancer* 38, 335 (1940); *Cancer Research* 2:460, 1942.
9. White, F.R. et al, *J Natl Cancer Inst.* 5:43, 1944.
10. Rush HP et al, *Cancer Research* 5:431, 1945.
11. Larsen CD, Heston WE, *J Natl Cancer Inst.* 6:31, 1945.

The calorically restricted low-fat nutrient-dense diet in Biosphere 2 significantly lowers blood glucose, total leukocyte count, cholesterol, and blood pressure in humans

Walford, RL et al.
Proc Natl Acad Sci USA. 1992;89:11533-11537.

The diet: essentially vegetarian bananas, figs, guavas, lemons, papayas, kumquats, oats, rice, sorghum, wheat, corn, split peas, peanuts, 3 varieties of beans, 19 vegetables and greens, white and sweet potatoes, and small quantities of goat milk and yogurt, goat meat, pork, chicken, fish, and eggs.

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Gerson, June 1954 (cont)

The fundamentals of my cancer diet are briefly:

Forbidden items: nicotine (tobacco), salt, **sharp condiments**, (only fresh or dried herbs are permitted), **tea, coffee, cocoa, chocolate**, alcohol, white sugar, white flour, candy, ice cream, cream, cake, **nuts, mushrooms, soybeans and soy products, cucumbers and pumpkins, pineapples, all berries** (except red currants), water to drink.

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Stamets, a wonderful fellow, makes a point of saying you really don't need the white mushrooms, and even the Portabella mushrooms, because they're just sort of modified white mushrooms; that these actually have a procarcinogenic effect in general. I think it was hydrazine that he was saying was in them. That doesn't affect oyster mushrooms; it doesn't affect shiitake and maitake. Yes.

(Academy member: Even the white button mushrooms have been recently shown to have anticancer properties and immune stimulating properties.)

I'm delighted to hear that. That would mean all the mushrooms are off the list. That would be wonderful, because the worst thing about any kind of dietary intervention is that people feel deprived. If you've now got all the spices from the Mideast and all the spices from the southwest on the permitted list, and all you're cutting is the salt, you can make do with garlic and lemon and lime and some other things, vinegar and so on, to spark up the palate. You can do without salt; it's not the worst thing, so long as you can take plants.

(Academy member: Why didn't he allow cucumbers?)

(Academy member: Yeah, why cucumbers?)

Cucumbers made him burp. If you ever look at pictures of Gerson at the spas, his belly is out to here because he was reactive all the time. He suffered from a reactive gut his whole life. He tended to prescribe based on what he could handle; so cucumbers were out, and he didn't like beans either.

(Christeene: And he ate too many cakes.)

He went to Israel once. He visited with his sisters there and he had the afternoon tea and the cakes every afternoon, you know, and he's on the stairwell to the plane and he turns back and says, "Don't eat so many cakes." You know, it's the German doctor thing.

Interestingly, Gerson was aware of the fact of the problems of hair dye. He noted that some of his patients had suffered relapses after hair dying. He was also very clear that you don't want sulfured things. If it's canned or bottled, you don't want it. There are fresh-frozen foods now that are okay; but, in his day, they didn't just freeze it.

These are logical exclusions; and temporarily forbidden, again, meat, fish, eggs, butter, cheese and milk. This extreme protein restriction was noted by Good and Fernandez to turn on anticancer immunities within the first three to four weeks. Extreme protein restriction; rather than collapsing T-cell response and humoral response, humoral remained intact and the T-cells became nonspecifically stimulated. And there's tons of literature. Imbibe Robert Good and you will be pleased.

Gerson said: *A selected number of fruits and vegetables with the highest possible K/Na quotient are given. .. Foods should be eaten raw as much as possible, especially a mixture of grated apples and carrots, which are rich in enzymes in their natural combinations.* I found this interesting; I have no idea what it means: *The latter are necessary for the binding and inactivation of oxygen in the intestines. If it is not inactivated, dysbacteria follows, — we call it dysbiosis now — that is the development of the bacteria of putrefaction and fermentation.*

Gerson, June 1954 (cont)

Nothing canned, bottled, sulfured, frozen, smoked, salted or bleached. No fat, no oil, no salt substitutes, no bicarbonate of soda — either in food, toothpaste or mouthwash, no hair-dyeing (relapses have occurred after hair-dyeing).

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Gerson, June 1954 (cont)

Temporarily forbidden: (during the first months, especially at the beginning of the treatment): meat, fish, eggs, butter, cheese, milk.

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Gerson, June 1954 (cont)

A selected number of fruits and vegetables with the highest possible K/Na quotient are given. Vegetables are cooked in their own juices without additional water. **Foods should be eaten raw as much as possible, especially a mixture of grated apples and carrots**, which are rich in enzymes in their natural combinations. The latter are necessary for the binding and inactivation of oxygen in the intestines. If it is not inactivated, dysbacteria follows, that is the development of the bacteria of putrefaction and fermentation.

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Now, to an interesting subject: this is the way the juices break down and I thought you'd find this kind of handy. This is the kind of fluid forcing that Gerson was doing with his cancer patients. This is equally as aggressive, or more aggressive, than the end stage of the development of the tuberculosis management, when he got into the most difficult cases. And here you see the famous fresh calves liver juice. Now, that was discontinued in 1987 by the Gerson facilities of Mexico because of *Campylobacter fetus subspecies fetus* outbreaks and campy gastroenteritis which was very uncomfortable, and it was highlighted in *Morbidity and Mortality Weekly*, and also caught by the San Diego County Health Department. I arranged for a meeting with the hospital heads and the Health Department, and shortly thereafter the hospital stopped using liver juice. But I would just observe that, looking back on it, these are like little Coley reactions, when you get campy. One would have to observe it — and we're not going to get the chance to go back and do that — but one would have to observe these cases and see whether or not this was a form of bacterial immunotherapy — live bacterial immunotherapy — that might have been beneficial. As Gerson said, his liver juice patients responded better than any of his other patients.

(Christeene: We saw a drop in the survival rate.)

We did some work with Shirley Cavin of UCSD's cancer prevention program, she built our statistical programs, when we looked at a retrospective cohort of melanoma patients and we did see — when the liver juice was discontinued — we saw a drop in the survival curve. It definitely split, which sent us looking for other materials and did result in us making some decisions about what to do next.

Now, on the subject of juice, a lot has been made by the manufacturers of certain of the juicers — the grinding/pressing kinds of juicers, the double-auger, slow-grinding juicers — that their juicers are the best juicers, and the only juicers, and their juices are going to last the longest, deteriorate the least, have the most enzymes, and so on and so forth. I just wanted you to look at what was being used by Gerson's patients. This is from his popular book, *Meine Diät*, "my diet" published in 1930. During this timeframe, while 90% in European cities had access to electricity, only 10% in rural areas did; so juicing was most often done by hand, either with a grater, cheesecloth and a bowl, or with a hand-cranked device. And yet it was effective. Isn't that wonderful?

So, *At first*, Gerson says in 1954, *the diet does not include animal protein ... and fat and oil are kept at a minimum for a long time*. He points out that this *prepares the way for parenteral digestion of the tumor and its metastases, and later maintains the breakdown of tumor remnants, adhesions and scar masses*. Nowhere but in current immunotherapeutic

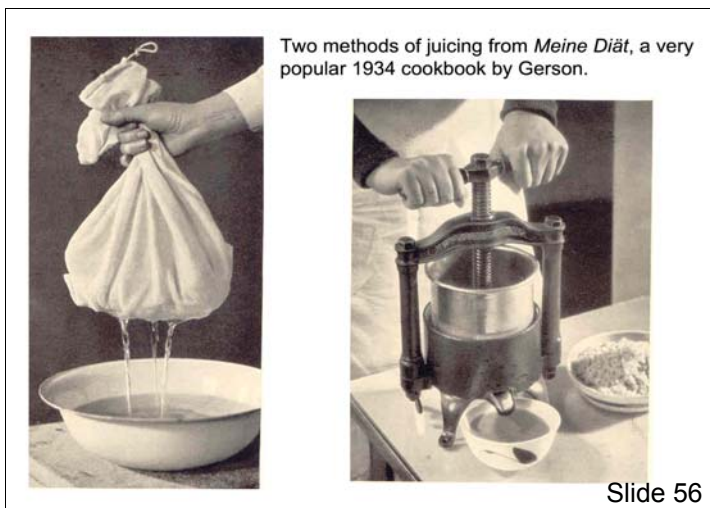
literature do you read about this type of parenteral digestion. This is phagocytosis that he was talking about; a

Gerson, June 1954 (cont)

As much fruit and vegetable juices as possible are to be taken, always freshly prepared in order to preserve enzymes and vitamins. **Patients are given juices every hour**, the total daily amount to equal as follows:

- 2 x 200 cc (13.3 oz) **fresh calf's liver juice**
- 4 x 200 cc (26.7 oz) green leaf juice
- 5 x 200 cc (33.3 oz) apple and carrot juice
- 1 x 200 cc (6.7 oz) orange or grapefruit juice
(80.0 oz = 2.5 quarts)

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Gerson, June 1954 (cont)

At first the diet does not include animal protein, later small amounts are added, but **fat and oil are kept at a minimum for a long time** until recovery is complete. These restrictions are necessary primarily more to rid the damaged digestive tract of toxins, than to burden the diseased organs as little as possible. It also prepares the way for parenteral digestion of the tumor and its metastases, and later maintains the breakdown of tumor remnants, adhesions and scar masses.

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very advanced concept for 1954.

And this you're going to love. Here we see a nod to Dr. John Beard, the Scottish embryologist, *The digestive enzymes, pepsin, trypsin, lipase, etc. are needed for the parenteral digestion of cancer masses, and should not be used up in the ordinary digestive processes.* So, we see an eclectic thinker here, looking back to the turn of the century to Beard's advocacy of the use of injectable pancreatic enzymes to fight cancer.

Gerson's medications for the first fortnight, starting with potassium and loading dosages of thyroid; and again this thyroid is 5 grains of desiccated thyroid, which would be both T3 and T4, so you have both the fast acting and the slow acting. Thyroid, as you know, is cumulatively effective over ten days, reaches it's peak at about seven to ten days, and results in mitochondrial replication and an increase in the size of mitochondria and an increase in the generation of ATP.

And you notice that after two weeks, the thyroid dosage drops to 2.5 grains in a sample patient, for example. Now the idea would be to not put the thyroid gland to sleep, to keep it active, but to get the benefit of the burst of hormones.

And Gerson points out that he added, in 1954, Acidol Pepsin as a digestive aid, and flax oil. I was sitting, reading a box of correspondence between Gerson and Albert Schweitzer — they were very good friends and long time correspondents — and Gerson said to Schweitzer, "I have found the perfect oil I can use with my therapy; it is flax oil" — he called it linseed oil back then — and he said that he had become aware of the work of Johanna Budwig, and that he could kick himself because, in Germany, his father had been a flax merchant, and he had missed an opportunity.

Now, Gerson used something called Hippocrates' soup, and I put these up here so you can see these rare vegetables, leeks, parsley root and celery root. [Slide 62, next page].

They are available, usually, at markets that cater to people who have recently come from Lebanon or the Middle Eastern region. These are staples of cooking. You can't cook without these, right? The nice thing about these is that Hippocrates, more than 2000 years ago now, suggested that these could be used to combat edema. And, in fact, extensive experiments, when Gerson was afforded a directorship at the Department of Tuberculosis at the University of Munich when it was one of the two top medical schools in the world, demonstrated that this soup, in fact, did force sodium out of the system. What the researchers did was they asked the food the patients were given, the portions the patients were given; they caught and asked their urine and feces to measure intake and output. And, of course, they observed the disease lesions, especially dermatological lesions that could be easily seen, and the surrounding edema. What they noted was that, when you take

Gerson, June 1954 (cont) Slide 58

The **digestive enzymes**, pepsin, trypsin, lipase, etc. are needed for the parenteral digestion of cancer masses, and should not be used up in the ordinary digestive processes.

Gerson, June 1954 (cont)

Medication for the first fortnight:

| | |
|---|--|
| 10% Potassium compound | 10 x 4 teaspoons in juice |
| Lugols solution, half strength | 6 x 3 drops in juice |
| Thyroid (Armour) | 5 x 1 grain (62.5 mg) |
| Niacin | 6 x 50 mg. |
| Crude Liver Extract, Lilly No. 352 injections daily (1 cc. = 10 units) | 3 cc. + 1 cc. Vit. B ₁₂ (30 µg) |

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Gerson, June 1954 (cont)

After two weeks the following changes:

| | |
|---|--|
| 10% Potassium compound | 10 x 2 teaspoons in juice |
| Lugols solution, half strength | 5 x 2 drops in juice |
| Thyroid (Armour) | 5 x 0.5 grain (62.5 mg) |
| Niacin | 6 x 50 mg. (unchanged) |
| Crude Liver Extract, Lilly No. 352 injections daily (1 cc. = 10 units) | 3 cc. Plus 1 cc. Vit. B ₁₂ (30 µg - unchanged) |

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A Cancer Therapy: Results of Fifty Cases
Gerson MB
1959, Dura Books:125

Medications listed in this monograph were essentially the same as those in *Med Klin* 1954. There were several additions:

- Acidol pepsin before meals
- Flax oil 1 Tbsp bid

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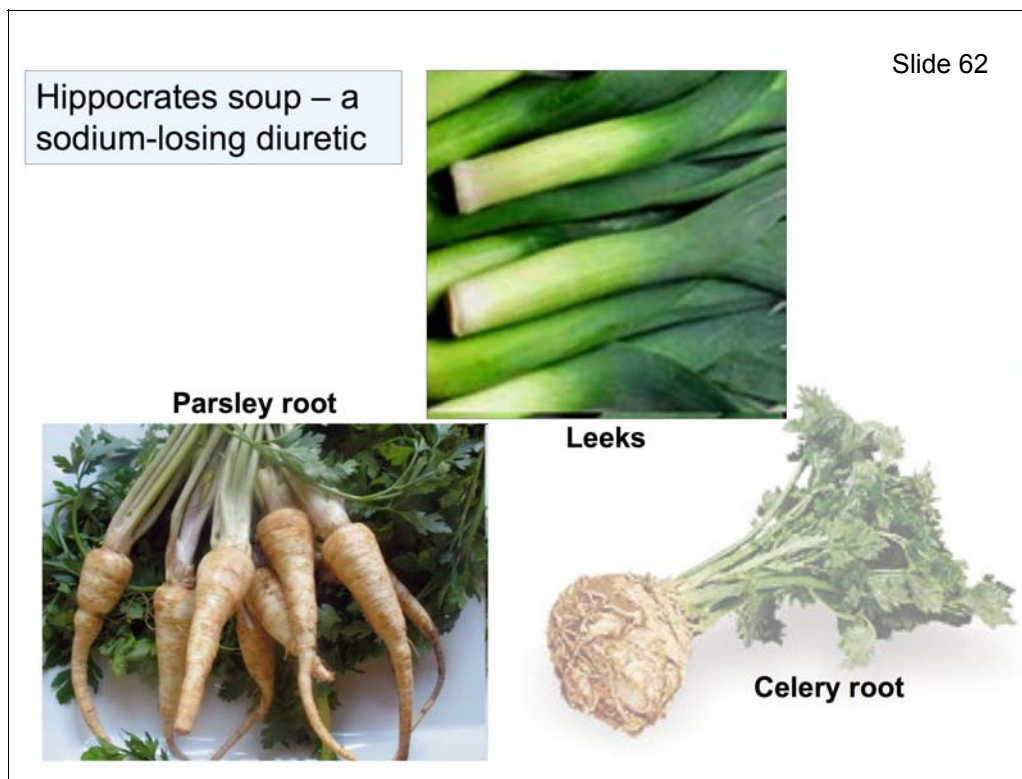
people off of dietary sodium, suddenly there was an out-pouring — they called it an *Ausschluss* — an exclusion, or an elimination, of sodium in the urine. They stop eating it and suddenly they piss it out. Isn't that fascinating?

And then when you added the soup, you got another *Ausschluss* of natrium; another forceful ejection of sodium. Gerson assumed that the sodium must be trapped, somehow, somewhere in the body in protein deposits. Of course, we know — and I'll get to this a little later — from modern cell biology that, in fact, that's where sodium resides when tissue is affected

by cellular edema. There is a loss of potassium from the cell, a gain of sodium and chloride and water in the cell, and this soup is the only sodium-losing, repeatable-many-times-daily diuretic in the medical literature as far as I know. Some of you may know of others. This one is an easy one. Two cups of clear broth a day will do the trick — two cups of clear broth. You don't have to make it into a soup, but it can be minestrone, it can be corn chowder, it can be whatever you like. Just use the soup base, the stock, and you'll have the sodium-losing effect.

And then when you added the soup you had another *Ausschluss* of natrium. Another forceful ejection of sodium. Gerson assumed that the sodium must be trapped, somehow, somewhere in the body in protein deposits. Of course we know, and I'll get to this a little later, from modern cell biology that, in fact, that's where sodium resides when tissue is affected by cellular edema; there is a loss of potassium from the cell, a gain of sodium and chloride and water in the cell, and this soup is the only sodium-losing, repeatable many times daily diuretic in the medical literature as far as I am aware. Some of you may know of others. This one is an easy one. Two cups of clear broth a day will do the trick. Two cups of clear broth. You don't have to make it into a soup, but it can be minestrone, it can be corn chowder, it can be whatever you like. Just use the soup base, the stock and you'll have the sodium-losing effect.

Gerson published his monograph in 1958. It was called *A Cancer Therapy: Results of Fifty Cases*. It had one version of his therapy in it. That was the version published first in 1954 with the liver juice; that's approximately — liver juice was added in approximately 1952-53. You can go to our web site, <http://www.gerson-research.org> and link to the book and it'll throw you into Amazon and you can probably find it cheap. Right? Because what you want is an old book. You want *A Cancer Therapy: Results of Fifty Cases* by Max Gerson. You'll recognize it as a German medical monograph in the style of the classic golden age; just a monograph, not a chatty book, not an exaggerated or hyperbolic book, just a book that's hard to read, with an old vernacular. He talks about the reticulomesenchymal apparatus in it, you know, *old* terms. But a fascinating read. Once you get into it, it's a fascinating read.



So, to clear up a little bit of confusion, Gerson obviously did not have the liver juice until late. It is important to note that you don't have to use it, and towards that end I point to the fact that cases 1-6 in *Experimental Medicine and Surgery* in 1949 were represented in *A Cancer Therapy*, but no comment was made that they'd already been published. And that led me to go ahead and look and ask which of these cases in the *Cancer Therapy* monograph were on the timeline in such a place that they could not have received the liver juice therapy, because it hadn't been added yet. And that was 31 out of 50 cases — 62%. The earlier version is the predominant version represented in these rather remarkable cases. As Mark McCarthy wrote in *Medical Hypothesis*, if Gerson wasn't a pathological liar, he really had something, because these cases are remarkable cases. And if you look at them, you'll see that, in fact, there is evidence of the cure, the frank cure, of advanced cancer in man represented in those cases, and represented in clinical detail.

You don't have to struggle through these; there are three pages of them — four pages. All of those cases were treated with a brewer's yeast, vitamin A and D centric, and dicalcium phosphate centered therapy, if you want to look at the medications. Of course, what ties through everything is plant feeding, the feeding of plant foods — more plant foods than any other therapeutic approach in the history of medicine, mostly because of the juices.

31 cases (62%) published in *A Cancer Therapy: Results of Fifty Cases* were treated with a diet fortified with brewer's yeast and dicalcium phosphate *instead of* liver juice.

| <u>Case #</u> | <u>Diagnosis</u> | <u>Admission</u> |
|---------------|-------------------|------------------|
| 1 | Pituitary adenoma | 1944 |
| 2 | Schwannoma | 1949 |
| 3 | Neurofibromata | 1950 |
| 4 | Spongioblastoma | 1951 |
| 7 | Medullary glioma | 1945 |
| 8 | Spinal angioma | 1949 |
| 12 | Melanoma | 1946 |
| 13 | Melanoma | 1951 |

| <u>Case #</u> | <u>Diagnosis</u> | <u>Admission</u> |
|---------------|--------------------------------|------------------|
| 15 | Neurogenic Fibrosarcoma | 1950 |
| 16 | Lymphoma NHL | 1950 |
| 17 | Osteofibrosarcoma | 1947 |
| 19 | Hodgkin's lymphoma | 1948 |
| 24 | Paget's bone disease | 1948 |
| 25 | Aortic window tumor | 1947 |
| 26 | Parotid cancer | 1949 |
| 27 | Adenocarcinoma sigmoid/thyroid | 1949 |
| 28 | Thyroid carcinoma | 1946 |
| 30 | Breast cancer | 1945 |

| <u>Case #</u> | <u>Diagnosis</u> | <u>Admission</u> |
|---------------|------------------------------------|------------------|
| 31 | Breast cancer | 1947 |
| 33 | Paget's breast disease | 1947 |
| 34 | Basal cell carcinoma + epithelioma | 1949 |
| 35 | Basal cell carcinoma | 1945 |
| 36 | Basal cell carcinoma | 1946 |
| 37 | Basal cell carcinoma | 1945 |
| 38 | Renal sarcoma | 1947 |
| 41 | Bronchogenic lung carcinoma | 1950 |
| 43 | Submaxillary carcinoma | 1942 |

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Liver juice

Neither the 1945 or 1949 versions of Gerson's therapy included liver juice (it was first mentioned in 1954; however, the following pre-liver-juice cases were first published in 1949 in *Experimental Medicine and Surgery*, and later republished in 1959 in *A Cancer Therapy* (which monograph gives the impression that all patients received the treatment as published):

| <u>Exp Med Surg.</u> | <u>A Cancer Therapy</u> |
|----------------------|-------------------------|
| Case #1..... | Case # 33 |
| Case #2..... | Case # 12 |
| Case #3..... | Case # 36 |
| Case #4..... | Case # 7 |
| Case #5..... | Case # 17 |
| Case #6..... | Case # 30 |

| <u>Case #</u> | <u>Diagnosis</u> | <u>Admission</u> |
|---------------|----------------------------------|------------------|
| 44 | Rectal adenocarcinoma | 1948 |
| 46 | Cervical squamous cell carcinoma | 1946 |
| 47 | Cervical squamous cell carcinoma | 1947 |
| 48 | Renal squamous cell carcinoma | 1949 |

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Now we get into, a little bit, the mechanisms. When you want to know what guided physicians of an era, you have to do systematic reviews of their literature, and that means chasing the references, and then reading the references and chasing *their* references. It's laborious. It takes forever to do it. You have to be either endowed with the patience of a saint or the indefatigable zeal of an Asperger's patient, one or the other.

Gerson wanted to use his vitamin C and vitamin D and vitamin A — he didn't ever use riboflavin, but he did use brewer's yeast — because he wanted more phosphate uptake. And Basu and De showed in their paper, *The role of vitamins in the metabolism of calcium, magnesium and phosphorus in human subjects*, in *Annals of Biochemical and Experimental Medicine* in 1948, that vitamin C increased phosphate uptake in adults, in human subjects, by 33%, vitamin D by 50%, vitamin A by 100%, riboflavin by an equivalent 100%, but brewer's yeast by a fascinating 400%; a fascinating 400%.

My teacher, Freeman Cope, who was the editor of *Physiological Chemistry and Physics and Medical MRI*, once commented to me during one of my lessons that it was obvious from Gerson's choice of potassium salts of phosphoric-, acetic-, and gluconic acids, that he was supporting the Krebs cycle in pursuit of more free energy. Simple concept; nice to see it implemented.

Now we turn to a very interesting topic which is thyroid — thyroid supplementation. Now most of us either know or have been told about — know of directly or have been told about indirectly — someone who has been on enough thyroid that they couldn't hold a teacup and a saucer. They got the jitters, it was bad for them, they were taching, and they had all sorts of trouble and had to abandon thyroid supplementation despite the fact they were having metabolic problems, the temperature was low, and they didn't respond to the usual measures including exercise, including maybe a little bit of prednisone or whatever, if you like Broda Barnes' approach. And it is enormously instructive to read Bethell and Wiebelhaus and Lardy's report in the *Journal of Nutrition* in 1947 to see, in rats, what effect different diets and supplementations have on animals that were being given high, potentially dangerously high or toxic, dosages of thyroid. You will see here that a normal diet, a normal lab animal diet, plus B vitamins did not confer protection — the animals lost appetite, lost weight, and died young — but that the addition of brewer's yeast to the normal diet increased their appetite, maintained their weight well, and they lived a normal lifespan. And you see here that addition of liver increased their appetite and led to actual weight gain, thriving weight gain, and a normal lifespan.

This, of course, is the background in which Gerson was functioning with his dosing of thyroid, as well as the work of Silverstone and Tannenbaum, who demonstrated that animals fed thyroid had distinctly lower outcroppings of metastatic growth and slower growth of primary tumors across the board.

The role of vitamins in the metabolism of calcium, magnesium and phosphorus in human subjects.
Basu KP, De HN.
Ann Biochem Exper Med. 1948;8(3-4):127-136.

Percentage increase in phosphate uptake

Vitamin C - 33%
Vitamin D - 50%
Vitamin A - 100%
Vitamin B2 (riboflavin) - 100%
Brewer's yeast - 400%

Gerson stimulated metabolism with vitamins (to build more cellular ATP).

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Cope FW, *pers comm*, 1981.

It is obvious from Gerson's choice of K salts of phosphoric-, acetic-, and gluconic acid, that he was supporting the Krebs cycle in pursuit of more free energy.

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Studies of thyroid toxicity. I.A nutritional factor which alleviates the toxicity of ingested thyroid substance
Bethell JJ, Wiebelhaus VD, Lardy HA
J Nutr. 1947;34(2):431-441

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Effect of high dose thyroid on rats fed different diets

- **Normal diet + B vitamins**
 - Loss of appetite, loss of weight, early death
- **Normal diet + Brewer's yeast**
 - Increased appetite, minimal weight loss, normal lifespan
- **Normal diet + liver**
 - Increased appetite, weight gain, normal lifespan

So, Gerson added thyroid to stimulate metabolism and cell energy production; again, to rehash: *Thyroid causes mitochondria to multiply, as much as doubling their number over a 7-10 day period because they have their own DNA and RNA and they replicate independently of the cell. And new mitochondria are larger than their progenitors and have a higher rate of respiration, causing a substantial increase in ATP production. Increased ATP stores become available for cellular functions, leading to improved tissue resistance and immunity.*

I would just point out here that modern practitioners using Gerson's basic approach have gone to using vitamin E and niacin and coenzyme Q10 as a way of supporting the feeding of oxygen into the respiratory cycle of the mitochondria for ATP production. Vitamin B3 becomes nicotinic acid adenine dinucleotide. CoQ10 obviously functions directly; vitamin E in the form of alpha-tocopheryl succinate. All are important. CoQ10 bounces back and forth between NADH and succinates, each time popping an O2 into the mitochondrial oxidative pathway and increasing phosphorylation. I would point out too that humans can convert other forms of CoQ. For example, brewer's yeast supplies CoQ6, but we're capable of throwing a few more carbons into the mix.

(Academy member: Allergy laboratories find that at least 80% of all people we test for yeast are allergic. Did Dr. Gerson have any problems with that?)

Allergy to yeast? If he did, it didn't make it into his literature or the literature of the time. Of course, as you know, brewer's yeast was regarded as a medicine back then, and E.V. McCollum begged the Food and Nutrition Council at the National Academy of Sciences to press for the addition of brewer's yeast and milk solids to stripped grain. The grain guys were wanting to take everything, the germ and the hull, and throw it away and ship the white flour into the cities to bake; and McCollum, who found fat-soluble vitamin A, thought that was a horrible thing to do. We didn't see it in the literature, and thus far in clinical practice, not so much. Now it may be that we're pretty picky about the types of nutritional yeasts.

(Academy member: It's not like an anaphylactic reaction — it's more like an IgG reaction).

It's probable because Gerson's therapy is a gut pumping therapy — more on that later — that was avoided simply because the gut leukocyte population was being affected tremendously by the castor oil and the coffee enemas of the therapy. People maybe with a slower transit would have time to develop an IgG reaction. Certainly, I respect what you've done with your research, and if you've seen it, you've seen it. This is a different context with some heroic measures being applied that might obscure that observation.

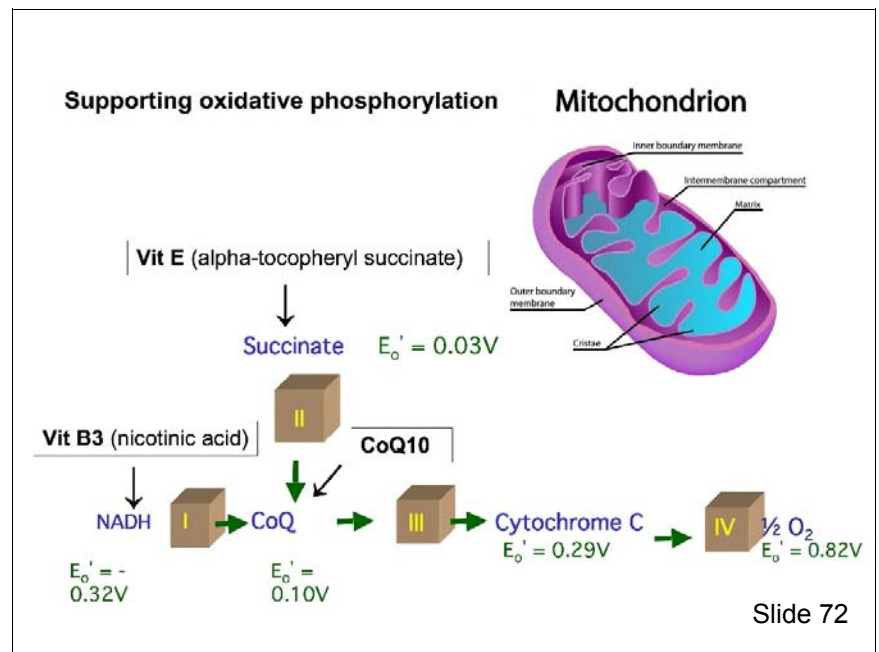
So, now turning back to Gerson and his view of immunotherapy, I just wanted to say in leaving this, that this becomes important later as we discuss the tissue damage syndrome in cancer. But now back to Gerson's views of cancer immunotherapy which are still prescient today.

Gerson added thyroid to stimulate metabolism and cell energy production after findings published by Silverstone and Tannenbaum.*

- Thyroid loading causes mitochondria to multiply, as much as doubling their number over a 7-10 day period.
- New mitochondria are larger than their progenitors and have a higher rate of respiration, causing a substantial increase in ATP production.
- Increased ATP stores become available for cellular functions, leading to improved tissue resistance and immunity.

*Influence of thyroid hormone on the formation of induced skin tumors in mice. Silverstone H, Tannenbaum A. Cancer Resch. 1949;9:684-688.

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This is from his monograph of 1959. You'll understand immediately why I say it's not an easy book to read. Most lay people just despair and set it aside. You, as physicians, are at least ready for it, but you'll have to remind yourself with Taber's or Gould's Medical Dictionary what these old vernacular terms mean. Gerson says, *Cancer cells cannot be stimulated or forced to change their abnormal functions back to normal ones. There is no other way but to kill these cells to dissolve and absorb them. I believe the surest way to achieve this end is to restore to the body its ability to produce non-bacterial inflammatory reactions.*

The idea of producing bacterial inflammations... Now think back to Bommer's observation of the lupus nodules and that first two weeks, at which point all of the nodules were suddenly surrounded by what they used to call a hectic redness, the erythema surrounding these nodules, and that persisting for several weeks, and then aggressive desquamation of the nodules. Think about that as you read this sentence about producing nonbacterial inflammatory reactions. This is exactly what Gerson was doing. He was strengthening innate immunity by correcting the tissue damage in the connective tissue system, which is where the innate immunity resides. *The idea of producing bacterial inflammations in a cancerous body was correct in principle. However, it is not enough to introduce a temporary inflammation into the body.*

This is Gerson's bias speaking. I happen to know of a lymphoma patient doing Coley's fluid only and eating the biggest, greasiest hamburgers you ever saw, making a very nice remission happen. So in her case, maybe it's enough to do bacterial inflammation; but my bias is that you want to come from a number of different approaches if you can.

So, *The body itself must be able to do it and do it continuously, because many cancer cells remain hidden in some areas where even the blood stream cannot reach them. In order to maintain this healing process, it is, of course, necessary to apply the treatment long enough to restore all vital organs to normal function (liver, reticular system, nervous system, etc.) to reproduce the same reactive processes as used by the body itself, for healing purposes.*

The healing apparatus seems to have retained part of its embryonic capacity and healing purpose for a type of regeneration, when it falls back into the embryonic state temporarily and is activated above the degree of its normal function. The completely detoxified body is then able to produce an allergic inflammation if the healing apparatus (liver, visceral nervous system and reticulomesenchymal system) can be activated sufficiently.

Everything that can help to bring it about and strengthen the necessary allergic inflammation may be used for that purpose after the general detoxification has taken place. Bacterial preparations (Coley

A Cancer Therapy: Results of Fifty Cases
Gerson MB
1959, Dura Books:125

Slide 73

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Gerson 1959 (cont)

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Gerson 1959 (cont):129

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Gerson 1959 (cont):129

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Everything that can help to bring it about and strengthen the necessary allergic inflammation may be used for that purpose after the general detoxification has taken place. Bacterial preparations (Coley and others) or Pyrifur, or any similar preparations are effective, as far as they can stimulate the visceral nervous system in connection with the liver and the mesenchymal defense and healing apparatus.

and others) or *Pyrifer*, — which was an ethical preparation of Coley — or any similar preparations are effective, as far as they can stimulate the visceral nervous system in connection with the liver and the mesenchymal defense and healing apparatus.

I have to say, from a modern perspective, that seems right. My teacher, writing in a paper called *A medical application of the Ling Association-Induction Hypothesis: the high potassium, low sodium diet of the Gerson cancer therapy*.

From the nature of the measures that gave good results, and from the laboratory medical science available at that time, Gerson attempted to deduce the reasons why his therapy was effective in curing cancer. His deductions led to some unconventional ideas regarding the nature of human cancer and the mechanisms of therapy. Some of his hypotheses were vaguely stated and incompletely validated, but they are of great importance because they imply that those approaches to cancer therapy that will be effective are mostly different from those now used.

I loved Freeman. He was great — just great. Freeman's a guy who said to me, "Just because it's in a journal doesn't mean it's true." He said, "You've got to go back to square one — source it, cite it, and replicate it; question it — don't accept it."

In 1990, a team led by Karol Sikora, who's the head of oncology at Hammersmith Hospital now, came down to the old Mexican Gerson hospital to study it, and they published their findings in the *Lancet*. Most people don't know about that; nobody really remembers yesterday's journal because we sort of line the birdcage with it. It's like yesterday's newspaper. But, it's good to take a walk back into the past, because it reminds us of what we've lost. You know, Alexis de Tocqueville once said when the lights that lead go out, you know, we really don't know anymore — I'm paraphrasing — where we came from or where we're going, because things dimmed on us, and now we are completely without direction. Sometimes it's good to go back.

Cancer support centres, Dr. Sikora wrote, and telephone advice services often receive inquiries about so-called dietary "cures" for cancer, mostly from desperate patients and their families, who are understandably willing to try unorthodox treatments when conventional therapy has failed. We recently visited the Gerson Clinic in northern Mexico to assess its dietary "cure" for cancer.

Particularly intriguing were the low pain scores and analgesic requirements for all the patients, despite the presence of extensive metastatic disease in many and the fact that several had been on opioid medication previously.

They developed a questionnaire that we still use to this day in monitoring patient outcomes from the participating hospital in Mexico. We've been keeping a tumor registry since 1987, Christeene and I, and I'll show you some of those outcomes and we'll discuss the limitations, as well, of the diet therapy, because when you read Gerson, you think the diet should work in every case and, of course, it does not; and that's one of things that we want to talk about.

A medical application of the Ling Association-Induction Hypothesis: the high potassium, low sodium diet of the Gerson cancer therapy.
Cope FW
Physiol Chem Phys Med MRI. 1978;10(5):465-468

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From the nature of the measures that gave good results, and from the laboratory medical science available at that time, Gerson attempted to deduce the reasons why his therapy was effective in curing cancer. His deductions led to some unconventional ideas regarding the nature of human cancer and the mechanisms of therapy. Some of his hypotheses were vaguely stated and incompletely validated, but they are of great importance because they imply that those approaches to cancer therapy that will be effective are mostly different from those now used.

Juices, coffee enemas, and cancer
Sikora S, James N and Reed A
The Lancet. Sept. 15, 1990;336(8716):677-678.

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Cancer support centres and telephone advice services often receive inquiries about so-called dietary "cures" for cancer, mostly from desperate patients and their families, who are understandably willing to try unorthodox treatments when conventional therapy has failed. We recently visited the Gerson Clinic in northern Mexico to assess its dietary "cure" for cancer.

Sikora 1990 (cont)

Particularly intriguing were the low pain scores and analgesic requirements for all the patients, despite the presence of extensive metastatic disease in many and the fact that several had been on opioid medication previously.

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But first, my colleague and friend, Peter Lechner from The Landeskrankehaus in Graz, Austria, Chief of the Second Surgery Department there, was able to do a matched-paired prospective trial of pain management and was able to do a consecutive series for outcomes. He published in *Aktuelle Ernährungsmedizin* in 1990, that *After nearly six years of using adjuvant dietary therapy in conjunction with surgical oncology, we are able to report the following preliminary results.*

Now, this did not talk about the lady he had whose liver tumor completely disappeared, because those were considered unique and, although interesting, promising, compelling, but not the broader effects. We're looking here at the broad effect: what can you expect? *Tumor cachexia prevented or delayed* — depending upon the advanced nature of the case — *fewer post-operative complications/infections* — especially important if you're trying to debulk somebody — *lesser side effects of radiation and chemotherapy*; — and much more rapid healing of radiation therapy burns — *significantly less analgesics/psychotropic drugs than controls*; *good psychological state*; *slower progression of existing liver metastases*; *less marked occurrence of malignant effusions.*

And then Peter said, as so many of us have said before, *These results encourage us to continue and, within our possibilities, to intensify the use of dietary therapy measures, and we are seeking cooperation with anybody experienced in this — at present, still highly controversial — area of work.*

So, now comes a little rave. By far the most interesting group that we observed in our retrospective review which was published in *Alternative Therapies in Health and Medicine*, which is a MEDLINE journal that rarely publishes this kind of gritty stuff; it's usually more complementary than alternative. I can't give too much emphasis... This is *Five-year survival rates of melanoma patients treated by diet therapy after the manner of Gerson* in conjunction with UCSD and the Gerson Research Organization:

We had fourteen stage I and II melanoma patients and nobody occurred. One would expect a rate of about 18% recurrence according to Chuck Balch — Chuck Balch is "Mr. Melanoma" when it comes to epidemiology and statistics. Eighty-two percent of stage IIIA patients were clear five years out. This is... Stage III in melanoma is very simple. Stage III is the first lymphatic metastases. The American Cancer Society's most positive database was a 39% disease free survivorship at five years. So the dietary therapy, which is noted to have a powerful dermatological influence, conferred a survival advantage that is quite noticeable here and, one would think, would be compelling reason to suggest to a melanoma patient, "You know, you might want to eat a lot of plants — cut out the salt."

Even when we added stage IIIB, we had 70% of thirty-three stage IIIA and IIIB patients with early to late lymphatic metastases clear at five years opposite the 41% of the Cancer Society. I'm not reading the "p" here, but these are significant findings. We just used a chi-square for those of you who are interested in statistics. And 39% of eighteen stage IVA patients. Now, we coined this IVA stage because it is not reflected in the literature. We said that IVB is visceral metastases and IVA consists of melanoma that has metastasized to the lymphatics, and which has crossed from one quadrant

Experiences with the use of dietary therapy in surgical oncology
Lechner P, Kronenberger I
Aktuelle Ernährungsmedizin. 1990;2(15).

After nearly six years of using adjuvant dietary therapy in conjunction with surgical oncology, we are able to report the following preliminary results:

- Tumor cachexia prevented or delayed.
- Fewer post-operative complications/infections.
- Lesser side effects of radiation and chemotherapy.

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Lechner 1990 (cont)

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- Significantly less analgesics/psychotropic drugs than controls.
- Good psychological state. Slower progression of existing liver metastases.
- Less marked occurrence of malignant effusions.

These results encourage us to continue and, within our possibilities, to intensify the use of dietary therapy measures, and we are seeking cooperation with all those who are experienced in this — at present still highly controversial — area of work.

Five-year survival rates of melanoma patients treated by diet therapy after the manner of Gerson: a retrospective review
Hildenbrand GLG, Hildenbrand LC, Bradford K, Cavin S.
Alt Ther Health Med. 1995;1(4):29-37

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- 100% of 14 Stage I and II patients (local disease)
 - Balch reported 82% in a meta-analysis *Semin Surg Oncol* 1992;8:400-414. Gerson sample too small for significance
- 82% of 17 Stage IIIA patients (early lymph mets)
 - ACS reported 39% of 103 *Cancer*. 1993;71:1239-46.
 - Significant. Chi-square 9.48, 1df, p=.002 power=.887
- 70% of 33 Stage IIIA/B (early to late lymph mets)
 - ACS (*ibid*) reported 41% of 134 alive at 5 years.
 - Significant. Chi-square 7.62, 1df, P<.006, power=.802
- 39% of 18 Stage IVA (distant skin + lymph mets)
 - ECOG reported 6% of 194 *Cancer*. 1993;71:2995-3005.
 - Significant. Chi-square 19.3, 1df, P<.0001, power=.997

The role of follow-up and retrospective data analysis in alternative cancer management: the Gerson experience
Hildenbrand GLG, Hildenbrand LC, Bradford K, Cavin S.
J Naturopath Med. 1996;6(1):49-56

Surgery/prevention of recurrence

- N=49 combined Stage IIIA, IIIB + IVA melanoma
- 75% of 32 operated patients alive at 5 years vs. 35% of 17 patients who avoided surgery
 - Significant. Fisher Exact Test, $P = 0.013$
 - 11 of 12 (92%) operated IIIA patients alive
 - 8 of 10 (80%) operated IIIB patients alive
 - 4 of 7 (57%) operated IVA patients alive

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Survival of FIGO STAGE IIIC ovarian patients (T3N0M0 or any TN1M0)*
Hildenbrand et al
Proc Am Ther Symp. Jan 18-21, 1996, San Diego CA

3-year survival rate: Gerson diet 75%; $n = 8$
SEER 25%; $n=1125$. $X^2 = 8.238$, 1df, $P = 0.004$

4-year survival rate: Gerson diet 71%; $n = 7$
SEER 13%; $n=1016$. 95% CI = 0.833 to -0.327; $z = 3.933$; $P = 0.000$

5-year survival rate: Gerson diet 67%; $n = 6$
SEER 2%; $n=917$. 95% CI = -0.733 to -0.527; $z=8.990$; $P=0.000$

6 Gerson diet* patients are alive in follow-up with survivals of 3,4,5,7,12.5 and 13 years.

*Optimally debulked surgically, plus Gerson diet

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into another. You've got four quadrants in the body: divide down the bridge of the nose through the navel, and across the bellline and you've got the four quadrants, roughly the four lymphatic drainage basins of the inguinal and axillary areas. And if the melanoma crosses from one quadrant to another, that raises it to stage IV. But if it stays in the lymphatics, there is a survival here that I would note is equal to the stage IIIA survival recorded by American Cancer Society, again suggesting the strong dermatological influence also affecting the lymphatics that service the skin.

We placed this in the *Journal of Naturopathic Medicine*, because those guys were starting to use the diet therapy. We wanted them to be free from the bias against surgery that so many people that are Heilpraktiker-oriented or naturopath-oriented will often have. They will often say, "No, no, no, don't cut; don't cut, because you will spread the cancer all over the place." And the fact of the matter was, when you looked at a historical cohort here, what you saw was that 75% of 32 operated patients of stage IIIA, IIIB and IVA, in other words all advanced patients, had a 5-year disease-free window when we looked at the survival; and in patients who avoided surgery, it was less than half of that, that made it that far. So, debulking in conjunction with immunotherapy confers survivability. And that's a good take home, I think.

You know I said the melanoma is by far the most interesting — actually it's the *largest* data base — but maybe this is really interesting too. I couldn't believe it. We didn't update this, we presented this in 1996. These are the findings as of 1996, but as far as we know, none of these ladies has died. Christeene is saying they're all still alive. These are FIGO stage III ovarian cancer patients who were operated optimally, but you know what that means, that there's studding in the retroperitoneum that is left. Anything smaller than 1 cm is not going to be removed, so it's going to be mopped up by chemotherapy; only these women were not mopped up by chemotherapy. They were diet therapy patients.

I remember once standing — we were at the OTA meeting, the Office of Technology Assessment, 600 Pennsylvania Avenue, and we had just been through this grueling session. Ralph Moss, who will be here tomorrow, had just delivered the most hair-raising speech in which he informed the ACS, "I know who you are, and you people don't frighten me." A lady walked up to me. She says, "Hi. Y'all don't remember me do you? I'm Leslie Tell." She says, "My husband's a research psychologist and I'm one of your ovarian cancer cures. I brought my case here in my attaché case." And she flipped it open and it was perfectly catalogued. She had been debulked for FIGO stage IIIC ovarian carcinoma; demonstrable disease had been left in the surgical cavity; she'd walked away from chemotherapy; she'd come into the hospital, it was La Gloria back then. Within the first two weeks she suddenly spiked a fever. They stopped measuring it at 105° Fahrenheit. She said it turned on out of nowhere. She said, "I laid down to take my coffee enema and I was burnin' up." She said then it shut off as fast as it started. And she said, "Then I knew I was going to be okay." And she started us off on the ovarian look-see, because it had not occurred to us to look at ovarian. I mean, Gilda Radner had just died. And here we see that the 5-year survival rate on optimally surgically debulked FIGO stage IIIC patients is 67%. And that 67% is alive to date. No recurrences. Blew me away.

And when Christeene and I were working with Berkley Bedell's foundation, the National Foundation for Alternative Medicine, they were flying us to Europe, Latin America, Canada, the U.S., and everywhere we went somebody had an ovarian cancer patient that had gotten well with, essentially, an immunotherapeutic approach of one type or another. Because that's what all of you are trying to do is immunotherapeutic stuff. You're trying to get the body to work better,

the immune system to be more responsive. Every single one of them. Rau's clinic had one of them. Woepfle had one that walked in while we were there reviewing his cases over at the Hufeland Klinik in Bad Mergentheim. She'd been pretreated with chemo before he put her into remission. Woepfle had inherited Issels' treatment. Issels had used Coley for thirty years or forty years. So, Wöpple had bought out the *Vaccineurin* supplies of the Coley vaccine and this lady was one of five, maybe, ovarian cancer patients in his best case series. Very impressive.

(Christeene: Hildy, Livingston.)

Oh, and Virginia Livingston, bless Virginia Livingston, I miss her. She also had cured ovarian cancer patients.

Now looking at Duke's C colorectal cancer — it was so small, but again it was one of those surgical things. We had eleven operated to cure patients and 64% of them stayed disease free at five years using the dietotherapy. The reason I thought that was so impressive was that Chuck Moertel had said, well, you can do that with Levamisol and 5-FU. He said that he had a 60% 5-year rate with Levamisol and 5-FU, and everybody else that tried it after that said, "How did you do that? Because we can't do that." But, in the Gerson therapy method, these patients recovered. So, apparently there's a nice effect on the gut if you get that tumor out of there, and I think that's worth noting.

Oh, yeah — lymphomas. As of 1996, when we presented this in the *Proceedings of Alternative Therapies Symposium* held in San Diego, at that time, *none of the assessable low stage, low grade patients (working formula A-C) were deceased in the Gerson system* and none of the assessable intermediate grade patients (working formula D-G) were deceased. The chart review showed that thirteen of the assessable charts documented complete remission of adult non-Hodgkin's lymphoma with Gerson's nutrition-based treatment as sole influence. And some of these were bulky disease. I remember Sharon LaMar's case when she came in. She brought with her films that — I mean you couldn't even see the IVP — it was totally obscured by disease, the bulk of disease in her abdomen was so massive. Her legs were stove-piped with edema. She urinated away about twenty pounds in the first two weeks — just excess trapped water; we'll get more into that later — and proceeded to have a complete remission of an intermediate grade lymphoma that was a nodular sclerosing type. This was typical.

Now, we've been in the time machine and I want to finish this little segment by pointing out that there is a reason that Gerson's work has not been brought forward. Some of you know about Wilk vs AMA and the Getzendanner decision on the chiropractic boycott, but when we were doing the OTA study and that decision came out, it changed the course of the study, because in Getzendanner's 100-page decision, it was noted that chiropractors were not alone in being boycotted by the AMA, the College of Surgeons, the Joint Commission on Accreditation of Hospitals, etc. etc. — that alternative cancer practitioners had also been targeted for boycott by the same groups. And of course, Getzendanner then forced an injunction into the pages of the *JAMA* in January of 1988 and spent two-thirds of the article explaining what they had been doing wrong — like name calling, refusal to refer — so that she could tell them that it was illegal and criminal and not to do it again; to stop it.

5-year survival rates of Duke's C colorectal cancer
Hildenbrand et al
Proc Alt Ther Symp. Jan 18-21, 1996, San Diego CA

- Records of the Gerson facilities reveal 64% of 11 operated-to-cure patients alive at 5 years with dietotherapy.

Moertel et al [*Ann Intern Med* 1995;122(5):321-6] report 60% of 304 operated-to-cure patients alive at 5 years with 5FU plus Levamisole (compared to 47% of 315 controls).

While the above rates are similar, the Gerson sample size would have to be at least 45 patients with the same percentage of survivors to achieve statistical significance. Only prospective data collection can establish the validity of this early trend in the data.

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Survival impact of Gerson's diet on adult NHL
Hildenbrand et al
Proc Alt Ther Symp. Jan 18-21, 1996, San Diego CA

- To date, none of the assessable low stage, low grade patients (working formula A-C) are deceased in the Gerson system.
- To date, none of the assessable intermediate grade patients (working formula D-G) are deceased.
- Lymphoma, one of the most manageable of all cancers, has many treatment options.
- Patients whose disease escapes one or more forms of management frequently have recourse to others.

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Hildenbrand 1996 (cont)

Anti-tumor effect

13 of the assessable charts documented complete regressions of adult non-Hodgkins lymphoma with Gerson's nutrition-based treatment as sole influence

- 2 low grade**
 - 1A - 17 years; 1C - 8 years
- 7 intermediate grade**
 - 3D - 8 years, 13 years, 45 years
 - 2E - 7 years, 4 years
 - 2F - 9 years, 5 years
- 2 high grade**
 - 2H - 10 years, 5 years
- 2 histology pending review**
 - 7 years, 17 years

Slide 87

This anti-alternative thing traces back to the early days of Morris Fishbein, and it was Patricia Spain Ward — Dr. Ward explained to us that she had found the smoking gun — why, when Gerson was invited by Claude Pepper to come before his Senate subcommittee with patient demonstration, and that got covered by Raymond Graham Swing, the voice of Mutual Radio, the next day — why nothing happened; why it went nowhere. Why, instead, Gerson had been ridiculed by members of the United States Public Health Service, and also the American Cancer Society. And why angry editorials in the *JAMA* were produced within months in the unmistakable style of Morris Fishbein, accusing Gerson of somehow doing something wrong, of failing to acquaint the *JAMA*, or THE JOURNAL as it was called in all capital letters as though it were a god — he has failed to acquaint THE JOURNAL with his treatment — despite the fact that Gerson had sent five copies of the *Review of Gastroenterology* article from 1945 to Morris Fishbein — I've seen the correspondence.

Pat Ward said it was about cigarettes. Gerson testified in 1945 that cigarettes were dangerous and people should not be smoking so many cigarettes. She said the back story is that Morris Fishbein, in his ascension to the editorship of the *JAMA* — Morris Fishbein, who never practiced medicine a day in his life — who flunked anatomy in medical school — Morris Fishbein went to Philip-Morris and suggested, when you're doing dermatological tests on rabbits for the irritation caused by cigarette smoke, you should not cure the tobacco with sugar, you should use ethylene glycol, because it will be less irritating for the rabbit skin. And when you get the positive results, you publish them in our journal, and buy advertising in our journal, and we will provide speakers bureaus to go to the PTA, to the Chamber of Commerce, to the Women's Christian Temperance Union, whatever, and pimp cigarettes. By 1965, 65% of all doctors were hooked on cigarettes. Gerson made the mistake of telling the truth, that this was a dangerous material when used in excess. They weren't even using accelerators in the tobacco mix then, it was just the tobacco and overuse. So I thought, you know, it would be appropriate to just close this section with a little bitty reminder of what those days were like.

See “More Doctors Smoke Camels Than Any Other Cigarette” Ad on youtube <http://www.youtube.com/watch?v=gCMzjJjuxQI>

Narrator: You know, if you were to follow a busy doctor as he makes his daily round of calls, you'd find yourself having a mighty busy time keeping up with him. Time out for many men of medicine usually means just long enough to enjoy a cigarette. And because they know what a pleasure it is to smoke a mild, good tasting cigarette, they're particular about the brand they choose. In the repeated national survey, doctors in all branches of medicine, doctors in all parts of the country, were asked, "What cigarette do you smoke, doctor?" Once again, the brand named most was Camel. Yes, according to this repeated nationwide survey, more doctors smoke Camels than any other cigarette. Why not change to Camels for the next 30 days and see what a difference it makes in your smoking enjoyment? See how Camels agree with your throat. See how mild and good-tasting a cigarette can be.



Let's take a break.

(Laughter and applause).

BREAK

PART II

(Academy member: Can I ask a question? It seems to me that one of the essential aspects of the Gerson therapy is hypokalemia...I'm sorry, hyper (*inaudible*). I am wondering (to) what level can you and do you actually lower plasma or serum sodium level, and that still will be safe.)

I will address that in this section, doctor, absolutely. When you're working with food substances, sodium restriction isn't really all that easy, especially when you're giving carrot juice, which is quite rich in sodium. So really we're not — to a certain extent, we're talking about eliminating sodium in levels that are super-physiologic, that are excessive; but the concept of sodium restriction down to the level that, say, Demetrio Sodi-Pallares would use, which would be a third of a gram per day — that is not achievable with the juicing of Gerson's therapy; not achievable. Your question is towards something that we can't actually address with the diet therapy.

(Academy member: Is it whole body hyponatremia that is your goal? Or is local?)

The goal is to reduce the consumption of sodium to the level at which it occurs in living systems. So, in essence, you can eat a plant, and the plant has to have sodium to live, but it's not going to have too much sodium in it, unless it's been raised by commercial agriculturalists, in which case, yes, you can get excessive sodium and water-trapping, and tasteless vegetables and fruits. But if you're using carefully grown sustainable ag, organic-type materials — what we're talking about, really, is just holding the sodium down to what is reflected in living systems.

(Academy member: By using less sodium, people will of course become hyponatremic. Hyponatremia is a water problem, it is not a sodium problem.)

True, and you see anti-diuretic hormone syndrome with it; and we don't see that with the diet therapy — that doesn't really exist. Good comment.

I'm going to turn the corner into detoxification here. This is the only time at which I will invoke my former boss; Charlotte Gerson and I worked together for thirteen years. I was her executive director and her research director before our research group was spun off of the non-profit with her blessing. Our fillings with the IRS reflect that the new entity received all the equipment, all of the staff, all of the literature, and everything I had written to start it out. We worked in partnership for about another three years before a trademark war tore apart the collaboration that was functioning at that time. Really. A stupid trademark war. Who's going to trademark something like that? It's not Nike, there's no swoosh on it. But, anyway...

Charlotte and I had some good times together, and one of those was when we went to UCSD. We were invited to give some sort of, I would call it, mini-rounds, and we talked to a bunch of students over lunch break about the diet therapy. The question of coffee enemas came up, and what had been an interested group of young, fresh-scrubbed students turned into a sort of a fidgety, side-ways glancing, tittering group, until Charlotte said, "That's coffee, without cream and sugar." And then we got a laugh. And then we relaxed. And we were able to go on.

It's important when you're conceiving of Gerson's therapy to understand that some of it is purely physical manipulation. This man pumped the gut. Why did he do that? Because when you pump the gut, the rest of the system sings along. And we'll cover some literature that describes that. Let me move away from the cigarette ad. This is the reason we're going into detoxification; I put it up there and I thought, "Whoa, I have to clear that."

In "No cancer in normal metabolism," *Medizinische Klinik* 1954, Gerson wrote: *Because about 90% of all cases which come to me are so-called generalized cancer or final cases with which the usual methods had been applied in vain, the decontamination of the body in the beginning of the therapy plays the leading role. These seriously ill ones need coffee enemas during day and at night, first every 3-4 hours, later less.*

I have another story for you. We were holding the Practice-based Outcomes Monitoring and Evaluation System Methodology Conference which was the brain child of Lt. Col. Wayne Jonas, the Chief of the Office of Alternative Medicine at the NIH. We were trying to get something going. The Institute of Medicine was going to hold a methodology conference, but Harold Varmus scotched it because, as a molecular biologist, he hated the alternatives. That's probably because, as Bill Fair once remarked, molecular biology is kind of like a promissory note that has yet to deliver. Maybe it was envy.

At any rate, we were having a planning meeting and Ernst Wynder hadn't told us yet that he was a prostate cancer patient of Nick Gonzalez. I'm sorry...

(Christeene: Thyroid.) What did I say? (Christeene: Prostate.)

...a thyroid cancer patient of Nick Gonzalez...and we were having a planning session, and I was worried because we were talking about blinding the cases for review, but we weren't going to blind the treatments. We were going to blind the demographics, but we were going to leave the treatments there. And I thought, if you take a bunch of board-certified oncologists and they read the words "coffee enema," we're going to be in trouble right away. Dr. Jonas said, "Oh, a negative heuristic." I thought, "Wow, I have to look that up." You know, a negative heuristic really repels — the research model repels anything that isn't consistent with its desire. And Dr. Wynder was the one who brought us back center with a little comment. He just said, "I don't know about you gentlemen, but I would rather have a coffee enema any day than a bone marrow transplant." And he was telling the truth. We were able to go on.

Unfortunately the POMES system was stopped by the good-ol'-boys network. It may come back. There's a glimmer of hope. I just want to say, parenthetically, that when Christeene and I leave here, we're going into the beltway to meet with Senator Harkin's chief health aide and staff on the Coley thing, because Senator Harkin now has Ted Kennedy's chair, but he also still holds the chair of the subcommittee that funds NIH. And wouldn't it be a cool thing if Coley were studied by investigators in the intramurals system with translational and basic research capabilities in the same complex? That's what needs to happen. That's what we're shooting for — a consensus conference, which is bolstered by the fact that NIAID's own T-Cell-Tolerance-and-Memory Chief, Polly Matzinger, is in favor of the idea. So wish us luck on that.

Now, moving to the dirty work of the coffee enemas and the gut pumping of Gerson's therapy, Gerson says:

For pain, patients receive coffee enemas and, in the beginning, a mixture of aspirin ? gram — that's just five grains — "50 mg niacin and vitamin C 100 mg three to four times a day. Greatest care is taken for the elimination of accumulated toxins in the body, and is still needed by those who freshly absorb toxic substance from collapsing tumors, otherwise the patients die of so-called "hepatic coma."

Colon therapy, enemas, purgatives, cathartics are old medicine. There are a few voices now that are still speaking in favor of these approaches under the correct circumstances. For example, and I find this writer, Uchiyama-Tanaka is the last name, Yoko Uchiyama-Tanaka,

No cancer in normal metabolism. Results of a special therapy
Gerson M
Med Klinik 1954;49(5):175-179

Slide 88

Detoxification

Because about 90% of all cases which come to me are so-called generalized cancer or final cases with which the usual methods had been applied in vain, the decontamination of the body in the beginning of the therapy plays the leading role. These seriously ill ones need coffee enemas during day and at night, first every 3-4 hours, later less.

Gerson M Med Klinik January 1954 (cont)

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For pain, patients receive coffee enemas and, in the beginning, a mixture of aspirin 1/3 gram, 50 mg niacin and vitamin C 100 mg three to four times a day. Greatest care is taken for the elimination of accumulated toxins in the body and it still needed by those who freshly absorb toxic substance from collapsing tumors, otherwise the patients die of so-called "hepatic coma."

writing in *Biomedical Research* last year (2009). I find this a very perceptive and helpful context:

Since the early history surrounding ancient Egypt, colon hydrotherapy has been practiced in its most basic form, such as enemas or clysters, and has provided people with internal cleansing as an adjunct to personal external hygiene. The Ebers Papyrus, from the 14th century BC, prescribes internal cleansing for no less than 20 gastric and intestinal complaints.

A number of contemporary authors have investigated gut lavage — which is, I call it — iatrogenic diarrhea, as a means of detoxifying ingested poisons, reducing plasma endotoxins and other toxins already absorbed by the body, and increasing gastrocolic response to feeding, among other positive findings.

I have provided you with a list of what I think are instructive papers that you can check out in your free time, not that I think you probably have free time, because you are probably the most active people I know. [Text from Slide 92]:

- Whole bowel irrigation as a gastrointestinal decontamination procedure after acute poisoning. Tenenbein M, *Med Toxicol*. 1988;3(2):77-84
- Whole bowel irrigation as a decontamination procedure after acute drug overdose. Tenenbein M, *Arch Intern Med*. 1987;147(5):905-907.
- The effect of whole-gut lavage on colon motility and gastrocolic response in a monkey. Condon RE, *Surgery*. May 1986;99(5):531-536.
- Endotoxaemia in active Crohn's disease. Treatment with whole gut irrigation and 5-aminosalicylic acid. Wellmann W, *Gut*. 1986;27(7):814-820.
- Whole-gut irrigation as antiendotoxaemic therapy in inflammatory bowel disease. Wellmann W, *Hepato-gastroenterol*. 1984;31:91-93.
- Effect of gut lavage on phenobarbital elimination in rats. Lenz K. *J Toxicol*. 1983;20(2):147-157.

This again from Dr. Uchiyama-Tanaka, *After colonic irrigation...This is...the title of the article is, Colon irrigation causes lymphocyte movement from gut-associated lymphatic tissues to peripheral blood*. This is one... you're probably going "Wow, I didn't see that coming." *After colonic irrigation the number of peripheral leukocytes increased significantly, the number of lymphocytes increased significantly, the number of neutrophils increased significantly, but the neutrophil-lymphocyte ratio decreased significantly*. This is just colonic irrigation. It's an entirely mechanical procedure. This was with water — admittedly a lot of water — but just with water. Now, when we add medication to this we're in the realm of the coffee enema. And I want to go through, since we're supposed to be doing practice as well as principal — this is the principals section — introduce you actually, to the insides of the coffee bean.

Colon irrigation causes lymphocyte movement from gut-associated lymphatic tissues to peripheral blood
Uchiyama-Tanaka, Yoko
Biomedical Research 2009;30(5):311-314

Since the early history surrounding ancient Egypt, colon hydrotherapy has been practiced in its most basic form, such as enemas or clysters, and has provided people with internal cleansing as an adjunct to personal external hygiene. The Ebers Papyrus, from the 14th century BC, prescribes internal cleansing for no less than 20 gastric and intestinal complaints.

Slide 90

Detoxification

A number of contemporary authors have investigated gut lavage (iatrogenic diarrhea) as a means of detoxifying ingested poisons, reducing plasma endotoxins and other toxins already absorbed by the body, and increasing gastrocolic response to feeding, among other positive findings.

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Colon irrigation causes lymphocyte movement from gut-associated lymphatic tissues to peripheral blood
Uchiyama-Tanaka, Yoko
Biomedical Research 2009;30(5):311-314

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After colonic irrigation

- The number of peripheral leukocytes increased significantly from $5917 \pm 1215/\mu\text{L}$ to $6610 \pm 1452/\mu\text{L}$ ($P < 0.0001$).
- The number of lymphocytes increased significantly from $1788 \pm 403/\mu\text{L}$ to $2164 \pm 430/\mu\text{L}$ ($P < 0.0001$).
- The number of neutrophils increased significantly from $3442 \pm 1029/\mu\text{L}$ to $3712 \pm 1236/\mu\text{L}$ ($P < 0.01$).
- The neutrophil:lymphocyte ratio decreased significantly from $58.3 \pm 8.4\%$ to $55.1 \pm 8.2\%$ ($P < 0.0001$).

First we have to talk about what the human body uses to detoxify. I just took this off line from Dorland's Medical Dictionary: **glutathione** /*glu-ta-thi-one/ (gloo"tah-thi'ōn) a tripeptide of glutamic acid, cysteine, and glycine, existing in reduced (GSH) and oxidized (GSSG) forms and functioning in various redox reactions: in the destruction of peroxides and free radicals, as a cofactor for enzymes, and in the detoxification of harmful compounds.*

Modern research reveals that the liver exports glutathione into both plasma and bile at a rate that accounts for nearly all of its biosynthesis, and that the biliary concentration of glutathione is close to that of the liver.

This is from "Regulation of Hepatic Glutathione" in the marvelous text, *Hepatic Transport and Bile Secretion*. My mother once called and asked what we were doing, and I said, "Christeene is reading Machiavelli's *The Prince* and I'm reading *Hepatic Transport and Bile Secretion*." She said, "You guys have got to get out more."

The liver is responsible for glutathione synthesis for the entire body, and yet glutathione is our chief detox molecule everywhere in the body.

Glutathione S-transferase — and I took this from Webster's New World Medical Dictionary online — represents: *A family of enzymes that utilize glutathione in reactions contributing to the transformation of a wide range of compounds, including carcinogens, therapeutic drugs, and products of oxidative stress. These enzymes play a key role in the detoxification of such substances. The glutathione S-transferases act by catalyzing the reaction of glutathione with an acceptor molecule to form a sulfur-substituted glutathione.*

Because glutathione detoxifies genotoxic electrophiles poorly by spontaneous reaction, glutathione S-transferase is a particularly important catalyst; their combined action leads to efficient detoxification.

Okay, now we have the physiology that's going to be affected by coffee. Coffee stimulates glutathione-S-transferase activity. We get glutathione from our food. If you can vegetables, it destroys the glutathione. You can find this anywhere in the nutrition literature. Most of our glutathione comes from fresh plant materials, and if you cook it down, if you pressure cook it, if you can it, you kill the glutathione. So we end up without sufficient base materials for the detoxification system of the entire body. I broke the Pauling Rule and talked about something other than what's up there; I'm sorry.

Dorland's Medical Dictionary, 2007

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glutathione /*glu-ta-thi-one/ (gloo"tah-thi'ōn) a tripeptide of glutamic acid, cysteine, and glycine, existing in reduced (GSH) and oxidized (GSSG) forms and functioning in various redox reactions; in the destruction of peroxides and free radicals, as a cofactor for enzymes, and in the detoxification of harmful compounds.*

Regulation of Hepatic Glutathione Fernandez-Checa JC, et al
In: Tavoloni N and Berk PD, eds. *Hepatic Transport and Bile Secretion: Physiology and Pathophysiology*. NY: Raven Press Ltd.;1993.

Modern research reveals that the liver exports glutathione into both plasma and bile at a rate that accounts for nearly all of its biosynthesis, and that the biliary concentration of glutathione is close to that of the liver.

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Webster's New World Medical Dictionary 3rd Ed, May 2008

Glutathione S-transferase: A family of enzymes that utilize glutathione in reactions contributing to the transformation of a wide range of compounds, including carcinogens, therapeutic drugs, and products of oxidative stress. These enzymes play a key role in the detoxification of such substances. The glutathione S-transferases act by catalyzing the reaction of glutathione with an acceptor molecule to form an S-substituted glutathione (S = sulfur).

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The Role of Glutathione and Glutathione Transferases in Chemical Carcinogenesis
Coles B and Ketterer B
Critical Reviews in Biochemistry and Molecular Biology. 1990;25(1):47-70.

Because glutathione (GSH) detoxifies genotoxic electrophiles poorly by spontaneous reaction, glutathione S-transferase (GST) is a particularly important catalyst; their combined action leads to efficient detoxification.

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In the late 1970s and early 1980s, researchers in the lab of Lee Wattenberg identified salts of palmitic acids (kahweol and cafestol palmitate) in coffee as potent enhancers of glutathione S-transferase, a major detoxification enzyme system that catalyzes the binding of a vast variety of electrophiles from the blood stream to the sulfhydryl group of glutathione.

Here's a page of references that can lead you through that literature:

1. The Role of Glutathione S-transferases in the Metabolism of Chemical Carcinogens and Other Electrophilic Agents. Chasseaud, LF, *Advanced Cancer Research*. 1979;29:175-274
2. A Group of Multifunctional Detoxification Proteins. Jakoby, WB, *Advanced Enzymology and Related Areas of Molecular Biology*. 1978;46:383-414
3. Enhancement of Glutathione S-transferase Activity of the Mouse Forestomach by Inhibitors of Benzo[a]pyrene-induced Neoplasia of Forestomach, Sparnins, VL, Wattenberg, LW, *Journal of the National Cancer Institute*. 1981;66:769-771
4. Effects of Dietary Constituents on Glutathione S-transferase (G-S-T) Activity. Sparnins, V.L., *Proceedings of the American Association of Cancer Researchers and the American Society of Clinical Oncologists*. 1980;21:80, Abstract 319
5. Effects of Coffee on Glutathione S-transferase (G-S-T) Activity and 7-12-dimethylbenz[a]anthracene (DMBA) induced Neoplasia. Sparnins, VL, Lam, LKT, Wattenberg, LW, *Proceedings of the American Association of Cancer Researchers and the American Society of Clinical Oncologists*. 1981;22:114, abstract 453
6. Isolation and Identification of Kahweol palmitate and Cafestol Palmitate as Active Constituents of Green Coffee Beans That Enhance Glutathione S-transferase Activity in the Mouse. Lam, LKT, Sparnins, VW, Wattenberg, LW, *Cancer Research*. 1982;42:1193-1198, 1982.

Particularly interesting are the comments made in *Diet Nutrition and Cancer* from the Committee on Diet, Nutrition and Cancer of the Assembly of Life Sciences of the National Research Council of the National Academy of Sciences. I would point out that T. Colin Campbell was one of the authors of this report, but we're in Wattenberg's section now, which is the effect of foods:

Studies have been conducted to examine the effects of individual foods on glutathione S-transferase, which is a major detoxification system that catalyzes the binding of a vast variety of electrophiles to the sulfhydryl group of glutathione. Since the ultimate carcinogenic forms of chemicals are electrophiles — these are electrons in unpaired spins; they want to get involved where they shouldn't be; membrane damage, and all that — the glutathione S-transferase system takes on considerable importance as a mechanism for carcinogen detoxification.

Coffee stimulates GST activity

In the late 1970s and early 1980s, researchers in the lab of Lee Wattenberg identified salts of palmitic acids (kahweol and cafestol palmitate) in coffee as potent enhancers of glutathione S-transferase, a major detoxification system that catalyzes the binding of a vast variety of electrophiles from the blood stream to the sulfhydryl group of glutathione.

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Slide 99: See text, left

Diet, Nutrition, and Cancer
Committee on Diet, Nutrition and Cancer
Assembly of Life Sciences
National Research Council
National Academy Press, Wash DC 1982:364-365

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Studies have been conducted to examine the effects of individual foods on glutathione S-transferase, which is a major detoxification system that catalyzes the binding of a vast variety of electrophiles to the sulfhydryl group of glutathione (Chasseaud, 1979; Jakoby, 1978). Since the ultimate carcinogenic forms of chemicals are electrophiles, the glutathione S-transferase system takes on considerable importance as a mechanism for carcinogen detoxification.

Enhancement of the activity of this system, as measured in vitro, has been shown to be associated with decreased response of tissues to chemical carcinogens. The activity of glutathione S-transferase is much greater in tissues of animals fed normal rather than purified diet. That's where we start. The cruder your food, the better off you are. Food processors are killing the nation. I'm not telling you anything you don't know. The activity of glutathione S-transferase is much greater in tissues of animals fed normal rather than purified food diet. Diets containing large quantities of cruciferous vegetables induce increased glutathione S-transferase activity. The extent to which green coffee beans induce such activity is quite remarkable.

In mice fed a diet containing green coffee beans, glutathione S-transferase activity was enhanced six fold in the liver and sevenfold in the small bowel — 700% in the small intestinal wall and 600% in the liver. It's an interesting side note that, in 1990, in the German Journal of Gastroenterology it was noted that glutathione S-transferase is a responder to cancer anywhere in the body; that enzyme system ramps up in response to cancer anywhere in the body; the German Journal of Gastroenterology, 1990.

Considerably less inducing activity has been found in roasted coffee beans, indicating that some destruction of the inducing compounds has occurred during processing. Two potent inducers of glutathione S-transferase activity have been isolated from green coffee beans. These compounds are kahweol palmitate and cafestol palmitate — Luke Lam, Lee Wattenberg together with Velta Sparnins.

Roasted coffee and instant coffee were found to have a weaker inducing activity than did the green coffee beans studied, i.e., slightly less than 50% as much.

I called Luke Lam and I talked to him at length about this, and he explained to me that neither ester is extracted efficiently from green coffee beans with boiling water. A degree of roasting is required to render coffee palmitates soluble. Filtration with paper or cloth results in palmitate trapping in the filter, and an extremely low palmitate level in the resulting coffee. This is due to the fact that both palmitic acid esters are found in the microfibrils of coffee that are withheld by filters. So, if you've got patients that are going to use coffee enemas, you want to advise them that they decant this through a metal-mesh strainer as opposed to using any type of filter, cloth or paper, because they won't get what they're after.

National Research Council (cont)

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Enhancement of the activity of this system, as measured *in vitro*, has been shown to be associated with decreased response of tissues to chemical carcinogens (Sparmins and Wattenberg, 1981). The activity of glutathione S-transferase is much greater in tissues of animals fed normal rather than purified diet. Diets containing large quantities of cruciferous vegetables induce increased glutathione S-transferase activity (Sparmins, 1980). The extent to which green coffee beans induce such activity is quite remarkable.

National Research Council (cont)

In mice fed a diet containing green coffee beans, glutathione S-transferase activity was enhanced sixfold in the liver and sevenfold in the small bowel (Sparmins *et al*, 1981). Considerably less inducing activity has been found in roasted coffee beans, indicating that some destruction of the inducing compounds has occurred during processing. Two potent inducers of glutathione S-transferase activity have been isolated from green coffee beans. These compounds are kahweol palmitate and cafestol palmitate (Lam *et al*, 1982).

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Isolation and Identification of Kahweol palmitate and Cafestol Palmitate as Active Constituents of Green Coffee Beans That Enhance Glutathione S-transferase Activity in the Mouse.
Lam LKT, Sparmins VW, Wattenberg LW
Cancer Research 1982;42:1193-1198, 1982

Roasted coffee and instant coffee were found to have a weaker inducing activity than did the green coffee beans studied, i.e., slightly less than 50% as much.

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Pers Comm. Lam LKT. Feb 1993

Neither ester is extracted efficiently from green coffee beans with boiling water. A degree of roasting is required to render coffee palmitates soluble. Filtration with paper or cloth results in palmitate trapping in the filter, and an extremely low palmitate level in the resulting coffee. This is due to the fact that both palmitic acid esters are found in microfibrils that are withheld by filters.

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Lam, Sparnins and Wattenberg again: *Because the reactive ultimate carcinogenic forms of chemicals are electrophiles, the glutathione S-transferase system must be regarded as an important mechanism for carcinogen detoxification. In mice, this system is enhanced 600% in the liver and 700% in the small bowel when coffee beans are added to their diet. Because this system in lab models is close, if not directly analogous to that of humans, a parallel stimulation by coffee of glutathione S-transferase in humans is probable.*

I told Pete Lechner about this when he was sent over from Austria, from the Landeskrankenhaus, by his CEO, to study the Gerson therapy, because the CEO had an old aunt who took him by the ear one day and said, “You are a fool if you don’t study Gerson’s therapy — at least it’s being done — so what if it’s Mexico? Go look, you’ll see something.” So Peter was sent, and he stayed long enough to become convinced to take that therapy back to Austria with him, to the 3,200-bed Landeskrankenhaus where, as I said earlier, he was the chief of the Second Surgery Department, and to institute the therapy in a modified form: a couple of coffee enemas a day, the basic vegetarian diet and juices, in surgical oncology. He wasn’t using it as a first-line therapy; he was using it as an adjuvant, which was politically, I think, quite safe, and yet allowed him to accrue some experience.

You know, we’re always being attacked by Saul Green, Barrie Cassileth, Bill Jarvis, William Lowe — it used to be Victor Herbert, not the composer — and sometimes we’d answer them; most of the time we’d ignore them because, you know, when you learn statistics, you learn about CRAP: circular reasoning and anti-intellectual pomposity. You also learn about circular referencing, which is exactly what the anti-marginal-therapies guys do; they circularly reference. So you’ve got attacks by Cassileth, as a colleague pointed out to me, attacks on Gonzales, repeating spurious claims about the results of his pancreatic cancer trial at Columbia, which was fraught with politics from the moment recruitment began...from the moment recruitment began.

We answered Saul Green because he had attacked the science that we had done on coffee enemas — the claims we made about it — so, Pete and I decided to publish some practical stuff that I think you’ll find helpful in the principles section of the discussion of the practice of coffee enemas. We worked with Bielstein’s chemistry handbook...Oh, the title here is “A reply to Saul Green's critique of the rationale for cancer treatment with coffee enemas and diet: Cafestol derived from beverage coffee increases bile production in rats; and coffee enemas and diet ameliorate human cancer pain in stages I and II.” We had to publish that in John Collins’ letter, *Townsend Letter for Doctors*, because the *JAMA* — they just sent it back, you know, they just — “We’re not interested, it’s not the type of thing we publish.”

Isolation and Identification of Kahweol palmitate and Cafestol Palmitate as Active Constituents of Green Coffee Beans That Enhance Glutathione S-transferase Activity in the Mouse.

Lam LKT, Sparnins VW, Wattenberg LW
Cancer Research 1982;42:1193-1198, 1982

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Because the reactive ultimate carcinogenic forms of chemicals are electrophiles, the glutathione S-transferase system must be regarded as an important mechanism for carcinogen detoxification. In mice, this system is enhanced 600% in the liver and 700% in the small bowel when coffee beans are added to their diet. Because this system in lab models is close, if not directly analogous to that of humans, a parallel stimulation by coffee of glutathione S-transferase in humans is probable.

A reply to Saul Green's critique of the rationale for cancer treatment with coffee enemas and diet: cafestol derived from beverage coffee increases bile production in rats; and coffee enemas and diet ameliorate human cancer pain in stages I and II.
Hildenbrand GLG, Lechner P
Townsend Letter for Doctors. May, 1994

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Extraction of cafestol from beverage coffee

The procedures by which we extracted cafestol from regular beverage coffee and used it to stimulate rat bile flow are described below:

1. A coffee solution was prepared in the usual manner for Gerson patients, by boiling in distilled water three heaping tablespoons of regular-grind, regular-roast, commercially available coffee. The solution was strained, not filtered. Following is a brief description of Beilstein's procedure:

Extraction of cafestol from beverage coffee. These are the procedures by which we extracted cafestol from regular beverage coffee and used it to stimulate rat bile flow... I won't read it all, just to say we boiled a quart of coffee, and you can see we used soxhlet extraction, and ethanol, and the Rotavapor, and again with the ether, and the supercooling, and neutralization with sodium sulfate, and had to repeat the soxhlet and then did dry evaporation and extraction, again with sodium sulfate, and petroleum ether/cooling. We got a gram of cafestol diacetate out of a quart — that's the adult human dose, that's a lot — a gram of cafestol diacetate.

And then Peter went to work — he has very steady hands — what he did was create a choledochocutaneous fistula — just aimed the bile ducts out the anterior abdominal wall of 30 Wistar rats, divided them into two groups, made miniature ostomy bags by clipping off the tips of condoms, using Hollister skin paste to affix them to the rat bellies; and half of them got cafestol 2 mg, the human equivalent in a rat, in white wax suppositories.

And the result was that we had a 28% increase, a statistically — oh, I said 2 mg; it's 4 mg, I'm sorry — time dulls the memory, 4 mg of cafestol — the result was that we had a 28% increase in bile productivity by the rats that were medicated with cafestol. An increase in bile production is synonymous with an increase in G-S-T activity. So glutathione-S-transferase activity is indicated by the increase in bile flow. And from this, it was time to move to the treatment of cancer pain by coffee enemas.

So we published a paired trial.

Hildenbrand, Lechner 1990 (cont)

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- a. Soxhlet extraction with C₂H₅OH (ethanol)
- b. Distill off ether in Rotavapor = **Coffee Oil**
- c. Addition of petroleum ether/cooling to 4C° = **Coffee crystals**
- d. Neutralization of residue with 5% Na₂SO₄ (sodium sulfate)
- e. Addition of H₂O₂ and C₂H₅OH
- f. Repeat soxhlet extraction with C₂H₅OH
- g. Dry and evaporate the extract with Na₂SO₄
- h. Addition of petroleum ether/cooling = **Cafestol diacetate**

By this process it was possible to extract almost exactly one gram of chemically pure cafestol diacetate from one liter of beverage coffee.

Hildenbrand, Lechner 1990 (cont)

2. A choledochocutaneous fistula was surgically created in 30 Wistar rats (avg. body weight 280 grams) so that the end of the common duct was implanted into the anterior abdominal wall like a sigmoidostomy. Miniature ostomy bags were created from condoms and adhered to the rats with skin paste supplied by Hollister, Inc.

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Hildenbrand, Lechner 1990 (cont)

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3. Based on the consideration that the average human (70 kg) is given a coffee enema containing 1 gr cafestol, the equivalent dosage for rats was set at 4 mg. Suppositories were made from white wax. Half were medicated with 4 mg cafestol extracted from beverage coffee as described above. Half were left unmedicated and given to the controls as placebos. There were fifteen rats in each group.

Hildenbrand, Lechner 1990 (cont)

4. Bile flow was measured after eight hours. The average output of bile for the controls was 2.4 ml, whereas the average for the test animals was 3.1 ml, an increase of 28%. The difference is statistically significant.

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Reliance on pain medication in patients receiving only standard treatment (Group A) was compared with those receiving standard treatment and a modified Gerson diet therapy with two coffee enemas per day (Group B). Patients, almost all with cancers of the breast, bowel, or pancreas, were matched for gender, age, weight, race and disease, including sites of primary tumor and metastases.

Pain is assessed by the patient himself with a visual analog scale published in the cancer pain treatment guidelines of the World Health Organization. There are four stages of pain, each with its own set of medications. Verification of patient self-assessment is made by challenging his pain with the medications appropriate to his stage.

You've all seen this WHO pain ladder, I'm sure (Slide 113).

The results were that, in stage I pain — there were 42 test and 49 control patients — people could be kept free with three doses per day of indomethacin at 75 mg, diclofenac at 100 mg, or paracetamol at 500 mg. The test group — again, these are self-medicating, so they just didn't reach for the medications — used 71.3% less medication than the control group, indicating a great deal of freedom from pain from these simple measures.

And in stage II pain, 27 test and 41 control patients were recruited, and there was a 59% reduction in analgesics. And this is, again, as we're advancing in cancer stage and pain issues, Gerson himself would have said, well, use more coffee enemas. Don't just stick with two. Use more frequent, because you're using the gut to pump poisons out of the system. If you can get rat poison out of your finger tips by pumping ethylene glycol past the pyloric valve with a tube and causing the patient to have diarrhea, then certainly, a couple more coffee enemas are not going to hurt a patient whose intoxicated by cancer metabolites and breakdown products.

Hildenbrand, Lechner 1990 (cont)

Treatment of cancer pain by coffee enemas

Reliance on pain medication in patients receiving only standard treatment (Group A) was compared with those receiving standard treatment and a modified Gerson diet therapy with two coffee enemas per day (Group B). Patients, almost all with cancers of the breast, bowel, or pancreas, were matched for gender, age, weight, race and disease, including sites of primary tumor and metastases

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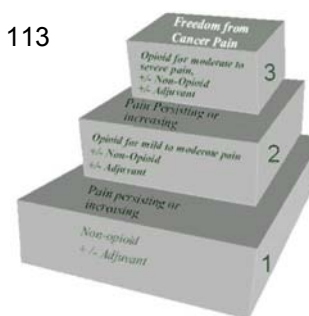
Hildenbrand, Lechner 1990 (cont)

Pain is assessed by the patient himself with a visual analog scale published in the cancer pain treatment guidelines of the World Health Organization. There are four stages of pain, each with its own set of medications. Verification of patient self-assessment is made by challenging his pain with the medications appropriate to his stage.

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WHO's Pain Relief Ladder

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Hildenbrand, Lechner 1990 (cont)

Stage I pain. 42 test and 49 control patients were evaluated. Patients at this level could be kept pain free with three doses per day of indomethacin 75 mg, diclofenac 100 mg, or paracetamol 500 mg. The test group used 71.3% less medication than the control group. The difference is highly significant ($p < 0.01$).

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Isolation and Identification of Kahweol palmitate and Cafestol Palmitate as Active Constituents of Green Coffee Beans That Enhance Glutathione S-transferase Activity in the Mouse.
Lam LKT, Spamins VW, Wattenberg LW
Cancer Research 1982;42:1193-1198, 1982

Roasted coffee and instant coffee were found to have a weaker inducing activity than did the green coffee beans studied, i.e., slightly less than 50% as much.

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Part III

So, let's move to carbohydrate feeding. This is, I think, the core of the inputs. Obviously the coffee enema is the outputs. I would be wrong if I didn't mention, by the way, that Gerson, in severe cancer patients, used castor oil, two table-spoons by mouth, chased with sweetened black coffee to get it out of the stomach, and then four to five hours later followed with a castor oil, soap and bile-powder enema, which would make a grown man or woman shed tears; but it does, in fact, mobilize the entire gut, if you want to talk about a gastrocolic response...

I also would like to point out that — still on the subject of detoxification — this leads to many anecdotes that are fascinating. I will never forget the day a lady who became a donor to our research organization, by the name of Rebecca Gre-more, called up and she said, "My God, it worked." She said, "My husband has been in a coma for five days. And I just did it; I just gave him coffee enemas." And she said, "He's awake and eating and drinking."

Those kinds of anecdotes are not make-believe, they actually can happen. You can get somebody who's been taken away from hospice care by concerned family and, once you manage to get that gut opened up and cut down the opioids, which obviously constipate any patient, you'll get them back. Now it may be a short honeymoon, it may be just a clinical bounce, or it may be the real thing. You may have them back for long enough to try to arrest the disease, and to further improve them, to get their base line up. And it's something that, unless you've seen it, you're not going to believe it.

I remember the day that we were leaving the CHIPSA facility, we'd been contacted by John Walton and he said, "Look, I want my friends Susan Faerber and Bob Greenberg, who's now the Chief of Oncology at Dartmouth, I want you to take them with you to the hospital and show them around and let them get acquainted, because we're thinking about Bob for the PI of a breast cancer nutrition intervention study that we're doing out at UCSD." He said, "I gave them a five million dollar check and I told them they have to name a chair of therapeutic nutrition, in oncology, after my dad, Sam Walton, and they have to do some kind of test. And I want you to help me design the diet."

Well, Greenberg came, I remember when he got there, he'd spilled coffee all over his shirt. He said, "Is there a bathroom here somewhere?" Came into the Gerson Institute with a big brown stain. Fortunately, it was a polyester shirt — the coffee came out — and as soon as you could say, "gee whiz," we were on our way down to the hospital. And it seemed like we were only there for seconds, but I did my usual shtick, which is the cheerleading and informing and stuff to the patients and the companions. And then we went downstairs; but Bob, who during the breaks had been circulating and talking to patients and taking notes, asked to stop at the nurses' station on the way down because he wanted to check the charts. And when we got in the car with Susan and Bob, and we were driving away, we said, "What did you think?" And he teared up. He said, "I've never seen anything like this." He said, "You told me these were advanced patients. But these are *really* advanced patients, and they had stamina. They stood and talked to me for a half hour after two hours of listening to you talk. They're pain free. I don't understand. I've never seen anything like this in my life." I said, "Well, this is what we see all the time. You gotta know, Bob, this does not mean they're going to be cured, but this means they're functioning again — and that we have a chance to begin to work. These are advanced people and you are seeing them in the first clinical bounce.

I love anecdotes. I love story telling.

Plant Food (Carbohydrate) Feeding

There was a guy by the name of Vogt in 1941, publishing in *Acta Medica Scandinavica*, who decided to do sequential rabbit experiments to try to tease out the active principal in Gerson's diet therapy approach. He wanted to know what's doing it. And he didn't have all that much luck finding out — you know, he didn't find that you can add potassium and make a huge difference, or that you can lower sodium and have a huge difference. It's very interesting.

So he writes, *Positive results led to cooperation with Gerson, who had worked out a diet which has been applied on very wide indications, especially in vegetative and allergic disturbances and chronic inflammations. This also brought up the question of the influence of the diet on tuberculosis, and especially on skin tuberculosis.*

Under the experimental procedure employed, a rabbit weighing two kilograms ate about 100 grams of oats and 1-2 grams hay per day. A rabbit of the same size on a green diet consumed on the average 50 grams of carrots, 250 grams of cabbage and 400 grams of dandelion greens per day. It's a huge difference, isn't it, in terms of the gross weight of the inputs? The potassium content of the plasma is on the average markedly higher in the green-fed animals.

Under otherwise constant conditions, a green-stuff diet will increase the potassium/calcium quotient in the plasma in comparison with an oat diet. Now here we're seeing something that is very, very important. We're seeing a greens-versus-grains effect: greens versus grains.

The alkaline reserve shows the expected relation. The variability is very large, but it is clear that the carbon dioxide capacity is greater in all periods in the green-fed animals. In comparison with a green diet, a predominantly oat diet increases the irritability of the skin. The difference is apparent within three or four weeks." I have to comment here that irritability was induced with cantharidin plasters. And that the green diet protected against blistering. And the grain diet enhanced blistering with cantharidin plasters. And one would have to regard the cantharidin as an irritant, not as an immune stimulant per se.

In comparison with a green diet, a predominantly oat diet increases the potassium content of the skin and its potassium to calcium ratio. Makes you wonder, doesn't it? You start looking at this and thinking, I wonder what that's all about.

The recurrent difference between the two groups in both experiments nine and ten makes it a priori probable that it is due to the difference in the diet, and not to the added potassium or calcium content, but probably due to the diet's sodium content.

Experiments with Diets of High and Low Sodium Content
Vogt JH
Acta Medica Scandinavica. 1941;106(S116):7-120

Positive results led to cooperation with Gerson, who had worked out a diet which has been applied on very wide indications, especially in vegetative and allergic disturbances and chronic inflammations. This also brought up the question of the influence of the diet on tuberculosis, and especially on skin tuberculosis.

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Vogt JH, 1941 (cont)

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- Under the experimental procedure employed, a rabbit weighing 2 kg at about 100 g oats and 1-2 g hay per day. A rabbit of the same size on a green diet consumed on the average 50 g carrots, 250 g cabbage and 400 g dandelion greens per day.
- The potassium content of the plasma is on the average markedly higher in both periods in the green-fed animals, $t = 3.808$, $P < 0.01$.
- Under otherwise constant conditions, a greenstuff diet will increase the K/Ca quotient in the plasma in comparison with an oat diet.

Vogt JH, 1941 (cont)

- The alkaline reserve shows the expected relation. The variability is very large, but it is clear that the carbon dioxide capacity is greater in all periods in the green-fed animals.
- In comparison with a green diet, a predominantly oat diet increases the irritability of the skin. The difference is apparent within 3 or 4 weeks.
- In comparison with a green diet, a predominantly oat diet increases the potassium content of the skin and its K/Ca.

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Vogt JH, 1941 (cont)

The recurrent difference between the 2 groups in both experiments 9 and 10 makes it *a priori* probable that it is due to the difference in the diet, and not to the potassium or calcium content, but probably due to the diet's sodium content.

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To recap — and this is, I think, well worth discussing — *the green diet increases plasma potassium and reduces skin irritability; the grain diet decreases plasma potassium and increases skin irritability. The findings suggest that increased plasma potassium (which resulted from a green diet but not from supplemental potassium salts per se), benefits cells of probably all tissues. This prediction is consistent with Ling's association-induction hypothesis.* That was my comment.

Last week there was an article in the newspaper where a researcher observed that a sixty-five year old male professional bicyclist, well, a number of these sixty-five year old bicyclists, had poor bone density, on par with a sixty-five year old woman. He suggested that they were not getting enough impact exercise, that bicycling itself was too fluid or something, like swimming, and that that was what was causing the problem. I had just recently read and entered Vogt's stuff. This is a hundred-page long paper, by the way; I spared you a lot. And I thought to myself, "Gee, I wonder if those pro

cyclists were packing carbohydrates with pasta and neglecting to eat their greens." Because what Vogt found was that the animals, the rabbits, on the oat diet had a tendency to develop hind-quarter paralysis, and on autopsy it was discovered that they had multiple vertebral stress fractures. The grain diet: multiple vertebral stress fractures caused by grain feeding.

(Robert Rowen: Gar, I noticed on here that the rabbits were fed potassium salts, but the conclusion of this says...)

Yeah, there were ten experiments. I didn't go through them because they were almost all negative. There was the addition of potassium salts, the high and low sodium, and the high and low calcium, and nothing made a difference except for the diets themselves. And I think that's the take home message.

(Robert Rowen: I think that's an incredible message. Diet trumps supplements.)

Diet trumps supplements across the board — across the board. You can't get where you want to go out of the pill bottle off the health food store shelf, no matter who put it together or formulated it.

So, next we're going to turn to something that I think is very, very special. When my teacher, Freeman Cope passed away... oh, okay (acknowledges participant.)

(Academy member: Just one more point on this issue. It really gives us pause about the so-called Mediterranean diet with the emphasis on the grains. I think there's lots of variability with people from the Mediterranean ... really more fruits and vegetables, and perhaps fish. But a lot of people interpret that as lots of pasta and lots of grains, and I think there's a huge difference).

I agree with you totally. I think that the only evidence that we really have available from studies that were aimed at foods, *per se*, are supportive of the fact that eating plants, whether that's fruits or vegetables, eating plants, *per se*, is the good thing to do; and that grains are a supplement. You should eat your fill of the vegetables and fruits first and then, if you want, have some grain. And that other food choices are discretionary, sort of elective, and that they should be kept to a smaller percentage of the diet if one really wants to affect health. And, of course, the advantage of greens is that you hyperaliment all those tens of thousands of phytochemicals that are different from one plant to another — we don't even know what they are, just look at the color, and make sure that your plate is very, very colorful. And enjoy it. I feel like I'm talking to you like you don't know this when you obviously — most of you do.

Vogt JH, 1941 (cont)

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To recap:

Green diet → plasma K⁺ ↑ + skin irritability ↓

Grain diet → plasma K⁺ ↓ + skin irritability ↑

The findings suggest that increased plasma K⁺, (which resulted from a green diet but not from supplemental K⁺ salts *per se*), benefits cells of probably all tissues. This prediction is consistent with Ling's association-induction hypothesis.*

*The association-induction hypothesis. A theoretical foundation provided for the possible beneficial effects of a low Na, high K diet and other similar regimens in the treatment of patients suffering from debilitating illnesses.
Ling GN
Agressologie. 1983 Jun;24(7):293-302.

Part IV Glucose, Insulin, Cancer, and Tissue Damage Syndrome

When Freeman passed away, I got a packet in the mail from Dr. Demetrio Sodi-Pallares. Some of you may know Dr. Sodi-Pallares was the head of the Mexican Medical Association and the Mexican College of Cardiology. He was a member, until he died recently, of every international college of cardiology. He developed the glucose-potassium-insulin drip during the 1940s for intervention after infarct, and is widely regarded as having been a seminal contributor to cardiac medicine.

Sodi had been working with Freeman — he was going to publish some papers — I have them in my drawer at home in type script because he sent them to me and he said, if you want to publish them in the Gerson Institute's literature, feel free to. I never felt that it was appropriate to tar Sodi with the Gerson Institute, which was way, way too "that way" — not "sciency" enough; and Sodi was for real.

So here, I am going to share with you the Maestro's take on potassium and sodium, glucose and insulin, and I'm going to tie this together with Gerson, but I won't have to because Sodi is going to do it, too, in the context of the paper.

This is *Beneficial Effects of Polarizing Therapy (High Potassium, Low Sodium, Glucose and Insulin) in Advanced Cancer — Report of Four Cases*. Now, none of these cases was cured, but all of them were greatly improved and had a clinical bounce, and that was what was important. There was tumor shrinkage that was visible with photographs. I didn't include them with this presentation, but it was reasonable, it was remarkable enough that I looked at and said, "My God, this is so important. Why don't people know this? And why would people not publish Sodi already?" I mean, he was published everywhere, but in heart.

Introduction — and just let this melt in your mouth slowly; this is just brilliant — *Between the necrotic tissue of a cancer and normal body cells, there is a transitional zone of living but damaged tissue, which presumably has the same biochemical characteristics as damaged tissue anywhere else in the body*. Remember that he was using GKI in heart because the left ventricle was ischemic and he needed to repolarize the tissue, because it was swollen with too much salt and water and he wanted to save it so it wouldn't be permanently damaged. *These biochemical characteristics have been described by Cope under the title of the "damage tissue syndrome*. Actually it was "The Tissue Damage Syndrome," but you know — Sodi's Latino translation; it makes more sense in Spanish; damage tissue syndrome — *According to Cope, in any damaged tissue the following abnormalities exist: intracellular sodium concentration is increased; intracellular potassium concentration is diminished; intracellular water is also increased; the supply of metabolic energy (ATP) is decreased or disappears*.

Beneficial Effects of Polarizing Therapy (High Potassium,
Low Sodium, Glucose and Insulin) in Advanced Cancer.
Report of Four Cases.

by

Demetrio Sodi-Pallares
Electrocardiografía Telefonica, S.A.
Tabasco 294
México 7, D.F.
México

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INTRODUCTION

Between the necrotic tissue of a cancer and normal body cells, there is a transitional zone of living but damaged tissue, which - presumably has the same biochemical characteristics as damaged -- tissue anywhere else in the body. These biochemical characteristics have been described by Cope under the title of the "damage tissue - syndrome".

According to Cope, in any damaged tissue the following abnormalities exist¹:

Intracellular sodium concentration is increased.
Intracellular potassium concentration is diminished.
Intracellular water is also increased.

The supply of metabolic energy (ATP) is decreased or -- disappears.

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On these four advanced cancer patients, I used experimentally the same 'polarizing therapy' which I had found beneficial in relieving pain of angina pectoris or myocardial infarction (an experience based on thousands of cases). I surmised that the pain of both cancer and of myocardial infarction might arise from the regions of tissue damage, and therefore that the polarizing therapy aimed specifically at partially correcting the 'tissue damage syndrome' might relieve pain in cancer as I had observed it to do in myocardial infarction.

The three cancer patients in terminal condition were hospitalized and given the polarizing treatment as follows: A strict low sodium diet (360 mg); high potassium (3.6 grams). This diet was developed by Sodi-Pallares in 1944 to treat severe cardiac insufficiency. Many years earlier, Gerson developed a similar diet to treat cancer patients. In addition, polarizing solutions containing glucose, insulin and potassium chloride were given intravenously, on a continuous schedule, for a period of days or weeks.

In one patient with skin carcinoma, the polarizing solution was given continuously for one month. The details of the solutions and of their administration were as described in my book. His book is *Polarizing Treatment: New Metabolic and Thermodynamic Basis*. It was on the old Tampa Tracings label. You can find it by searching Sodi-Pallares, and if you luck out, you can find it on Amazon used books. The fourth patient was not hospitalized, and followed the same diet and received very day slow acting insulin — insulin lente; they don't make it anymore — instead of the intravenous polarizing solution. Since the patient was not diabetic, glucose (in the form of honey) and potassium (in the form of four or five fruits daily) — how wise, not KCl tablets, four or five pieces of fruit — as polarizing supplements in the diet.

Since in the four hopeless cancer patients, pain was markedly reduced within a few days by the polarizing therapy, as is observed with myocardial infarctions, I suggest that a similar mechanism for the production of pain may exist in the damaged tissue of cancer as occurs in the damaged tissue of recent myocardial infarctions.

Strengthening the tissue, normalizing the tissue surrounding the tumor, the peritumoral tissue, the dead zone, or the damaged zone, makes sense; but it didn't account for tumor shrinkage, in my mind. And I went looking into the literature to see if there were not some other mechanisms. And in the same year, published in *Cancer Research*, Edgar Jähde and his colleague Manfred Rajewsky published *Tumor-selective Modification of Cellular Microenvironment in Vivo: Effect of Glucose Infusion on the pH in Normal and Malignant Rat Tissues*.

Now this is sort of important if you think about the fact that, for example, Gerson was having his patients drink carrot-apple juice every hour, or a green juice sweetened with apple, every hour; and every hour that meant a little hit of glucose, a little rise of the glycemic index, and a little back fire of insulin to manage the glucose. And one would

Sodi (cont)

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The 3 cancer patients in terminal condition were hospitalized and given the polarizing treatment as follows: A strict low sodium (360 mg) high potassium (3600 mg) diet was administered. This diet was developed by Sodi-Pallares in 1944 to treat severe cardiac insufficiency⁶. Many years earlier, Gerson⁷ developed a similar diet to treat cancer patients. In addition, polarizing solutions containing glucose, insulin and potassium chloride were given intravenously, on a continuous schedule, for a period of days or weeks.

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Sodi (cont)

In one patient with skin carcinoma, the polarizing solution was given continuously for one month. The details of the solutions and of their administration were as described in my book⁵. The fourth patient was not hospitalized, and followed the same diet and received every day slow acting insulin instead of the intravenous polarizing solution. Since the patient was not diabetic, glucose (in the form of honey) and potassium (in the form of 4 or 5 fruits daily) as polarizing supplements in the diet were administered.

Discussion

Since in the 4 hopeless cancer patients, pain was markedly reduced within a few days by the polarizing therapy, as is observed with myocardial infarctions, I suggest that a similar mechanism for the production of pain may exist in the damaged tissue of cancer as occurs in the damaged tissue of recent myocardial infarctions⁵.

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think, according to Donsbach, *et al*, that this would grow the tumor; I mean, that's the story that everybody is circulating, and the cancer patients that you see probably all come to you worried about, "If I eat fruit, won't it grow my tumors? Because sugar grows tumors doesn't it? I mean, a PET scan sees tumors because it takes up sugar." Well the fact of the matter is that, when a pH meter was inserted in tumor bearing rats, in normoglycemic rats — I mean, you have a pH in tumors that's about (the same as) brain or kidney, 6.9 or about 7.0 — but at 6 hours of induction of hyperglycemia with continuous IV infusion of glucose, average pH in the tumors had fallen to 6.7 at a serum concentration of 27mM, and to 6.1 at a serum glucose concentration of 50 mM.

What you're seeing here is a mechanism that one would not have expected; that carbohydrate feeding and/or glucose infusion might, in fact, alter the microenvironment and the interstices of the tumor to induce lactic acid production that would cause acidification and necrosis of the tumor; and that is exactly what these researchers found.

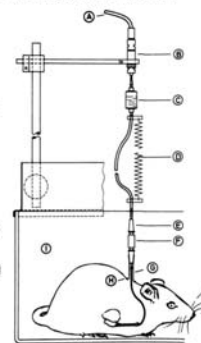
A controlled tumor-selective decrease of pH may be of practical interest in various respects. In tissue culture, the proliferation and survival of malignant cells is sensitive to changes of extracellular pH (pHe). At a serum glucose concentration of 50 mM, approximately 90% of the pH values measured in tumors weighing four-to-six grams were = 6.3. At this pH, proliferation of various animal and human tumor cell lines in vitro is severely depressed or completely inhibited. Similarly, the clonogenicity of cultured human malignant cells is reduced to approximately 1% of the optimal values at this pH. I think that we have to look for mechanisms where we can find them. Later, Jähde and Rajewsky illustrated that tumor glucose binding is uninhibited at any level of glucose concentration in serum — they will take whatever is available to them — they have no table manners. The same is true when the insulin is being passed around the table. The tumor will take insulin in the concentration that is available in the serum. What we have to recognize is that there are precious few ontological differences between the malignant cell and the parent cell, but there are a few. And they should be exploited.

The next step is to ask is about whether or not this GKI stuff can be of any value. I just looked in the recent literature to see what I could find, and I found an article by AF Hill in the *Journal of Immune Based Therapies and Vaccines*, *The significance of glucose, insulin and potassium for immunology and oncology: a new model of immunity*, in which they explain their methods: *The antitumor effect of a thyroxine, glucose, insulin, and potassium combination was studied in a series of controlled experiments in murine models of tumor progression to assess the biologic activity of the formulation, and the effect of route of administration, the effect on tumor type, and the requirement for insulin in the TGIK formulation.* And their results were: *Melanoma and colon tumors inoculated — this is intratumorally — with TGIK were significantly reduced in size or retarded in growth compared to controls injected with saline. IP and IM injections showed that the formulation had no effect systemically at the doses administered.* And of course these are not Sodi's doses — these are tiny doses that are going into the tumor microenvironment.

**Tumor-selective Modification of Cellular Microenvironment in Vivo:
Effect of Glucose Infusion on the pH in Normal and Malignant Rat Tissues**
Jähde E, Rajewsky MF *Cancer Research*. April 1982;42:1505-1512

In normoglycemic rats, the pH in TV1A tumors was only slightly lower than in brain or kidney (6.9 – 7.0). However, at 6 hr after the induction of hyperglycemia by continuous i.v. infusion of glucose, the average pH in TV1A tumors had fallen to 6.7 at a serum glucose concentration (SGC) of 27 mM and to 6.1 at an SGC or 50 mM.

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Jähde E 1982 (cont)

A controlled tumor-selective decrease of pH may be of practical interest in various respects. In tissue culture, the proliferation and survival of malignant cells is sensitive to changes of extracellular pH (pH_e). At an SGC of 50 mM, ~90% of the pH values measured in TV1A tumors weighing 4 to 6 g were = 6.3. At this pH_e , the proliferation of various animal and human tumor cell lines *in vitro* is severely depressed or completely inhibited. Similarly, the clonogenicity of cultured human malignant cells is reduced to ~1% of the optimal values at this pH.

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The significance of glucose, insulin and potassium for immunology and oncology: a new model of immunity

Hill AF, Polvino WJ, Wilson DB
J Immune Based Ther Vaccines. 2005 Aug 19;3:5.

Methods: The antitumor effect of a thyroxine, glucose, insulin, and potassium (TGIK) combination was studied in a series of controlled experiments in murine models of tumor progression to assess the biologic activity of the formulation, the effect of route of administration, the effect on tumor type, and the requirement for insulin in the TGIK formulation.

Results: Melanoma and colon tumors inoculated with TGIK were significantly reduced in size or retarded in growth compared to controls injected with saline. I.P. and I.M. injections showed that the formulation had no effect systemically at the doses administered.

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Looking a little further, I found Langley and Adams writing in *Diabetes Metabolism Research Review*, *The Insulin-based regimens decrease mortality rates in critically ill patients: A systematic review*.

Their objectives were: *To determine whether treatment with glucose-insulin-potassium, insulin and glucose, or insulin by itself is beneficial in limiting organ damage after acute myocardial infarction and reducing mortality and morbidity among critically ill hyperglycemic patients.* And of course, if you've seen much advanced cancer, you know a lot of these people have had type II diabetes onset precede the development and the diagnosis of malignant disease. They're having trouble with sugars all the time. Their methods — they just did a systematic review of randomized controlled trials like the Cochran Collaboration. Conclusions were that: *There is increasing evidence that maintaining normoglycaemia and treatment with insulin-based regimens is beneficial in limiting organ damage and significantly reduces both morbidity and mortality in critically ill patients who require intensive care therapy.*

Insulin-based regimens decrease mortality rates in critically ill patients: A systematic review
Langley J, Adams G
Diabetes Metab Res Rev 2007;23:184–192

Objectives To determine whether treatment with glucose-insulin-potassium (GIK), insulin and glucose, or insulin by itself is beneficial in limiting organ damage after acute myocardial infarction (AMI) and reducing mortality and morbidity among critically ill hyperglycaemic patients.

Methods Systematic review of randomized controlled trials.

Conclusions There is increasing evidence that maintaining normoglycaemia and treatment with insulin-based regimens is beneficial in limiting organ damage and significantly reduces both morbidity and mortality in critically ill patients who require intensive care therapy.

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If you have somebody with ascites or pleural or pulmonary effusions, you can really begin to manage the effusions simply by polarizing the tissue with GKI drips. And it doesn't take very long — a couple of days — and you begin to see reduction without, say, thoracentesis. It's a practical approach. It is labor intensive. That is the trouble with most of these therapies. It's labor intensive. It makes the doctors and nurses work a lot harder. But having an answer other than Lasix in a case like that is kind of nice.

(Mark Rosenberg: Gar, if I can ask, probably everybody knows, you know, when we have someone with mets to the liver, or even primary hepatic cancer, when they develop significant ascites, where we would normally have to do paracentesis weekly, they are dead within three months. Are you saying that you can take these people with significant ascites and use GKI and reverse that?)

Occasionally, but it's certainly not a certain deal. When you're talking about profound ascites due to a burden of disease in the liver that's massive, you know, the best you can hope is that you can stabilize the patient. And if you get really, really, really lucky, and everything lines up right, someone might get better. But, no, there's a certain point at which you're facing insurmountable odds.

(Mark Rosenberg: Because I've really had very minimal success when I have large ascites).

Yes, that's awfully difficult territory. That's the point at which you start thinking about Denver shunts and things like that.

(Academy member: For palliation, just very temporary, obviously, but albumin infusions work really well.

Sure, albumin really helps.

(Mark Rosenberg: I've stopped doing it; I mean, it's just so temporary).

(Academy member: It's very temporary, but in the few cases when we've been able to do that and make people feel better, while these were patients who had advanced cancer but were never treated, and the treatment really worked, they really responded, those few days gave them the emotional room to see the whole thing through and they really did well.

Let me turn the clock back now and look at the work of the great Christine Waterhouse and her colleagues. This is going to be the last segment here. This will lead us into the work of Gilbert Ling and the most exciting article ever published in *Science Magazine* that none of us knows about. And there's no such thing as a sodium pump. There, I've said it.

Back in 1951, publishing in *Cancer*, Waterhouse published an article on *Nitrogen exchange and caloric expenditure in patients with malignant neoplasms* — and her own words are so powerful — *A final word should be said about this patient's weight curve. Electrolyte-balance studies were done in this case and, even after correcting the calculations for a liberal skin loss, there was retention of rather large amounts of salt. This undoubtedly accounts for the patient's failure to lose weight during the period of the study.*

Also from Waterhouse, *It has been demonstrated that the water content of malignant tissue, itself, is increased.* This is 1955. Why don't we know this now? Why don't we use this now?

Body composition changes in patients with advanced cancer. This is Albert Craig as well as Christine Waterhouse in 1957, *Recent communications from this laboratory have emphasized that gross-weight changes in patients with advanced cancer may be minimal, even when large amounts of body fat are being lost. Under these conditions it has been shown that there may be a great gain of total body water even though there may be no detectable edema. Why don't they teach us that? "In addition many of these patients exhibit high rates of caloric expenditure and react to "forced" feeding in abnormal patterns."*

Now, forced feeding — this is really disgusting, but I'm going to put it up here anyway — Ernst Wynder labored for years to show that fats, while not causative of cancer, are promoters of existing cancers, and he certainly knew Waterhouse's work.

Metabolic observations during the forced feeding of patients with cancer. Supplementation was accomplished by the use of concentrated oral feedings given, when necessary, by means of intubation. Dr. Mengele, are you here? It soon became obvious that these large involuntary increases in food intake were not well tolerated over long periods of time, even when the feedings were given by gastric tube, and for this reason the periods of forced feeding were relatively short in some cases.

Nitrogen exchange and caloric expenditure in patients with malignant neoplasms
Waterhouse C, Fenninger LD, Keutmann EH
Cancer. 1951;4(3):500-514

A final word should be said about this patient's weight curve. Electrolyte-balance studies were done in this case and, even after correcting the calculations for a liberal skin loss, there was retention of rather large amounts of salt. This undoubtedly accounts for the patient's failure to lose weight during the period of the study.

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Gross electrolyte composition of certain human malignant tissues
Waterhouse C, Terepka AR, Sherman CD Jr
Cancer Research 1955;15: 544-549

It has been demonstrated that the water content of malignant tissue, itself, is increased.

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Body composition changes in patients with advanced cancer
Craig AB Jr, Waterhouse C
Cancer. 1957;10(6):1106-1109

Recent communications from this laboratory have emphasized that gross-weight changes in patients with advanced cancer may be minimal, even when large amounts of body fat are being lost. Under these conditions it has been shown that there may be a great gain of total body water even though there may be no detectable edema. In addition many of these patients exhibit high rates of caloric expenditure and react to "forced" feeding in abnormal patterns.

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Metabolic observations during the forced feeding of patients with cancer
Waterhouse C, Terepka R
Am.Jnl.Med. Feb, 1956

Supplementation was accomplished by the use of concentrated oral feedings given, when necessary, by means of intubation. It soon became obvious that these large involuntary increases in food intake were not well tolerated over long periods of time, even when the feedings were given by gastric tube, and for this reason the periods of forced feeding were relatively short in some cases.

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Our data do not warrant any direct analysis of these changes but if one assumes that the calculated caloric discrepancy is approximately correct and that this is all made up by body fat stores, in every instance a gain in weight as a result of forced (fat) feeding was due almost entirely to a gain in intracellular fluid.

Forced feeding seemed capable of disturbing the balance, which had been established between host and tumor, to the apparent detriment of the host. In the patient who could be followed closely for a long period of time, the change once produced, was apparently irreversible. Clinical evidence suggested acceleration of the malignant process during and after forced feeding in this group of patients, and the basal metabolic rate and caloric expenditure determinations also indicated this.

Now, I think about the TPN conference that we attended where Dr. Pauling spoke, and I think about the lipid mix in the TPN, and I wonder what these guys were thinking: "But hey, we're just putting food in the veins, and food doesn't have anything to do with tumor growth; we all know that."

So, now I'm going to move...oh, yeah, Mark?

(Mark Rosenberg: I'm sorry, just to let you know, 50 mM/liter of glucose is 900 mg/dl.)

(Physicians: Whoo! *Astonished exclamations, etc.*)

Wowie, zowie. High enough for you. Okay, thank you for that.

Now we're going to move some mind blowing research. Nowhere in the textbooks of our medical schools do we find hypotheses with predictive value regarding the restriction of sodium and supplementation of potassium, because the model of cell-ion-and-water management that is taught is wrong.

My teacher's mentor, Gilbert Ling, who is still the chief scientist at FONAR Corporation (the first MRI manufacturer, the home of Ray Damadian and his machines — Gilbert Ling published in 1976 in *Science* an article entitled, *What Retains Water in Living Cells?* And I've done my best to just parse this out — to get you through it easily:

Three types of evidence are presented showing that the retention of cell water does not necessarily depend on the possession of an intact cell membrane. The data agree with the concept that water retention in cells is due to multilayer adsorption on proteins and that the maintenance of the normal state of water relies on the presence of adenosine triphosphate as a cardinal adsorbent, controlling the protein conformations.

Metabolic observations during the forced feeding of patients with cancer
Waterhouse C, Terepka R
Am.Jnl.Med. 1956 Feb;20(2):225-38

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What Retains Water in Living Cells?
Ling GN, Walton CL
Science. 1976 Jan 23;191(4224):293-5

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Abstract. Three types of evidence are presented showing that the retention of cell water does not necessarily depend on the possession of an intact cell membrane. The data agree with the concept that water retention in cells is due to multilayer adsorption on proteins and that the maintenance of the normal state of water relies on the presence of adenosine triphosphate as a cardinal adsorbent, controlling the protein conformations.

Now this means that ATP is not an energy battery to be spent and recharged, going from mono- to triphosphate, but that it functions as in physics. We have to cross the wall of mathematics from wet chemistry into physics to get here, to something called the linear Ising model of spontaneous magnetism in phase changes. Chen Ning Yang, who won a Nobel Prize for advancing the linear Ising model of spontaneous magnetism in phase changes, was Ling's room mate at the University of Illinois at Chicago. Ling, by the way, advanced the glass micro-electrodes so that you could insert it into a cell without killing it and measure transmembrane electrical potential. That's his claim to fame.

This report describes new experimental findings, obtained by a recently described simple centrifugation technique...Frog sartorius muscles were centrifuged for 4 minutes at 400 – 1500 g to extract a constant volume of water, equal to the volume of the extracellular fluid in the muscles... A frog sartorius muscle consists of many parallel single cells elongated in shape, each approximately 3 cm in length. To destroy the intactness of the cell membrane, we made about fifteen cuts at 2-mm intervals on alternate sides of each muscle almost to the other edge... The amount of fluid removable by centrifugation at 1000 g for four minutes remained the same in intact frog sartorius muscles and in muscles cut into open-ended segments...

Well, think about it. When you cut a vegetable, it doesn't flood out water, and when you're in a surgical site, when you're working, when you're cutting, you don't have to suction water because the cells don't just suddenly flood water into the surgical opening do they? We've been listening to a mythology for years, that the membrane controls cell hydration. It's a mythology, and the evidence is in our face against it. All right?

Four methods showed that no regeneration of the destroyed cell membrane occurred. That's the question you have to ask. Could the membrane reseal if you cut the cell? By leaching frog sartorius muscles in several changes of a large volume of cold, distilled, ion-free water, the bulk of intracellular ions were removed. The only non-aqueous major component left in the cells was the proteins. After centrifugation for four minutes at 1000 g the leached muscles retained an amount of water equal to that in the intact muscles. Such extensively leached muscles have lost the intactness of the cell membrane as well as the bulk of intracellular solutes. In the conventional membrane-pump model, only a few percent of the observed water retention would be expected.

Summarizing the three types of studies, we conclude that the intactness of the cell membrane and even the presence of the intracellular solutes are not indispensable for the retention of an amount of cell water equal to that found in normal living muscle cells. All three sets of data are in harmony with the view that the seats of water retention in living cells are the cellular proteins.

Ling GN, Walton CL 1976 (cont)

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Ling GN, Walton CL 1976 (cont)

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We next investigated whether metabolism plays a role in the retention of water as suggested by the association-induction hypothesis. Here we are going to revisit the tissue damage syndrome. We'll get back into it. To this end, — the tissue damage syndrome mentioned by Demitrio Sodi-Pallares, describing the rim of transitional tissue between the tumor and the normal cells, right? The damaged tissue. To this end, we studied the effects on a variety of frog and rat tissues of three metabolic poisons... (blocking respiration, blocking phosphorylation, and blocking glycolysis). In response to these three poisons, there was as a rule an increase in the total water content of the tissues...Changes include a massive increase in cytoplasmic volume and swelling and shape distortion of mitochondria and endoplasmic reticulum.

This is one of the reasons that, when I speak to folks in methodology, I just remind them constantly, look, there is a mitochondrial disease component in cancer; they're sick, at least in some tissues in the body. *Thus, swelling in response to metabolic interference reflects primarily an increase in intracellular water content in both amphibian and mammalian tissues.*

Now, here's Freeman Cope: *Modern experimental evidence indicates that the cell should be regarded as analogous to an ion exchanger resin granule — like a water softener — with structured water in the interstices and with potassium and sodium ions associated with fixed negative charges on the protein matrix. In tissues damaged by disease or trauma, a similar set of changes in properties of cell cations and water is to be expected, for which a similar set of therapies is appropriate. Tissue damage causes a configurational change of the protein matrix from the normal to the damaged state. This leads to loss of association preference for potassium vs. sodium ions —*

right, they are equivalent, but biologically, they behave differently — *and to loss of water structuring, resulting in replacement of cell potassium by sodium and abnormal uptake of water by the cell.*

Ling GN, Walton CL 1976 (**cont**)

We next investigated whether metabolism plays a role in the retention of water as suggested by the association-induction hypothesis. To this end, we studied the effects on a variety of frog and rat tissues of three metabolic poisons...(blocking respiration, phosphorylation, and glycolysis).

In response to these poisons, there was as a rule an increase in the total water content of the tissues...

Changes include a massive increase in cytoplasmic volume and swelling and shape distortion of mitochondria and endoplasmic reticulum.

Slide 140

Ling GN, Walton CL 1976 (**cont**)

Thus, swelling in response to metabolic interference reflects primarily an increase in intracellular water content in both amphibian and mammalian tissues.

Slide 141

Pathology of structured water and associated cations in cells (the tissue damage syndrome) and its medical treatment.

Cope FW
Physiol Chem Phys. 1977;9(6):547-53

Slide 142

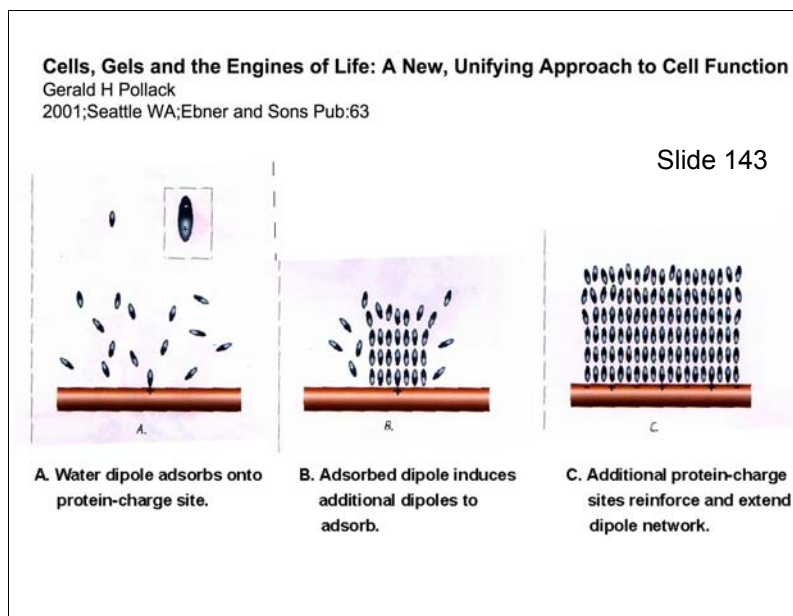
Modern experimental evidence indicates that the cell should be regarded as analogous to an ion exchanger resin granule with structured water in the interstices and with potassium and sodium ions associated with fixed negative charges on the protein matrix. In tissues damaged by disease or trauma, a similar set of changes in properties of cell cations and water is to be expected, for which a similar set of therapies is appropriate. Tissue damage causes a configurational change of the protein matrix from the normal to the damaged state. This leads to loss of association preference for potassium vs. sodium ions and to loss of water structuring, resulting in replacement of cell potassium by sodium and abnormal uptake of water by the cell.

Now, here I just want to plug Gerald Pollack's monograph, *Cells, Gels and the Engines of Life: A New, Unifying Approach to Cell Function*. The first third of this monograph revisits Ling, and describes his methodical, elegant chain of experimentation leading to a renewed gel theory of cellular life, or the living state. And what you can see here is that the water, acting as a dipole, can form multiple layers — multiple layers — it is structured; it is a gel. That's why it doesn't fall out of the cell when you cut. That's why you don't suction water out of a surgical site.

The metabolic poisoning that we talk about Cope defined as tissue damage syndrome, and he pointed out that its causes were universally oxygen starvation, trauma, poisoning and nutrient deficiency. And those are themes that I have heard in this fellowship uttered by a number of speakers, coming from a number of different angles. Certainly Robert has addressed some of these issues, and certainly Mark has.

The outcomes in the cell of tissue damage syndrome are loss of potassium, increase of sodium, swelling with water, and loss of cell energy production.

Now, it looks like progressive shock. I just took this out of Guyton — Guyton's *Physiology*. When you watch progressive shock you see *sodium and chloride accumulate in the cells and potassium lost from the cells...the cells begin to swell...The mitochondrial activity in the liver cells, as well as in many other tissues of the body, becomes severely depressed...Lysosomes begin to split in widespread tissue areas, with intracellular release of hydrolases that cause further intracellular deterioration...Cellular metabolism of nutrients such as glucose eventually becomes greatly depressed*. In other words, the cell swells, and transport goes to hell, and the mitochondria begin to die.



Tissue Damage Syndrome (outcomes)

- Loss of potassium
- Increase of sodium
- Swelling with water
- Loss of cell energy production

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Generalized Cellular Deterioration of Progressive Shock Slide 146

Guyton AC, Ed.
Textbook of Medical Physiology, 7th Ed. 1986;Philadelphia PA:330

- Sodium and chloride accumulate in the cells and potassium is lost from the cells. In addition, the cells begin to swell.
- Mitochondrial activity in the liver cells, as well as in many other tissues of the body, becomes severely depressed.
- Lysosomes begin to split in widespread tissue areas, with intracellular release of hydrolases that cause further intracellular deterioration.
- Cellular metabolism of nutrients such as glucose eventually becomes greatly depressed in the last stages of shock.

Tissue Damage Syndrome (Causes)

- Oxygen starvation
- Trauma
- Poisoning
- Nutrient deficiency

Slide 145

A Transcriptional Signature and Common Gene Networks Link Cancer with Lipid Metabolism and Diverse Human Diseases
Hirsch, H, et al
Cancer Cell Ap 13, 2010;17:348-361

A common Molecular Signature for Diverse Human Diseases

Clinical and epidemiological studies have linked cancer with inflammatory and metabolic diseases...Our cancer gene signature and underlying regulatory networks significantly extend these observations by linking cancer with a variety of human diseases in a genome-wide manner that is based solely on experimental models of cellular transformation.

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Hirsch, H, et al, 2010 (cont)

...Our cancer gene signature contains only 343 genes, whereas thousands of genes are differentially regulated in only one experimental model...An important consequence of this specificity is our discovery of genes involved in lipid metabolism as contributing to cellular transformation.

Slide 149

Hirsch, H, et al, 2010 (cont)

More importantly, our results indicate that many disease states share common molecular properties and biological programs. These similarities go beyond pairwise connections between cancer and a particular disease or regulatory pathway. Further, they do not simply reflect a stress response, because the transcriptional signature is not linked to any stress conditions.

Slide 150

Hirsch, H, et al, 2010 (cont)

Instead, our results strongly argue that a core group of biological pathways is critical for normal cellular growth and behavior in a variety of cell types. Genetic or physiological disruption of these pathways leads to a transcriptional signature that is common to a diverse set of human diseases.

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Epigenetics (Slide 147)

Now, so that we have a little time for questions, let me close this with some general comments in the realm of epigenetics, and not because I think that gene therapy is where we're headed, but because I think that epigenetics is going to confirm some measurements and observations that have been made by people as long as fifty or seventy-five years ago. Very recent research reveals that up and down regulation of genes by epigenetic influences are strikingly similar across a wide range of diseases suggesting that Gerson's application of a diet therapy effective in tuberculosis could reasonably be expected to influence cancer, a disease that is thought to be completely unrelated to tuberculosis or any other infection.

Hirsch published April 13, of this year, *A Transcriptional Signature and Common Gene Networks Link Cancer with Lipid Metabolism and Diverse Human Diseases. A common Molecular Signature for Diverse Human Diseases*. Now this is just breathtaking. *Clinical and epidemiological studies have linked cancer with inflammatory and metabolic diseases...Our cancer gene signature and underlying regulatory networks significantly extend these observations by linking cancer with a variety of human diseases in a genome-wide manner that is based solely on experimental models of cellular transformation.*

Our cancer gene signature contains only 343 genes, whereas thousands of genes are differentially regulated in only one experimental model...An important consequence of this specificity is our discovery of genes involved in lipid metabolism as contributing to cellular transformation.

More importantly, our results indicate that many disease states share common molecular properties and biological programs. These similarities go beyond pair wise connections between cancer and a particular disease or regulatory pathway. Further, they do not simply reflect a stress response, because the transcriptional signature is not linked to any stress conditions.

Instead, our results strongly argue that a core group of biological pathways is critical for normal cellular growth and behavior in a variety of cell types. Genetic or physiological disruption of these pathways leads to a transcriptional signature that is common to a diverse set of human diseases.

Now, here we're getting at a unified theory that explains why lifestyle approaches, and approaches that use normal inputs at higher than normal levels, like orthomolecular medicine or oxygen medicine, can have profound effect. Are we looking at genes that are related to metabolic damage? Would we see the tissue damage syndrome across the board in these diseases? The answer is, of course, we would.

Genetic or physiological disruption of these pathways leads to a transcriptional signature that is common to a diverse set of human diseases. I love that sentence.

The existence of a common transcriptional program and regulatory network for many diseases suggest that drugs used to treat one disease may be effective against other diseases. Paul, for example, is using Metformin to treat cancer of the breast. Why would that work? It's a diabetes drug. And yet it does. In this regard, 11 out of 13 drugs used to treat non-cancer diseases inhibit cellular transformation... In nude mice, tumor growth was completely suppressed by Metformin and sulindac, and significantly delayed by cerulenin and simvastin. Metabolic treatment; who knew?

Drugs designed to combat metabolic diseases can preferentially inhibit transformed cells, and hence may be useful in treating some types of cancer.

So now I'm going to turn us back to green foods, to plant foods, with a little snippet from Colin Campbell's *China Study*. Dr. Campbell writes, *Using diet as an effective treatment of already-diagnosed disease has been well documented in human studies with advanced heart disease* — and that would be Dean Ornish and also Esselstyn for the heart disease — *clinically documented in Type 2 diabetes*, — no cite needed — *advanced melanoma*, — that would be the Hildenbrands' study — *and, in experimental studies: liver cancer* — that would be Youngman and Campbell.

When I read Colin's book, I was struck by the fact that he was speaking out against a machine that is so big, and so intertwined with industry, that all he could do was name names, and talk about how it should be, but not how to get there. It is sort of like when we're watching this enormous British Petroleum spill, and we learned that the Mineral Management Service of the Federal Government was having sex and cocaine parties with British Petroleum out on the platform, instead of regulating them. As Colin says, the people who make this horrible crap that they bottle and bag and sell off as food, are the same people telling us what to eat.

Hirsch, H, et al, 2010 (cont)

Slide 152

...The existence of a common transcriptional program and regulatory network for many disease suggest that drugs used to treat one disease may be effective against other diseases. In this regard, 11 out of 13 drugs used to treat non-cancer diseases inhibit cellular transformation...

In nude mice, tumor growth was completely suppressed by metformin and sulindac, and significantly delayed by cerulenin and simvastin.

Hirsch, H, et al, 2010 (cont)

...Drugs designed to combat metabolic diseases can preferentially inhibit transformed cells, and hence may be useful in treating some types of cancer.

Slide 153

**The China Study:
Startling Implications for Diet, Weight Loss and Long-term Health**

Campbell TC, Campbell TM
Dallas TX, BenBella Books, 2006:165

Slide 154

Using diet as an effective treatment of already-diagnosed disease has been well documented in human studies with advanced heart disease,^{48, 49} clinically documented in Type 2 diabetes, advanced melanoma⁵⁰ (a deadly skin cancer) and, in experimental studies,⁵¹ liver cancer.

48. Ornish D, Scherwitz LW Billings JH, et al. Intensive lifestyle changes for reversal of coronary heart disease. *JAMA* 1998 Dec 16;280(23):2001-7

49. Esselstyn CB Jr, Ellis SG, Medendorp SV, Crowe TD. A strategy to arrest and reverse coronary artery disease: a 5-year longitudinal study of a single physician's practice. *J Fam Pract.* 1995 Dec;41(6):560-8

50. Hildenbrand GLG, Hildenbrand LC, Bradford K, et al. Five-year survival rates of melanoma patients treated by diet therapy after the manner of Gerson: a retrospective review. *Altern Ther Health Med.* 1995 Sep;1(4):29-37

51. Youngman LD, Campbell TC. Inhibition of aflatoxin B1-induced gamma-glutamyltranspeptidase positive (GGT+) hepatic preneoplastic foci and tumors by low protein diets: evidence that altered GGT+ foci indicate neoplastic potential. *Carcinogenesis.* 1992 Sep;13(9):1607-13.

And I want to make just a sort of a last comment on the lingering effects of boycott in an anecdote that I think some of you will appreciate. Then I'll open this up for questions, because I don't want to leave it on a sour note, and I know you'll have some interesting comments and questions.

Wayne Jonas suggested to Christeene and myself that we take some of these cases that we'd accumulated over time — the Gerson thing — a lymphoma case, a transitional-cell carcinoma metastasized and become squamous cell in the lungs, ovarian FIGO stage IIIC — take them and show them to Bob Wittes, the chief of the Division of Cancer Treatment at the National Cancer Institute, as a sort of a best case series, which is federal policy. And so we said, "Yeah, we'll do this." We brought the charts, and we brought the films. Have you ever left films on a jet? Oh God, what a bad feeling. We got them back, but, "Where are the films? Oh, my God, they're on the plane."

When we got to Bethesda, the first thing we wanted to do was rush on over to catch Wayne Jonas giving grand rounds to NCI, because Gregory Kurt was going to announce him, and Gregory Kurt is one of the good ol' boys and he hates alternative medicine. And we sat next to Allan Trachtenberg, one of the floating deputy directors of "administratium" there — I don't if anyone has seen that wonderful thing about "administratium" — google administratium as an element. Allan looked like Gerry Garcia, he's got a full black beard and he's wearing this big leather hat with a brim, and long leather coat to the ground, but he's a deputy director and he goes from place to place at NIH — he's a hot shot. And we're there to watch Wayne and watch the fire works as Wayne tells all these staid researchers that monkeys, for thousands of years, have been known to regulate their estrus with botanicals. They regulate their menstrual cycles with botanicals.

Nobody had a problem with that. But when Wayne got to the point that he was pointing out that good, validated studies, had shown, in fact the Cochran Collaboration meta-analysis had validated that homeopathic remedies stopped pediatric diarrhea, these guys lost it. I mean, one after another, they lost it. You could see they were just beet red above the collars and just furious. And one of them stood up and said, "Dr. Jonas, if we are to accept this we have to throw out all of classical chemistry; all of

classical physics." And another guy got up and said, "Certainly there must be something wrong with the methodology," to which Lt. Col. Jonas says, "No, actually, Bob, the methodology was better than your last paper." At any rate, that was a great presentation.

Allan, in the middle of it, looks over and says, "What'cha you got?" I say, "Well, we've got these cases. Wayne wanted us to take them to Bob Wittes over at the Division of Cancer Treatment." He says, "Can I see?" "Sure." So, he starts to flip through them, and he's flipping back and forth, and back and forth, and back and forth, and back and forth. And he says, "This patient didn't get anything but diet therapy?" I said, "That's right." "This is @&%\$*+ # astonishing." I said "Yeah, that's *my* bias." We thought, this is going to go good, it's going to go well.

So, we got on over to the Division of Cancer Treatment and we sat down with Bob Wittes, and he did the same thing; he flipped the cases back and forth, but he wasn't excited; he was concerned, and sort of getting more stern by the moment. And finally he stopped, and he's got, in his hands, he's got this transitional cell metastasized to the lungs, and now it's squamous cell, and then sequential scans showing the complete resolution of these lung tumors, a dozen lung tumors. And he says, "You know..." — now this is the lingering effects I'm talking about here, the lingering effects of the boycotts — he says, "I'd want to see the histological specimens from the rebiopsy of the lung tumors, because if that wasn't squamous cell, if that was still transitional cell, we probably could have got the same result with chemotherapy. Besides, we don't have any money. Wayne's got money. Go talk to Wayne." And that was where it ended.

And that's what we're all up against in the system. That doesn't mean we won't try. When Christeene and I leave here, we will be going in and trying again. We will be working with Janelle Krishnamoorthy, who got the insurance reform thing through for Senator Harkin, she's the chief health aide there, and we're going to be talking about what happened when Coley Fluid disappeared; why the FDA banned streptococcus pyogenes, in any form, in any part, in any preparation for interstate commerce between 1972, informally, through 1979; and then formally from 1979 through June of 2006. So that even if Helen Nauts and Lloyd Old put together the best clinical studies with Havas or Johnston, that no corporate partner was going to step forward because there was no earthly rea-

son to get involved with a product that couldn't be sold. So we're going to try for remedy, but you never know. Things move slowly. You do what you can when you can.

With that said, let me open it up to questions and or comments on the general subjects of plant nutrition, detoxification, sodium restriction, etc.

(Academy member: Regarding preparation of coffee enemas with very-lightly-roasted coffee produced by s.a.Wilsons of Canada).

You have to cook it for longer. You have to keep it simmering like soybeans, because it doesn't release as easily or fast, but it's much more effective and cleaner.

(Academy member: Question: Does (s.a.Wilsons) have a protocol as well?)

No, you might want to go to my website for that and look at Gerson's papers. The protocol for the coffee enema is just so darned simple. It's just that you've got to strain it and get it down to a fever temperature. You don't want cold, you don't want body temperature, you want something slightly warmer than body temperature, say 101°F or so. That should be slowly admitted into the rectum with a tube that has to be only just inside the anal sphincter; it doesn't have to be up there; you don't have to use a clay tube or anything like that. And just trickle that in lying on the right side, retain it for 12 to 15 minutes, if possible. Some people get all gassy and have to blow 'er out earlier, but that's the gist of it. It's a simple procedure, a very simple procedure.

(Academy member: Regarding preparation of the beans).

Preparation of the beans? They come ground. All you gotta do is put 'em in a quart of water and boil 'em. A couple tablespoons.

(Robert Rowen: I have a question regarding coffee enemas. On some of the genomic tests they find that some people don't have a good glutathione S-transferase system. I've seen that in a number of people. Two questions: Do you think that coffee enemas might be a way to get that system up and running in those people, number one, and number two, it seems to me that coffee enemas might be used as a good detoxification for xenobiotic chemicals by getting that GST pathway going again).

Absolutely. Yes to both of those, and I think it's important always with the patients to emphasize that you can really ramp up the glutathione content of your tissue by using

proper inputs, and that's not just salad, but juicing some vegetables and fruits because you want to do this therapeutically in the beginning.

(Robert Rowen: Now, since coffee does this, will you get the same effect on GST by drinking coffee orally?)

Yes, you do. There's, you know, there's a lot of oral coffee consumption data that suggests — I mean the epidemiology is very strong — that in the American diet, it is the most common of the potent antioxidant materials that's used.

(Robert Rowen: So the main difference between drinking it and by enema is that you're getting a colon cleaning out in addition).

It's quantity. It's quantity; you could never drink 5 pots of coffee a day without GI distress. The colon doesn't have any problem with that, and I would point out, too, that the colon is selective absorbent. It's not going to take going to take a lot of caffeine or the isomers of theophylline and theobromine. It repels those, so you don't get caffeinism, which you do get in the upper gut. But you don't get it from the colon, because it's there to clear materials, to extract last sugars and fluids, and it's not interested in caffeine or theobromine or theophylline. But you do get palmitate uptake; you do get increased bile flow; you do get enhanced hepatic transport of toxins and their soluting out in the bile.

(Robert Rowen: So anybody exposed to chemicals...)

It's a logical thing to do. And it's a lot less unnerving than having an NG tube shoved down past your pyloric valve and a bunch of ethylene glycol poured in.

(Christeene: Hildy, didn't the Merck Manual have coffee enemas for detox?)

Yeah, Merck had them until 1972, I think.

(Academy member: In the later protocols, you mention that there is the introduction of liver into the shakes, into the drinks, and I wonder what does that say about the pure plant-based diet versus a diet that includes animal organs with the nutrients that are really not available in plants like vitamin A. Some people don't convert beta carotene well into vitamin A; B12, etc., etc. Does that say anything about the recommendations for eating in general to these patients?)

I think that what it says is that there's wiggle room, and I

tend to fall back on Colin Campbell's stuff. His discover that it was about quantity was just so important because, if you think about the role of the nitrogen donors in nutrition like meats and organs and so on, the heavy nitrogen donors, what we're talking about is fertilization. You know, when you go to fertilize a plant, you want to use enough — but you don't want to use too much, because you'll distort all the properties of the plant, you'll cause burning of the leaves and so on. The same thing happens in humans; if we over-fertilize, we distort our growth properties or our regenerative properties.

(Academy member: Most of T. Colin Campbell's research on protein content, animal protein content, was on casein from what I saw, and really nothing to do with animal organ meats.)

No, to get to the organ-meat feeding and the liver feeding, you really almost have to read medical German, in which case then you'd go back into Gerson's work, and you'd be satisfied that he really did develop some guidelines and had good outcomes based on feeding sometimes fairly large quantities of liver, which he found to be different from the other viscera.

(Academy member: Because, I think, because of its high vitamin A content, vitamin D content.)

Right, and let's not forget the mitochondrial RNA and DNA that would be available. There are all sorts of things in there.

(Academy member: These are not found in a purely plant-based diet.)

Right, and it's a great source of coQ10 for example. There are a lot of things that...in fact, you know, when Frederick Crane was looking at yeast and liver and trying to understand what was in there that wasn't a B vitamin, he came down to this yellow molecule. He didn't characterize it; that was Karl Folkers who did that later and they called it coQ10, coQ6, you know, the different variants on coenzyme Q, which is a nutrient that's essential to the center of metabolism. So, that's in liver.

Comment: I think the big problem now with animal protein is not that it's inherently bad, I think it's the way that the animals are fed, the pollution that they tend to bioaccumulate, obviously, in livers much more than plants.

Robert Rowen: I'd like to comment on this if I might.

Gar: Sure, go ahead, if I could stick in one thing first, and

I would say that, sure, sustainable growing is important and organic certification is important, but also it's quantity, quantity, quantity, because if you go above a certain threshold, you're over-fertilizing the human being. We're constantly regenerating and you're going to distort that process, you're going to distort the process of regeneration by over-fertilization.

(Robert Rowen: Of the four to five longest living cultures in the world, the Hunzas, Vilcabamba in Ecuador, Okinawa, California Seventh-Day Adventists, all except one are virtual vegetarians. The Okinawan's do consume a little bit of fish, not a lot. The California Seventh-Day Adventists — those who are strict vegetarians, this is the same cultural group with the same beliefs — they live on average six years longer and use the medical system less than those who are not vegetarian. I respectfully disagree.)

(Academy member: There are a lot of sociological issues with those groups. The ones who are the strict vegetarians are also the ones who strictly follow other things in their lives, so you can't really compare them 100%.)

Not in Vilcabamba and not in the mountains, you know, the Hunzas have a little yogurt, but other than that...

(Academy member: Yeah, so I mean they do have yogurt; there is that animal protein in their diet. You know, if you take a look at hunter-gatherer tribes, their physiological parameters are probably better than anybody else in the world. They have the lowest hemoglobin A1c, the lowest glucose, the lowest insulin levels. By the way, ACAM, in Las Vegas, coming up, is going to have a conference with T. Colin Campbell and Loren Cordain in a debate, and I think Walter Willett is going to be there, too.)

Walt's going to come?

(Academy member: Well, I know he was invited; they're trying to get him.)

It would be good to have him there; he's always so restrained in his comments. He's a wonderful guy. Walter Willett's great strength was — when we were working on the *Diet and Nutrition* report for the alternative medicine document out of NIH, Walt was in my group — he said, "I want to tackle the Food Pyramid." He said it was disgusting. He said, "We've created the Great American Feedlot" because of the grain, grain, grain at the base of the triangle.

(Academy member: One question, just going back to the coffee. I am not too sure, but I think the assumption is that coffee, when you drink it, produces stimulation (unintelligible) xanthines, and then you get secondary effects. That's why, orally, it might be toxic in that amount, and rectally it won't?)

I think that's a good observation. You know, it's just impossible to take the amount of coffee orally that you would need to really enhance glutathione S-transferase and bile secretion and hepatic transport. It's impossible, but in moderation, coffee drinking works out pretty well in the epidemiological literature. The old studies about pancreatic cancer and all that crap, those are discredited now, and the data is solid that it's a good beverage.

(Academy member: If the coffee enema stimulates glutathione and other things, why not give IV-push glutathione?)

I think that's a reasonable approach; it's certainly available; it's doable, and it's been used in Parkinsonism, for example.

(Academy member: Yeah, but you're talking two different things here. You're talking about IV-push glutathione, and you're talking about activating the crucial enzyme. Taking glutathione is not necessarily going to activate that enzyme.)

You'd have to give it while you're giving the coffee enemas. If you're giving glutathione along with the coffee enemas, one can reasonably expect additional quenching of electrophiles.

(Academy member: The other theoretical issue is that — theoretically, no one knows this for sure — cancer cells might be able to use the actual glutathione, where they can't really benefit from the precursors or the enzymatic glutathione S-transferase. So you're actually, theoretically, with the coffee enemas you're improving the health of the healthy cells, not feeding the cancer, where there is a concern, at least among some people, that actually giving glutathione to cancer patients may not be a good idea.

I would observe that cancer cells, because they are ontologically almost exactly the same as the parent cell — well, I shouldn't say parent cell, that's old thinking. Jean Marie Houghton showed very clearly that a bone-marrow stem cell attempting to replace a damaged cell in a helicobacter infection site would become the first malignant-

transforming cell; that this was a wound-healing error, and it was a stem cell that didn't quite make it to a differentiated state that became the first malignant cell — so, I would just say that the stem cell that's become malignant in an attempt to wound heal can metabolize anything that could be metabolized by the cell it was trying to replace; anything.

(Academy member: What would be the difference in the cafestol that you mentioned, and purified, and caffeine; and what about decaffeinated coffee for enemas?)

I think, for example, water-process decaffeination, a natural method like that, would be logical, but I don't think that caffeinism *per se* is a problem with the coffee enemas. I would think though that drinking coffee one would want to have lower caffeine levels because it gives you the jitters. If you look, for example, at the literature back in 1980, there was an article in the *New England Journal of Medicine* called *Deaths (Related to) Coffee Enemas*, which told the story of two women who were friends, who had gotten themselves going on something approximating Gerson's approach, and they were using coffee enemas. They both had pneumonia — which they — probably one had gotten from the other — and they were taking coffee enemas throughout the night. They were taking them every hour, every 15 minutes, in fact; one of the women took, every 15 minutes, a coffee enema until she drowned. The state forensic pathologist came and did serum and bladder and aqueous humor testing for xanthines and found only traces — only traces, which to me says — I said, "Thank you, that saves a lot of work on our part" — because it demonstrates that the colon is really not interested in the xanthines.

(Academy member: Maybe it's that they added Splenda.)

(Laughter)

(Academy member: They needed something that makes it interesting. Seattle is number one in coffee drinkers, and they are number two nationwide in breast cancer.)

Number one coffee drinkers and number two in breast cancer?

(Academy member: Vitamin D.)

(Academy member: That's apples and oranges.)

Well, it's an association and, of course, the difference between association and attribution is everything in the liter-

ature, but I think that one would have to ask “What else is there in Seattle?” My feeling would be that it’s xenobiotics, you know, and not coffee. Coffee’s probably the reason they’re not number one.

(Academy member: Once I worked with pure caffeine for laboratory use and we received a statement about its possible toxicity. And I remember reading that caffeine is a carcinogen, teratogen, mutagen, whatever else. This is why I am asking you if a decaffeinated enema would do really the job.)

Well, thank you for that additional information. I’ll look into it.

(Academy member: But it’s an issue of, one you’re drinking the mixture with the tissue and the fluoridic acid and all this, versus rectally that is absorbed directly — it goes directly to the portal difference.)

There’s a huge difference — physiologically — there’s a huge difference between the actions.

(Academy member: Exactly.)

A huge difference. I would just say that the greater epidemiological data do not support a role for beverage coffee in pathogenicity for the most part. Overdrinking can certainly lead to GERD, you know, and people start taking Nexium, and it’s a slippery slope.

(Academy member: Any adjustments or changes or precautions of coffee enemas in patients actively receiving chemotherapy?)

Well, yeah, under those circumstances, oftentimes you’re concerned with fluid balance and you have to know when to hold them.

(Academy member: The experience of my cases is that when you do coffee enemas in patients that are receiving chemotherapy, it minimizes secondary effects.)

There’s no doubt about that. The question was, are there points or thresholds at which you need to be cautious about the coffee enemas, and my answer directly is, if you’re in a fluid-balance crisis you have to be cautious. But for the most part — yeah — for the most part, people find that their nausea, their peripheral neuropathy will just dissipate as soon as they get that crud out of the bloodstream, and the coffee enemas will do that.

(Academy member: One patient that was terminal went down and did the Gerson therapy in Mexico after he de-

bulkied the tumor with chemotherapy — he had already damage — he went home; he’s doing fine now and everything is in remission, and he’s continuing the protocols.)

Yeah, there are many stories like that and some of my favorites are even people who self report, who were also addicted to paper trails, who say, “I started this on my own for this or that pathology, and I got this great result.” And you ask them, “Really, do you have any documentation?” — and they *produce* it. Those are my favorites, because this therapy has its place in history. It should be brought forward. There are modifications that need to be made. We’ve struggled and struggled with the idea that maybe there’s an easier way to deal with cafestol and kahweol than the awkward coffee enema; but you know Pete sent out a missive; Ernst Wynder tried, you know, with these big firms like Nestle that have huge coffee holdings and science divisions to say, “Well, what about a suppository?” — and nobody is interested at all, so for the time being, we’re stuck with the 15-minute coffee break.

(Academy member: Do you have the GKI protocol written down somewhere?)

If you want to send me an email, I can fire it back to you.

(Academy member: The only time the coffee enema is not socially acceptable is when somebody over-pours it.)

When Michael Landon was suffering with pancreatic cancer, his wife Christy called and put him on the phone with me, and I told him about juices and coffee enemas. And the next thing I knew, Christeene and I were watching Johnny Carson’s show, and here comes a very thin, but very animated Michael Landon onto the Johnny Carson Show to talk about the fact that he had been a zombie in pajamas walking around with his pain medications. He’d drink these protein shakes and double over with pain; and then he found out about his 13 juices and his coffee enemas and his pain went away; he’s never had any pain since then. And then he turned to the audience and he invited them to come over for coffee. He says, “I’ll pour.”

(Laughter)

Anyone else? If not — thank you very much.

(Applause)