

Vitamin Research News

Dedicated to the Scientific Pursuit of Better Health

February 2004, Vol. 18, Number 1

1. The President's Desk

Prepare to Protect Your Health Freedom

2. Potential Therapeutic Uses of Ribonucleic Acid

This third article in the series describes a number of conditions that are helped by RNA therapy, and some specific RNA protocols Dr. Frank used for these conditions.

3. Weight Loss: A Lifestyle Plan

In reviewing the scientific data it is clear that a low-glycemic-index diet appears to promote weight loss more effectively than other types of diets.

4. Policosonal: Nature's Cholesterol Balancer

Nature has provided us with a simple, inexpensive, non-toxic way to balance cholesterol levels called "policosanol."

5. Research Review & Commentary

Commentary on research abstracts related to selenium and cancer, and to antioxidant use during chemotherapy.

6. Ginger, Turmeric and Other Natural Anti-Coagulants

Research indicates that a number of natural substances may safely inhibit platelet aggregation.

7. Magnesium and Diabetes Prevention

Harvard researchers have discovered a link between magnesium intake and the risk of developing type 2 diabetes.

8. Vitamin D Research On Colon Cancer, MS, Arthritis

Three studies published in the last two months indicate Vitamin D has a wide role to play in disease prevention.

9. Customers' Corner

- [CeaseFire and Digestive Aids](#)
- [I3C and Prostate Cancer](#)
- [LipiControl\(tm\) vs. Pravachol\(r\)](#)
- [Macular Degeneration](#)
- [Interstitial Cystitis](#)
- [Basic Anti-Aging Program](#)
- [RNA and Hypothyroidism](#)
- [CarnoSee Eye Drops](#)
- [Stress and Cortisol Levels](#)
- [Impotence and Diabetes](#)
- [Drug-Nutrient Interactions](#)
- [Insomnia and Hypoglycemia](#)

The President's Desk
Prepare to Protect Your Health Freedom

The year 2004 will be a critical juncture in the dietary supplement market. Many developments are brewing that could severely hamper our health choices.

The FDA is close to imposing Good Manufacturing Practices (GMPs) that are not in the consumers' best interest. The FDA and FTC are imposing stricter control over communicating the benefits of dietary supplements, again not in consumers' best interest. Ingredients (Ephedra, Bitter Melon Extract, Androstenedione/diol, DHEA and other hormones) are targeted under the guise of safety.

Is this "attack" on our health freedom warranted for our own safety? Not according to a recent interview with our FDA attorney, Jonathan Emord. Mr. Emord pointed out the following: "Drugs harm 226,855 people per year and kill about 1,418 people. Foods kill about 5,000 people annually. Supplements are attributed with about 12 deaths a year, making them the safest ingestible products on the market."

Why, at a time when our government spending is out of control, does our country focus so much regulatory attention (funds) on the dietary supplement industry?

Stay tuned to next month's newsletter, in which we pose this question to James South, a nutritional expert with more than 32 years in this industry. James has taught nutrition courses, lectured on nutrition at major conferences, designed effective nutritional products and consulted to numerous MDs in the area of nutrition. His insight into the "safety" of supplements will intrigue you.

It's a pleasure to welcome James South to our R & D team. Be sure to read his article on Picosanol in this month's newsletter.

Robert Watson
President / CEO

[Return to Top](#)

Potential Therapeutic Uses of Ribonucleic Acid by Ward Dean, MD

For nearly twenty-five years—from the mid 1950s to the late '70s—New York physician Benjamin Frank, M.D., pioneered the use of nucleic acids in the therapy of aging and chronic degenerative diseases. Dr. Frank reported the results of his research and clinical experience in four books published during this time (Fig. 1).

His experiences were reviewed in two previous articles in *Vitamin Research News* that described the life-extending effects of RNA given to experimental animals, and the proposed mechanism of action for RNA's anti-aging effects.^{1, 2}

Dr. Frank found that RNA had a number of profound effects: 1) anti-aging (including reduced skin wrinkling and increased skin elasticity); 2) energizing; 3) anti-anoxia (oxygen sparing); 4) anti-low temperature and freezing (as evidenced by increased survival of experimental animals subject to low temperatures); 5) anti-viral; and 6) cognitive enhancing.

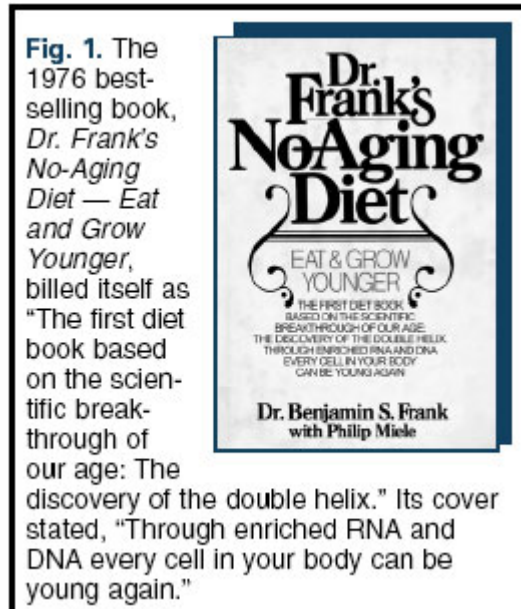
This third article describes a number of conditions that are helped by RNA therapy, and some specific RNA protocols Dr. Frank used for these conditions.

Atherosclerosis, Coronary Artery Disease

Dr. Frank was one of the first researchers to recognize that carbohydrates—especially refined carbohydrates (i.e., sugars)—are major contributing factors in elevating triglyceride levels and the progression of atherosclerosis. Dr. Frank also believed that the high concentration of nucleic acids found in fish—especially sardines—were the primary reason for the coronary-artery-disease-preventing effects of a high-fish diet. This view ran counter to the prevailing theory of the time that attributed these benefits to the high concentrations of Omega-3 fatty acids contained in fish.

Consequently, Dr. Frank routinely prescribed high-dose nucleic acids for atherosclerosis. Doses were varied, depending on the severity of the condition, and the response of a given individual to the treatment. Dr. Frank often treated patients with doses as high as 10 grams per day, up to three times per week, although in mild cases he observed positive effects with doses as low as 500 to 1,000 mg per day.

The first benefit commonly noted by his patients was increased exercise tolerance, along with decreased shortness of breath with exertion and the disappearance of heart



(anginal) pains. These effects were usually reported within two weeks of supplementation.

Dr. Frank observed that patients diagnosed with hypercholesterolemia experienced a significant lowering of their blood cholesterol after one or two months of supplementation with nucleic acids, with little or no change in other dietary habits. He believed that lipid abnormalities involved in atherosclerosis were due to mitochondrial dysfunction, caused by a dietary deficiency of nucleic acids.

Further, he believed that the cholesterol-lowering effect of nucleic-acid-rich diets was due to increased ATP formation, enhanced electron transport chain activity, increased CoQ10 and cytochrome oxidase synthesis, and increased NADH oxidation.

Congestive Heart Failure (CHF)

Dr. Frank reported that nucleic acid supplementation resulted in the relief of shortness of breath and edema of the legs and ankles, and normalization of breathing sounds. Those who required three or more pillows to sleep were able to sleep on only one or two pillows. Most patients were able to reduce their dependence on digitalis and other drugs. Doses of RNA in excess of 2 grams daily were generally required to bring about these changes, though in one case he reported that an elderly patient required 9 grams of RNA daily.

At this dosage, Dr. Frank urged the patient to maintain an alkaline urine pH of 7.5, and to consume 400 mg of magnesium per day to prevent calcium kidney stone formation.

Emphysema and Obstructive Lung Disease

Dr. Frank reported that the marked oxygen-sparing (anti-anoxia) effects of nucleic acids played a very important role in the therapy of this crippling disease. In severe cases of emphysema, doses of RNA up to 15 grams three times per week were used. Dr. Frank noted that such high dosages of RNA often made the patient quite comfortable and greatly alleviated the feeling of breathlessness. He claimed that after several weeks on this regimen, bronchodilators could often be reduced or eliminated, and that once the antianoxia effect had been established, the dosage of RNA could be reduced to a maintenance dose of roughly half the initial dose required.

Dr. Frank believed the two actions of high-dose RNA—i.e., its mucolytic and antianoxia effects—might also be useful in the treatment of other pulmonary diseases, such as asthma and cystic fibrosis.

Diabetes

The major problem facing diabetics is that the disorder greatly accelerates virtually all of the diseases of aging, leading to serious complications of retinopathy, neuropathy, and nephropathy. The peripheral neuropathy often seen in diabetics results in severe pains, loss of vibratory sensation and touch, as well as disturbances in the motor nerves and autonomic nervous system. Dr. Frank was himself a very brittle, severe type 1 (insulin-dependent) diabetic. To control diabetes Dr. Frank recommended a standard therapy of diet, exercise, insulin, and oral hypoglycemics. He was also aware of the use of biguanides (the class of drugs to which Metformin belongs)—specifically,

Phenformin (which was available in the U.S. until the late 1970s).

While Dr. Frank believed that RNA therapy could potentially benefit diabetic patients, he was concerned about using nucleic acids in severe cases that involved kidney dysfunction. This concern may explain Dr. Frank's premature death, as his diabetes-induced nephropathy limited the dosage of RNA that he otherwise would have been able to tolerate (and which would probably have improved his diabetes-related symptoms).

Hypothyroidism

Dr. Frank recognized the high prevalence of thyroid disease in the elderly, and considered that this might be due to a chronic deficiency of dietary RNA. It is well known that the metabolic rate (and body energy production) declines with aging.

Many symptoms of hypothyroidism are consistent with age-related changes. RNA therapy causes a rise in body heat production (and presumably, the metabolic rate), and Dr. Frank attributed this to a normalization of thyroid function by RNA.

Resistance to Fatigue and Anti-Anoxia Effects

Dr. Frank conducted a number of animal experiments to evaluate the oxygen-sparing effect of nucleic acids. In one simple experiment, he placed mice in sealed jars to determine if RNA would affect the length of their survival. He found that RNA-fed experimental animals survived 48 percent longer than those on the control diet. In another experiment, he placed control and RNA-fed rats in a water tank to evaluate their swimming endurance. The RNA-fed rats averaged 15.6 minutes before sinking, versus 11.3 minutes for the control group. In other experiments, he demonstrated that nucleic acids enabled animals to perform more work using less oxygen than control animals, and to survive cold temperatures longer.

To his surprise, Dr. Frank found that the anti-anoxia effect of RNA was long lasting, in that the effect persisted for weeks after cessation of nucleic acid therapy. He believed that these long-lasting effects were due to enhanced CoQ10 synthesis, which helped maximize the energy production in the electron transport chain, resulting in more efficient oxygen utilization, greater energy formation, and more efficient ATP synthesis. He even speculated that it might be due to an increase in the number (as well as the efficiency) of the energy-producing mitochondria.

Dr. Frank believed that this "anti-anoxia effect" had profound anti-aging effects. He theorized that with increased nucleic acid intake, less oxygen was needed for a given amount of work, resulting in decreased oxidative damage. Thus, he believed that in addition to their other roles in aging and metabolism, nucleic acids were also very potent antioxidants. Nucleic acids clearly energize people-not the way drugs do, but by enhancing normal energy metabolism.

In addition to alleviation of chronic fatigue, Dr. Frank reported that RNA supplementation resulted in increased exercise tolerance and muscular strength, improvements in EKGs, normalization of liver enzymes, and increased mental acuity.

Dr. Frank stated that in most of his patients suffering from fatigue or low-level vitality, as soon as even 100 mg of nucleic acid were taken daily for a week or two, the patients felt noticeably better, although he conceded that these effects occurred more rapidly when higher doses were taken. With higher doses, he reported that these effects were seen as early as the second or third day. In some cases of chronic fatigue, he used dosages in the range of 5 to 20 gm of RNA three to five times weekly.

Retinitis Pigmentosa (RP) and Glaucoma

Retinitis pigmentosa (RP), though rare, is a significant cause of blindness. No treatment has been consistently successful in this disease. Dr. Frank reported a 35-year-old male with RP who achieved normal vision after one month of RNA therapy, consisting of five grams of RNA per day plus a serving of fish for lunch. Despite the improvement in vision, however, no retinal changes were observed.

Dr. Frank also treated three cases of glaucoma with this regimen, in which the patients were able to discontinue their medication (pilocarpine).

Narcotics and Alcohol Addiction

Dr. Frank treated a number of patients suffering from heroin or alcohol addiction.

For alcoholics, he used 7-15 grams, twice weekly. He reported that they generally showed improvements in strength, well-being, and facial skin color. Tremors decreased markedly, and mental clarity was much improved.

In several heroin addicts, he prescribed 2-5 grams of RNA three to five times weekly. The response was dramatic. The weakness and general haggard appearance became more normal, and the facial skin showed a ruddier complexion. Skin infections decreased, vitality returned, and the patients expressed an increased feeling of well-being.

Cancer

Cancer is the number two killer in the U.S., ranking behind only cardiovascular disease. Cancer cells are known to have a generally lower level of energy than normal cells, and to have a predominantly anaerobic metabolism. Enhancing the efficiency of oxidative phosphorylation and the citric acid (Krebs) cycle were of "capital importance" in Dr. Frank's approach to treating and preventing cancer. Dr. Frank claimed that formulations which promote significant Krebs cycle metabolism in tumors (and the host) cause tumor regression. In addition to RNA, Dr. Frank found that histidine and carnosine were very potent anti-tumor compounds.

Dietary Sources of RNA

Foods rich in RNA include seafood (especially sardines), fish, beans, mushrooms, beef broth and vegetable soups. Nucleic acids can also be obtained from fish and nuts, as well as from many health foods. For dietary nucleic acids, Dr. Frank preferred sardines, claiming that therapeutic effects could be obtained by consuming one or two cans of sardines each day. Sardines contain 1.5 percent nucleic acids, whereas red meat (muscle) contains a paltry 0.05 percent.

Nucleic Acid Therapy-Dosage and Cautions

Dr. Frank recommended dosages of RNA across a wide range, starting at several hundred milligrams every day, and going up to 20 grams, taken three times per week. Dr. Frank's dosages varied with individual tolerance, based on serum uric acid and BUN (blood urea nitrogen, a test of kidney function), as well as the clinical needs of the patient.

Although other scientists have found virtually no side effects from taking doses of 5 to 15 grams of RNA daily over prolonged periods of time, Dr. Frank erred on the side of caution, recommending dosages of 1.5 grams per day for the large majority of adults, and offering several precautions for those taking higher amounts.

Dr. Frank always recommended that a high-potency multinutrient formula be taken along with RNA, with a special emphasis on B complex vitamins and magnesium (400-500 mg per day). He also recommended drinking copious amounts of fluids (up to 8-10 glasses per day) when higher doses (more than 5 gm) of RNA were taken.

Contraindications and Side Effects

Dr. Frank believed that gout, high serum uric acids, and impaired kidney function were relative contraindications to high-dose RNA supplementation (more than 5 grams per day). He warned that high-dose oral RNA may cause uric acid deposition in the kidneys, leading to kidney stones.

He recommended that fasting blood uric acid level be determined prior to initiating high-dose therapy. He stated that those with uric acid of 2 or 3 mg could take much larger amounts of nucleic acid than those with levels of 5-7 mg. If BUN levels rose more than 5 mg% after initiation of therapy, he recommended that RNA intake be stopped for one to two weeks, fluid intake increased, and urine pH maintained above 7.5..

Dr. Frank also recommended maintaining urine pH in the alkaline range (i.e., 7.0 or above); pH is an indicator of the acidity/alkalinity of the urine. A neutral pH is 7.0, less than 7 is acid and greater than 7 is alkaline. Urine pH can be monitored using Nitrazine pH paper. If necessary, an alkalinizing agent like Alka Seltzer can be used two or three times per day to maintain pH in the alkaline range.

I think that Dr. Frank's cautions are overly conservative, and that the large majority of people will not have any problems with increased dietary nucleic acid intake.

Conclusion

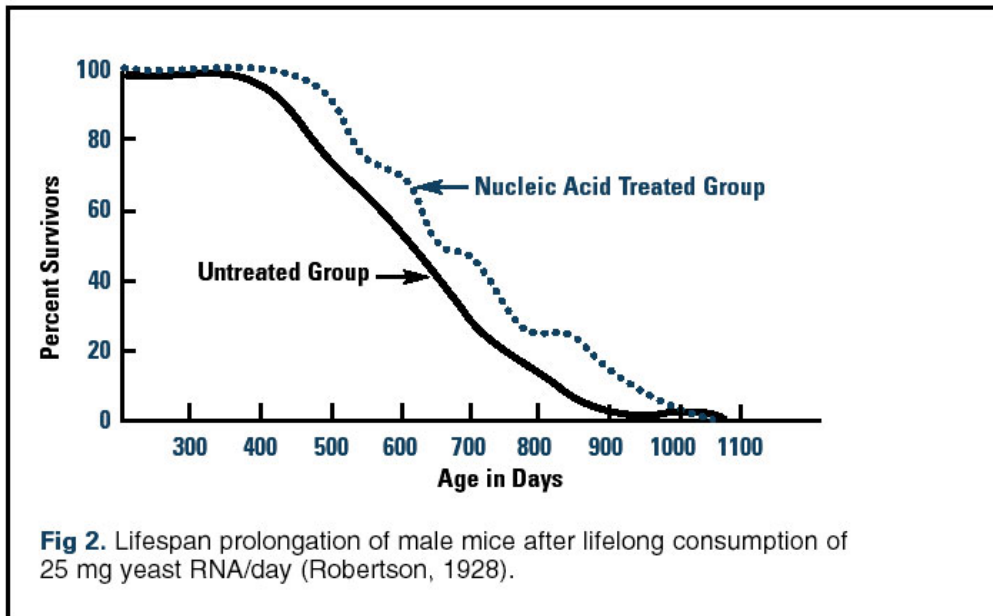
Despite Dr. Frank's all-over-the-ballpark range of dosage recommendations, I believe that a reasonable dosage is a minimum of 1.5 gm per day for basic supplementation and preventive purposes, and that higher doses (5-15 gm per day) can be taken for therapeutic/anti-aging purposes.

Generally, younger people tolerate larger amounts than older people, although paradoxically, it is older people who need the highest dosages. Although Dr. Frank's cautions listed above should be kept in mind, I believe he greatly overestimated the

potential for adverse effects, because of his own diabetes-induced impaired kidney function (which may have restricted the amount of RNA he was able to consume).

Those with normal kidney function can take higher doses of RNA without problems. This is exemplified by the fact that the two teams of researchers described in the article about RNA in the October 2003 issue of *Vitamin Research News* took dosages of RNA of 5 to 15 gm per day for prolonged periods-without following Dr. Frank's cautions-and without any adverse side effects reported.

Furthermore, the experimental animals took a human equivalent dose of 50 gm per day (!), without side effects, other than improved health and extended lifespans (Fig. 2).



In the 25 years of follow-up of Dr. Frank's patients, his associate, Carmen Fusco, RN, reported that she has not observed a single case of RNA-induced kidney problems. Dr. Frank summed up his general recommendations for RNA supplementation:

- Administer RNA with a multinutrient formula (especially, high dose B complex) and 400-500 mg of magnesium
- Drink at least 8-10 glasses of fluid
- Watch urine pH-maintain in the range of 6.0-7.5.

I think RNA is one of the most under-utilized and most cost-effective anti-aging supplements there is, and should be an integral part of a comprehensive anti-aging regimen.

The Lasting Legacy of Dr. Benjamin Frank

Dr. Frank believed that because of the very pronounced anti-aging effect seen with increased nucleic acid relative to his own intake, he could live considerably longer, perhaps to near 150 years of



age. He admitted that he had done no studies in humans of intakes of very large amounts of nucleic acids for prolonged periods of time.

"It is apparent that aging itself is now a treatable disease. These results help ensure that a lifespan of more than a few centuries will before too long become a potential reality."
— Benjamin S. Frank, M.D., November 1, 1978

Ironically, in less than a year after making this bold prediction, Dr. Frank had passed away at the age of 57—a victim of type 1 diabetes, a severe, age-accelerating disease which he had battled since childhood. It is a testimony to Dr. Frank's brilliance that he survived as long as he did, suffering from as severe a case of diabetes as he had.

References

1. Dean, W. A highly effective anti-aging supplement-Ribonucleic Acid. *Vitamin Research News*, 2003, 17: 10, 1-4, 11.
2. Dean, W. Review of potential anti-aging effects of Ribonucleic Acid. *Vitamin Research News*, 2003, 17: 1-3, 14.
3. Frank, B. *Nucleic Acid Therapy in Aging and Degenerative Disease-A Metabolic Approach with DNA, RNA and Related Metabolites*. Psychological Library, New York, 1968.
4. Frank, B. *Dr. Frank's No Aging Diet*. The Dial Press, New York, 1976.
5. Frank, B. *Nucleic Acid and Anti Oxidant Therapy of Aging and Degeneration*, Royal Health Books, Ltd., Long Island, NY, 1977.
6. Robertson, T. On the influence of nucleic acids of various origins upon the growth and longevity of the white mouse. *Australian J Exp Biol Med Sci*, 1928, 5: 47-67.

[Return to Top](#)

Weight Loss: A Lifestyle Plan

By Shari Lieberman, Ph.D., CNS, FACN

Improving an individual's metabolic control is an essential component of any diet plan. Preserving muscle mass and losing weight predominantly as body fat is the key to accomplishing this improvement in metabolic control. It is, in fact, muscle mass that dictates metabolism. Very overweight and obese individuals have extremely high body fat relative to muscle mass, which can effectively slow their metabolism as well as promote insulin resistance.

A total program, therefore, is one that would incorporate diet and exercise with supplements that will help improve metabolic control.

When choosing a weight loss plan, it's important to seek out diets that preserve muscle mass. Crash dieting and fad dieting that induce "quick" weight loss generally promotes muscle and water loss and less fat loss. This results in the "yo-yo" syndrome since when patients gain weight back they gain it as fat-not muscle. The best plan to follow

is one that targets the change in body composition and preferentially enhances the loss of body fat rather than muscle mass.

In reviewing the scientific data it is clear that a low-glycemic-index (GI) diet appears to promote weight loss more effectively than other types of diets. Those following this type of diet feel full faster, more satisfied with what they have eaten and have better glucose tolerance. Their weight loss occurs predominantly as fat. That's because low-GI diets prevent the metabolic switch from being thrown that increases fat storage rather than fat burning. It is important to realize that this type of diet is not simply a low-carbohydrate diet. Treating all carbohydrates the same still allows dieters to consume high-GI carbohydrates, which will throw the metabolic switch to store more body fat.

People who follow a low-GI diet can consume carbohydrates that do not elicit a high-GI response such as fiber, beans, lentils, oats, yams, sweet potatoes as well as a host of other foods. Even most fruits such as apples, oranges and grapefruit, all high in pectin, are low to moderate on the glycemic index, which makes them permissible on this diet plan.

Just as simply restricting carbohydrates is not an effective weight loss strategy, simply restricting calories has not resulted in the preferential change in body composition of losing body fat rather than muscle mass. Also, significantly cutting calories in an attempt to lose weight can decrease energy expenditure by 10 percent and during re-feeding by as much as 15 percent.

Our bodies don't know we are cutting calories just to lose weight—they are programmed to reduce our metabolism to adjust for food shortages that occurred during our hunter-gatherer existence. Crash dieting leads to further slowing of metabolism since most of the weight is lost as muscle and water and later gained back as body fat.

In other words, restriction of calories and/or carbohydrates per se does not ensure that high-GI foods will be eliminated from the diet. High-GI foods can cause a metabolic switch that preferentially stores protein, fat and carbohydrate rather than promoting oxidation of these nutrients. Low-GI diets also improve insulin resistance and other risk factors for coronary artery disease, such as elevated blood lipids. Unlike other diets, a low-GI plan can be followed indefinitely.

It is also important to incorporate exercise into the program to significantly improve body composition. Walking, dancing, cycling and using stepper machines are all examples of aerobic exercise. Some extremely overweight and obese people may have pain even when walking, so often water aerobics may be a better place to start. Everyone should start slowly if they are out of shape and start with five to 10 minutes three times each week building up to 30-45 minutes three to five times each week. Strength training can be added later to further preserve body composition.

Remember that muscle dictates your metabolism and high body fat slows metabolism. Preserving or even building a little more muscle can have dramatic effects on metabolism.

Supplements That Accelerate Weight Loss

There are many dietary supplements that can help enhance weight loss when a low-GI diet and exercise plan is followed. Also, these supplements can help improve blood sugar control, metabolism and body composition.

They may also help prevent long periods of plateau that can be quite frustrating and can cause dieters to "fall off the wagon." And it is possible that these supplements may also help prevent weight gain with occasional "cheats"-and that means occasional!

Green Tea

The thermogenic effect of green tea (*Camellia sinensis*) was originally attributed to its caffeine content. However, green tea stimulates brown fat thermogenesis far greater than a comparable amount of pure caffeine.

It appears that the catechin-polyphenols, in particular epigallocatechin gallate (EGCG), and caffeine that naturally occur in green tea work synergistically to stimulate thermogenesis and augment and prolong sympathetic stimulation of thermogenesis. It has been shown to increase 24-hour energy expenditure and fat oxidation (caffeine only increases metabolism during the time you take it).

Drinking several cups of green tea each day also has well documented anti-cancer effects particularly with respect to the prostate, breast, uterus and ovary.

Green tea is generally taken as a standardized extract in capsule or tablet form to provide 50 mg of caffeine and 90 mg of epigallocatechin gallate to be taken three times daily before meals.

Although green tea contains a small amount of caffeine, it is generally not enough to create any adverse side effects. Drinking several glasses of green tea each day may yield a similar thermogenic effect to the supplement although this has not been studied thus far.

Coleus Forskohlii

Coleus has a long history of use in Ayurvedic medicine. One of its active compounds is forskolin, which has been studied as a weight loss aid. Animal studies have shown that forskolin has anti-inflammatory and anticancer effects. Human studies have shown that forskolin may be effective for glaucoma (as eye drops) and may have other therapeutic effects. Numerous animal studies have shown that forskolin can raise cyclic AMP (3'5' adenosine monophosphate), a naturally occurring compound in our bodies that releases fatty acids from adipose (fat) tissue storage, which may result in enhanced thermogenesis and loss of body fat, and may increase lean body mass.

Coleus appears to be thermogenic and may also decrease body fat and preserve muscle mass. Standardized extracts of Coleus generally provide 10 percent of forskolin. That means that if you are taking 500 mg of standardized Coleus it will provide 50 mg of the active compound forskolin.

Citrus Aurantium

Citrus aurantium is also known by its Chinese name, Zhi Shi, an herb with a long history in traditional Chinese medicine. It is more commonly known as bitter orange. A standardized extract provides six percent amines and the most studied extract is known as Synephrine, which has thermogenic properties.

The amines are similar in action to ephedrine (found in Ma Huang/Ephedra) in terms of thermogenesis, but they do not cause the stimulant side effects associated with ephedrine or large amounts of caffeine such as nervousness, fast heart beat, high blood pressure, dry mouth, insomnia or even more serious side effects recently reported. That's because these active amines work through a different pathway than either caffeine or ephedrine. An effective dose of Citrus aurantium would be 975-1,000 mg and would be standardized to provide six percent of the active amines.

Chromium

Chromium is an essential mineral that improves glucose tolerance and insulin resistance and lowers elevated blood sugar levels. It may also improve blood levels of cholesterol, triglycerides and HDL cholesterol. Processed foods have most of the chromium removed. Therefore, individuals who regularly consume refined carbohydrates and/or sugar are unable to receive enough of this mineral through food alone. Chromium is effective in improving glucose tolerance and insulin resistance. Human studies using 400-1,000 mcg of chromium have yielded better blood sugar lowering results than when lower doses are used.

Chromium does not stimulate metabolism nor is it thermogenic. It is important because it can blunt the rise in blood sugar when a high-GI carbohydrate is consumed, helping to prevent the metabolic switch into fat storage mode. That does not mean that by simply taking chromium you can continue to routinely eat high-GI carbohydrates and achieve weight loss. But it can help if "cheats" are occasional as evidenced in studies with diabetic patients who did not modify their diet, but had improvements in glucose control.

What also makes chromium interesting is that it shifts weight loss to favor body fat and preserve muscle mass-the very thing we want to achieve with a total program.

Glucosol

Glucosol is an herbal extract from the herb Lagerstroemia speciosa. Its active ingredient, corosolic acid, is responsible for its blood sugar lowering and normalizing effect. Numerous animal and human studies have shown that Glucosol improves glucose tolerance, lowers serum blood sugar levels and improves insulin resistance very much like chromium. The most remarkable thing about Glucosol is that it can blunt the rise in blood sugar associated with high-glycemic foods. In some of the studies, a modest weight reduction occurred without the use of a restricted diet.

Since Glucosol significantly blunts the blood sugar rise associated with high-GI foods, insulin levels are also blunted. This would prevent the metabolic switching to the storage of body fat associated with elevated glucose and insulin levels. It appears that both Glucosol and chromium may help dieters to better tolerate carbohydrates and help

control blood sugar and insulin levels.

5-Hydroxytryptophan

Several studies have shown that L-tryptophan (currently not available as a dietary supplement) can blunt carbohydrate cravings by increasing brain serotonin levels. Brain serotonin levels have an inhibitory effect on eating behavior and help curb appetite.

Since L-tryptophan has been re-moved from the marketplace, 5-hydroxytryptophan (5-HTP) has been made available and appears to have the same benefits. This form of tryptophan is the intermediate metabolite of L-tryptophan in the serotonin pathway. Low serotonin levels in obese patients have been associated with carbohydrate cravings and binge eating behavior.

Studies have shown that carbohydrate intake may decrease by as much as 50 percent when 5-HTP is given without dietary restriction and it also has an appetite suppressant effect in very overweight, obese and diabetic patients. Other benefits of 5-HTP administration may include significant improvement in depression, insomnia, fibromyalgia and chronic headaches-many of the conditions associated with being overweight and obese making it difficult for individuals to stick to a program for life.

The dosage of 5-HTP is usually 50-300 mg three times daily (30 minutes before meals). Some researchers (including myself) have expressed concern that the level of 5-HTP used in the studies (300 mg three times daily) was very high and may over time cause a neurotransmitter imbalance by increasing serotonin levels well beyond normal. In the published studies those taking 5-HTP were not eating a low-glycemic-index diet. Therefore it is possible that lower levels such as 50-100 mg given one to three times daily may have a similar effect if combined with a low-GI diet and exercise program.

Phaseolamin

This is also known as Phase 2.® It is a non-stimulant, all-natural nutritional ingredient derived from the white kidney bean. Preliminary research has demonstrated that its action is to neutralize the enzyme alpha amylase before it can digest starch into glucose. It allows some of the starch in foods such as potatoes, breads, pasta, rice, corn and crackers to pass safely through your system without being digested or absorbed. Therefore it can reduce the absorption of some starch calories. This appears to be an exciting new ingredient that can be an excellent adjunct to a low-GI diet and exercise program.

Summary

A review of the scientific literature reveals that the best diet to follow for life is a low-GI diet. It can be followed indefinitely and helps correct many of the metabolic alterations that overweight and obese people must overcome. Further-more, it appears that dietary supplements such as green tea, Coleus forskohlii, Citrus aurantium, Chromium, Glucosol, 5-HTP and Phaseolamin may assist weight loss goals along with a low-GI diet and exercise plan.

Selected References:

1. Samaha FF, Nayyar I, Seshadri P et al. A low-carbohydrate as compared with a low-fat diet in severe obesity. *N Engl J Med* 2003;348(21):2074-2081.
2. Bell SJ, Goodrick GK. A functional food product for the management of weight. *Crit Rev Food Sci Nutr* 2002;42(2):163-178.
3. Agnus MSD, Swain, JF, Larson CL et al. Dietary composition and physiologic adaptations to energy restriction. *Am J Clin Nutr* 2000;71:901-907.
4. Ludwig DS. Dietary glycemic index and obesity. *J Nutr* 2000;130:280S-283S.
5. Dulloo AG, Giradier L. Adaptive changes in energy expenditure during refeeding following low-calorie intake: evidence for a specific metabolic component favoring fat storage. *Am J Clin Nutr* 1990;52:415-20.
6. Dulloo AG, Duret C, Rohrer D et al. Efficacy of a green tea extract rich in catechin polyphenols and caffeine in increasing 24 hour energy expenditure and fat oxidation in humans. *Am J Clin Nutr* 1999;70:1040-1045.
7. Chantre P, Lairon D. Recent findings of green tea extract AR25 (Exolise) and its activity for the treatment of obesity. *Phytomedicine*. 2002 Jan;9(1):3-8.
8. Kao YH, Hiipakka RA, Liao S. Modulation of endocrine systems and food intake by green tea epigallocatechin gallate. *Endocrinology*. 2000 Mar;141(3):980-7.
9. Lieberman S, Bruning N. *Dare To Lose: 4 Simple Steps to a Better Body*. Avery/Penguin Putnam, NY, NY 2003.
10. Kaats GR, Blum K, Fisher JA et al. Effects of chromium picolinate supplementation on body composition: a randomized, double-masked, placebo-controlled study. *Curr Ther Res* 1996;57:747-756.
11. Bahadori B, Schneider H, Wascher TC et al. Effect of chromium yeast and chromium picolinate on body composition of obese, non-diabetic patients during and after a formula diet. *Acta Medica Austriaca* 1997;24:185-187.
12. Preuss HG, Grojec PL, Lieberman S, Anderson RA. Effects of different chromium compounds on blood pressure and lipid peroxidation of spontaneously hypertensive rats. *Clin Nephrol* 1998;47(5):325-330.
13. Cangiano C, Ceci F, Cascino A et al. Eating behavior and adherence to dietary prescriptions in obese adult subjects treated with 5-hydroxytryptophan. *Am J Clin Nutr* 1992;56:863-867.
14. Cangiano C, Ceci F, Cairella M et al. Effect of 5-hydroxytryptophan on eating behavior and adherence to dietary prescriptions in obese adult subjects. *Adv Exp Med Biol* 1991;294:591-593.
15. Ceci F, Cangiano C, Cairella M et al. The effects of oral 5-hydroxytryptophan administration on feeding behavior in obese adult female subjects. *J Neural Transm* 1989;76:109-119.
16. 5-Hydroxytryptophan Monograph. *Altern Med Rev* 1998;3(3):224-226.
17. Resource for information on Phaseolamin: www.phase2info.com.

[Return to Top](#)

Policosonal: Nature's Cholesterol Balancer
By James South, M.A.

In spite of all the medical advances of the last 50 years, heart/artery disease still kills about half of all Americans. For many decades now, the standard medical approach to treating or preventing heart disease has been to use drugs such as Lovastatin to lower

elevated blood cholesterol.

High-fiber, low-cholesterol diets have also been used to lower excessive blood cholesterol, often to little effect, since only about 1/4 of total body cholesterol comes from the diet. The other 3/4 of body cholesterol is made by the liver.

Statin drugs do often successfully lower elevated cholesterol levels, yet there are many problems associated with statin use. They aren't cheap—they typically cost \$70-\$100 per month. Statins also cause elevated blood levels of liver enzymes such as AST, CPK, and alkaline phosphatase,¹ indicating that statin drugs are at least mildly liver toxic.

Statin drugs are also known to cause male impotence. One statin drug, Bayer's Baycol (r), was removed from the market by the FDA several years ago after leading to many deaths due to severe muscle destruction. Statins also interfere with the liver's production of CoQ10.²

Nature's Way to Balance

Fortunately, nature has provided us with a simple, inexpensive, non-toxic way to balance cholesterol levels: the mixture of long-chain fatty alcohols, derived from sugar cane or bee's wax, called "policosanol."

An ideal cholesterol-balancing agent should: 1) lower total blood cholesterol; 2) lower LDL cholesterol (the so-called "bad" form); 3) raise HDL cholesterol (the so-called "good" form); and 4) lower blood triglycerides, fats which, when elevated, also contribute to artery damage.

This is exactly what policosanol (PCL) does. PCL has been the subject of many human clinical trials.³⁻⁸ Doses used have typically been 10 or 20 mg PCL daily; occasionally 40 mg has been used. In the six studies just cited, PCL typically lowered LDL 18-28 percent (higher dose and/or longer use increased the effect), raised HDL 7-29 percent, lowered total cholesterol 14-18 percent, and lowered triglycerides 5-18 percent. Unlike statin drugs, PCL caused no elevation of blood liver enzymes, indicating no liver toxicity. Side effects were virtually non-existent with PCL. Ironically, the placebo groups often had worse side effects than the PCL groups!

Policosanol vs. Statin Drugs

In three studies,^{3,4,5} PCL was compared with statin drugs. PCL typically did as well, or much better, than the statins in raising HDL and lowering total and LDL cholesterol and triglycerides.

PCL does more than just balance unhealthy cholesterol/triglyceride levels, however. In a group of high blood pressure patients, PCL not only produced its typical favorable lipid profile, but also lowered systolic blood pressure 10 mm Hg after 12 months.⁹

PCL was given to 62 patients suffering intermittent claudication, a disorder of the legs involving severe pain and cramping that seriously limits walking ability. After six months' treatment with PCL, the distance walking on a treadmill before initial claudication occurred increased from 133 to 206 meters, while the maximum walking

distance increased from 230 to 365 meters.. Both variables remained unchanged in the placebo group.¹⁰

Other Positive Effects of Policosanol

PCL also positively affects other aspects of blood vessel health. Rats were fed PCL for four weeks, then LDL particles from their blood were examined for resistance to oxidation. It is oxidized LDL that is believed to be the chief culprit in promoting atherosclerotic damage to artery linings. PCL significantly increased LDL resistance to oxidation according to several measures.¹¹ PCL also reduces abnormal platelet aggregation activity by favorably altering prostaglandin synthesis. PCL lowers blood levels of TXA₂, a thromboxane that promotes blood vessel constriction and excessive platelet aggregation, while it increases blood levels of prostacyclin (PGI₂), which opens blood vessels wide, and inhibits abnormal platelet aggregation.^{12,13}

Abnormal platelet aggregation is often the trigger for a heart attack, when it occurs in a heart blood vessel already partially closed due to atherosclerotic plaque.

PCL has been shown to be extremely non-toxic, even with long-term use.¹⁴ In this study of 27,879 patients, the side effect incidence was only 0.31 percent, primarily weight loss, excessive urination and insomnia. However, since large amounts of cholesterol are needed during pregnancy and growth, PCL should not be used by pregnant women or children. PCL is usually taken at a dose of 10 or 20 mg/day. It is best taken with the evening meal, since cholesterol biosynthesis is increased at night.

For people needing to lower their cholesterol only moderately, PCL may be the perfect answer. However, for those needing to lower their cholesterol more dramatically, PCL is best used in combination with other lipid control agents. PCL has been shown to synergize well with other cholesterol-lowering agents. Anyone using blood-thinning drugs such as warfarin, heparin, or pentoxifylline, or taking L-dopa for Parkinson's disease, should use PCL only with their doctor's advice and consent.

References:

1. Crespo, N. et al. "Comparative study of the efficacy and tolerability of policosanol and lovastatin..." *Int J Clin Pharm Res*, 1999, 19:117-27.
2. Folkers, K. et al. "Lovastatin decreases coenzyme Q levels in humans". *Proc Nat'l Acad Sci*, 1990, 87: 8928-30.
3. Crespo op. cit.
4. Ortensi, G. et al. "Policosanol vs. simvastatin". *Curr Ther Res*, 1997, 58: 390-401.
5. Castano, G. et al. "Effects of policosanol and pravastatin on lipid profile...in older hypercholesterolemic patients." *Int J Clin Pharm Res*, 1999, 19: 105-116.
6. Mas, R. et al. "Effects of policosanol in patients with type II hypercholesterolemia...". *Int J Clin Pharm Res*, 1999, 65: 439-47.
7. Castano, G. et al. "Effects of policosanol 20 vs. 40 mg/day in the treatment of patients with type II hypercholesterolemia...". *Int J Clin Pharm Res*, 2001, 21: 43-57.
8. Castano, G. et al. "Effects of policosanol on older patients with type II hypercholesterolemia and high coronary risk". *J Gerontol*, 2001, 56: M186-92.
9. Castano, G. et al. "Effects of policosanol in hypertensive patients wit type II hypercholesterolemia". *Curr Ther Res*, 1996, 57: 691-99.

10. Castano, G. et al. "A double-blind, placebo-controlled study of the effects of policosanol in patients with intermittent claudication". *Angiology*, 1999, 50: 123-30.
11. "Oral administration of policosanol inhibits in vitro copper ion-induced rat lipoprotein peroxidation". *Physiol Behav*, 1999, 67: 1-7.
12. Arruzazabala, M. et al. "Effect of policosanol successive dose increase in platelet aggregation in healthy volunteers". *Pharmacol Res*, 1995, 34: 181-85.
13. Valdes, S. et al. "Effect of policosanol on platelet aggregation in healthy volunteers". 1996, *Inter J Clin Pharm Res*, 16: 67-72.
14. Fernandez, L. et al. "Policosanol: Results of a postmarketing surveillance study of 27,879 patients". 1998, *Curr Ther Res*, 59: 7717-22.

[Return to Top](#)

Research Review & Commentary

By Shari Lieberman, Ph.D., CNS, FACN

Selenium Supplementation, Baseline Plasma Selenium Status and Incidence of Prostate Cancer: An Analysis of the Complete Treatment Period of the Nutritional Prevention of Cancer Trial.

Duffield-Lillico AJ, Dalkin BL, Reid ME, Turnbull BW, Slate EH, Jacobs ET, Marshall JR, Clark LC. *BJU Int*. 2003 May; 91(7):608-12.

Research Abstract

The Nutritional Prevention of Cancer (NPC) Trial, a randomized trial of selenium (200 micrograms daily) was designed to test the hypothesis that selenium supplementation could reduce the risk of recurrent nonmelanoma skin cancer among 1,312 residents of the Eastern USA. However, secondary analyses of the study showed a striking inverse association between selenium supplementation and prostate cancer incidence.

A subsequent report revealed that this effect was accentuated among men with the lowest baseline plasma selenium concentrations. Selenium supplementation significantly reduced the overall incidence of prostate cancer.

The protective effect of selenium supplementation appeared to be confined to those with a baseline PSA level of less than 4 ng/ml. The NPC trial demonstrated a significant protective effect of selenium supplementation on the overall incidence of prostate cancer, although the effect was restricted to those with lower baseline PSA and plasma selenium concentrations.

Dr. Shari's Commentary

I wish this study received as much press as ephedrine. This is an important study in that it demonstrates a clear protective effect of selenium on prostate cancer risk.

High selenium intakes have been shown to be protective against a wide variety of cancers and countries with high selenium soil (the United States not being one of them) have a lower risk of many cancers.

In countries with high selenium soil, inhabitants may consume as much as 500-750 mcg of selenium each day. Selenium is essential for the production of glutathione peroxidase—a very powerful free-radical scavenger.

What the study suggests is that 200 mcg of selenium is more protective in men with the lowest levels of selenium and lower baseline PSA levels. If they had lower PSA levels, this also suggests either no cancer at that time or extremely early stage prostate cancer. Americans ingest very low levels of selenium through their food. It is removed during milling of whole grains to white flour and most soil is deficient in selenium.

Also, glaciated areas are notoriously low in selenium. My personal opinion is that higher levels of selenium yield a higher protective and therapeutic effect for prostate, breast and other cancers.

Selenium is safe in higher levels (like chromium) up to about 1 mg. Given the present cancer epidemic, I routinely recommend at least 400 mcg per day for those at risk of cancer and perhaps 400-1,000 mcg per day to those with active cancer.

Even the Food and Nutrition Board acknowledges that selenium toxicity would only occur if 2,400-3,000 mcg per day were ingested. So, less than one milligram or 1,000 micrograms is certainly within this limit. There is a ton of animal and human data demonstrating the anticancer effects of selenium yet it is so rarely used in clinical oncology-go figure.

The Use of Antioxidant Therapies During Chemotherapy

Drisko JA, Chapman J, Hunter VJ,
Gynecol Oncol. 2003;88:434-439

Research Abstract

It is accepted that antioxidants are useful in the reduction of adverse side effects of chemotherapy, although most oncologists believe that antioxidants reduce the effectiveness of chemotherapy and radiation therapy.

There is evidence that antioxidants used alongside chemotherapy may help reduce tumor size and increase longevity. The concern regarding antioxidant therapies interfering with chemotherapy and radiation is the lowering of oxidative damage of chemotherapy by antioxidants, thereby reducing its effectiveness. Evidence supporting this mechanism is not present.

Antioxidants act as biological response modifiers and can directly induce apoptosis in cancer cells. There is scientific evidence that antioxidants enhance the antitumor effects of chemotherapy in vitro and in vivo. Chemotherapy does not kill tumor cells by damaging essential biological functions but by initiating programmed cellular responses.

The common antioxidants used during cancer treatment include mixed tocopherols and tocotrienols, beta-carotene, which includes natural mixed carotenoids, vitamin C and

vitamin A.

Antioxidants work in conjunction with each other to quench reactive oxidant species. Vitamin C, at many times the Recommended Daily Allowance, is a potent immunomodulator and has been found to be preferentially cytotoxic to cancer cells. Vitamin C enhances the activity of natural-killer cells in vivo and also enhances B- and T-cell activity.

At doses in the gram range, it has been shown to increase survival time of patients with malignancies. Vitamin C may be killing cancer cells through the mechanism of intracellular generation of toxic hydrogen peroxide produced by the oxidized form of ascorbic acid, dehydroascorbate. Plasma saturation has been found to reach 80 percent at a 200-mg oral dose, and saturation has been observed at 1,000 mg/day.

The goal of therapy is to attain vitamin C levels of greater than 200 mg/dl given intravenously. In patients with malignancies, much higher doses are needed to kill cancer cells. Intravenous therapy can get the dose above 200 mg/dl, resulting in tumor cell cytotoxicity and with virtually no effect on normal tissue. The longer the plasma level is maintained above 200 mg/dl, the more effective the cytotoxic effect will be. Ascorbate plasma levels above 200 mg/dl, which would be cytotoxic to cancer cells, are not likely to be attained with oral regimens alone.

Vitamin C has been shown to increase the activity of doxorubicin, cisplatin and paclitaxel. Natural mixed carotenoids in doses up to 20-40 mg/day have been shown to act synergistically with cisplatin. These amounts have been shown to increase cell differentiation in vivo, which promotes apoptosis of cancer cells. Human evidence suggests an inverse relationship between vitamin E levels and tumor incidence.

Vitamin E has been shown to decrease the toxicity of chemotherapy without reducing its effectiveness. Retinoic acid and its derivatives can induce cell differentiation and growth inhibition in some cancer cell lines. High doses of retinoic acid may be taken for a specific period orally without fear of normal tissue toxicity.

Retinoic acid shows benefit in combination with chemotherapy, and there is no evidence of reduced effectiveness of chemotherapy. Evidence is growing that antioxidants may be used with certain chemotherapeutic agents to enhance their effectiveness.

Dr. Shari's Commentary

I applaud Dr. Drisko's work. This is the second paper she and her colleagues have written confirming that antioxidants should be given along with chemotherapy. I will also add that they should also be given along with radiation (as she also suggests in this paper). Another important fact is that cancer cells have abnormal membranes.

When you take high levels of antioxidants orally or intravenously they will flood into cancer cells and cause their death. Since normal cells do not have these extremely abnormal permeable membranes, they are protected by these antioxidants since the antioxidants don't "flood" into the cell but are absorbed only to a certain degree.

Dr. Drisko has also made the important distinction between natural and synthetic beta carotene and vitamin E, in short, that only the natural forms should be used.

Another form of vitamin E known as d-alpha-tocopheryl succinate was developed specifically to target cancer cells and the research has shown it to be very effective against many different types of cancer and synergistic with chemotherapy and radiation.

It is important that oncologists get with the program and educate themselves in the science of antioxidants and their role in oncology, rather than perpetuating the belief that antioxidants reduce the effectiveness of chemotherapy and radiation therapy. Nutrition is a science, not a religion based on belief.

Dr. Shari Lieberman

Dr. Lieberman earned her Ph.D. in Clinical Nutrition and Exercise Physiology from The Union Institute, Cincinnati, Ohio, and her M.S. degree in Nutrition, Food Science and Dietetics from New York University. She is a Certified Nutrition Specialist (C.N.S.); a Fellow of the American College of Nutrition (FACN); a member of the New York Academy of Science; a member of the American Academy of Anti-Aging Medicine (A4M); a board member of the Certification Board for Nutrition Specialists; President of the American Association for Health Freedom and the recipient of the National Nutritional Foods Association 2003 Clinician of the Year Award. She has been in private practice as a clinical nutritionist for more than 20 years in New York City.

Dr. Lieberman is a frequent guest on many television and radio shows and her name is often seen in magazines as an authority on nutrition. Dr. Lieberman has authored several books on nutrition and integrative medicine. Her best-selling *The Real Vitamin & Mineral Book* (Avery/Penguin Putnam 2003) was recently released in its third edition. Dr. Lieberman serves as a faculty member of the University of Bridgeport, School of Human Nutrition graduate program, and as an industry consultant. She is a contributing editor to the American Medical Association's Fifth Edition of *Drug Evaluations*; a peer reviewer for scientific publications; a published scientific researcher and a presenter at numerous scientific conferences.

[Return to Top](#)

Ginger, Turmeric and Other Natural Anti-Coagulants
By Kimberly Pryor

Coagulation is the process of blood cells clumping together to form a clot. Coagulation occurs when blood platelets stick together—known as platelet aggregation. This process is essential to the healing of wounds. When a small vessel is injured, platelets adhere to each other and cling to the edges of the injury, forming a plug that covers the area. This plug—otherwise known as a blood clot—forms a natural bandage that stops blood loss. After the injury has been repaired, the body releases substances designed to break down the clot.

As beneficial as this process may be to the healing of wounds, platelet aggregation can be lethal when it occurs in the circulatory system. When platelets clump together in the arteries, they can form abnormal clots that can detach from the vessel wall, blocking blood flow and causing a stroke or heart attack.

Blood-thinners (anti-coagulants) are often prescribed for those at risk of blood clots and cardiovascular disease. Anti-coagulants such as Coumadin® (Warfarin), and platelet aggregation inhibitors such as Plavix® (Clopidogrel) are often used to prevent these clots. Daily consumption of aspirin due to its anti-coagulant properties also is a common practice. Aspirin consumption, however, poses the risk of gastrointestinal bleeding and peptic ulceration. For individuals who want an alternative, research indicates that a number of natural substances may safely inhibit platelet aggregation.

Ginger

A recent study indicates that ginger (*Zingiber officinale*) is a potent anti-coagulant. Platelet aggregation is triggered by an inflammatory substance produced in the body known as arachidonic acid. Researchers in Australia tested the ability of 20 ginger constituents to inhibit arachidonic acid induced platelet activation in human whole blood. They compared ginger's anti-coagulant ability with that of aspirin. The researchers concluded that components of ginger could indeed stop platelets from sticking together, possibly by inhibiting the enzyme COX-1. They concluded, "The above findings show that gingerol compounds and their derivatives are more potent anti-platelet agents than aspirin under the conditions described in this study."¹

Turmeric

The spice turmeric also has exhibited powerful anti-coagulant properties due to its ability to inhibit the formation of fibrinogen, a plasma protein that plays a key final role in the cascade that results in blood clotting. Elevated fibrinogen blood levels have been identified in a number of studies to be a major risk factor for coronary heart disease and cerebrovascular disease (strokes), exceeding the contributions of homocysteine, cholesterol and other lipid parameters in the pathogenesis of these diseases.

Turmeric can reduce fibrinogen levels, thereby inhibiting blood clotting.²⁻³ In one study by scientists in Spain, researchers selected eight subjects with elevated fibrinogen levels and treated them with 20 mg of *Curcuma longa* (turmeric) extract per day. After only 15 days, previously elevated levels of fibrinogen plummeted in all eight subjects.⁴

Other research shows that turmeric-derived curcumin can directly inhibit arachidonic acid-mediated platelet aggregation, possibly by virtue of its ability to inhibit the clotting factor known as thromboxane A₂.⁵

Policosanol

Policosanol has inhibited platelet aggregation in both animals and human subjects. In

animal studies, policosanol significantly decreased the size of experimentally induced venous thromboses (clots).⁶⁻⁸

Vitamin E

Vitamin E also is a key player in the inhibition of platelet aggregation.⁹ But research indicates that mixed tocopherols can more effectively inhibit platelet aggregation than alpha-tocopherol alone.¹⁰ Tocopherols may work as an anti-coagulant by virtue of their antioxidant abilities. Platelets aggregate because arachidonic acid is converted into pro-aggregatory thromboxanes-an oxidative process. As an antioxidant, vitamin E can quench the free radicals that cause this conversion.⁹⁻¹¹

Other Natural Blood Thinners

The fish-oil-derived EPA and DHA, garlic, and proteolytic enzymes also have been shown to have anti-coagulant properties.¹² Furthermore, an overlooked anti-coagulant is Inositol Hexaphosphate (IP6). In one study, IP6 inhibited platelet aggregation by 45 percent in an in vivo animal model. In an in vitro study by the same researchers, stickiness was induced in human whole blood taken from healthy volunteers. IP6 reduced clotting by 50 percent, or eliminated it altogether.¹³

References

1. Nurtjahja-Tjendraputra E, Ammit AJ, Roufogalis BD, Tran VH, Duke CC. Effective anti-platelet and COX-1 enzyme inhibitors from pungent constituents of ginger. *Thromb Res.* 2003;111(4-5):259-65.
2. Ramirez-Bosca A, Soler A, Carrion-Gutierrez MA, et al. Antioxidant curcuma extracts decrease the blood lipid peroxide levels of human subjects. *Age*, 1995, 167-169.
3. Ramirez-Bosca A, Carrion-Gutierrez MA, Soler A. et al. Effects of the antioxidant turmeric on lipoprotein peroxides: implications for the prevention of atherosclerosis. *Age*, 1997, 20: 165-168.
4. Ramirez-Bosca A, Soler A, Carrion-Gutierrez MA, Mira DP, Zapata JP, Diaz-Alperi J, Bernd A, Almagro EQ, and Miquel J. An hydroalcoholic extract of *Curcuma longa* lowers the abnormally high values of human-plasma fibrinogen. *Mech Aging Dev*, 2000, 114: 207-220.
5. Shah BH, Nawaz Z, Pertani SA, Roomi A, Mahmood H, Saeed SA, Gilani AH. Inhibitory effect of curcumin, a food spice from turmeric, on platelet-activating factor- and arachidonic acid-mediated platelet aggregation through inhibition of thromboxane formation and Ca²⁺ signaling. *Biochem Pharmacol.* 1999 Oct 1;58(7):1167-72.
6. Arruzazabala ML, et al. Effects of Policosanol on platelet aggregation in rats. *Thromb Res*, 1993. 69(3): p. 321-7.
7. Valdes S, et al. Effect of policosanol on platelet aggregation in healthy volunteers. *Int J Clin Pharmacol Res*, 1996. 16(2-3): p. 67-72.
8. Arruzazabala ML, et al. Effect of policosanol successive dose increases on platelet aggregation in healthy volunteers. *Pharmacol Res*, 1996. 34(5-6): p. 181-5.
9. Jandsk J, et al. Reduction of platelet adhesiveness by vitamin E supplementation in humans. *Thrombosis Research* 49: 393-404, 1988.
10. Liu M, Wallmon A, Olsson-Mortlock C, Wallin R, Saldeen T. Mixed tocopherols

inhibit platelet aggregation in humans: potential mechanisms. *Am J Clin Nutr.* 2003 Mar;77(3):700-6.

11. Fukusawa K, et al. Vitamin E. Deficiency increases the synthesis of platelet-activating factor (PAF) in rat polymorphonuclear leukocytes. *Lipids* 24: 236-239, 1989.

12. *Curr Atheroscler Rep.* 2002 Nov;4(6):412-3.
Circulation. 2002 Nov 19;106(21):2747-57.

13. Shamsuddin AM. IP6: Nature's Revolutionary Cancer-Fighter. Kensington Books. New York, NY. 1998. Page 84.

[Return to Top](#)

Magnesium and Diabetes Prevention

Harvard researchers have discovered a link between magnesium intake and the risk of developing type 2 diabetes. Their findings are published in two studies in the January 2004 [Diabetes Care](#).

In the first study, researchers followed 85,060 women and 42,872 men who had no history of diabetes, cardiovascular disease, or cancer at the study's start. Magnesium intake was evaluated using a food frequency questionnaire every two-to-four years. After 18 years of follow-up in women and 12 years in men, the study authors documented 4,085 and 1,333 cases of type 2 diabetes, respectively. The researchers discovered that the higher the subjects' magnesium intake, the lower the type 2 diabetes risk.

In the second study, researchers evaluated 39,345 women 45 years and older with no previous history of cardiovascular disease, cancer, or type 2 diabetes. Using data from food frequency questionnaires, the researchers determined the type 2 diabetes risk for the highest magnesium intake compared with the lowest intake. In a sample of 349 apparently healthy subjects, the researchers also measured plasma fasting insulin.

During the six-year follow-up, the study authors documented 918 confirmed cases of type 2 diabetes. The more magnesium the subjects consumed, the less their risk of developing this disease. Magnesium's protective effect was particularly strong for women with a high body mass index. In addition, women who consumed the most magnesium had lower insulin levels compared to women who consumed less magnesium.

According to the researchers, "These findings support a protective role of higher magnesium intake in reducing the risk of developing type 2 diabetes, especially in overweight women."

References:

Lopez-Ridaura R, Willett WC, Rimm EB, Liu S, Stampfer MJ, Manson JE, Hu FB. Magnesium Intake and Risk of Type 2 Diabetes in Men and Women. *Diabetes Care.* 2004 Jan;27(1):134-140.

Song Y, Manson JE, Buring JE, Liu S. Dietary Magnesium Intake in Relation to Plasma Insulin Levels and Risk of Type 2 Diabetes in Women. *Diabetes Care*. 2004 Jan;27(1):59-65.

[Return to Top](#)

Vitamin D Research On Colon Cancer, Multiple Sclerosis, Arthritis
By Kimberly Pryor

Vitamin D plays an undisputed role in maintaining health. It was first investigated for its role in proper bone metabolism, but through the years studies have begun to unveil its other protective properties. Three studies published in the last two months indicate this nutrient has a wide role to play in disease prevention.

Colon Cancer Risk

A study published in the December 10, 2003, issue of the *Journal of the American Medical Association* explored the relationship between vitamin D intake and colon cancer risk. Between February 1994 and January 1997, the study authors looked at 3,121 asymptomatic patients aged 50 to 75 years. Three hundred twenty-nine participants had advanced colon cancer and 1,441 were cancer free. The researchers found that having a first-degree relative with colorectal cancer, smoking cigarettes, and moderate to heavy alcohol use were all related to colon cancer development. Vitamin D, on the other hand, was one of several factors that significantly protected against colon cancer, along with fiber intake and use of nonsteroidal anti-inflammatory drugs. Vitamin D intake greater than 645 IU per day was needed to confer protection against colon cancer.

Multiple Sclerosis

Another study published in the January 13 issue of *Neurology* further cements the link between low vitamin D intake and disease development. To determine whether low vitamin D is linked to an increased risk of developing multiple sclerosis, the study authors examined data from 187,563 female subjects at the beginning of the study and then every four years.

Those subjects with the highest vitamin D intake from supplements (400 IU or more per day) were 40 percent less likely to develop multiple sclerosis than those who used no supplements. People who consumed vitamin D in both supplement form and food form also had a lower risk of developing MS. But subjects who derived their vitamin D from food only did not experience a reduced risk of developing the disease.

Rheumatoid Arthritis

A third study investigated vitamin D's role in reducing risk of another debilitating illness-rheumatoid arthritis. In this study, reported in the January 2004 issue of *Arthritis & Rheumatism*, researchers studied 29,368 women aged 55 to 69 years who

responded to a detailed self-administered questionnaire and who were free of RA at the study's start. The subjects who consumed the most vitamin D either through food or supplements had a reduced risk of developing rheumatoid arthritis.

References:

1. Lieberman DA, Prindiville S, Weiss DG, Willett W. Risk factors for advanced colonic neoplasia and hyperplastic polyps in asymptomatic individuals. *JAMA*. 2003 Dec 10;290(22):2959-67.
2. Munger KL, Zhang SM, O'Reilly E, Hernan MA, Olek MJ, Willett WC, Ascherio A. Vitamin D intake and incidence of multiple sclerosis. *Neurology*. 2004 Jan 13;62(1):60-65.
3. Linda A. Merlino, Jeffrey Curtis, Ted R. Mikuls, James R. Cerhan, Lindsey A. Criswell, Kenneth G. Saag. Vitamin D intake is inversely associated with rheumatoid arthritis: Results from the Iowa Women's Health Study. *Arthritis & Rheumatism*. Published online January 9, 2004; 72-77.

[Return to Top](#)

Customers' Corner

by *Ward Dean, MD*

VRP Medical Director and Director, Research & Development

CeaseFire and Digestive Aids

Dear Dr. Dean,

I have been taking CeaseFire for a few days now and I can really feel the difference for the better. Thanks for such a great product. I noticed that CeaseFire contains DGL from licorice. I know that licorice may raise blood pressure. I was wondering if CeaseFire is safe for high blood pressure patients.

I also wanted to know what other supplement products I can take in conjunction with CeaseFire to improve my digestion.

Dear Mr. Y.,

DGL stands for de-glycerrhizinated licorice, which means the glycerrhizin (the substance that can raise blood pressure) has been removed. Thus, CeaseFire is safe for people with high blood pressure. You might also consider adding Digestive Enzymes to further improve your digestion.

Ward Dean, MD

I3C and Prostate Cancer

Dear Dr. Dean,

I would like to know if Indole-3-Carbinol might be helpful for me. I have been treated

for prostate cancer and am currently taking Lupron shots. A friend who uses your product said that it might be helpful.

Thank you, Mr. L.

Dear Mr. L.,

I agree with your friend that Indole-3-Carbinol (I3C) might be helpful for prostate cancer. Lupron is used to lower your testosterone level. Frankly, I believe that if high levels of testosterone were the cause of prostate cancer, we would have an epidemic of prostate cancer among 19-year-olds.

I think estrogen may have more to do with prostate cancer than testosterone. I3C should help your body to metabolize and excrete estrogens. Consequently, I think I3C should be beneficial for most men with prostate cancer. I would also suggest using VRP's ProstaCol.®

Ward Dean, MD

LipiControl™ vs. Pravachol®

Dear Dr. Dean,

I have written you several times about my husband. He is doing great on LipiControl and Niacin.

His heart doctor wants him to go back on Pravachol. He stated that he could keep taking LipiControl but needed the Pravachol for plaque that may form.

Does the LipiControl help that or would he need something else like your Oral ChelatoRx? Would Oral ChelatoRx be effective in inhibiting plaque formation? His cholesterol numbers are great, but his heart doctor said that is just a part of the effect of Pravachol, and that plaque could still form even with the low cholesterol.

Is there any truth to this? The doctor is against chelation, but I'm not surprised. What is your view on this?

Mrs. D.

Dear Mrs. D.,

I do not think Pravachol will provide any benefits that LipiControl will not, based on the information you have provided. I do think that Oral ChelatoRx would be of benefit.

I think your husband needs to find a physician whose philosophy of health is more in keeping with your own. I'd suggest contacting VRP's Customer Service for the name of a physician near you that is familiar with natural methods of treating these problems. Alternatively, I suggest you contact the American College for Advancement in Medicine (www.ACAM.org) for a physician near

you that is knowledgeable about chelation and other alternative therapies.

I think Pravachol and the other statin drugs should be avoided.

Ward Dean, M.D.

Macular Degeneration

Dear Dr. Dean,

I am a 74-year-old woman. My ophthalmologist recently told me that I have macular degeneration (dry type), but at present I have no symptoms. I am taking four capsules of OcuVite twice a day as he recommended. It contains 14,320 units of Vitamin A, 226 mg of Vitamin C, 200 IU of Vitamin E., 34.8 mg zinc, and 0.8 mg copper.

A friend suggests I take a supplement that also contains bitterroot and lutein. The ophthalmologist asserts that these two have not been proved to be beneficial in the treatment of macular degeneration. I wondered what your opinion is about this.

Mrs. K.

Dear Mrs. K.,

OcuVite is a low-end formula that is recommended by many ophthalmologists for macular degeneration. Frankly, I'm not impressed by it. VRP's Extension Vision was formulated for ophthalmologists and optometrists who wanted a more potent and more effective formulation. Extension Vision contains nutrients (including lutein) that have been demonstrated in scientific studies to delay or reverse the signs and symptoms of macular degeneration.

Extension Vision does not, however, contain the nutrients you mentioned that are in OcuVite, because those vitamins and minerals are contained in all of VRP's multi-nutrient formulas (ranging from Extend One to Extend Ultra). We recommend that everyone take a baseline multinutrient formula, and then add other nutrients or formulas that are specific for a particular condition.

I suggest Extension Vision plus Extend Core, to provide you with a comprehensive range of nutrients known to benefit macular degeneration.

I think your ophthalmologist's comments that lutein "has not been proved to be of benefit in macular degeneration," is uninformed. I would not want to wait around for my vision to degenerate, waiting for the final bit of "evidence" to prove something conclusively, when there is plenty of evidence to indicate that it is most likely to be of benefit, and does not cause any harm.

Ward Dean, M.D.

Interstitial Cystitis

Dear Dr. Dean,

I had a question about Calcium AEP. I have interstitial cystitis, and was wondering if it would be worthwhile to try this supplement and see if it may help or not.

Thanks, Ms. F.

Dear Ms. F,

I don't know of any research using Calcium AEP for interstitial cystitis, but it certainly wouldn't hurt. I'd also suggest 3-5 grams of MSM every day. MSM is the active ingredient in DMSO, which is used for bladder irrigation in the treatment of interstitial cystitis. Other suggestions include D-Mannose, and high-dose anti-inflammatory enzyme therapy with UniZyme, or other anti-inflammatory substances like Boswellia and Turmeric.

Finally, but very significantly, I recently heard from a patient with interstitial cystitis who became completely asymptomatic after she began using Xylitol gum and Unique Sweet xylitol crystals as a sugar substitute.

Let me know how you do.

Ward Dean, MD

Basic Anti-Aging Program

Dear Dr. Dean,

I am a 56-year-old healthy female. No real health issues except I want to remain that way. Good skin, no wrinkles, good hair etc. What is the very best product to stay this way.

I did have juvenile rheumatoid arthritis; few symptoms now. I also have some loss of libido. Any answers? Thanks for your help.

Mrs. I.

Dear Mrs. I,

First, continue what you're doing, since it seems to be working so far. As general guidelines, I'd suggest a multi-nutrient formula, ranging from Extend One to Extend Ultra.

Second, I'd augment this with a multi-mineral formula like Essential Minerals or Advanced Essential Minerals. If you're not used to taking a lot of capsules, I'd start with something like Extend Core and Essential Minerals. Among the top anti-aging supplements, I'd suggest low-dose DHEA (10-25 mg) every morning, 75-150 mg of CoQ10, and 3 mg of melatonin at bedtime. Women convert DHEA to testosterone very efficiently, so this may help to improve your libido.

All of these substances are known to decrease with age. I think it's important to restore these substances to more youthful levels. Finally, I'd recommend AGEBlock.(tm) That is a pretty good "basic" anti-aging program. Of course, you can add other nutrients depending on your specific goals or health condition.

Ward Dean, MD

RNA and Hypothyroidism

Dear Dr. Dean,

I recently bought RNA in both caps and powder. Please advise me on how to take them. I am a Chinese woman, age 63, 108 lbs. I am taking multivitamins, oils, calcium, Vitamin E and selenium. I read about your RNA and wish to include it in my supplements.

I have a lot of wrinkles, and my skin retracts very slowly when "pinched." I am always cold. To improve my appetite I am taking enzymes as well. I have started taking three RNA caps twice a day. Is that enough? When I finish the caps how should I take the powder? Thanks for advising.

Ms. W.

Dear Ms. W,

Three RNA caps twice daily will provide you with nearly 3 grams daily of RNA. I think that is an adequate dosage for your purposes. When you take the powder, it can be mixed in almost any juice. It alters the flavor somewhat, but is not too bad. It gives it a somewhat "yeasty" taste. I usually take 3-5 grams myself, once or twice daily. (A teaspoon of RNA powder is about three grams.) The fact that you are "always cold" may be due to hypothyroidism. I suggest that you read my article on hypothyroidism on VRP's website (www.vrp.com). The treatment for hypothyroidism is thyroid replacement therapy, as described in the article. RNA may help activate the thyroid, but I would consider thyroid hormone replacement as well.

Ward Dean, MD

CarnoSee Eye Drops

Dear Dr. Dean,

I just opened my latest order from VRP and discovered the insert announcing that CarnoSee eye drops are available. My question is whether there have been any allergic type reactions to the drops.

I followed the original Russian research and tracked the specific drops used and obtained the CanC drops from IAS. I have not started using them yet.

Is there a difference between the two or is it impossible to tell because of the proprietary nature of CanC? My local ophthalmologist is horrified that I am going to use these drops. My ophthalmologist at the Wilmer Eye Institute in Baltimore goes along with it, but says I should be monitored. Sorry about this long question, but I am impressed with the way you answer VRP's customer questions. Thanks also for the website with actual medical references.

P.

Dear P.,

There have not been any adverse reactions that I have been apprised of with regard to either CarnoSee or CanC drops. I think both products are equally safe. As you surmised, they are virtually identical, as they originate from the same source.

It sounds like the ophthalmologist at the eye institute is pretty open minded. I think his comment that you "should be monitored" is more of an indication of his interest that the drops might actually work. Certainly he would like to

monitor the progression or regression of your cataracts. Thank you for reminding me to use my CarnoSee eye drops today. I've been so busy I forgot.
Ward Dean, MD

Stress and Cortisol Levels

Dear Dr. Dean,

I want to reduce cortisol levels in my body. I'm 32 years old and under quite a bit of stress, but am working on eliminating it.

Will Phosphatidylserine help in alleviating excess levels, and how much should I take? What else would you recommend for this purpose?

Thank you, Mr. V.

Dear Mr. V.,

Phosphatidylserine, 300 mg per day, is a good choice. I'd also recommend AdaptaPhase(r) I and/or AdaptaPhase(r) II. DHEA is also known to balance cortisol. The antidiabetic drug Metformin (Glucophage) is a powerful cortisol receptor-sensitizer. VRP's GluControl may have this effect as well. L-Theanine is a powerful anti-anxiety agent that may also help. Finally, don't overlook the stress-fighting benefits of moderate exercise.

Ward Dean, MD

Impotence and Diabetes

Dear Dr. Dean,

I am a type 2 diabetic (diagnosed in May) and am both impotent and infertile. I find AndroSpray helps with erections, but not with infertility. I believe these maladies are related to the diabetes, since my doctor thinks I've been an undiagnosed diabetic for some time.

They are also relatively recent problems. On that assumption, do you have anything in the way of nutritional advice for these problems?

I have read a research study that suggested that regular doses of zinc sulfate in combination with folic acid had been beneficial for some infertile men. Do you know of this study or would you agree with that recommendation? Any comments or advice would be more than appreciated. Thank you.

Mr. D.

Dear Mr. D.,

I am not familiar with the study that you mentioned, but the two nutrients that you mentioned certainly wouldn't hurt. I think the most important thing is to treat the diabetes. You didn't say what, if any, treatment program you are following (diet, medications, nutrients, etc).

I suggest a combination of Optimum D and GluControl. Optimum D will have adequate zinc and folic acid, in combination with other nutrients.

Ward Dean, MD

Drug-Nutrient Interactions

Dear Dr. Dean,

I am taking Armour Thyroid (60 mg/day) and Hydrochlorothiazide (1&Mac218;2 of a 25 mg tablet) for blood pressure. I have a few questions.

Can I take Resveratrol with my medication? Will they work together without contradicting each other? I have problems with cholesterol (approximately 225) and I am 77 years old.

Do I need to take anything else for cholesterol? The thyroid medication caused my hair to thin and fall out. I am taking Healthy Hair Caps and Extension Hair & Nails.

Are these okay to take with my medication?

Also, I have macular degeneration (dry) and I would appreciate it if you could tell me what I could take. I am now taking Extension Vision, Bilberry, Lutein, Zinc, Lipoic Acid and Vinpocetine.

It is very difficult because none of the doctors I go to believe that vitamins can help.

They don't know very much about vitamins; so they can't tell me what I can take with the medication I am now taking.

Thank you for your help, Mrs. F.

Dear Mrs. F.,

I cannot think of any supplements that will adversely interact with your medications (thyroid and HCTZ). Consequently, you can certainly take Resveratrol with your current regimen. I doubt if the low dose of thyroid that you are taking is causing your hair to fall out. More likely, you are being undertreated, and may need to increase your dosage.

Hypothyroidism is a cause of hair loss. According to Dr. Broda Barnes, author of "Hypothyroidism, the Unsuspected Illness," elevated cholesterol is also a sign of hypothyroidism.

In addition, you may consider adding LipiControl to your regimen, to safely address your cholesterol. I think you are taking appropriate supplements for your macular degeneration.

I believe Extension Vision is the best supplement available today for macular degeneration. Extension Hair & Nails can also be taken with your current medications. However, I think proper adjustment of your thyroid medication may be of benefit in this regard. Please read my article on hypothyroidism on the Vitamin Research Products website (www.vrp.com).

Ward Dean, MD

Insomnia and Hypoglycemia

Dear Dr. Dean,

I'm menopausal and suffer from constipation, insomnia, food cravings, and low blood sugar.

Can you recommend a multivitamin, digestive enzyme, hormone cream and/or herbs?

Ms. A.

Dear Ms. A,

Since you listed "menopausal" first, I'd suggest a combination of HerBalance II and progesterone cream. For the constipation, I'd suggest a combination of Detox FiberPlex (tastes very "herbal," but it needs to be consumed rapidly, so the taste doesn't last long), plus magnesium to "bowel tolerance."

For the food cravings, and low blood sugar, I'd suggest VRP's GluControl. GluControl helps to reduce insulin resistance. It also tends to reduce carbohydrate cravings, and alleviate hypoglycemic symptoms.

As an alternative, or in addition to GluControl, you might consider VRP's multi-nutrient formula, Optimum D, as a means of stabilizing your glucose and insulin levels, and alleviating carbohydrate cravings.

For insomnia, try 3-6 mg of melatonin about an hour before bedtime. Herbal Sleep may also help.

Ward Dean, MD