Dietary modifications and supplementation often improve high blood pressure, high blood fats, and high blood sugars characteristic of diabetes. Failure to monitor these changes and adjust medications accordingly may result in low blood sugars, low blood pressure, or other undesirable consequences.
• At the current rate of growth some estimate that more than half of all Americans will have type 2 diabetes by 2020.

• Both the financial costs and the toll in terms of human suffering are incalculable. “Putting out fires is expensive. Preventing them is cheap.”

“Among doctors, the death rate from diabetes was reported to be 35 percent higher than that of laymen. ‘If doctors die from diabetes more often than do laymen,’ reasons Dr. Lowenstein, ‘maybe it is because the accepted methods of treating diabetes are at fault. Since doctors are more likely to follow these methods religiously, maybe that is why they are more apt to die from them than laymen are!’”

Types of Diabetes
Gestational Diabetes

• Temporary blood sugar problems brought about by pregnancy.
• Blood sugar levels need to be monitored so that blood sugar fluctuations do not damage the fetus.
• Can usually be controlled by diet.
Type 1 Juvenile Diabetes

- Formerly known as insulin dependent diabetes mellitus
- The body cannot manufacture insulin due to destruction of the beta cells of the pancreas early in life.
- Currently insulin is required throughout life.
- Usually diagnosed before 30 years of age.
Type 2 Adult Onset Diabetes

- Formerly known as non-insulin dependent diabetes mellitus.
- 90% of the diagnosed diabetes cases
- The body loses the ability to use insulin efficiently allowing blood sugar levels to rise.
- This disorder is characterized by “insulin resistance.” Insulin is produced, often at excessive levels, but the cells can not respond to it.
As the beta cells of the adult onset diabetic are overworked to produce ever more insulin free radical damage begins destroying the ability to produce insulin.

Thus there are two types of adult onset diabetics, those who are producing excessive insulin and those who do not produce enough and are in the process of becoming Type 1 diabetics with an inability to produce insulin. A low insulin condition is much more difficult to treat.
Transient electromagnetic fields (dirty electricity), in the kilohertz range on electrical wiring, may be contributing to elevated blood sugar levels among diabetics and pre-diabetics. By closely following plasma glucose levels in four Type 1 and Type 2 diabetics, we find that they responded directly to the amount of dirty electricity in their environment. In an electromagnetically clean environment, Type 1 diabetics require less insulin and Type 2 diabetics have lower levels of plasma glucose. Dirty electricity, generated by electronic equipment and wireless devices, is ubiquitous in the environment. Exercise on a treadmill, which produces dirty electricity, increases plasma glucose. These findings may explain why brittle diabetics have difficulty regulating blood sugar.

Based on estimates of people who suffer from symptoms of electrical hypersensitivity (3-35%), as many as 5-60 million diabetics worldwide may be affected. Exposure to electromagnetic pollution in its various forms may account for higher plasma glucose levels and may contribute to the misdiagnosis of diabetes. Reducing exposure to electromagnetic pollution by avoidance or with specially designed GS filters may enable some diabetics to better regulate their blood sugar with less medication and borderline or pre-diabetics to remain non diabetic longer.

Body Signs Associated with Diabetes
Central Adiposity

- AKA: Potbelly, beer belly syndrome, dunlop’s disease (the belly lops over the belt), the furniture disease (the chest drops in the drawers).

- Insulin levels increase in an attempt to remove glucose from the bloodstream.

- Dr. Saverio Stranges and his associates at the State University of New York found that the potbelly is a better predictor of abnormal liver function in both men and women than is body weight.

Diabetic Risk

“Your risk for diabetes goes up when your belt size gets to 40” for men—about 38” for women.”

Ahmed H. Kissebah of the medical college of Wisconsin has noted a very strong correlation between an upper body weight gain pattern among women and diabetes.

• One-fourth of the 40% of American women who are overweight will have upper body weight gain.

• Six out of ten of these manifested preclinical diabetes and 16% had the full-blown disease.


Weight gain above the waist is characterized by abnormally large fat cells. Weight gain below the waist is associated with abnormal numbers of small fat cells–possibly associated with malnutrition during development.
Skin tags are little folds of skin often found on the neck, shoulder and underarm. Dr. Jack Margolis of the Veteran’s Hospital in Big Spring, Texas found that 72% of the patients he examined with skin tags were diabetic. Some of the patients who did not have diabetes went on to develop it several years later.

Of the 500 patients examined, 47 had single or multiple skin tags. Of the 47 patients with skin tags, 34 had diabetes mellitus as noted by repeat fasting blood sugar of 130 mg per 100 ml or higher and two-hour postprandial sugar of over 150 mg per 100 ml....One can almost predict that a male patient will have diabetes if the lesions are multiple, large, hyperpigmented and bilateral."

Calluses: Hyperkeratosis Follicularis

- Calluses develop from pressure on the skin. Many schoolchildren will have calluses where they hold a pencil. Deficiencies of vitamins A and B3 can contribute to more calluses—especially on the bottom of the feet where they often splinter and form needles. Vitamin A or essential fatty acid deficiency is often involved with a buildup of skin in the area of the hair follicles (hyperkeratosis follicularis). Calluses are common in diabetics.

Calluses

- “In diabetes mellitus... patients show readily visible signs of vitamin A deficiency in the form of perifollicular hyperkeratosis over the trunk and proximal parts of the extremities and also very thick and resistant calluses on the feet and elbows.... vitamin A... is not readily available for body use in zinc deficiency.”

• Professor Robert Davis of the Pennsylvania College of Podiatric Medicine believes that the ridge pattern on hands and feet can predict the likelihood of developing diabetes. In a study of 100 patients, half of whom were diabetics, researchers correctly identified the diabetics 81% of the time by looking for a distinctive loop ridge pattern on the index finger (loops greater than or equal to seven) and a triangular loop on the ball of the foot just below the big toe.


Dupuytren’s contracture is a condition in which the skin shrinks and hardens in the center of the hand. This condition has been helped with supplementation with vitamin E and zinc. Other antioxidants may help.

Dr. Maxwell Spring and Dr. Berton D. Cohen, New York Medical College and the Bronx-Lebanon Hospital Center, found more than a 90% incidence of glucose intolerance in patients who have Dupuytren’s contracture. Not all these patients show full clinical diabetes mellitus, but the abnormal glucose tolerance suggests that they may be in the incipient stage.

Discoloration of the Skin of the Lower Leg

- Necrobiosis Lipoidica
- Discoloration of the skin of the lower leg is both a predictor of the development of diabetes and also sometimes accompanies blood sugar disorders. It is believed to result from deterioration of the circulatory system.

Complications of Diabetes
• 21 diabetics with neuropathy were given 600 mg EPA 3X a day for 48 weeks. Improvement began in 12 weeks.

• Kidney function significantly improved (a common problem with diabetics) as well as blood flow to the feet.

Benefit for Neuropathy

- B complex
- Zinc and Vitamin E
- Lecithin (inositol)
- Fish Oils
- Alpha-Lipoic Acid [esp. diabetic]

- Avoid toxins including mercury, lead, cadmium and pesticides (eg. Dursban).

Triglyceride Level Classification

- Less than 150 mg/dL Normal
- 150-199 mg/dL Borderline-high
- 200-499 mg/dL High
- 500 mg/dL Plus Very High
- Levels over 200 mg/dL are associated with increased risk of heart disease.
- The higher the triglycerides, the higher the circulating insulin levels are likely to be.
- All blood lipid parameters tend to be unfavorable in diabetics.
Sorbitol Accumulation

- Sorbitol is a toxic waste product of glucose metabolism formed within cells by the enzyme aldose reductase.
- Diabetics with elevated blood sugar do not convert and excrete sorbitol. Even worse, glucose is shunted into the sorbitol pathway. Sorbitol accumulates in tissues like the lens of the eye drawing water into the cells and causing the release of small molecules like vitamin C, magnesium, niacin, glutathione, inositol, potassium, amino acids, and other protective molecules. The result is abnormalities such as cataracts.
Sorbitol Accumulation

- The cells most susceptible to sorbitol damage are the lens of the eye, peripheral nerves, the kidneys, pancreas, and the retina of the eye.
- Reduction of sorbitol levels is a key concern in preventing diabetic complications: reduce sugar intake and supplement with vitamin C complex.
Sorbitol, a sugar alcohol, can accumulate and damage the eyes of diabetics. Vitamin C has been shown to prevent the buildup of sorbitol. Vitamin C with citrus extract was 41% more effective than vitamin C alone in rat studies.


• “One serious problem for the diabetic is the extra molecules of sugar that are floating around in the blood. They will attach themselves to molecules of different proteins in the body and in doing so change the shapes and surfaces of those protein molecules. For those proteins to function normally, they must maintain their specified natural shapes and surfaces. The more important proteins act as hormones, as oxygen carrying hemoglobin, as components of the immune system, and as parts in the body’s structural architecture.”
The result of damage to these structures can include “decreased delivery of oxygen to all tissues; distortion of nerve and kidney proteins, causing the failures that are so commonly seen in diabetes; making the lens of the eye opaque, thus causing cataracts; and alteration of the cholesterol-triglyceride-protein packets called lipoproteins, thereby speeding atherosclerosis.”

Advance Glycation End-Products (AGE’s)

- The higher the blood sugar the higher the production of these tar-like waste products of sugar metabolism.
- Diabetics are at special risk for accelerated AGE formation.
- Some tissues have receptors that respond to AGE’s and are therefore more susceptible to damage as they accumulate: lung, liver, kidney, peripheral blood vessels.
Advance Glycation End-Products (AGE’s)

- AGE’s can form inside the body or be ingested from outside. The total of both creates problems.
- Those formed outside the body are formed by heating or cooking foods with sugars. These can be absorbed from highly heated meats and cereals.
- AGE’s are formed within the body as a consequence of intake of large quantities of sugars which promote their formation (sticky sugars such as fructose, galactose)
- Diabetes encourages production of AGE’s and inhibits the body’s ability to deal with them.

Maillard molecules in breakfast cereals are AGE’s.
Causative Factors
Theories Explaining Diabetic Deterioration

- **Pollution Postulate:** Environmental pollutants like PCB’s and dirty electricity cause diabetes.

- **Free radical postulate:** Oxygen derived free radicals damage the circulatory system and the eyes of diabetics leading to atherosclerosis and cataracts.

- **Glycation postulate:** Sugars irreversibly bind with proteins at increased rates in the body of diabetics. Elevated blood sugars push the glycation process. Once proteins are fused with sugars they cannot function normally.

- **Sorbitol postulate:** Glucose upregulates the synthesis of sorbitol within cells. Sorbitol passes through cell membranes only with great difficulty. Accumulation can cause cells to swell, function poorly, and even die. Sorbitol accumulation appears to be involved in damage to the eyes (cataract and retinopathy) and nerves (neuropathy) of diabetics.

- **Ascorbate postulate:** Vitamin C and glucose have the same transport in the body.
Pollution and Diabetes: Bisphenol A

- Found in most food containers.
- Found in 95% of urine samples.
- Administration of tiny quantities to mice for 4 days causes elevated insulin levels and altered glucose tolerance.
- Urinary excretion is associated with diabetic risk in a dose dependent manner.
Pollution and Diabetes: Multiple Pollutants

- 10% of population with highest levels of 6 pollutants had 38X greater likelihood of diabetes.
- Obesity did not appear to be a risk factor for diabetes if levels of these pollutants were undetectable in the blood.
- Obesity was associated with diabetes when pollutant accumulation was above the 25\textsuperscript{th} percentile.
- NOTE: Salmon Oil Plus is tested for over 250 common pollutants.
Sugar Intake

- Sucrose and fructose both implicated.
- One or more soft drinks a day increased risk 32% over less than one per month. Sugar sweetened fruit punch also increased risk. (A Canadian study found bisphenol A in 85% of 72 canned soft drinks sold.)
- Fructose consumption has increased from ½ lb/year to 62 lb/year between 1970 and 1997.
- Large amounts of fructose produce insulin resistance in as little as 6 days.
- Long term feeding of rats with modest amounts of fructose results in impaired glucose tolerance.
- Amounts in fruits are not a problem due to their antioxidant content.
Insulin Resistance

- Excessive insulin levels are damaging to the cells. It is like a loud rock band. To shut out the noise cells remove insulin receptors to turn down the volume. This behavior is natural and normal.
“Endocrine-dependent cells often respond to increases in hormone concentration by a decrease in the number of available membrane receptors. In type II diabetes, there is an inverse correlation between the insulin concentration in the blood and the number of available cell membrane receptors. Therefore it would appear that the increased blood insulin concentration causes the insulin-dependent cells to become less and less responsive to insulin.”

The Excess Carbohydrate Syndrome

Excessive carbohydrate intake increases insulin production. Cells are overwhelmed with insulin and begin to shut down insulin receptors creating “insulin resistance.”

Glycemic Response Roller Coaster
• The body begins to lose its ability to burn fat for energy—the preferred mode of energy production. Energy is reduced. Excess carbohydrates and fats are stored as fat rather than used for energy production. Cravings for carbohydrates create ever higher insulin levels.
One of the most important means of controlling endocrine disruption is by taking steps to keep blood sugar low and reduce insulin production. One of the tools available for this is a glycemic response control program.

Note that blood glucose does not spike with the use of the GR2 Meal Replacement. I use the Enjoy-Avoid Booklet to make an attempt to target as many meals as possible with low insulin production and low blood glucose response.
Diabetic Diets
The diet Dr. Douglass recommended included “vegetables seeds, nuts, berries, melons, fruits, eggs (yokes only), honey, oils, and goat’s milk.” The quantity of fruits, melons, and honey was restricted and the main part of the diet was salads and nuts. Raw meat and cow’s milk were not recommended because of the risk of bacterial and parasitic infection. Goat’s milk was included.

• He tells of one patient whose insulin requirement was reduced from 60 units to 15 units per day by simply increasing the percentage of raw foods in the diet. A second patient was reduced from 70 units per day to oral agents alone. This second patient, a Mexican-American man, told Dr. Douglass that he would rather die than take “shots.”

• Early man did not cook
• The diet creates less physiological stress than a cooked food diet
• Cooking destroys fiber which slows carbohydrate absorption.
• The abundance of enzymes in raw foods, and their higher nutrient content may have explained some of the benefits of the diet. Both enzymes and a number of nutrients are destroyed by the temperatures involved in cooking.
Joel Fuhrman “Beans and Greens” Diet

- Avoid refined foods, fruit juice, and dried fruits.
- Eat only fruits with low sugar content: grapefruit, orange, kiwi, berries, and green apples.
- Avoid oil except for limited quantities of raw nuts.
- Most of the diet should be beans and greens.
- Restrict animal food intake.
- Exercise, preferably twice a day.

The diet is high in bean fibers and “limits processed grains, and excludes fruit juices, low fiber fruits, skimmed milk and margarine.

“Population studies, as well as clinical and experimental research show diabetes is one of the diseases most clearly related to inadequate dietary fiber intake.”

Image Awareness
WELLNESS INSTITUTE
GR2 ANTI-AGING WEIGHT CONTROL
GR² Control Weight Loss Program was used during an 8-week weight loss trial with over 50 volunteers. Results of the trial were amazing. The group lost a total of 604 pounds in only eight weeks! One volunteer lost 37 pounds during the trial period. Compliance was an amazing 80%. Results include the 20% who were noncompliant.
“I’d been overweight for about 10 years when I was diagnosed with diabetes 2 years ago. I’d made some drastic changes, but had lost only 6-8 lbs on my own. GR² Control helped me lose 15 lbs in just a few short weeks! My doctor had reviewed the program and approved it. He was extremely happy with the fast results and that everything came down: my weight, blood sugar, cholesterol, blood pressure—even my risk for disease!
Christian Ogawa lost 131 lbs and 54 inches in 5 months.
Meal Replacement

Two Delicious Flavors
Vanilla Whisper & Chocolate Dream
Protein (Glycemic Response Control)

- Protein is the friend of the diabetic. “When a hormone is bound, it is inactivated. Research has shown that a high intake of dietary protein in general has a very important effect on the hormone profile of diabetics by increasing unbound testosterone levels. This effect is probably secondary to the fact that high intake of proteins has been found to lower sex hormone binding globulin (SHBG) levels.” This globulin binds up sex hormones so they cannot exert their effects.

THE INSULIN TRAP

- Eat Carbohydrates
- Body Makes Blood Glucose
- Produces Energy
- Produces Insulin in Pancreas
- Fat Storage Increases
- Fat Burning Stops

Insulin Trap
Glycemic Roller Coaster

Spikes in insulin cause hypoglycemia and hinder the body's ability to use body fat for energy.

Glycemic Control Zone

Glucose level after an "insulin-inducing" carbohydrate

8 am 10 12 2 4 6 8 pm
GR2 Reduces Blood Glucose and Insulin
A modified high fiber diet appears to benefit most diabetics. “Diabetes is one of the diseases most clearly linked to inadequate intake of fiber.”

The water soluble forms of fiber are by far the most beneficial on improving blood sugar and reducing insulin resistance. This would include hemicelluloses, mucilages, gums, and pectins.

• The best time to take fiber products is with meals to slow carbohydrate absorption. Insulin dosages of diabetics supplemented with fiber have been reduced to one-third of those on a control (ADA) diet. (Pizzorno, 1204-6)

• Konjac absorbs up to 50 times its volume of water and forms a gelatinous mass in the intestines slowing down carbohydrate absorption.
Many patients with type 2 diabetes have been able to reduce or eliminate anti-diabetes medication after increasing intake of fiber and complex carbohydrates. This is particularly true for those who are overweight.

- Soluble fibers are more effective
- Improvement is total dose related and related to the % of soluble fibers.
- There is an inverse association between fiber intake and levels of C-reactive protein.

Appetite Reducer

Konjac Glucomann
Orange
Gum Arabic
Oat
Soy
Barley Bran
Konjac

- A double-blind, crossover study found that 3.9 grams (@1 teaspoon) of konjac glucomannan reduced cholesterol concentrations by 10% within four weeks. LDL or “bad” cholesterol dropped by 7.2% and triglycerides dropped by 23%. These are clues that it dropped insulin levels.

- Konjac expands 30 to 50 times in the stomach creating a sensation of fullness. It also slows the absorption of carbohydrate. One double blind trial showed a 5.5 lb weight loss in an eight week period.
Barley is used as a treatment for diabetes in Iraq.

Orange, guar gum soy and oat fibers support beneficial bacteria which keep the colon healthy and crowd out bacteria which encourage reabsorption of estrogen.

Soybean fiber keeps down blood fats after meals.

Image Awareness
WELLNESS INSTITUTE

THERMOGENIC ENHANCER

GR² CONTROL
THERMOGENIC ENHANCER
DIETARY SUPPLEMENT

Burn fat
Increase energy
Control appetite

42 TABLETS
Key Point: GR2 Thermogenic Enhancer

Stimulates energy at the cellular level, not at the central nervous system level like ephedra, caffeine, and guarana. This product actually inhibits lipogenesis (“fat creation”) and has a calming effect on the appetite control center.
Brindall Berry

Inhibits fatty acid and cholesterol synthesis. Significant reduction in food intake and body weight compared to controls.


Up to 46% reduced food intake.
No rebound eating.

Gymnema Sylvestre is a woody, vine-like plant which is commonly known as "The destroyer of sugar".

Chewing a few leaves of Gymnema Sylvestre suppresses the taste of sugar i.e., sweet foods no longer taste sweet and become almost tasteless.

Clinical studies prove that regular use of Gymnema Sylvestre reduce sugar in urine.
Gymnema sylvestre

This herb fills the receptor locations on the taste buds for a period of one or two hours and thereby prevents the taste buds from being activated by any sugar molecules present in the food.

The herb also helps prevent the absorption of glucose from the intestine during the process of digestion.

Gymnema Sylvestre may decrease risk of diabetes.


Bladderwrack

- Rich source of iodine.
- Enhances metabolic rate by supporting thyroid.
Butternut lowers cholesterol levels and helps the liver eliminate wastes and neutralize toxins produced during weight loss. It also has a reputation for treating intestinal worms.

Butternut has a mild laxative effect gently encouraging regular bowel movements and helping to prevent constipation.

Dandelion

- A stronger diuretic action than other plants.
- Liver detoxifier—many toxins are stored in body fat.

Green tea is a powerful source of antioxidants which promote liver function. The liver produces substances which help emulsify and burn fat.

Cayenne improves circulation and is a tonic for poor digestion. It may kill harmful microbes in the digestive tract.