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Hand-Out

- Improve Your Health, Well-being, and Happiness-

07/15/14

This hand-out is my response to our ever-growing national and global epidemic of obesity, insulin-resistance, and pre-diabetes; leading to diabetes type-2.

Most people are unaware of this global epidemic.

Most people are unaware that their own risk for occluded arteries, high blood pressure, heart attacks, strokes, dementia, and some cancers start while they're becoming insulin-resistant and pre-diabetic; before they get the official diagnosis.

Most people are also unaware that our current life-style with industrialized foods, genetically-altered foods, chemicals, and toxins are contributing to these diseases.

Knowledge is power and this hand-out gives you information about the way your body works to allow you to create better health through eating and exercise.

Index:

- Introduction to health, well-being, and happiness..... Page 02
- How your body works and how it metabolizes foods:
 - Carbohydrates..... Page 03
 - Insulin-resistance and body-wide inflammation..... Page 07
 - Fats and oils..... Page 08
 - Proteins..... Page 11
 - Vitamins, minerals, phytonutrients, antioxidants, and fibers. Page 12
- Healthy food choices..... Page 13
- Unhealthy food choices..... Page 20
- How to overcome sugar, fat, and salt addiction..... Page 23
- Benefits of exercising..... Page 24
- Sample minimal daily intake for weight-loss for a pre-diabetic. Page 25
- What happens when you have full-blown diabetes..... Page 29
- References and links..... Page 31

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Introduction to health, well-being, and happiness:

We truly live in a time where profit guides our lives and especially our younger generation suffers the consequences with increasing preventable chronic diseases:

- It's profitable to mass-produce genetically-altered corn to be used for high-fructose corn sugar in our industrialized foods and drinks.
- It's profitable to mass-produce inexpensive industrialized foods and drinks with literally no nutritional value, but a lot of fat, salt, and sugar.
- It's profitable to mass-produce medications to control the side effects of the symptoms we develop from enjoying all the industrialized foods and drinks.
- It's profitable to exclude “non-academic” PE and cooking from our schools.
- And, our medical doctors and dieticians often don't get paid to spend the time it takes to teach their patients proper diet and the need to exercise, unless the patient already has a diagnosis of diabetes.

You may already be part of the statistics; but, it's never to late to start investing in your own health, well-being, and happiness.

A healthy diet of whole, fresh, and natural plant-based foods with small amounts of animal-based proteins and adequate exercise are your most important treatment options. Avoiding the unhealthy choices, at the same time, adds to your benefits.

This hand-out teaches you how your body metabolizes foods and benefits from exercise. Please use it to maintain your good health or take back your health.

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Carbohydrates:

Carbohydrates are needed for energy by your muscles, brains, and nerves.

All the different carbohydrates you eat or drink, such as glucose, fructose, lactose, and starches, to name a few, ***become either fructose or glucose, or a combination, by the time they reach your blood stream.***

Glucose is the carbohydrate in the blood stream that primarily stimulates your pancreas to release insulin that will allow the blood glucose to enter your muscles, brains, and nerves and be used for energy.

Glucose is necessary for life. Your brain and nervous system depend on only glucose for their energy needs. And glucose can be used for energy by all the cells in your body. If your blood glucose level falls too low, your body will try to convert muscle and body fat into glucose to meet the energy needs of your brain and nerves. This, however, is a slow process.

Fructose gets stored as glycogen in your liver for energy use at a later time. Fructose is not necessary for life.

The metabolism described above is what happens when you take in only small to moderate amounts of glucose and fructose and use the carbohydrates for energy either immediately, or store them as glycogen for energy use at a later time.

This is the way most people ate before the invention of industrialized foods and mechanical labor. People ate whole, natural, unprocessed fruits, vegetables, grains, and legumes as their carbohydrates, and exercise was a necessity of life.

Before the invention of industrialized food and mechanical labor, very few people were left with a lot of excess glucose and fructose to be processed by their bodies.



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But, things have changed with our new life-style. Now a days, people eat and drink simple carbohydrates in the form of refined sugars; high-fructose corn sugar; and processed grains, lacking the vitamins, minerals, phytonutrients, antioxidants, and fibers. ***All the above simple carbohydrates provide huge amounts of both glucose and fructose that enter the blood stream very quickly.*** With a sedentary life-style, the energy won't be burned off immediately, and only so much can be stored as glycogen.

You're left with a lot of excess glucose and fructose in your blood-stream, which is why people since the latter half of the 20th Century have put on a lot of weight, increased their blood lipids, increased their cholesterol, increased their blood pressure, and are becoming resistant to insulin. This is called pre-diabetes!

Excess fructose goes to your liver and is ***converted into fat and triglycerides.***

- This contributes greatly to arterial sclerosis, or narrowing of your arteries.
- It also contributes to liver damage, or what we call “fatty liver.”
- And, the ***triglycerides*** block the receptors for ***leptin*** in your brain.
 - ***Leptin*** is a hormone that's released by your fat cells. The more and bigger fat cells that you have, the more leptin is released into your blood. ***Leptin is your “stop-eating” hormone.*** But, if you've ingested too much fructose and created too many triglycerides, the leptin-receptors on the hypothalamus in you brain are blocked by the triglycerides. Leptin-resistance, or too little leptin in the hypothalamus, causes you to eat more, even after you're full, and it slows down your metabolism.
 - As a side note, ***ghrelin*** is a hormone that works the opposite way of leptin. It's primarily released by the lining of your stomach and tells



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the hypothalamus in your brain that you need to eat more. *Ghrelin is your “hunger-inducing” hormone.*

- Consuming omega-3 fatty acids from wild, fatty fish (or fish oil supplements) and getting enough sleep are both ways to reduce the release of ghrelin.

Excess glucose in your blood causes large ***spikes of insulin*** in your blood.

- Excess insulin stores the excess glucose and excess fructose as fat, once the glycogen stores of your muscles and liver are filled.
- Excess insulin also stores ingested fat into your fat stores. It may even convert protein into fat and store the fat into your fat stores.
- Excess insulin increases the production of cholesterol by your liver.
- Excess insulin causes your kidneys to retain water in your body.
- Lastly, excess insulin stimulates the cells of your arterial walls to grow bigger, making the arteries less elastic and, thereby raising your blood pressure.

It's pretty obvious why we should limit our carbohydrate intake to only as much as we need for our immediate energy needs:

- Too much fructose, too many triglycerides, too much glucose, and too much insulin cause you to over-eat, cause your metabolism to slow down, and cause you to go into the fat-storing mode.



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You should eat mostly complex carbohydrates and avoid simple carbohydrates:

Complex carbohydrates are found in natural, whole, and fresh plant-based foods that have not been processed. They contain all their natural vitamins, minerals, phytonutrients, anti-oxidants, and fiber. These carbohydrates enter your blood-stream, as either glucose or fructose, slowly due to their high fiber content, and they are likely to be used for immediate energy use. Any excess are likely to be stored as glycogen for energy use at a later time.

Simple carbohydrates are found in “processed” plant-based foods, as well as in sugars and in dairy. They contain little or no fiber and they enter your blood-stream very quickly. Except for dairy and concentrated fruit juices, they have virtually no nutritional value. These carbohydrates are more likely to be stored as fat and become cholesterol.

How many carbohydrates should you eat?

- *Carbohydrates is the food group you can and should alter in amounts, depending on what your health goals are:*
 - Never eat so many carbohydrates that the excess glucose and fructose get stored as fat and cholesterol.
 - If you just need to maintain your weight and good health, you can eat enough carbohydrates to fill your glycogen stores.
 - But, if you're trying to lose weight, remember that you won't start burning fat cells for energy until your glycogen stores are depleted. *See minimal safe amounts for a pre-diabetic who needs to lose weight, starting on page 25. Adjust the amounts up or down, as needed.*

Spread your complex carbohydrate intake evenly throughout the day.

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Insulin-resistance and body-wide inflammation:

As already mentioned, it's the glucose in the blood-stream that triggers the pancreas to release insulin. ***The more glucose, the more insulin, and the higher a chance for fat-storing, slow metabolism, and more cholesterol.***

But, our industrialized diet and changed environment also cause our pancreas to produce extra insulin. The phenomenon is due to a body-wide inflammation triggered by the industrialized diet, changed environment, and more. It's not an inflammation that creates puss, redness, swelling, pain, or localized heat or a fever. It's a body-wide inflammation our bodies create in response to all the “new” things we put in our mouths that are “foreign” to our bodies. ***Chemicals and toxins are obvious; however, genetically-altered foods can also have protein strands that our bodies don't recognize. Many foods act as allergens and cause allergies.*** The purpose of the body-wide inflammation is to “combat” the “invader.” ***Even a sedentary life-style can promote a body-wide inflammation.***

Various literature indicate that the inflammation promotes more insulin secretion, and more insulin secretion promotes more inflammation. A web-search has given me the impression that one reason could be that the insulin molecules and the cytokine molecules, which are the messenger molecules from the immune system, both try to attach to the same cell receptors; thereby creating competition for attachment, and causing the body to produce more of each molecule to win the battle for attachment. You're welcome to correct me if my impression is wrong.

The bottom-line is that your cell receptors cannot use the insulin effectively (whether the cell receptors have become “numb” to the insulin, as we have learned, or whether there is competition for placement on the cell receptors between the insulin molecules and the cytokine molecules.) You become resistant to the insulin, your pancreas produces more insulin, and your health suffers all the negative consequences of too much insulin in your blood.



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Fats and oils:

Healthy fats and oils are the omega fatty acids, such as omega-3, omega-6, and omega-9 fatty acids. They all assist your body with good heart health and good cholesterol levels, and each one also provides specific benefits, as described below. The ratio of omega-6:omega-3 should be 2:1, but our Western diet, that favors meats, dairy, and eggs, gives us a ratio much more like 5:1 or 10:1.

- **Polyunsaturated omega-3 fatty acids.** These consist of (DHA and EPA) found in “wild,” cold-water, fatty fish and (ALA) found in flax-seeds, mustard-seeds, hemp-seeds; walnuts; green leafy vegetables, grains; and flax-seed, grape-seed, Canola, and hemp-seed oils. They help with brain development, cognition, concentration, depression, dry itchy skin, brittle hair and nails, fatigue, joint pain, blood sugar control, absorption of fat-soluble vitamins, a healthy immune system, and a healthy nervous system; prevent body-wide inflammation; and lower triglycerides.
- **Polyunsaturated omega-6 fatty acids.** These are found in oils, such as Canola, corn, peanut, safflower, soybean, and sunflower as (LA); and in peanut oil, meats, eggs, and dairy as (AA). They are found in the following nuts, such as almonds, cashews, hazelnuts, peanuts, pecans, pistachios, and walnuts. They are also found in the following oils that may provide some relief for diabetics: (GLA) found in borage seed oil, evening primrose oil, and black currant oil may help reduce neuropathy pain. (See pages 9 for warnings on the use of Hexane in the processing of some of these oils.)
- **Monosaturated omega-9 fatty acids.** These also help improve your immune system and are found in oils, such as Canola, olive, peanut, safflower, and sunflower. They are also found in the following nuts, such as almonds, cashews, hazelnuts, macadamias, peanuts, pecans, pistachios, and walnuts;



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as well as in avocados, eggs, and poultry. Your body can produce omega-9 fatty acids on its own if you have consumed enough omega-3 and omega-6 fatty acids through diet and/or supplements.

- Can you completely avoid unhealthy saturated fats when you consume healthy omega fatty acids? Probably not. Many of the plant-based foods that contain omega-3 fatty acids also contain small amounts of saturated fats, such as these oils: olive, peanut, canola, safflower, sunflower, soybean, and cottonseed; as well as avocados and olives. While meats, dairy, butter, cheeses, and eggs contain omega-6 fatty acids, they also contain much more saturated fats. Eggs and poultry contain omega-9 fatty acids and also higher amounts of saturated fats.
- Medium-chain triglycerides, also called the healthy saturated fats, are found in coconut milk and oils. These promote fat loss and better brain function.

How much do you need of the above healthy fats and oils:

- The USDA suggests that 10-25% of your daily caloric intake consists of healthy fats and oils.
- A minimum daily requirement would be about four servings of the healthy fats and oils and one serving of nuts or seeds. It's okay to get additional omega-3 fatty acids from a serving of wild, fatty fish. These amounts are designed for weight loss and can be adjusted for your own health and goals.
- Some people will need more of the healthy fats and oils than described above. For instance, diabetics, needing to restrict carbohydrates, due to insulin-resistance, and needing to restrict animal-based proteins, due to kidney damage, may need to consume more healthy fats and oils for energy.



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Avoid all “Trans” fats and as much saturated fat as possible:

- The trans-fats are industrialized fats that are “hiding” in our industrialized foods and products to increase their shelf-life. They turn liquid vegetable oils into solid oils with the help of hydrogen bonds. The food label can mask the trans-fats by naming them “partially hydrogenated” vegetable oils. Please note that completely hydrogenated oils are not trans-fats. Trans-fats are the worst fats, as they both increase your bad (LDL) cholesterol and lower your good (LDH) cholesterol.
- Saturated fats from animal products, such as meat, poultry, eggs, milk, and cheeses; as well as palm oils, increase your bad (LDL) cholesterol.
 - However, saturated fats from coconut milk and coconut oil affect your body differently, by promoting fat loss and better brain function, as described on the previous page.
- Both trans fats and saturated fats from animal sources put you at risk for cardiovascular diseases, such as heart attacks, strokes, and dementia.

Warning: Corn oil, soybean oil, and peanut oil are often produced with “Hexane,” a chemical that is toxic to your body. It's used to reduce the manufacturing cost, but causes a health hazard instead. See page 32 with a link for more information.



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Proteins:

Your body needs protein for your muscle mass, among many other things.

It's a misconception to think that protein only comes from animal sources. Protein is also contained in large amounts in beans and grains and other vegetables, with beans being superior due to the higher fiber content. The biggest difference between animal protein and plant protein is that the animal protein contains all the amino acids, making it a complete protein.

However, the two amino acids in animal protein that are missing from plant proteins, are also the ones that create nitrogen and sulfur wastes that can hurt your liver and kidneys when the excess animal-based proteins are being eliminated. The pH of your body is alkaline. So are plant proteins. Animal proteins, on the other hand, are acidic in nature and can cause various related problems. Too much animal protein can also put your body at risk for osteoporosis and kidney stones.

You already learned that glucose stimulates your pancreas to release insulin. Protein, on the other hand, stimulates your pancreas to release glucagon:

- Glucagon is a hormone that does the opposite of insulin. It increases your blood sugar; however, the most important about glucagon is that it puts your metabolism in burning mode and causes dietary fat and stored body fat to be used for energy. It reduces cholesterol production. It causes your kidneys to release water from your body. It causes the arterial wall cells to return to normal size, allowing the arteries to stretch and reducing the blood pressure.

Enjoy animal-based proteins in small amounts, only, to get the benefits of all the amino acids, while preventing the side effects of too much nitrogen and sulfur wastes. Supplement with plant-based proteins. No matter what your health goals are, your body will always need adequate amounts of protein.



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Vitamins, minerals, phytonutrients, antioxidants, and fiber:

We've not yet talked about the importance of vitamins, minerals, phytonutrients, antioxidants, and fiber. All of these are found only in fresh, whole, and natural foods. You won't find them “naturally” in processed and industrialized foods.

- Your metabolism needs **vitamins and minerals** to work its best. These are found in legumes (beans, lentils, and peas), in the shells of fresh whole grains, in fresh fruits and vegetables, and fresh or frozen berries; but, they are rarely found in boxes and cans of processed industrialized foods.
- Your immune system needs **phytonutrients** to work its best. They have “healing properties.” They are found in fresh fruits and vegetables and in fresh or frozen berries, as well as in whole grains, nuts, beans, and tea; but, they are rarely found in boxes and cans of processed industrialized foods.
- **Antioxidants** eliminate free radicals that are caused by too much insulin. It's important to get the free radicals eliminated as free radicals cause “oxidative stress,” which is cell damage that prevents your cells from being able to repair themselves or send proper signals. Antioxidants are found in fresh colorful fruits and vegetables, especially in the peel, as well as in berries; but they are rarely found in boxes and cans of processed industrialized foods.
- All **fibers** help provide bulk to make you feel full and decrease your appetite. Water-soluble fibers, found in the largest amounts in fruits, oats, barley, and legumes, also prevent too much sugar, fat, and cholesterol from being absorbed into your bloodstream. Water-insoluble fibers, found in the largest amounts in vegetables, rye, and wheat, work as laxatives. Many of the above-mentioned whole foods contain both kinds of fiber. However, fibers are rarely found in boxes and cans of processed industrialized foods.



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- Your body especially needs ***vitamin D, chromium, magnesium, zinc, biotin, omega-3 fatty acids, and antioxidants for proper control and balance of blood sugar and insulin. Deficiencies in vitamin-D, omega-3 fatty acids, and antioxidants promote a body-wide inflammation.*** These nutrients are found naturally in whole, natural, fresh plant-based foods and wild, fatty fish, and they can be supplemented in a multi-vitamin pill, mineral supplements, and fish-oil purchased over-the-counter.
- **Cruciferous vegetables**, such as broccoli, kale, brussel sprouts, collards, and watercress; as well as green tea; cilantro; dandelion greens; pomegranate; and milk thistle, help detoxify your body by increasing your body's capacity to eliminate toxins through your liver.

Also, the following **supplements** help your body support detoxification: vitamin C; lipoic acid; probiotics, and n-acetylcysteine. You probably want your doctor's help or the help of a dietician in deciding what you need.

- **Herbs and spices** provide nice flavors to foods and have various health properties. The use of herbs and spices can reduce the need for salt. See page 30 for the reference of this information.
 - **Rosemary** can be used in marinades for meat. It helps prevent the formation of heterocyclic amines, which are harmful free radicals, caused by the high cooking temperatures, and it may prevent cancer caused by the heterocyclic amines.
 - **Cinnamon** contains antioxidant compounds that help improve the way that your cells metabolize glucose. It helps prevent the spikes and dips in your blood glucose that would otherwise drive hunger and cravings. Secondary to this, it reduces the risk of diabetes and heart disease.



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- **Curry** belongs to the turmeric group of spices and contains curcumin. This is a powerful anti-inflammatory that may inhibit the growth of certain breast cancer cells and may also protect against stomach and colon cancer.
- **Oregano** contains large amounts of vitamin K and antioxidants. It may prevent bad germs from multiplying in your gut and keep you from getting food poisoning.
- **Cayenne Pepper** contains capsaicin that increases your body's thermostat and increases your metabolism. You're likely to eat less and crave fatty and salty foods less.
- **Ginger** can help settle an upset stomach and be used to reduce pain in sore muscles after exercising as it reduces inflammation and blocks nerve pathways that process the pain.
- **Cumin** contains iron that is needed for your formation of hemoglobin where oxygen attaches in your blood. It also boosts your immune system. It may help your memory performance.
- **Nutmeg** has antibacterial compounds and helps prevent cavities. It can also reduce plaque formation on your tooth enamel. It is also rich in anti-inflammatory compounds that may lower your risk of cancer.



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Healthy food choices:

You've learned that fresh, whole, natural, and unprocessed fruits, vegetables, grains, and legumes provide complex carbohydrates, (as a combination of glucose and fructose that reach your blood-stream slowly); as well as fiber, vitamins, minerals, phytonutrients, and antioxidants.

- Now, glucose is glucose, and fructose is fructose, no matter if the carbohydrates come from complex carbohydrates or simple carbohydrates. The difference between the two kinds of carbohydrates is what else they contain; how quickly they enter the blood-stream; and the amounts that enter the blood-stream, all at once. As a general and globally-accepted rule, complex carbohydrates are the best choices for good health and weight-loss.
- Complex carbohydrates enter your blood-stream slowly due to their high content of fiber; however, they still provide glucose and/or fructose to your blood-stream; and their consumption needs to be controlled, both in how much glucose and/or fructose they contain, but also in the amounts that they are consumed. You cannot eat them unlimited just because they're healthier!
- ***Use a glycemic-load index to determine how much glucose and/or fructose a certain fruit, vegetable, grain, or legume contains.***
- Some vegetables have a low glycemic-load index and ***can be enjoyed in unlimited amounts***; unless you have a medical condition that prevents you from enjoying them. These are ***the green and/or colorful vegetables***.
- Other vegetables contain a lot of starch, and/or fructose, and/or glucose, and, therefore, have a higher glycemic-load index and can be ***enjoyed in only small amounts if you're trying to lose weight. Examples are yellow or red***



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potatoes that you should try to enjoy only as small and new potatoes, and with the peel in place. Other examples include, but are not limited to, sweet potatoes, carrots, beats, acorn, and butternut squash.

- *Corn also belongs to the group of sweeter vegetables, but is furthermore one of our genetically-altered organisms (GMO) and may contribute to body-wide inflammation.* Most health-plans will exclude corn from the vegetable choices for the above reason.
- Even though fresh fruits and berries contain fructose, their amount of fructose is very low, and the fresh fruits and berries also contain large amounts of vitamins and sometimes phytonutrients, as well as fiber that slows the absorption of the fructose and/or glucose. *Enjoy fresh fruits in moderate to large amounts if you're trying to maintain your weight and good health, but limit their intake if you're trying to loose weight.*
- Some fruits score high on the glycemic-load index and *should be avoided if you're trying to loose weight. Examples are bananas and pineapple, to name a few.*
- 100% whole grains are healthy choices in small to moderate amounts, depending on if you're trying to maintain your weight and good health, or if you're trying to lose weight. *100% whole and unprocessed rye, barley, buckwheat, millet, quinoa, telf, oats, and rice are examples of the above.*
- *Wheat grown in the United States, even 100% whole, is also one of our GMO's and may contribute to a body-wide inflammation.* It's probably no coincidence that so many Americans have become gluten-intolerant and developed Celiac Disease. The genetically-altered wheat that's grown in the United States contains much more gluten and starch than it did in the past, providing more glucose, but also contributing to a body-wide inflammation.



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- ***Seitan is a derivative of wheat and very high in plant-proteins.*** (I'm not sure if it's genetically-altered like the American-grown wheat.)
- ***Legumes, such as beans, lentils, and peas are high in fiber and good choices for both complex carbohydrates and protein.*** Fresh and home-cooked is always best. If you use canned beans, make sure that the re-fried beans are fat-free. If you'd like to avoid animal-based proteins, you can take in more legumes; however, legumes still provide a lot of glucose and should be enjoyed in controlled amounts, spread throughout the day. ***Legumes can be a good substitution for animal-based proteins.***
- ***Soy is also a good concentrated plant-based protein; however, many soy products are processed and often lacking the fiber, as well as many vitamins and minerals. Tempeh is an un-processed soy product, whereas tofu and soy milk are processed soy products.***
- Plant-based foods have a high pH-value that agree with our bodies that also naturally have a high pH-value, or alkaline environment.

Healthy fats and oils have already been discussed on pages 8-9:

- ***Warning:*** *Corn oil, soybean oil, and peanut oil are often produced with "Hexane," a chemical that is toxic to your body. It's used to reduce the manufacturing cost, but causes a health hazard instead. See page 32 with a link for more information.*
- ***Nuts and seeds have already been discussed.*** *They contain healthy fats. They can be enjoyed in small amounts daily for weight-loss and in larger amounts daily for maintenance of weight and good health. Good choices are walnuts or pecans, hazelnuts, almonds, peanuts, pine nuts, pistachios, sunflower seeds, pumpkin seeds, sesame seeds, and fresh coconut flesh.*

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07/15/14

Animal-based proteins are healthy in small amounts:

- ***They include lean cuts of meat without skin and visible saturated fats. The cuts can come from beef, veal, buffalo, chicken, turkey, pork, and venison.***
- ***Eggs, egg substitutes, fat-free cottage cheese and other fat-free or low-fat cheeses can also be used for concentrated animal-base proteins.***
- ***Wild, fatty fish are good sources of the DHA and EPA kinds of omega-3 fatty acids. “Wild” means that the fish ate a natural diet of kelp and other sea and river organisms full of omega-3 fatty acids. “Fresh” or “farm-raised” means that the fish were “cultivated” and fed by man. Good choices for low-mercury fish are salmon, sardines, herring, shrimp, and scallops. Certain large fish are at higher risk for containing mercury, such as swordfish, tuna, Chilean sea bass, large halibut, tile-fish, and shark.***

Finally, “medical foods” are dietary supplements that can be purchased through a dietician, many kinds of doctors, and on-line. These are powders made from plants, with extra supplements. There are all sorts of different kinds. One that's ideal for people with obesity, high LDL cholesterol, high triglycerides, high blood lipids, high blood insulin, and high blood sugar (definition for pre-diabetes) is ***Metagenics Ultra Meal 360 Plus.*** Check with your medical doctor, functional-medicine doctor, homeopathic doctor, dietician, health-food specialist, etc.

What should you drink? Filtered water is the best choice. Your body needs water for maximum performance. ***Milk is mostly recommended for growing children and teens, but usually not necessary for adults.*** Milk contains a lot of saturated fats if it's not fat-free. And, all dairy contains a lot of lactose that turns into glucose in your body. Milk contains no fiber, so the lactose from milk is a simple carbohydrate and should be treated as such. If you're an adult who is trying to



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07/15/14

loose weight, stay away from dairy as much as possible. ***Concentrated fruit juices are very high in fructose and their fiber has been removed in the processing. Coffee and black teas contain caffeine and should be limited due to their stimulating effects. Herbal teas and green teas are usually good choices.***

Try to buy organic as much as possible, or buy locally grown or farmed foods to limit chemicals, toxins, steroids, and pesticides. Grow or farm your own foods, if possible. Be aware that there are many loop-holes in our laws regulating organic foods.

See pages 31-32 with links for more information.

Be aware that the bar-codes in the produce section give us information that we can use to make choices: Produce with a 5-number bar-code starting with #9 is organic. Produce with a 5-number bar-code starting with #8 is a GMO or a genetically-modified organism. Produce with a 4-number bar code starting with #4 is grown the conventional way with the possibilities of pesticides, hormones, and steroids. The latter two can both contribute to a body-wide inflammation.

This concludes the section on healthy food choices. As you can tell, all the choices are whole, fresh, natural, and unprocessed plant-based foods with small amounts of lean animal-based proteins. These are foods that you shop for yourself and prepare and cook in your own kitchen, unless you can find restaurants, cafeterias, or vending machines that specialize in these food choices.

You'll notice that the fresh, whole, natural fruits, vegetables, grains, and legumes; supplemented with small amounts of healthy fats and oils and small amounts of animal-based proteins sound a lot like a "Mediterranean diet." You can use a cookbook with Mediterranean dishes or get recipes from my website. Safe, minimal amounts of healthy foods that can be used for weight-loss for a pre-diabetic can be found on pages 24-27 with sample menus for three days.

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07/15/14

Unhealthy food choices:

You want to avoid simple carbohydrates:

- ***Avoid processed grains, such as white flour, white rice, or whole-grain flours that don't say 100% whole-grain.*** They have no, or minimal, fiber attached, and they all turn into glucose and/or fructose in your body that enter your blood-stream very quickly. Products made with these are breads, rolls, crackers, cereals; cakes, cookies, pastries, and pies; white pasta and white rice; cereal bars; and even “health”-bars.
- ***Avoid natural sugars; many have names that start with “dex-”.*** Same reason as above. Products made with these are baked goods, cereals, cereal bars, “health”-bars, and, of course, candy, syrups, honey, frosting, and fudge.
- ***Avoid sugar substitutes.*** Your brain thinks that you're receiving sugar causing your appetite to increase and your metabolism to slow down. There's also the possibility that the chemicals can cause a body-wide inflammation, and there's a possibility that the chemicals can cause cancer.
- ***Avoid concentrated fruit juices.*** The fibers from the whole fruits are missing, and the fructose and/or glucose are very concentrated and enter your blood-stream very quickly and in very high amounts.
- ***Avoid high-fructose corn sugar, also called corn sugar, or HFCS.*** This industrialized sugar is added to almost all industrialized foods, but is in especially high amounts in industrialized drinks, such as sodas, punches, Gatorade, vitamin-water, to name a few. HFCS provides the body with huge amounts of fructose and glucose in a short time. You've already learned about the dangers of large, sudden amounts of those into your blood-stream.



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07/15/14

- ***And, avoid dairy, if you're trying to lose weight.*** As described earlier, dairy contains a lot of lactose that turns into glucose in your body. It has no fiber and enters your blood stream very quickly.

You want to avoid saturated fats:

- ***Avoid butter, dairy that's not fat-free, cheeses, meats, poultry, and palm-oil are saturated fats or contain saturated fats.*** Saturated fats raise your bad cholesterol, LDL, and your lipids.

You want to avoid all “Trans” fats:

- The trans-fats are industrialized fats that are “hiding” in our industrialized foods and products. They turn liquid vegetable oils into solid oils with the help of hydrogen bonds. The food label can mask the trans-fats by naming them “partially hydrogenated” vegetable oils. Completely hydrogenated oils are not trans-fats. Trans-fats are the worst fats, as they both increase your bad (LDL) cholesterol and lower your good (LDH) cholesterol.

Warning:

- Corn oil, soybean oil, and peanut oil, that provide omega-6 fatty acids, are often produced with “Hexane,” a chemical that is toxic to your body. It's used to reduce the manufacturing cost, but causes a health hazard instead. See page 31 with a link for more information.

You want to limit your intake of animal-based proteins, even the lean and organic choices. The list includes both meat, poultry, and fish proteins:

- Excess animal-based proteins cause nitrogen and sulfur wastes that can harm your liver and kidneys. They can also cause kidney stones and osteoporosis.



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07/15/14

And, most important, you want to avoid processed industrialized foods in general:

- Processed industrialized foods are known for providing high amounts of fats, sugars, salt, chemicals, additives, and preservatives; but, no real nutritious value. They give you empty calories and are often a reason for the development of body-wide inflammation. It's not only what they provide you, but also what they fail to provide you, that hurts your health.

You'll quickly notice that the plant foods on the list of “unhealthy foods” include foods that were originally grown on a plant, only to be processed in a plant and sold in a box or can.



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07/15/14

How to overcome sugar, fat, and salt addiction:

- High-sugar and high-fat foods stimulate your brain's pleasure or reward centers like heroin, opium, and morphine do. They create food addictions.
 - It's possible that certain medications can cut your cravings for sugar and fat the same way medications can control withdrawals from the above drugs. If they exist, they're certainly not part of our “standard” medicine.
 - Instead, try the following to overcome sugar, fat, and salt addictions:
- Try to keep your blood sugar stable with complex carbohydrates, protein, and vitamins, minerals, and phytonutrients, as mentioned throughout this hand-out. This will help you avoid sugar cravings.
- Try to use herbs and spices instead of salt.
- Make sure you get enough of the healthy fats and oils, while you try to avoid the processed industrialized foods and snacks with unhealthy fats.
- Have healthy food choices available whenever cravings set in, such as fresh fruits; home-made bean dips or salsa with slices of fresh vegetables; and small amounts of nuts and seeds.
- If you're bored and have cravings, start exercising. Exercise causes you to release hormones that control your appetite.
- As a side note, exercise also reduces body-wide inflammation.
- Look in the mirror and enjoy looking at a slimmer, fitter, and healthier body as you start taking back your health.

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07/15/14

Benefits of exercising:

Your body functions best when you do frequent physical activity or exercise:

- Your mood improves.
- The heart muscles and skeletal muscles get stronger.
- You burn more sugar and fat for energy.
- Regular exercise reduces inflammation in your body.
- Your metabolism increases and improves. This is due to increased muscle mass and more mitochondria inside your muscle cells that can turn calories and oxygen into energy.
 - Walking, swimming, or running are always good as aerobic kinds of exercise. Your metabolism increases while you're doing the exercises.
 - If you do cardiovascular exercises at high speed for a limited time, you'll fuel your energy by the glucose available in your blood stream and the glycogen stored in your muscles and liver, while your heart gets stronger.
 - If you exercise at lower speed for 20 minutes or more, your glucose levels and glycogen stores will run out, and your energy will be provided by your fat mass giving up triglycerides that break down into glycerol and fatty acids. You are now in the fat-burning stage and will be losing weight. (Don't load up on carbohydrates prior to this! And, stop right away if you start feeling faint. Your blood sugar may be getting too low.)
 - Interval and resistance-strength training are also good, as they allow your metabolism to keep “churning” for hours after the exercises stop.
- Remember, lack of exercise will promote a body-wide inflammation, whereas physical activity reduces or prevents inflammation. Even just getting out of the chair and walking around a little bit is preventive.

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Hand-Out

- ***Improve Your Health, Well-being, and Happiness-***

07/15/14

Safe, minimal daily intake(-s) for weight-loss for a pre-diabetic:

Definition of a pre-diabetic:

A pre-diabetic is usually overweight or obese and becoming resistant to insulin. The person has elevated blood insulin; elevated blood sugar; often elevated C-reactive protein indicating some body-wide inflammation; elevated total cholesterol; elevated LDL and decreased HDL; elevated triglycerides; and often low vitamin-D. This profile fits a lot of us; even if we're not aware of it.

Choose from the healthy food choices and look at the following considerations:

- Follow your doctor's advice for medical conditions that restrict some foods.

What rules should be followed for the best combination of foods:

- Try to spread your complex carbohydrate and protein intakes throughout the day to create a good insulin:glucagon ratio and to allow the alkaline plant-based foods to neutralize the acidic animal-based foods.

What amounts should you eat of the healthy food choices:

- For an overweight pre-diabetic, a minimal, safe daily intake from healthy food choices is 1,200-1,300 calories. Supplement with vitamin D, if needed. Such a diet includes: 2 small servings of concentrated animal- or plant-based proteins; 1 serving of legumes (or 2 extra servings of legumes as a substitute for a concentrated animal-based protein); 1 serving of grains; 1 serving of a sweet vegetable; 4 or more servings of green and/or colorful vegetables; 2 servings of fruit and/or berries; 4 servings of fats or oils; 1 serving of nuts or seeds; 2 servings of a medical food. Use fat-free Greek yogurt as a “snack.”
- ***The following 3 pages use sample menus for the above, for easy reference.***



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07/15/14

Sample menu of healthy foods for day #1 for weight-loss for a pre-diabetic:

This menu contains roughly 1,300 calories and is composed of the ingredients discussed as healthy choices in minimally-required amounts and eaten at the right times for a pre-diabetic who wants to loose weight and correct body imbalances associated with pre-diabetes. Healthy plant proteins, complex carbohydrates, and healthy fats and oils are spread throughout the day, and small amounts of meat or fish proteins are accompanied by fruits or vegetables. **Adjust the food choices and amounts according to your own health status and health goals. Consult your primary doctor, a functional-medicine doctor, or a dietician!**

This menu includes 1 small concentrated animal-based protein, 1 concentrated plant-based protein; and 1 serving of legumes. Remember that 1 serving of legumes is either ½ cup whole rinsed legumes or ¼ cup mashed beans. Spinach can be exchanged with other “free” vegetables.

- Enjoy breakfast with a Metagenics Ultra Meal 360 Plus drink, blended together with a lot of spinach, arugula, or kale leaves and water, and a medium apple on the side.
- Enjoy a mid-morning snack of a 100% whole wheat flour tortilla, spread with guacamole (¼ avocado, fat-free salsa, chopped onions, a pinch of salt, and lemon juice) and topped with spinach leaves and rolled up and eaten at room-temperatures, or folded and toasted in a toaster oven.
- Enjoy lunch of 3 oz. of baked tofu cubes with herbs; blanched vegetables such as green beans and tomatoes, wilted in one teaspoon of walnut oil with basal and thyme; and 3 fingerling potatoes boiled and served with the skin on.
- Enjoy a mid-afternoon snack of another Metagenics Ultra Meal 360 Plus drink, blended together with lots of spinach leaves and water. The second serving of fruit or berries can either be added to the drink or eaten separately.
- Enjoy a dinner of 3-4 oz of wild salmon, grilled with herbs, a salad of greens with tomatoes, cucumbers, sprouts, and mushrooms with a dressing of one teaspoon of olive oil, cider, and salt and pepper, as well as ½ cup whole, rinsed, beans mixed with herbs.
- Enjoy a serving of nuts or seeds for dessert; possibly with a snack of a small serving of plain fat-free Greek yogurt.
- Enjoy six to eight glasses of water throughout the day.
- ***Go to my website, www.HFHF.us, for more easy, family-friendly, and healthy recipes.***

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Hand-Out

- **Improve Your Health, Well-being, and Happiness-**

07/15/14

Sample menu of healthy foods for day #2 for weight-loss for a pre-diabetic:

This menu contains roughly 1,300 calories and is composed of the ingredients discussed as healthy choices in minimally-required amounts and eaten at the right times for a pre-diabetic who wants to loose weight and correct body imbalances associated with pre-diabetes. Healthy plant proteins, complex carbohydrates, and healthy fats and oils are spread throughout the day, and small amounts of meat or fish proteins are accompanied by fruits or vegetables. **Adjust the food choices and amounts according to your own health status and health goals. Consult your primary doctor, a functional-medicine doctor, or a dietician!**

This menu includes 1 small animal-based concentrated protein and 3 servings of legumes. Remember that a serving of legumes is either ½ cup whole, rinsed legumes, or ¼ cup mashed legumes. Spinach can be exchanged with other “free” vegetables.

- Enjoy a breakfast with a Metagenics Ultra Meal 360 Plus drink, blended with a serving of berries, a lot of spinach leaves, and water.
- Enjoy a mid-morning snack of a 100% whole wheat flour tortilla, spread with guacamole (¼ avocado, fat-free salsa, chopped onions, a pinch of salt, and lemon juice) and a spread of ¼ cup fat-free re-fried beans and fat-free salsa, topped with more spinach leaves and rolled up and eaten at room-temperatures, or folded and toasted in a toaster oven.
- Enjoy lunch of blanched vegetables such as cauliflower, broccoli, onions, and Brussels sprouts, wilted in one teaspoon of olive oil with curry and cumin; and ½ cup fat-free re-fried beans or lentils mixed with fat-free salsa and used as a dip for slices of fresh, raw vegetables, such as mushrooms, cucumbers, bell peppers, and tomatoes.
- Enjoy a mid-afternoon snack of another Metagenics Ultra Meal 360 Plus drink, blended together with lots of spinach leaves and water. Add a serving of fruit or berries.
- Enjoy a dinner of 3-4 oz of lean sirloin, (choose wild, fatty fish 1-3 times a week) grilled with herbs, a salad of greens with tomatoes, cucumbers, sprouts, and mushrooms with a dressing of one teaspoon of olive oil, cider, and salt and pepper, three boiled fingerling potatoes with the peel on as the sweet vegetable, and ¼ cup fresh or cooked peas.
- Enjoy a serving of nuts or seeds; possibly with a “snack” of plain fat-free Greek yogurt.
- Enjoy six to eight glasses of water throughout the day.
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- **Improve Your Health, Well-being, and Happiness-**

07/15/14

Sample menu of healthy foods for day #3 for weight-loss for a pre-diabetic:

This menu contains roughly 1,300 calories and is composed of the ingredients discussed as healthy choices in minimally-required amounts and eaten at the right times for a pre-diabetic who wants to loose weight and correct body imbalances associated with pre-diabetes. Healthy plant proteins, complex carbohydrates, and healthy fats and oils are spread throughout the day, and small amounts of meat or fish proteins are accompanied by fruits or vegetables. **Adjust the food choices and amounts according to your own health status and health goals. Consult your primary doctor, a functional-medicine doctor, or a dietician!**

This menu uses 2 eggs as 1 animal-based concentrated protein and exchanges the other animal-based protein with 2 extra servings of legumes, equaling 3 servings of legumes. Remember that a serving of legumes is either ½ cup whole, rinsed legumes, or ¼ cup mashed legumes. Spinach can be exchanged with other “free” vegetables.

- Enjoy a breakfast omelet of 2 whole eggs or egg substitute, 1 tsp olive oil, ½ cup peas, mixed with 2 cups of torn kale leaves pre-baked in a 350 degree oven for 10 minutes.
- Enjoy a mid-morning snack of a Metagenics Ultra Meal 360 Plus drink, blended together with a serving of berries, a lot of spinach leaves, and water, along with a serving of seeds, eaten separately or mixed into the drink.
- Enjoy lunch of ½ cup of cooked brown rice, 1/4 cup fat-free re-fried beans mixed with fat-free salsa and used as a dip for slices of fresh, raw vegetables, such as mushrooms, cucumbers, bell peppers, tomatoes, and 8-10 medium olives.
- Enjoy a mid-afternoon snack of another Metagenics Ultra Meal 360 Plus drink, blended with water and lots of spinach leaves. Include a serving of fruit or berries.
- Enjoy a dinner of vegetable chili made with ½ cup of whole, rinsed beans, 1 medium carrot, onions, celery, 1 tsp of olive oil, fat-free broth, chili, cumin, salt, and other desired spices. Have the chili with a salad of greens and a variety of sliced vegetables with a dressing of 1 tsp of walnut oil, vinegar, and salt and pepper.
- Enjoy a serving of nuts or seeds for dessert; possibly with an extra “snack” of plain fat-free Greek yogurt.
- Enjoy six to eight glasses of water throughout the day.
- **Go to my website, www.HFHF.us, for more easy, family-friendly, and healthy recipes**

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07/15/14

What happens when you have full-blown diabetes:

You get an official diagnosis of diabetes when your fasting blood sugar reaches the “magic” number that the medical industry uses for the diagnosis. The number has changed over the years. As of 2014, the number is 125 mg/dl or higher.

This elevation of your blood sugar is a manifestation that your pancreas is no longer able to provide enough insulin to move your blood sugar into your cells.

- This is either due to your gradual development of insulin-resistance, as described already, caused by too many simple carbohydrates and by body-wide inflammation from one or more of its causes, and often lack of physical activity, giving you a diagnosis of diabetes type-2, or
- It's is due to the Cells of Langerhans on your pancreas being destroyed by an auto-immune attack, usually following a virus, giving you a diagnosis of diabetes type-1.

If your pancreas is not completely destroyed, you may be able to restore it's health with a very strict low-carbohydrate diet, under a doctor's supervision. You may be able to limit your diabetic medications or completely avoid them. If your pancreas is completely unable to release insulin any longer, you will depend on insulin injections for the rest of your life.

In either case, you want to reduce your need for insulin as much as possible to avoid all the cardiovascular complications from excess insulin. Discuss with your doctor how you can follow the diet tips in this hand-out safely without becoming hypoglycemic. You'll likely need to reduce your insulin use and/or oral glycemic medications as you reduce your need for insulin. If you're a skinny diabetic type-1 with liver and/or kidney damage, eating more healthy fats and oils for energy may be a good way to limit your intake of carbohydrates and animal-based proteins.



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07/15/14

As, we've already discussed:

- ***Elevated blood insulin is one of the first signs of chronic diseases. It contributes to diseases of your medium to large arteries.***
 - Excess insulin will store the excess glucose and fructose as fat, once the glycogen stores of your muscles and liver are filled.
 - Excess insulin will also store ingested fat into your fat stores. It may also convert protein into fat and store the fat into your fat stores.
 - Excess insulin increases the production of cholesterol by your liver.
 - Excess insulin also causes your kidneys to retain water in your body.
 - Lastly, excess insulin stimulates the cells of your arterial walls to grow bigger, making the arteries less elastic and raising your blood pressure.

And, what we have not yet discussed:

- ***Elevated blood sugar levels are some of the last signs of chronic diseases to develop. It contributes to diseases of your small arteries.***
 - Elevated blood sugar levels cause damage to your small vessels, leading to blindness, cataracts, kidney damage, and nerve damage.

Staying healthy, both with and without diabetes, means knowing how to keep both your blood insulin levels and blood sugar levels under control with diet, exercise, and avoiding the triggers for a body-wide inflammation. You will have less damage to both your large and small blood vessels, and enjoy better health!



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07/15/14

References:

My biggest inspiration for this hand-out was reading “The Blood Sugar Solution,” by Mark Hyman, MD, published by Little, Brown, and Company, 2012. The book opened up my mind and caused me to do a lot of further research on my own. I would highly recommend that you read this book for further information.

Fitness Magazine, April 2013, pp. 105-108, provided the information on herbs and spices.

Links on protein:

The following three websites are my main sources for this section on proteins:

- www.drmcDougall.com/misc/2004n1/040100puproteinoverload.htm
- www.buzzle.com/articles/eating-too-much-protein.html
- <http://www.eateco.org/Medical/Protein.htm>

According to the first website that favors a vegetarian diet, “the average daily need for protein is only 20-30 grams,” which is around 1 oz.

According to the second website, “the USDHHS or the United States Department of Health and Human Services states that teenage boys and young adults require 7oz of protein, on a daily basis. While women, teenage girls and men require 6oz of it, children aging from 2 to 7 and older people require daily 5 oz of protein intake. Anything more than that is too much.”

According to the third website, “the daily intake of protein should be about 0.75g/kg/day.” This equates to approximately 4.5 oz of protein for a person weighing 160 lbs and 3 oz of protein for a person weighing 110 lbs.

No matter which website you prefer to use, it's evident that our typical Western diet provides much more animal-based proteins than we actually need, putting us at risk for nitrogen and sulfur wastes that can damage our liver and kidneys.



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07/15/14

Cancer risks associated with animal-based proteins: Animal protein puts you at *risk for breast, lung, colon, kidney, melanoma, and brain cancers* that all feed on the sulfur from the Methionine amino acids. Furthermore, the Methionine from animal protein raises the insulin-like growth factor-1 (IGF-1) levels and *promote breast, colon, prostate, and lung cancers*.

Links on carbohydrates:

- <http://engine2diet.com/question/do-carbohydrate-really-make-us-fat/>, explains the difference between simple and complex carbohydrates nicely.
- Go into www.Google.com and type “**glycemic load index**” in the search bar. A variety of websites will pop up that allow you to search for the glycemic value of a particular food. Even more important, the different websites have lots of valuable information about diet tips that you can use.
 - I recommend that you go out and buy an inexpensive version of a glycemic-load index book at a book store for convenient use any time.
- <http://www.drmcDougall.com/health/education/newsletter/> will take you to the John McDougal MD newsletter about vegetarian diets.

Links on fats and oils:

- www.GoodFats101.com has easy-to-read info about healthy fats and oils.
- www.cornucopia.org/2010/11/hexane-soy/ will take you to a page on the use of hexane in the production of some vegetable oils, such as corn oil, soybean oil, and even peanut oil.

Link on organic information and laws:

- www.cornucopia.org will take you to the subscription page of the newsletter from The Cornucopia Institute about our organic foods, laws, and regulation.

Link to “The Blood Sugar Solution”:

- www.bloodsugarsolution.com This link(-s) and the associated book have been my greatest inspirations. This link will take you to many more links.