

## Diabetes: A Growing Problem

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### The Epidemic

“Genes load the gun, but environment pulls the trigger”

Dr. Frances Collins, Genetics Chief at the National Institutes of Health National Human Genome Research Institute

Obesity and weight gain in the U.S. are at epidemic proportions. According to NHANES (National Health and Nutrition Examination Survey) 65.1% of Americans are overweight, and of these 30.4% are classified as obese, with 4.9% of these being extremely obese. Obesity reflects a large accumulation of body fat with a body mass index (the comparison of weight to height) exceeding 30. The annual cost to the U.S. health care system is about 93 billion dollars per year due to all the consequences of excess weight including hypertension, cardiovascular disease, stroke, type II diabetes, osteoarthritis and back problems, sleep apnea, cancer, renal insufficiency/failure, and more. Being overweight is not just about looks; it's also a very dangerous condition. Unfortunately, a new phrase is appearing in medical dictionaries: diabetes, which is defined as the strong connection between obesity and diabetes. Because of obesity/diabetes, the steady rise in life expectancy experienced over the past two centuries in the U.S. may soon come to an end.

### The Causes

The cause of weight gain is simple yet complex. Weight gain and obesity involve three basic things: exercise, nutrition and life style (you can also gain weight due to long term toxin exposure and we will address this and also diabetes/diabetes in a future newsletter).

The American life style, simply put, is sedentary and excessive. We sit during most of the time at work, and play, and eat calories in excess of our bodily needs. It takes about 3200 calories a day to gain 1 pound; that is if these calories are not burned off by exercise. In perspective, popcorn at the movies has about 2000 calories in 1 medium bag - that's just a snack!

We haven't even discussed our regular meals and the other snacks that are eaten during the course of one day. This is fueled by watching TV. Not only because it is a sedentary pastime, but also because while we're engaged in this non-activity, we are bombarded by commercials about eating, eating, eating and also drinking beverages awash in carbohydrates. Carbohydrates are sugars that the body needs for energy that we measure in the form

of calories. The body uses what it needs and stores excess calories as fat. Add to this problem that the type of foods eaten are the absolute worst given that the best vitamins, minerals, fatty acids, and fibers are, for the most part, missing.

Now, what about exercise, where is it? Good question! It's essentially non-existent in most of our lives. Why? Because we're too busy doing everything else; we try to “fit it” into the daily schedule. Fitting exercise into your life style will never work. There's never going to be any room for exercise unless it becomes an important part of your life.

Here's the difference: being a part of your life is the same as your car, your family, your job or your bed being part of your life. They just are and everything you decide revolves around it or them. You don't have to figure out how you're going to fit them in, they're already in! Similarly, one must do the same with exercise. More on exercise later!

## Portion Distortion

Serving sizes have expanded because of the abundance of cheap and calorically dense foods. This is partially due to an increase in efficient labor saving devices needed to grow, harvest, process and cook foods and in response to a lack of time for home food preparation due to the rise in two income households. In 1970 Americans spent just one-fourth of their food budget on foods consumed outside the home, Americans now spend half of their food budget outside the home.

### *A note on corn syrup*

High fructose corn syrup has largely replaced sugar as a sweetener in processed foods. It's a matter of economics; high fructose corn syrup is cheaper. There are inherent problems with this sweetener according to science. In animal studies it increases insulin resistance and impairs glucose tolerance. When we eat glucose, it crosses into the brain and tells the brain we have eaten sufficient calories for our requirements. Fructose, unlike glucose, does not enter the brain and does not trigger glucose sensors that would inhibit hunger; therefore you are still hungry. Fructose syrups are associated with lower levels of leptin; a hormone which suppresses the appetite, and conversely they are associated with higher levels of ghrelin; a hormone which triggers hunger. It is good practice to avoid foods that contain high fructose corn syrup.

## The Metabolic Problems leading to Diabetes

This is just the beginning of the cascade of metabolic problems now in play. Let's add to the problem of excess calorie storage and other things that are occurring metabolically. In our life style we generally find ourselves under continuous stress from work, family, finances, children and other things. Stress causes the production of a hormone called cortisol, which is secreted normally

from the adrenal glands during times of regular stress for short periods of time. However, in our modern society with constant stress, the levels of cortisol remain elevated for extended periods causing increased production of glucose that the body doesn't need. Therefore, the newly manufactured glucose gets stored as fat. Also, research has shown that elevated cortisol causes us to feel uncomfortable and that eating comfort foods (they are fattening) lowers cortisol levels correlating stress with poor food choices.

Next, we should understand that the lifelong process of consuming increased calories, as simple carbohydrates (carbs) or simple sugars, e.g. white granulated sugar and all the sweets, breads, pastas and potatoes (not the good complex sugars as in cabbage, broccoli, etc.) has altered all kinds of normal biochemical and hormonal reactions. We can start with the hormone insulin, which is responsible for the entry of these sugars into cells to be used as a source of fuel. However, over time, the excess amount of sugar in the blood has led to an excess production of insulin. This insulin excess renders cells relatively resistant to insulin's signal and effects. Thus, the body now requires very high levels of insulin for cells to respond. The problem with this is that high insulin levels also gives a cell a different type of signal which is to store fat - rather than burn fat! Over time this evolves into type II diabetes.

Here are some other things which add to the metabolic mess. As we age we produce less DHEA, which is known to precede the slowing of the thyroid gland. The thyroid gland controls the rate of metabolism meaning that here's another trigger for even more fat storage. Our sex hormones also begin to decline starting at about the age of 35 for both men and women. Declining estrogens and testosterone contribute to the storage of fat in cells by reducing the type and amount of enzymes required for fat to burn. We

## What To Do

None of the answers are available in one pill, one product, one method, or one anything for everyone. The answer lies in understanding what's happening to your body and your world. We'll develop this model of help systematically

- 1. Make a Decision** - You must make a decision if you really want to do something about your weight. If you're not really committed to work on it, then don't! You'll get even more frustrated, spend more money, and get more frustrated because it's not working. You'll then quit, eat more comfort foods, and gain even more weight.
- 2. Get Help** - Now you need to find a professional who will tell you the truth. Then you should be prepared to attack each issue causing your problem. Avoid taking pharmaceutical preparations - they are not needed.
- 3. Unravel the "Metabolic Mess"** - I will refer you to safe, balanced, and well-substantiated nutritional recommendations from pharmacist/author/educator, Jerry Hickey, R.Ph.
- 4. Exercise** - Assuming that you've read this article because you want to lose weight, then you've also decided to change your life style. Exercise now becomes an integral part of your life. Your goal should be at least 30 minutes of exercise, 4 days a week. When your weight begins to decrease and you get to a plateau - don't quit. The plateau is because your body is making metabolic adjustments.

Weight loss must be individualized and be consistent. Avoid using pharmaceuticals which generally add to the problem long term. The products recommended here are safe and effective, have almost no side effects or long term bad consequences. However, it is strongly recommended that you undertake this with the assistance of an InVite health care professional.



begin to notice a time when we no longer lose the fat as easy as when we were younger. Furthermore, the fat begins to shift to the abdomen and we can't get this fat off. We try harder, eat less, and start to get stressed even more.

Finally, we start to eat comfort foods out of our frustration, because they make us feel better by stimulating the production of serotonin, a hormone which makes us calmer. We don't realize that these comfort foods have no nutritional benefit and add to the weight gain - but they make us feel better. We've only touched the tip of the iceberg, but you're beginning to get the picture.

## **Nutraceutical Science & Weight Management by Jerry Hickey, R.Ph.**

Obesity, besides increasing the risk of diabetes, cardiovascular disease, and cancer, also can take its toll on your knees, spine, quality of sleep, and self image. Losing weight requires a combination of decreasing your calorie intake while stepping up or instituting an exercise regime. Many people are successful at losing weight once they truly want to - keeping the weight off is the mean trick.

This nutritional program is to help you successfully lose weight, and just as importantly, after all of that work and self denial - keeping it off. The first segment of my recommendations is to help you lose inches off of your midriff, the second segment is to help you keep the weight off.

### **Phase One – Losing Fat**

**DHEA** - is a hormone produced by the adrenal gland. It has many important activities including the ability to help reinstate control of an aging or out of control immune system. It is also partially converted into the sex hormones testosterone and estrogen. In your twenties you have plenty of DHEA, but its level drops

every decade, and by the time you reach your seventies you produce much less than when you were younger.

A recent study published in the *Journal of the American Medical Association* detailed how people over the age of 65,



when placed on 50mg of DHEA each day, an amount that restored their levels back to that of younger people, had a significant decrease in their abdominal obesity over the six-month study period versus subjects on placebo. They lost body fat around the waste, and their insulin worked significantly better and insulin resistance was decreased - reducing their risk of developing diabetes and heart disease ([www.Invitehealth.com](http://www.Invitehealth.com), click on Radio Studies, November 10th 2004).

**(Hoodia gordonii)** cactus - This succulent plant is used by the San people of southern Africa, who live in the Kalahari desert - a very harsh and unforgiving environment. When they go on their long hunting trips it is traditional for them not to consume the food they catch, instead they bring it back to their village and share it communally. To prevent hunger they cut a cucumber sized portion of the cactus and chew a slice of it whenever they feel the need to eat. The steroidal glycosides, natural constituents of the Hoodia cactus, send a powerful signal to the brain many times stronger than carbohydrates telling them that they have eaten and no longer require food. This is magnificent, non-stimulating control of the appetite.

**Green Tea Polyphenols** - concentrates of green tea (*Camellia sinensis*) enhance the ability to burn fat. This ergogenic activity is separate and distinct from the ability of caffeine to increase metabolism. Studies show it is due to the green tea catechin-polyphenols especially the EGCG content and that consuming enough EGCG burns fat in both men and women. It helps reduce waist size, and what's more, it does this even when caffeine free. Interestingly, EGCG also rids the body of some of the excess fat cells. When fat cells are depleted of fat due to dieting, they release hormones that trigger hunger because they sense a famine activity. This occurs after successful weight loss and



accounts for increased weight gain after a period of time. However with green teas ability to reduce the number of fat cells, less of these hunger hormones are released leading to improved satiety and less diet failure, with a possible improvement in the ability to prevent yo-yo dieting.

**CLA** - (conjugated linoleic acid) studies show that CLA, especially if combined with exercise, helps burn fat and in one study decreased both cellulite and thigh diameter in women. CLA is a good type of fat that is known to signal cells to burn excess stored fat mainly in the trunk. A recent study supports the body shaping benefits of CLA. Obese individuals lost weight mostly in the abdomen and thighs with its use.

**L-Theanine** - this unique amino acid is derived from the green tea leaf. L-Theanine alleviates stress. It also protects you from your own stress hormones. These hormones can decrease insulin sensitivity and keep you hungry. They also break down muscle and cause an accumulation of fat. Many people will tell you how they cannot stop eating carbohydrates and junk food when stressed and nervous. Decreasing the release of stress hormones can help unlock your ability to loose weight.

**Chromium Picolinate** - helps control insulin levels, restoring them to normal and bringing blood sugar under control. It also lowers the signal for fat storage. 200 mcg a day is the suggested serving size.

**Bitter Orange (*Citrus aurantium*)**– contains synephrine, an ingredient that if used at low concentrations helps improve the metabolism of fat

**5-HTP (*5-hydroxytryptophan*)** – it is often used for people who are depressed and use comfort foods to make them feel better. The comfort foods trigger insulin release allowing dieteti L-Tryptophan to enter the brain instead of other amino acids This compound helps the brain produce more serotonin, a mood enhancing neurotransmitter. Therefore by giving 5-HTP they are less depressed and will eat less due to improving serotonin levels.

**Note:** Many people notice that after eating they are still hungry. This may be due to an abnormality in the stomach production of ghrelin, a hormone found to control appetite. When this hormone is not shut-off by a meal it can be turned-off by increasing the amount of dietary soy.

### **Phase Two - Maintaining A Lean Look**

**Chitosan** - this extract from the carapace or shell of crabs soaks up many times its weight in fat. Chitosan is useful in helping to block the absorption of fats and

fat calories from unhealthy and high calorie meals.

***Phaseolus Vulgaris*** - a concentration from white kidney beans, this extract attaches to a percentage of the enzymes that digest starches, decreasing the absorption of carbohydrate calories.

**Soy Isoflavones** - ghrelin is a hormone released by the digestive tract that makes you feel hungry. Soy isoflavones at a dosage of 120mg per day inhibit the release of ghrelin and they are useful for weight maintenance ([www.invitehealth.com](http://www.invitehealth.com), click on Radio Studies, July 12th and September 16th 2004).

**Meal Replacements** - these are good but they need to be whey and/or soy based. Use them to replace two or three meals per day. They need to be a meal substitute with all the requirements of a meal.

**Eat more of the right foods.** A balanced meal, meaning protein, veggies and a carbohydrate in approximately equal portions, will help keep insulin levels lower thus minimizing cravings. If you add up your meals and the number of servings from the meal replacements, it means you are having at least 5-6 meals per day. However, make the food portions smaller. Eating less food will also cause you to loose muscle rather than fat. This could be serious because you want to increase muscle and lose fat!

For additional scientific references on weight management, and many other health issues, please go to the Radio Studies section of our web site, [www.invitehealth.com](http://www.invitehealth.com).

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