

# **A Recipe for Life**

by the Doctor's Dietitian

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Visual design and additional photography **Jessica Liu Brookshire**

## A Recipe for Life by the Doctor's Dietitian

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**Dedicated to God, the Creator of Food**

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# Foreword

I have had the privilege of working closely with Susan Dopart, M.S., R.D., throughout my 20-year career as an internist. During this time, no other physician, researcher, nurse, therapist, social worker or other health care worker has had a more profound impact on my patient population than Susan.

More patients come to my office with nutrition, weight and obesity-related problems than for any other reason. This list includes, but is not limited to: hypertension (high blood pressure), hyperlipidemia (high cholesterol), diabetes mellitus, sleep apnea, peripheral vascular disease, peripheral neuropathy, degenerative arthritis and mood disorders (depression and anxiety). These patients know there is something wrong with them as they do not feel well. And, I believe most recognize that the paths they are on will diminish both the quality and duration of their lives.

Almost all of these patients have tried and ultimately failed one dietary program after another, joined one gym or exercise-program after another, read one weight-loss book after another, tried one appetite suppressant after another, and seen one psychotherapist after another. They've traveled far and wide to weight-loss camps. They've watched talk-shows and reality-television shows dealing with weight loss. They've undergone acupuncture and hypnotherapy. Some even have resorted to liposuction and more radical and desperate bariatric procedures.

What Susan does in this book is what she does so successfully in her practice. First and foremost, she educates. What are proteins, carbohydrates and fats? What do they do and why do we need them? How do they interact with each

other? What role do vitamins and minerals play in our health? What role does genetics play? What type and how long should one exercise? Understanding the answers to these questions is the first step in a nutritionally successful life. It provides the framework to which one can then add the components of what to eat, when to eat and how much to eat.

Susan also provides recipes that will please even the most discriminating gourmet, and yet they are inherently healthy and true to her message. The recipes cover all dietary preferences, and despite their extraordinary flavor, are relatively easy to prepare for those with only modest culinary skills.

Whether the reader is fit and of normal weight and desires to stay so, or unfit and overweight and in dire need of weight loss, this book will educate and empower them to make better choices for successful living and aging. I have seen this transformation in Susan's clients, including many of my own patients, over and over again. Weight loss; fitness manifested as an improvement in exercise tolerance and physical activity; the improvement or resolution of diabetes, hypertension and elevated cholesterol; rediscovering confidence in one's health and optimism in one's future health; these are all reasonable and achievable goals with Susan's guidance.

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Susan B. Dopart, M.S., R.D.

# Beginning Your Health Journey

Ever since I can remember, my family life was centered around food. In an Italian family, it is a sin not to have plenty of food in the house. More than double the amount of food is the norm when you have company over, and of course you always need food available if a friend arrives unexpectedly so you can play the gracious hostess!

I came from a family of great Italian cooks and bakers. But, in addition to observing how vitally important food was, I also observed health issues first-hand and faced some major challenges of my own.

My father was always hungry, and if someone was cooking or baking he was around to sample. Little did I know his hunger was related to diabetes until I was in college. Around this same time, I began having thyroid problems and ended up having surgery to remove most of my thyroid. On top of all this, I was a sophomore at U.C. Berkeley and was disenchanted with my business classes. Sitting in the hospital got me thinking – how could I avoid the health issues of my family in the future, or even better, turn that experience into something positive? Would I become diabetic like my father or other members of the family? Weight problems were already an issue on both sides, and with diabetes in my genes, the possibility of having diabetes was imminent, unless I was careful about my diet and exercise.

I found out I could get a degree at Cal in Nutrition and Clinical Dietetics, but basically had to start all over. That was okay with me. Two more years and the possibility of being more healthy over the long

term seemed a fair trade off, so I jumped right in. Several years later, I found myself working as a clinical dietitian at UCLA giving traditional diet advice.

I loved helping people who were sick, but I knew my bigger mission was to help people stay out of the hospital through healthy life choices. Around that time, more studies documented how our food supply was not the safe nutritional bet it had once been. That piqued my interest in “clean eating,” consuming wholesome, unprocessed food. I wanted to find ways to help others discover what clean eating could do for them.

After six years, I was ready to go into private practice with a more holistic philosophy – delving into strategies to help clients discover solutions to medical issues, emotional eating, and alternative therapies to balance their health. I explored yoga, acupuncture, and other methods to see whether they could help me or my clients.

One client I helped had weight issues after her successful battle with cancer. She dubbed me, “the Doctor’s Dietitian,” since her physician insisted she see me. Physicians have played, and continue to play, an important role in my career as teachers and partners, and I enjoy working with them to help our mutual clients find a better lifestyle.

As my practice grew, I had some of my own health-related issues to deal with. I realized quickly they were a blessing in disguise, intended so I might help others in a more mindful and compassionate way. My own experience has taught me that

balancing food, exercise, sleep, and stress is the challenge for our society. Unfortunately, there are no easy answers, and it's up to each individual to find the solution that works best for them. This challenge becomes your recipe for life.

Therefore, the first question to ask yourself when embarking on your own lifestyle journey is, "What are my primary goals? Do I want to lose weight, improve my health, avoid or eliminate medications, improve vitality, or live longer?"

Embarking on the journey of health and balance takes time, consistency and effort. If you are willing to go the course of the journey, it can provide you with a host of rewards.

Too often, we focus on the costs of a lifestyle change. Changing that paradigm and focusing on the benefits helps make change happen.

Two key ingredients for change are *motivation* and *importance*, according to William Miller, Ph.D., and Stephen Rollnick, Ph.D., two prominent researchers in the addiction field. In their book, *Motivation Interviewing: Preparing People for Change*, they suggest that if a person has motivation, but doesn't feel the change is important, he or she will not be successful. If the change is important, but a person's motivation is lacking, alterations will not occur. The twin tenets of being motivated and deciding change is important are crucial to permanent lifestyle modifications.

Developing a lifestyle that creates a healthy weight and good health treats the cause, not the symptom. How easy it is to take medications for high blood pressure or high cholesterol to cover up an unhealthy lifestyle!



Occasionally, someone can have a healthy lifestyle, but due to genetics, needs to go on medications. Our genes determine our susceptibility to disease, but our lifestyle furthers that susceptibility. In many cases, these health concerns can be handled by changes in lifestyle. If we change our lifestyle to treat the cause of a medical issue, many times the symptoms can improve and medications can be lowered or even discontinued.

Taking charge of your health and happiness can be challenging, but the effort will provide you with rewards beyond your imagination. I invite you to join me and begin your journey to better health.



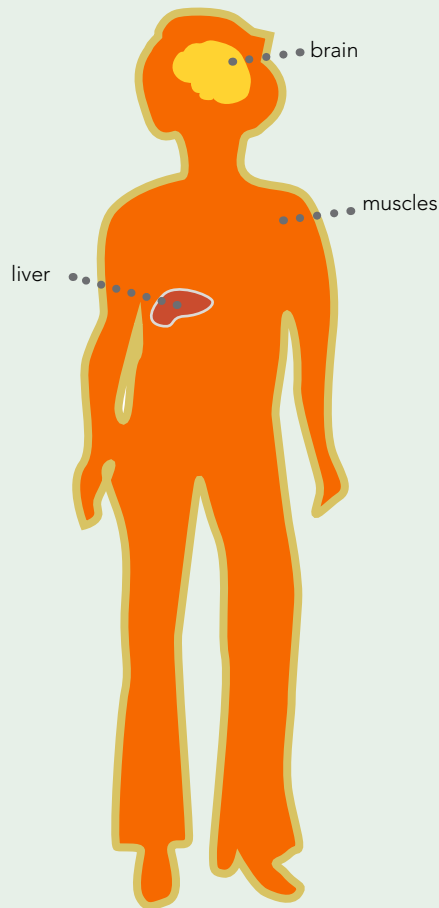
# Part One

Balance is the Key:  
Carbohydrates, Proteins and Fats

# Carbohydrate:

## The First Major Player

A good first step in meeting your nutritional goals is to understand the three main components of food: carbohydrate, protein and fat. These are often referred to as the “macronutrients,” since they are the major players of food. Their counterparts are the “micronutrients,” things like vitamins or minerals.



The three sites where carbohydrate is stored in the body: brain, muscles and the liver

### Why is carbohydrate a major player?

- Carbohydrates are essential to life since they are needed by three major areas of the body: the brain, muscles and the liver
- Our brain needs about 80-130 grams of carbohydrate a day to maintain our blood sugar levels

If the brain does not receive what it needs, it will steal the carbohydrate from the only two other areas of the body that store carbohydrate: the liver and muscles.

Carbohydrates are measured in grams. For example, a medium-sized piece of fruit, such as an apple has about 15 grams of carbohydrate, as does a slice of bread or a cup of milk.

Let's say you are eating a piece of fruit in the morning with some cottage cheese. Since you have been fasting (not eating) during the night, your brain is saying, “feed me, feed me!” When you take the first bite of the fruit, that carbohydrate will be broken down and transported to the brain for fuel.

After your brain receives the carbohydrate it needs, the muscles are next in line, followed by the liver, where additional carbohydrate is stored for a rainy day. If you are in an active state, the carbohydrate will most likely be utilized by the muscles, which use or store carbohydrates for times of need. However, if your brain has been fed and the muscles are saturated, carbohydrate will be stored in the liver for future times when you skip a meal or decide not to eat.



Persimmons: packed with vitamins A, C and flavonoids

When your brain or body is in need of carbohydrate, it will be released from the liver into the blood stream and go directly to the brain. If the brain does not receive the carbohydrate it needs, your body will go into a state called "ketosis."

Popular diet plans often tout ketosis as desirable, but it can lead to a breakdown of both fat and muscle to get fuel to the brain. This is problematic since muscle mass contributes

to an increased metabolism, which is important in losing weight. If you are trying to lose weight, you want to keep your muscle mass in order to burn the maximum calories you can.

Losing muscle mass not only lowers your metabolism, but also means that you will need to eat fewer and fewer calories to continue losing weight – not at all my idea of a good time! This method of dieting promotes a bad cycle of changing your fat to muscle ratio. Each time you regain the weight you lost, you replace the lost muscle mass with fat.

## Starved for Food

Compounding this problem, when you start eating normally, your metabolism is sluggish because you have lost large amounts of muscle mass. You start to gain weight rapidly, but now you are gaining FAT back, creating a worse situation than when you started your original diet.

This cycle is common with people who restrict their diets with very low calorie consumption or who follow low carbohydrate diets – ones that involve taking in less than 80-100 grams of carbohydrate per day. Fewer calories or low carbohydrates can mean dieters are restricting their bodies to starvation levels of nourishment. Food is a part of life; starvation is not a way of living. Eventually the body wants food. Even though such dieters may start eating normally, the weight will come back with a vengeance because they now have a compromised metabolism.

## Good Carbs versus Bad Carbs?

Understanding the difference between carbohydrates is essential to learning how to eat healthfully. If you are eating food in its purest form – e.g. food which is not processed – then it's likely that you are eating a healthy form of carbohydrate.

Examples of foods that contain healthy forms of carbohydrates include:

- fruits and vegetables
- low fat plain dairy products
- nuts and seeds
- whole grains, such as brown rice and quinoa
- beans/legumes
- buckwheat

Processed and low-fiber carbohydrates include:

- pasta, potatoes, white rice
- white bread, bagels, regular or English muffins
- crackers, chips, pretzels
- most breakfast cereals
- pancakes/waffles
- ready-made desserts

Unfortunately, our culture has accepted the idea that eating grains means consuming bread, rice, pasta and potatoes in any form. These foods are low in fiber and nutrients and are essentially “filler foods.”

Since the government subsidizes crops such as corn and wheat, these grains are inexpensive for food manufacturers to use in their products. As a result, consumers are faced with supermarket shelves full of processed foods that are high in calories and low in nutritional value. Imagine what would happen if the government subsidized fruits and vegetables – our nation would be much healthier.

Carbohydrates are the most quickly metabolized of the macronutrients, which means that they digest in about 1-3 hours depending on how much fiber they contain. They provide four calories per gram in addition to the many micronutrients needed for health.

## The Role of Fiber

Before explaining more about carbohydrates, it's important to understand the role of fiber. There are two types of fiber, and it is easy to classify them by how they dissolve in water. **Insoluble fiber** does

not dissolve in water, while **soluble fiber** dissolves partially in water.

Examples of insoluble fiber include skins of fruits, nuts and seeds, carrots, tomatoes and cucumbers. Insoluble fiber helps with creating bulk in the intestine and preventing constipation. It creates a healthy environment in the gut, lowering the risk of cancer.

**Soluble fiber** increases the time it takes for your stomach to digest the food, which increases fullness and creates stability with blood sugar. This is specifically helpful for those with diabetes. Examples of soluble fiber include apples, blueberries, broccoli, legumes and strawberries.

Recommended fiber guidelines for adults are between **20-35 grams** per day based on the amount of calories you take in. This is fairly easy to achieve if you are eating a non-processed, healthy diet with a lot of fruits and vegetables. Examples of fiber in fresh foods versus processed foods are as follows:

Fiber in Foods	
Fresh Foods:	Fiber (grams)
1 medium apple with peel	4.37
1 medium banana	3.0
1 cup of steamed broccoli	4.68
½ cup of garbanzo beans	6.23
½ medium avocado	6.73
Processed Foods:	Fiber (grams)
1 medium plain bagel	1.25
1 ounce of potato chips	1.0
½ cup of cooked pasta	1.2
1 slice of pepperoni pizza	2.0
1 medium sugar cookie	.12





Figs: high in dietary fiber, potassium and manganese

## Simple or Complex Carbs?

Carbohydrates are divided into two main categories: simple and complex. Simple carbohydrates consist of foods coming from:

- lactose - milk sugar
- fructose - fruits and vegetables
- sucrose - table sugar

Complex carbohydrates are made of a string of many simple carbohydrates of the sugar called glucose and are known as:

- Starches
- Fiber

**Myth:** Complex carbohydrates are the ones to focus on.

**Fact:** The difference between simple and complex carbohydrates is not all that significant.

## Understanding Glycemic Index and Glycemic Load

David S. Ludwig, M.D., an assistant professor of pediatrics at Harvard Medical School and director of the Obesity Program at Children's Hospital in Boston, states that the "distinction between simple and complex carbohydrates has little biological significance. The most important thing is to look at the **glycemic index (GI)** and the **glycemic load (GL).**"<sup>1</sup>

**The glycemic index** is a frequently used term, but few people understand what it actually means. Basically, the GI of a food allows you to determine how high a particular food raises your blood sugar. The index is based on a number between one and 100. Examples of foods that have a **high GI** are potatoes, white rice, pasta, and white bread. Each of these has a number ranging from 65-95.

Foods with a **low GI** are whole grain carbohydrates, proteins and foods with fat. For example, nuts have a GI of 15, meaning they do not raise your blood sugar in any significant way. Sometimes we may eat one food at a time. However, most of us eat foods in **combination** like for a snack or during a meal – that's when we eat a piece of fruit and some nuts, or bread with butter. Combination meals throw the GI out the window since you would have to add up all the indexes of the foods you ate, which could end up being a complex math problem!

Walter Willett, M.D., chairman of the Nutrition Department at Harvard Medical School of Public Health, coined the term glycemic load, to indicate how much carbohydrate a person receives is based on how much of the food he or she eats.

For example, many diet books have advised against eating carrots since they have a higher GI than other vegetables. However, you would have to eat many cups of carrots to have a large GL. That's why

it's important not to just look at one aspect of a food, but at the whole picture.

The GI is also dependent upon how the food comes – is it raw, boiled, fried, etc.? For example, this table illustrates the GI for carrots in two different forms:

Carrots	Raw	Peeled, boiled
<b>Amount</b>	$\frac{2}{3}$ cup	$\frac{2}{3}$ cup
<b>Carbs (gms)</b>	4.2	4.6
<b>GI</b>	16	41
<b>GL</b>	.7	1.9

As you can see,  $\frac{2}{3}$  of a cup of raw carrots has a GI of 16, whereas peeled, cooked carrots have a GI of 41. The GI of cooked carrots is higher due to less fiber (from peeling the carrot) and from the cooking process, which breaks down the cell walls. However, they both have only 4.2 and 4.6 grams of carbohydrate per serving (one third of the carbohydrates in a slice of bread.) In addition, they both have a very low GL, since there is no significant difference between .7 and 1.9. A high GL would be 50. From this example, you can see how absurd it is for diet books to recommend against eating carrots.

The GI and GL can be useful tools to someone watching what they eat, since they indicate whether a food with carbohydrate contains fiber or not.

For example, the GI of a typical slice of white bread is 70, as compared with a slice of whole wheat bread, which has a GI of 50. The white bread raises the blood sugar higher than the wheat bread since it contains very little fiber.

To take this concept a bit further, when you eat complex carbohydrates known as starches (strings of glucose molecules), it is important to choose a whole grain or whole wheat flour rather than just



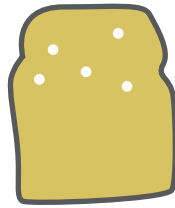
Carrots: contain over 100 types of carotenoids essential for health

wheat flour, which is processed and will not provide the same nutritional benefit. How do you know when a food is a whole grain? When reading a food label, the first ingredient needs to be “whole wheat” or “whole wheat flour.”

Whole grains have a much lower GI than refined grains. As Dr. Willett states, “In our epidemiological (cause and effect) studies, we have found that a high intake of starch from refined grains and potatoes is associated with a high risk of Type 2 (adult onset) diabetes and coronary heart disease. Conversely, a greater intake of fiber is related to a lower risk of these illnesses.”<sup>2</sup>

## Looking at Carbs through a Slice of Bread:

One useful way to understand carbohydrate equivalents is to compare them to a slice of bread. For example, a slice of regular-sized bread (any type) contains approximately 15 grams of carbohydrate, which is what the American Diabetes Association uses as one serving of carbohydrate.



One slice of bread equals 15 grams of total carbohydrate

If you know this, you can look at any label and see how many total carbohydrates are in that particular food, or how many slices of bread's worth of carbohydrate you are consuming.

For example, the label below is for a 4-oz plain bagel. You can see it contains **61 grams** of total carbohydrate, which is equal to four slices of bread. Few people would eat four slices of bread at breakfast, but many could easily eat this size bagel.

Nutrition Facts	
Serving Size (113g)	
Servings Per Container	
Amount Per Serving	
<b>Calories 310</b>	<b>Calories from Fat 15</b>
% Daily Value*	
<b>Total Fat 2g</b>	<b>3%</b>
Saturated Fat 0g	0%
Trans Fat --g	
<b>Cholesterol 0mg</b>	<b>0%</b>
<b>Sodium 610mg</b>	<b>25%</b>
<b>Total Carbohydrate 61g</b>	<b>20%</b>
Dietary Fiber 3g	10%
Sugars --g	
<b>Protein 12g</b>	
Vitamin A 0%	Vitamin C 0%
Calcium 2%	Iron 8%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
Calories: 2,000 2,500	
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Many times, we are not even aware that we are taking in this high an amount of carbohydrate. It's no wonder why we are gaining weight! Just reading labels for total carbohydrates is a great tool for knowing how many carbohydrates you are taking in on a regular basis. The average person needs only about

150-200 grams of carbohydrate per day unless you are an avid exerciser or an elite athlete. If you are insulin resistant (see section later in chapter) the amount would need to be adjusted to a lower level.

## Beware of Hidden Sugars

Since American culture is accustomed to high levels of sweetness, many of our foods have additional sugar added. This includes anything from small yogurts to salad dressings, and many other foods you may be eating on a regular basis. The typical carton of yogurt at the grocery store has a minimum of 30 grams of carbohydrate, unless it is a plain yogurt or is sweetened with non-nutritive (i.e. artificial) sweeteners, such as Aspartame™, Sweet and Low™ or Splenda™.

Many fat-free and low fat products have sugar added, causing them to become basically high sugar products. Most juices or smoothie drinks contain 60-90 grams of carbohydrate, which would be 4-6 slices worth of bread.

The following list reveals foods that can have sugars or hidden sugars you may not be aware of:

- flavored, sweetened yogurts
- condiments, such as ketchup, barbeque or teriyaki sauce or other sauces
- any low fat or fat-free product
- salad dressings
- smoothie drinks
- canned or bottled tomato sauces
- pre-made deli case salads or entrees
- sweet relishes
- frozen vegetables and entrees
- canned fruits in syrups

- specialty waters and drinks (coffee, tea)
- processed meats

## Net Carbs

A more recent gimmick introduced by food manufacturers is something called “**net carbs**,” a term the food industry made up as a way to fool consumers into thinking their products contain less carbohydrates. To arrive at a net carb number, food manufacturers take carbohydrates coming from fiber or sugars known as “alcohol sugars” and subtract them from the total amount of carbohydrates.

The premise is that those carbohydrates from fiber or alcohol sugar are not processed by the body, or have minimal effects on blood sugars. Maltitol is one of the primary alcohol sugars found in foods, and it does increase blood sugar. Fiber does add bulk to food, but to think it does not add any calories or impact blood sugars is a fallacy, and has not been proven by research.

Therefore, this theory of net carbs is just folly and really only another way for food manufacturers to sell their products.

## To Sweeten or Not To Sweeten?

How about non-nutritive sweeteners? There are now a variety of non-nutritive or fake sweeteners on the market, from Sweet and Low™ (saccharin), to NutraSweet™ (aspartame) to Splenda™ (sucralose). Although they are treated as substitutes, they all range from half as sweet as sugar to 8,000 times sweeter than sugar, with the average being 200-300 times sweeter than sugar.

Many diet programs and health care professionals highly advocate the use of these sweeteners, and

foods containing them, to decrease the amount of sugar and calories a person takes in. What is interesting, however, is that the longer these sweeteners have been out, the more obese our nation has become. When you are consuming alternative sweeteners, you are trying to fool your body, but it doesn't work. The body **knows** what you are giving it is fake, so instead of being satisfied, it continues to give the signal that it wants to consume something sweet.

Sharon Fowler, MPH, and her colleagues at the University of Texas Health Science Center, San Antonio, collected data for eight years that was reported at the American Diabetes Association's annual meeting in San Diego in 2005. What they discovered was that people who drank diet soda did not lose weight, but gained weight. “What didn't surprise us was that total soft drink use was linked to overweight and obesity,” Fowler said. “What was surprising was that when we looked at people only drinking diet soft drinks, their risk of obesity was even higher. **There was a 41 percent increase in risk of being overweight for every can or bottle of diet soft drink a person consumes each day.**”

In 2008, a study was published in the *Journal of Circulation*, which followed the health status of 9,500 men and women, ages 45-64, over a period of nine years.<sup>3</sup> The researchers found that the typical Western diet increased levels of metabolic syndrome (insulin resistance or carbohydrate sensitivity as described in the next section). The most surprising results of the study linked drinking a diet soda each day to a 34 percent increased risk for metabolic syndrome compared to those who drank none.

Another study done in February 2008 at Purdue University compared rats fed regular feed and yogurt sweetened with saccharin to rats that ate regular feed and yogurt sweetened with regular sugar.<sup>4</sup>



The rats that ate the feed and the saccharin-sweetened yogurt took in 20 percent more calories than the rats consuming regular feed and yogurt sweetened with sugar, and they gained body fat. Researchers have theorized that taking in large amounts of non-nutritive sweeteners over time conditions the body not to associate sweetness with calories, which can then disrupt the body's ability to assess caloric intake accurately and lead to overeating.

In countries where much of the food is fresh and there are less processed foods containing non-nutritive sweeteners, the multitude of low fat or "light" foods is miniscule. This may explain why the epidemic of obesity is less prevalent in countries outside the U.S. These products create the illusion that one can eat more of them and not gain weight. The body was made to process real foods that are fresh and whole, not manufactured processed foods.

### Simply Resistible: Carbohydrates Gone Awry

No carbohydrate chapter would be complete without addressing the topic of **insulin resistance**.

Insulin resistance is a term that came into being in the last decade. Gerald Reaven, M.D., a professor of medicine at Stanford University, was the first scientist to identify those individuals with a conglomerate of symptoms that he coined "metabolic syndrome" or "Syndrome X."

Normally insulin, a hormone released from the pancreas, enables cells to remove glucose (sugar) from the blood stream to be used as energy. (see *diagram on page 11*). Approximately a third of the population inherits a resistance of their cells to respond properly to insulin. This results in higher circulating levels of blood glucose, which causes



Artichokes: high in lutein for eye health

the pancreas to release ever-increasing amounts of insulin in an attempt to normalize blood glucose levels, which can eventually lead to diabetes.

Simply put, insulin is the key that unlocks the cell for sugar to get in, which in turn enables your body to use the food you consume. However, somewhere along the line, the key either gets stuck or has difficulty getting into the lock. Or, if it does get in, it cannot turn the lock, hence it was given the term "resistant." If your body develops a resistance to insulin, you are not able to utilize the food you take in, which can increase your fatigue and **cravings** for ever-increasing amounts of carbohydrate, which compounds the problem.

This resistance sets up a cascade of reactions in the body which are not in your favor. It's as if the sugar is outside the cell knocking to get in. When it cannot get in, your body keeps craving more carbohydrate. Sort of like when you eat one slice of bread - then you want the whole basket.

The pancreas, which produces your insulin, gets a signal from the body that sugar is sitting outside the cells begging to get in so the cells can feel fed. When the sugar cannot get in, the pancreas then releases more insulin. Why is this a problem? Well, increased amounts of insulin in the blood makes it easier for your body to store fat. To compound this problem, the extra sugar that is not stored as fat or used by the cells as energy goes directly to the liver. Increased levels of carbohydrate in the liver can lead to fatty liver, with the liver producing higher levels of cholesterol and triglycerides (a storage form of fat).

Insulin resistance is associated with a host of adverse health effects you'd rather avoid. This includes, but is not limited to, weight gain, high blood pressure, elevated cholesterol and triglycerides levels, diabetes, heart disease and sleep apnea.

There are varying degrees of insulin resistance with some people having a tendency and others having full-blown insulin resistance, which is adult onset diabetes. There can be a thousand-fold spectrum of insulin resistance in any one individual, meaning different levels of insulin resistance exist.

Factors contributing to insulin resistance are:

- a sedentary lifestyle
- a family history of high blood pressure, diabetes, or heart disease
- a history of gestational diabetes

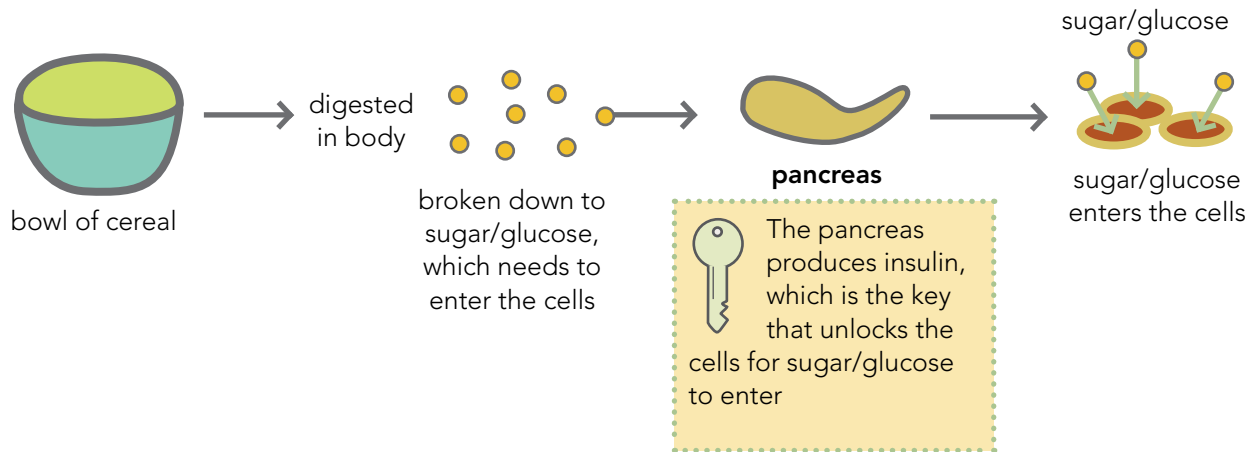
- a diagnosis of high blood pressure or heart disease
- elevated triglycerides and/or low HDL-cholesterol levels
- a fasting glucose level of greater than 100 mg/dl.

The classic insulin resistant body belongs to someone who has thin arms and legs and stores much of their fat in the abdominal region. This body type is also known as apple-shaped. If you have a different type of body, or store your weight in other areas (also called pear-shaped), you may still be insulin resistant, but to a lesser degree.

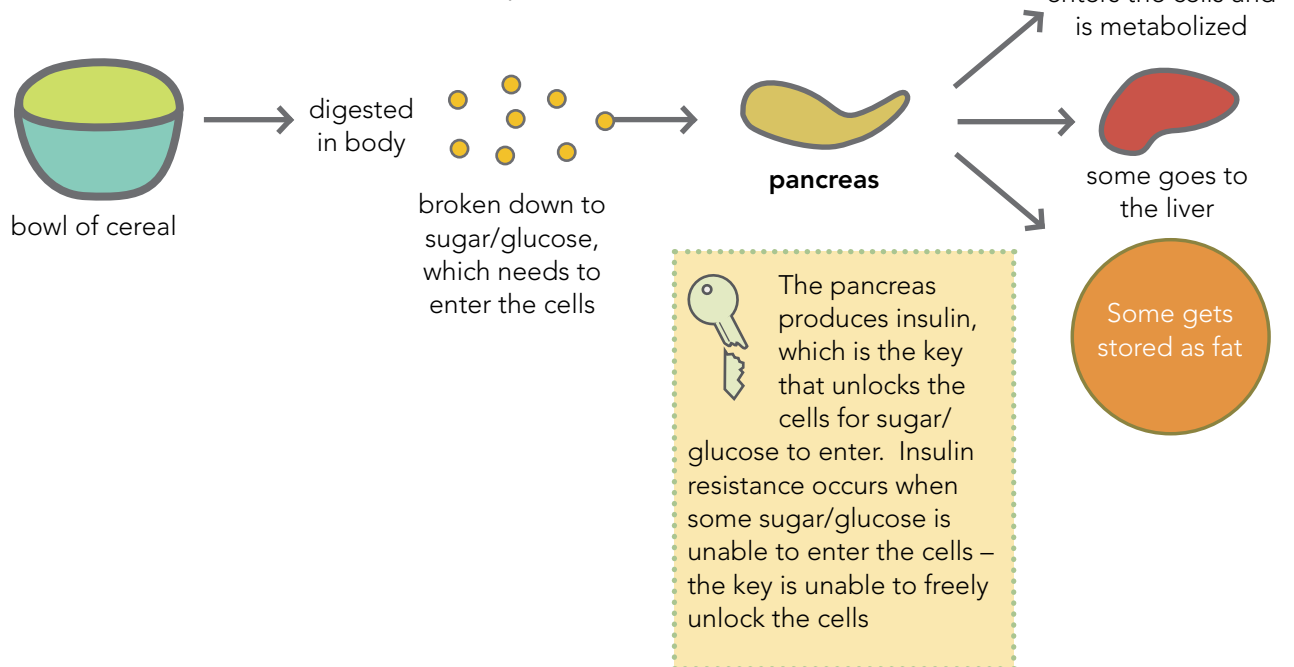
In the past, insulin resistance was only seen in adults. Now, we are seeing children as young as seven-years old with insulin resistance. Research shows that one of the fastest growing populations of new onset diabetes is in teens, ages 11-17.

“Santa Claus Syndrome” (SCS), as I like to call it, can frequently happen over the holidays. You attend a holiday party and start consuming some chips, crackers, or cookies. Soon you find yourself eating a few more, and then the carbohydrate cravings go into full gear and you can't seem to stop yourself from eating. The next day you go to a holiday lunch where similar food is served. Since your body has not recovered from the night before, it keeps telling you to eat more carbohydrate. If you continue this cycle, the SCS will be in full gear, leaving you wondering how you got into this mess in the first place, or up 5 pounds during the holiday season.

## Regular Metabolism of Carbohydrate



## Insulin Resistance: there are three possible scenarios



## Resistance is Futile: Brian's Story

Let's take a break from the research for a moment and talk about Brian. Brian first sought nutritional guidance about six years ago on the advice of his doctor whom he saw for pain in his knees. His story clearly illustrates the symptoms of insulin resistance and how he dealt with overcoming them. Below is Brian's story in his own words.

*The X-rays of my knees were negative and so was my doctor's outlook to my overall health. I was 26-years old, close to 5'6" and weighed about 214 lbs. I knew I was overweight and had struggled with weight all my life. The doctor told me all the side effects of being obese, including bad knees. I told him what he wanted to hear: "I'll try." And he told me what I needed to hear, "If you're really serious about losing weight, see a nutritionist." He then wrote down a name and number on a sheet of paper. That's how I met Susan. I knew I had to make a change and lose weight.*

*My first visit with Susan was truly an eye opener. My weight was high. My body fat was high. And by the time we got to my lab results, my expectations couldn't have been lower. I've had a history of high cholesterol, but never a triglyceride count that was unreadable. I was shocked and betrayed by my own body. I worked out. I played sports. I was an active person despite having an inactive job. I wanted an explanation and she gave me one. Two words, to be precise, that changed my life forever: insulin resistant.*

*I was tolerant of a lot of food, but not carbohydrates. I discovered my problem*

*wasn't with inactivity. It was food. The wrong kinds of food. So we devised a plan to eat more protein and less simple processed carbs. In addition, I would monitor myself by completing a weekly food journal. My initial reaction was resistance until Susan informed me that if I didn't make a change, I would become diabetic. So, I went with the plan!*

*The beginning was really tough. I was hungry. I felt irritable. I was bloated. And that was only Day 1! What helped me continue was the reward she told me I would feel if I kept at it. Since whatever I was doing for the first 25 years of my life didn't seem to work, I saw this as an opportunity to make a change. I just didn't expect it to happen so fast.*

*In the first two weeks, I lost more than 11 pounds. Most of the loss was water, but I had some fat loss too. My diet was healthier and so was my body. I felt fewer hunger cravings and was less bloated. I began walking every day for about 30 minutes and had more energy. My body was rewarding me for eating right. However, my journey was just beginning. I still needed to clean up my diet more. No bread whatsoever, minimal alcohol and staying away from any kind of "simple" sugar foods such as desserts, candy, and sodas. I had a long way to go.*

*There were periods where I fell off the wagon and returned to my old habits. But doing so brought consequences. My body punished me, sometimes for days. The*



*bloating returned, but much worse, the cravings returned, but even stronger. Again and again, I would have to “detox,” but I knew I would soon feel the rewards.*

*It came down to finding the right balance between exercise and food. The days I ate right and exercised, my body operated like a well-tuned machine. The days I didn't, I felt “out of order.” Once I stopped resisting and embraced lifestyle changes, the diet became more a part of my life and less like a diet. Instead of a medium mocha latte and croissant for breakfast, I have a bowl of low-fat cottage cheese, sliced fruit, and a few nuts on the side. Instead of a bowl of pasta and garlic bread, I have a serving of chicken or salmon and steamed vegetables. Instead of a burger and fries, I'd eat a turkey burger with no bun and a light salad. And instead of snacking on potato chips and soda, I'd have some almond butter and a little skim milk. This was a major change for me!*

*Now, over six years later and more than 55 pounds lighter, I feel healthier. My energy is better and most of all, I make better decisions about food. I still eat out occasionally, and every once in awhile I cheat. But during times of stress and moments of weakness when I don't feel like maintaining the diet or going to the gym, I remember my first lab results. How it felt to be bloated and most importantly those two words that changed my life: resistance is futile!*



Berries: high in vitamin C, dietary fiber and manganese

Brian worked incredibly hard to change his genetics of diabetes throughout his family. He maintains his diet and exercises consistently to keep the diabetes markers in his blood under normal control.

Let's look further at how to lower insulin resistance.



Apricots: high in vitamin A and carotenoids

## The Key to Unlocking Our Cells

Since insulin is the key component to unlock the cell so sugar can get in, how can we help insulin do its job properly? One simple way is exercise. Exercise is the key to allowing insulin to work properly. In fact, daily exercise can dramatically assist in lowering insulin resistance by as much as 35-50 percent.

According to Glen Gaesser, Ph.D., a professor of kinesiology at the University of Virginia, "changing either weight or exercise patterns can have profound effects. Exercise is essential because muscle is the biggest tissue in the body – 30-40

percent of body mass is muscle. It's the major site of glucose disposal. Inactive muscle is not as sensitive to insulin."<sup>5</sup>

Most exercise physiologists recommend morning exercise since a person is most insulin resistant at that time. Daily morning exercise can dramatically lower insulin resistance for that day. However, exercise at any time is also very helpful. Even moderate levels of exercise (such as walking) are very powerful in lowering insulin resistance and can lead to weight loss. It is important to exercise daily since the effects usually only last for 24 hours after you exercise.

What about your diet? Diets containing moderate amounts of carbohydrate and greater amounts of protein and healthy fats at each meal can also be helpful in lowering symptoms associated with insulin resistance. Simply put:

- Start with a protein at each meal
- Add some healthy form of carbohydrate such as fruits, or veggies
- Add some healthy form of fat such as avocado or olive oil

Current research shows that simple carbohydrates coming from lactose (dairy) and natural fructose (fruits and vegetables) have less of an effect on insulin resistance and fat storage for individuals with a predisposition to insulin resistance. Starches (glucose), however, can have a greater effect.

**Translation:** Eating more healthy carbohydrates such as fruits, vegetables and low-fat dairy can unlock the key versus eating starchy (pasta, potatoes and white bread) and refined (chips, crackers, cookies, etc.) carbohydrates.

In 1962, James Neel, M.D., professor of human genetics at the University of Michigan Medical School, coined the term “thrifty gene.” In his paper, *Diabetes Mellitus: A Thrifty Genotype Rendered Detrimental by Progress?*, Dr. Neel explained why some people gain weight and develop diabetes. <sup>6</sup> He wrote that individuals with insulin resistance are considered to have the thrifty gene, since their bodies hold onto weight, even in an age where there is abundance. Historically, those in developing countries with the thrifty gene survived under harsh conditions since their bodies were able to store fat easily and efficiently. In our modern world, people with the thrifty gene are at a disadvantage because they need to watch every morsel they consume. However, even if you have the thrifty gene, weight loss and maintenance are still achievable. A new regime becomes a daily endeavor with close attention paid to the type of food you are eating and to regular exercise.

## Summary

As you can see, there is an abundance of information and research with respect to carbohydrates. The bottom line is that carbohydrates are essential for health. They provide energy, vitamins and minerals, and without them, our brains cannot function. Your genetics, your activity level, and your size all determine how much and what kind of carbohydrates you should eat.

In general, we consume many more carbohydrates than we need, and if we focused on healthier versions of unprocessed carbohydrate along with



Purple asparagus: high in folic acid, vitamin K and anthocyanins

a balance of protein and healthy fats, our bodies would be in a more balanced state. When looking at the amount of carbohydrate you are taking in on a daily basis, you may be surprised at how much extra carbohydrate is in the foods you eat. Looking at the “total carbohydrate” on a label is a good way to educate yourself on how much carbohydrate the food you are consuming contains. And, beware of hidden sugars in foods like condiments, sauces and dressings.

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*In the chapter **Balancing your Meals: Putting it all Together**, you'll find information about the amounts of carbohydrate various foods contain, and how to balance your meals.*