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Essential Fatty Acids

The Importance of Protein

Protein to Carbohydrate Ratios

The Mediterranean Diet

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The Filgas Medical Group

Dr. F. Dee Filgas is a practicing Age Management Physician in Windsor, CA. This book is provided to help you achieve better health through diet, exercise and nutrition.

Age management medicine

is best defined as the practice of prevention of degenerative disease through the use of optimum nutrition, exercise, pain control, use of supplements and hormone replenishment, to achieve an end goal of extinguishing or at least positively modulating the symptoms and signs of aging.

The first step demands a comprehensive evaluation in order to determine an individual's metabolism, to assess endocrine function and overall physiology. The patient's work up includes many diagnostic tests, guided by need and budget. We realize that not everyone can afford everything recommended but we will work with you. Some tests will need to be done outside the office at an imaging center.

After the initial diagnostic phase, the corrective phase begins. Specific attention is given to each of the above categories. An easy to use dietary plan is created. Advice regarding dietary supplements is put into place, hormone replenishment is undertaken, and a realistic exercise program is implemented. Ongoing supervision of the program is necessary because corrective measures will be modified as the patient progresses.

This approach leads to a greater quality of life (return on investment) when you simply feel, look and perform better. The interventions if done properly, lead to reduced disease and a lesser need for hospitals. Your exuberance about life becomes infectious. Friends will want to know "what are you doing?"

Simple results, but very important to this type of program include mood elevation, improved sleep, better control of blood sugar and blood pressure, and improved wound healing. Some diseases that are affected positively include cancer incidence, vascular disease, osteoporosis, Alzheimer's disease and a cadre of others. The results are probable that you will have less use for prescription drugs. These drug molecules, while they have utility, are seen by the body as toxins. The body struggles to rid itself of them. Specifically relevant to hormone modulation, there is a focused effort to reduce insulin and cortisol levels, both of which promote degenerative disease. Endocrine balance is essential to this goal.

Truthfully, what this amounts to is better decisions by you, to live a life of high quality that will remain with you into the later years.

Don't give up on your goals and dreams just because you are over a certain age. The optimum age to begin is during your 40's, but it's never too late to start. Boost energy and sexuality, reduce body fat, increase lean muscle, improve cholesterol, strengthen the immune system, lift your mood, manage stress and improve cognitive function. This is what age management is all about.

Take Charge of Your Destiny Now!

AN INTRODUCTION: THE AGE MANAGEMENT AND NUTRITION PROGRAM

Understanding Nutrition and Exercise – The Age Management Program

This program actually includes 4 parts. This is because it is not only hormone optimization, but also a balanced diet, optimal supplementation program and exercise as well which create the entire program. We have been successfully administering this program, which has been created using only hard data gathered from clinical and scientific research, for over three years. The most important element of the program which has been created revolves around the discovery of the effect that the lowering of blood sugar and insulin can have on the body. This is not only useful in the treatment of diabetics, but also has a life extending effect on non-diabetics, as well as improving the quality of life through overall increased levels of health. With diabetics, the results are even more dramatic, with having several documented cases of essentially curing Type 2 Diabetes, allowing patients to experience normal blood sugar levels without taking any medication.

Too many people are unaware of the risks associated with diabetes, a fact that has surely contributed to our nation's overwhelming problem with the disease because too many people disregard it as a mere inconvenience, involving having to take an injection a few times a day along with implementing a few diet restrictions. The truth is much more serious, because diabetes will, simply put, age a person faster. This means that degenerative diseases will develop faster in the body due to that elevated blood sugar and insulin so indicative of the disease. These conditions are what will lead to pain, disability, and a shorter lifespan, all of which can be eliminated through the programs available by Age Management Physicians.

The main objective for the nutrition consultation is for the patient to understand how detrimental the blood sugar and insulin can be. They can eventually cause excess glycation, which leads to degenerative disease and also affects immune functioning as well as weight, energy and hormone levels.

Insulin and IGF-1 share the same receptor sites on our cells, which is why it's called insulin-like growth factor one (IGF-1).

So therefore, if insulin is high, growth hormone may not be able to get to the cell; reducing the effectiveness of the growth hormone. So it's unwise to give a patient growth hormone if they have high insulin levels to begin with. You want to instead try to control the diet first so that growth hormone can be effective.

On the other hand, if we were to give growth hormone to a patient without controlling their diet, then the IGF-1 would occupy more of those receptor sites so the insulin would not be able to get to those cells and therefore increasing insulin resistance.

Understanding how serious diabetes can be can be the empowerment that you need in order to take control of your own health. Although there are many medical conditions which are genetic and beyond people's ability to control, we now have the experience and the knowledge to gain control of or prevent Type 2 diabetes from occurring, and the power to make that change is within every person threatened by this disease. From a medical standpoint, it is important to be presented with all of the information possible, so that you have the ability to use your critical thinking skills in order to make the correct choice for you. If you choose to deny the information gathered from the best medical journals and clinical tests in the world, that is up to you, but if you can see where your current path leads, you need to realize that you have the power to make changes by making simple decisions about your lifestyle which could significantly improve and prolong your life.

Diabetes can weaken and threaten many of the major systems within the body, and diabetics are more susceptible to many kidney, eye, nerve, and heart diseases than people without diabetes. However, it is the heart that has the most major vulnerability for diabetics. 75% of diabetics die from coronary heart disease. The statistics of increased risk for diabetics over non-diabetics is staggering, when you realize that if you take into account heart attack and stroke, non-fatal and fatal, diabetics have five times the chance of experiencing these events than non-diabetics. This represents a significant decrease in life expectancy, from 5-10 years. There now exists a program based on the science developed through a new medical focus that has improved the knowledge necessary to help treat and eliminate this disease.

Not all diabetes can be cured with Age Management Programs, but all can be improved. This means that (even for Type I diabetics) there are ways to reduce the impact the disease is having in your life by following the program carefully. When you follow the program, you can reduce the amount of medication you need to take, lower your blood pressure, and improve your body composition by reducing your weight and increasing your lean muscle mass.

Those are all benefits that most people would be happy to have, but the real benefits from the program are that there are many of the life threatening complications which arise from diabetes which can be reduced or eliminated through the program. There is a list of 15 medical problems which can arise from diabetes which the our program will directly reduce your risk of. They are:

- Elevated LDL (bad cholesterol)
- Reduced HDL (good cholesterol)
- Elevated Triglycerides
- Increased Belly Fat or Central Obesity
- Loss of circulation to the lower extremities
- Heart attack
- Peripheral neuropathy (degeneration of the nerves to the feet)
- High Blood Pressure
- Atherosclerosis (hardening and narrowing of the arteries)
- Stroke
- Poor Wound Healing
- Kidney Failure
- Blindness from disease of the retina of the eye
- Cognitive decline (a loss in through processing which occurs more rapidly than seen in normal aging.)
- Frequent infections

None of these are unavoidable or unmanageable problems when you follow the diabetes program. Because this program is designed to directly lower glucose and insulin levels, it helps to prevent these issues for both Type 1 & 2 diabetics. All of these problems can help to cut short the life of a diabetic, but with every day that you stick with your program you are helping to reduce the chance of that ever taking place.

How does the program work?

As we mentioned before, Age Management involves looking at improving your health from multiple angles, not simply from a single viewpoint. Altogether, there are over 25 distinct medical approaches that we use in order to help improve your health. Alone, these treatments might have a very minimal effect on your health, but it is when they work together in unison that they become a powerful tool for increased health and longevity.

Age Management also revolves around supporting you with the best possible team in order to successfully allow you to make the transition to a diabetes free lifestyle. This would be difficult, if not impossible, to do on your own, as it is the combined knowledge of teams of medical professionals and specialists which will help to tailor make your program to fit your particular physical needs, and who will educate and support you in your role to becoming free from the influence this disease, or the shadow of it, might have in your life. By the time you're finished, you'll be an expert in how to prevent the effects of diabetes, and be fully prepared to go and live your life according to the guidelines of the program which will help to keep you healthy and happy for many years to come.

NUTRITION

Insulin and Blood Sugars

As we've already stated, one of the primary goals of the plan is to control blood sugars and insulin levels. But what EXACTLY can result from having these levels to high? Consider the following:

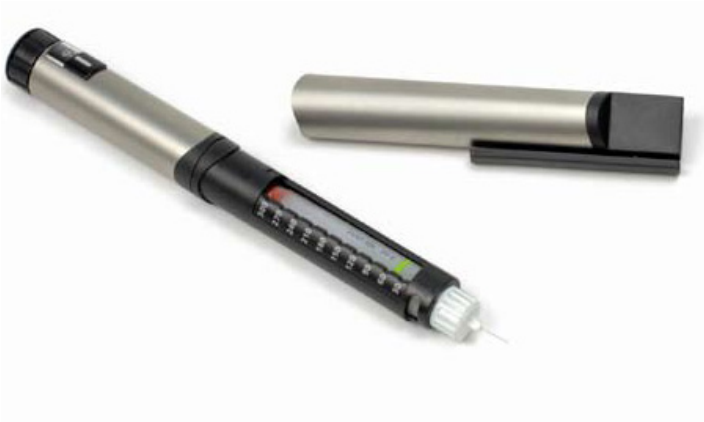
If you have high blood sugar it can lead to excess glycation. This is when glucose attaches to protein, which is a very dangerous process to experience throughout the body. There are substances called AGEs, which stand for Advanced Glycation End-Products, which actually attack the DNA in your body, and is one of the primary indicators of many of the effects of aging. If you can slow down and reduce glycation, you are in effect reducing the onset of degenerative disease and aging, and can add years to your life.

How do you reduce glycation?

By controlling your blood sugars! Glycation isn't the only issue facing you though if you have improperly controlled blood sugars. Obesity is one of the largest health risks facing the western world currently, and is greatly impacted by a lack of control in blood sugar. You can also develop insulin resistance which will lead to Type 2 diabetes. Free radical formation can also increase, and free radicals are not only one of the leading causes of many of the indicators of aging, but they can also lead to diseases like cancer in any area of the body.

If improper blood sugar control can lead to glycation, how is insulin related to all this?

Insulin control is crucial because if you have too much insulin, it is going to have a major effect on your overall health, and not just because it will keep you overweight, including promoting the most dangerous types of fat around the belly, hips, and thighs. Insulin doesn't only impact the way your body processes food and creates fat around your body, it can also inhibit the benefits you get from exercise, making it doubly hard to lose weight. It can decrease the oxygen transfer to your muscles, and in turn reduce the amount of growth and development your muscles experience as a result of exercise. Hormone levels are also not spared, and too much insulin can decrease growth hormone levels, something which is essential for rebuilding strong muscle after exercise. The risks



are much greater than that because too much insulin can shorten your lifespan. It increases your risk for heart disease and promotes inflammation within the body. These are life threatening factors which need to be addressed.

The Problem of Obesity

While it is starting to become common knowledge that obesity is a growing problem in America, many people remain unaware as to just how severe the problem has become. After centuries of increasing medical knowledge and technology, children are now facing a potentially shorter lifespan than their parents because of obesity. With 78% of the country obese, it has easily become the most dangerous single factor in the health of the western world. An inordinate number of deaths take place in America due to obesity. Cardiovascular is still the leading cause of death in the United States, but despite the knowledge of this extreme health risk, the incidence of heart disease is expected to double over the next 50 years. Even as medicine becomes more progressive and finds ways to conquer so many other diseases, we fall victim to marketing and branding and continue losing the battle to obesity.

Metabolic Syndrome

There are millions upon millions of Americans who suffer from this condition. It is called many names, and essentially is a collection of metabolic risk factors which contribute to coronary disease. Whether you call it Syndrome X, Insulin Resistance Syndrome me, or metabolic syndrome, it all amounts to the same thing. The disease is characterized by obesity (especially abdominal) insulin resistance, dyslipidemia, and hypertension. Determining metabolic syndrome's presence in a patient is done by a doctor determining if three of five defining symptoms are present. The first is a waist line measurement – for men, a waist of greater than 40 inches qualifies, and for women, 35 inches. Individuals should also have triglycerides greater than 150 mg/dL, HDL-C (men <40mg/dl women < 50mg/dl), blood pressure which is greater than 130/85, and a fasting glucose level of greater than 100 mg/dl.

The Risk of Abdominal Obesity

It is strange that in this era of dedication to the appearance of the muscles of the abdomen that obesity remains such an incredibly daunting dilemma for the medical establishment to overcome. Abs are essentially considered the ultimate definition of an attractive body in our society, and yet many people continue to pile on the belly fat, which is the most dangerous type of fat that can be added to your body, because it operated different than other fats.

Belly fats, unlike other kinds of fat, create hormones called Adipokines, which are a huge indicator of many different types of diseases. They can cause cancer, diabetes, Alzheimer's, and arthritis, and can be greatly reduced simply by ensuring a healthy waistline. In addition to all that, the single biggest and best determinant for the occurrence of heart disease remains the amount of belly fat that a person carries.

Having strong and visible abs won't just make you more appealing to member of the opposite sex, and it won't just keep your heart healthy longer. It will also keep you strong and safe. Back pain is one of the leading complaints among chronic pain sufferers, yet those with strong abdominal muscles are much less likely to suffer lower back injuries. A study done by the US army showed that those able to do the most sit ups in a short period of time were up to 50% less likely to suffer a back injury. These muscles are referred to as being part of our "core" because they are just that, and the fitness, health, and safety of the rest of our body relies on having strong abdominal muscles.

The Changing Food Industry

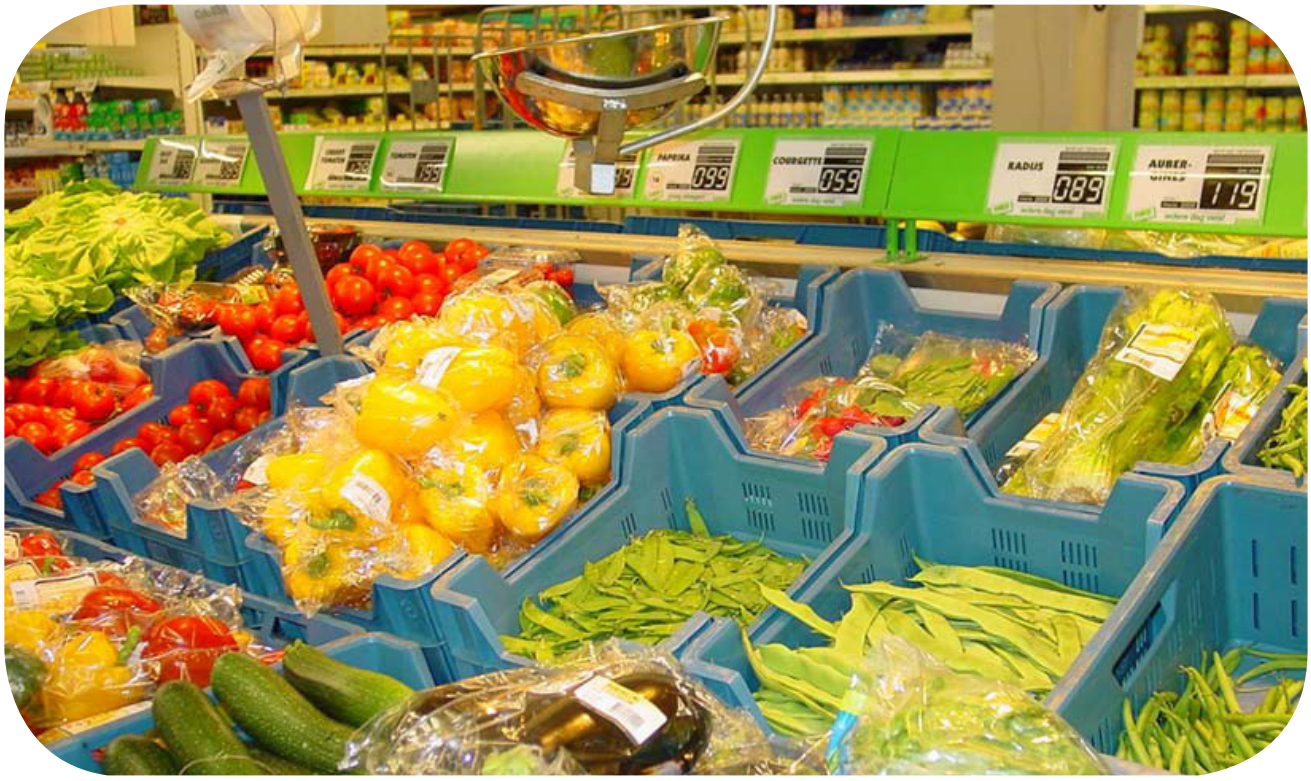
Most of the foods that are available today or processed by 80% of our grocery stores come in a box or a can.

A good 25 billion dollars is spent in the advertising for these processed foods. Advertising has been successful in convincing the majority of the population that these foods are healthy and normal whereas they haven't really existed until very recently.

The current farm bill is designed to encourage overproduction of crops like corn, wheat and soybeans; thereby keeping prices for these crops artificially low and allowing food processors to purchase commodities at a fraction of the production costs. This market deviation has dramatically increased the amount of cheap processed food in the United States. It has also put healthier foods like fresh produce at an unfair competitive disadvantage.

The USDA food guide pyramid recommends that we eat between six to twelve servings of grains daily. However, most of the grains that we eat today are processed into flour first. This processing destroys most of the vitamins that the original grain had, especially the B vitamins. Aside from that, most of the mineral, the fiber and the protein are all reduced. If you look back in time, you can see that people ate whatever grows in the ground, runs, swims or flies. This is much different from the unfortunate status of our foods today. Now, we're adding artificial ingredients like high fructose corn syrup and partially hydrogenated oils, both of which are extremely prevalent in the diet today and both of which contribute strongly to degenerative disease.

Some of the recent scientific studies indicate that a greater number of eating episodes daily is associated with a lower risk for obesity despite caloric intake. In contrast, skipping breakfast is associated with increased prevalence of obesity, as is greater frequency of eating breakfast or dinner away from home.



Understanding Fats

SATURATED
(not as healthy, solid)
- animal fats
- tropical oils

UNSATURATED
(healthier, liquid fats)

PUFA			MUFA
TRANS FATS	**OMEGA-3**	**OMEGA-6**	**OMEGA-9**
•margarine	*•fish*	*•corn*	*•olive oil*
•shortening	*•flaxseed*	*•safflower*	*•canola oil*
•fried foods	*•walnuts*	*•sunflower*	*•avocados*
	•soybeans	*•canola*	*•nuts*

Concentrations of total and LDL cholesterol are also negatively and consistently associated with frequency of eating. Because of this, we need to consider not just the calories but what we eat and how often we eat.

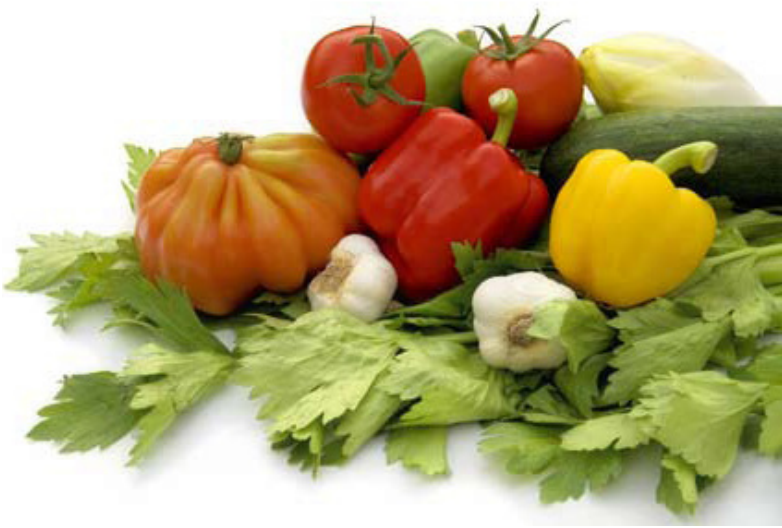
Fats are generally categorized as saturated or unsaturated. Saturated fats are typically solid at room temperature. They are completely saturated with hydrogen molecules. They include all the animal fats from the meat and dairy, as well as tropical oils.

Unsaturated fats are liquid at room temperature and they contain one or more double bonds which are healthier. This can be categorized as Polyunsaturated Fatty Acids including both good Omega 3 fats as well as Omega 6 fats and we'll look at the difference between those two. Monounsaturated Fatty Acids are healthy fats whereas Trans fats are bad and should be avoided.

Essential Fatty Acids

Essential fatty acids are not made in the body; therefore we have to eat them from our food. Omega 6 fatty acids are found in foods like grains and vegetables in the form of Linoleic Acid. So it should be pretty prevalent with the amount of vegetables that we will be recommending.

We don't necessarily recommend supplementing with them unless a person does not eat a lot of vegetables in a diet because you can see that the metabolism can react— eventually resulting in excess pro-inflammatory Eicosanoids.



Today, Americans tend to eat large amounts of Omega 6 fatty acids; the corn, safflower, sunflower and cottonseed oils that are in our cooking oils and in most of our processed food as well as in the grain fed cattle. Many Americans have a diet low in Omega 3s. The ratio of Omega 6 to Omega 3 fatty acids that we are striving for is 1:1 or even 2:1. This results in the lowest level of inflammation. But, with the high level of Omega 6 fats in the diet, that ratio today is as high as 14 to 20:1. We really need to change that ratio by eating less Omega 6 fatty acids and more Omega 3s.

The Omega 3 fatty acids not only reduce inflammation by improving diseases such as rheumatoid arthritis and other inflammatory conditions, but they also decrease atherosclerotic plaques, prevent autoimmune disorders such as Lupus, prevent breast cancer, improve blood vessel health, lower Triglyceride and VLDLs, reduce blood pressure, increase HDLs, prevent prostate cancer, inhibit the development of Atherosclerosis, and prevent colon cancer and Crohn's disease. They also decrease the risk of coronary heart disease. In addition, they prevent from antithrombotic properties, prevent Alzheimer's disease and other life threatening arrhythmias.

A couple of studies published on general circulation hel ped to confirm all these facts about Omega 3 and Omega 6 fats. They indicate that, when Omega 6 fats are at normal levels, a low level of Omega 3 fatty acids actually promotes inflammations. Whereas increasing those Omega 3s actually has the opposite anti-inflammatory effect.

EPA and DHA are much more effective than Alpha Linoleic Acid in reducing inflammation. Only about 0.2% of plasma Alpha Linoleic Acid from foods like flax, grasses, walnuts are converted into EPA. So it's very, very important to get the EPA and DHA from fish or fish oil capsules.

Flaxseeds are on the good list, but flaxseed oil is on the bad list. And the difference is in the seed, which contains lignans and protects us from cancers. They also contain fiber, so it's an acceptable food to include in a diet. Now, flaxseed oil has been removed from the seed, so the oil lacks the lignans. In fact, there are a handful of studies linking high intake of flaxseed oil to prostate cancer. So we definitely recommend that all men to avoid flaxseed oil.

Also, because the flaxseed oil is also poorly converted into EPA/ DHA, we're much better off supplementing with fish oil rather than flaxseed oil; for men and women alike.

The best sources for EPA/DHA are fatty cold water fish. Now the bigger fish like salmon, steel head trout and even tuna all have very high Omega 3s but a little bit more mercury. Now the smaller fish like sardines, krill and mackerel have just as high Omega 3s but less mercury.

We do recommend avoiding farm raised fish because they contain less Omega 3s and more of the pollutants including mercury. A better term to look for on the packaging is "Wild" or :Alaskan" salmon.

You have to be careful because the new term for farm raised fish is "Atlantic" and you might often see that in quotations on the packaging. It is usually followed by small print indicating that there may be food coloring added. So you can tell it's not really a naturally good choice for fish.

So how much Omega 3 fatty acids do we need?

The American family physician journal recommends 1 gram per day of EPA and DHA for cardio protection, 2 to 4 grams a day are recommended to reduced elevated triglycerides and morning joint stiffness. 3 grams are needed to reduce tender joints in patients with rheumatoid arthritis.

We have to be careful because most fish oil capsules come in about 1000 mg size. That's what you see on the front of the label. However, the amount of EPA and DHA is what's most important. So we want to look for those products that have the most per capsule. Good quality fish oil, like Omega 3 is on that we recommend to our patients. It has about 600mg of EPA and DHA per 1000mg capsule. You can also find it in liquid form at about 2.7 grams of EPA and DHA per teaspoon.

Monounsaturated Fats

Next, we'll talk about monounsaturated fats, which help to lower triglycerides. They have a great antioxidant, anti-thrombotic, anti-inflammatory and anti-hypertensive properties. One study showed that the risk for cardiovascular disease was decreased by 19% for each 5% increase in total energy from Monounsaturated Fatty Acids, as compared to carbohydrate consumption.

Monounsaturated Fats are also called Omega 9 fatty acids, very healthy fatty acids to include in a diet. They come from foods like olive oil, canola oil, and peanut oil. I've listed the fatty acid break down in each of those different oils, olive oil being the best of them because it contains the highest amounts of monounsaturated fats.

We have to be very careful when cooking with oils because heat can very easily destroy them; creating free radicals in the pan. So you want to keep the temperature to about medium to medium high to prevent this from happening. And the cue is when it starts to burn, smoke and turn brown. So if this happens, turn down the head, wipe out the pan and start over again.

Now the more Omega 3 fatty acids that oil contains, the lower the burning point. So you never want to cook with an Omega 3 fatty acid like flaxseed oil or even canola oil. The more Omega 6 fatty acids the oil contains, the higher the burning point.

You can call olive oil a good choice because of its high Omega 6 fatty acids content. The more saturated fats the oil contains, the less vulnerable it is to destruction, so butter is a pretty good choice to cook with as well. The good monounsaturated fats include not only olive oil, but olives, avocado, almonds, cashews, Macadamia nuts, pecans and pistachios. You want to eat the nuts raw rather than roasted or sugar coated.

Saturated Fats

Saturated fats are found from animal foods as well as tropical oils such as coconut and palm oil. We do need a small amount of saturated fat because they provide structure to the cell walls. However, in excess, saturated fats can make those cell walls more rigid and reduce the sensitivity of the hormone receptors that are on those cell walls.

Saturated fats also contribute significantly to the inflammatory state. Therefore you want to reduce the intake of saturated fats to no more than about 10% of total caloric intake.

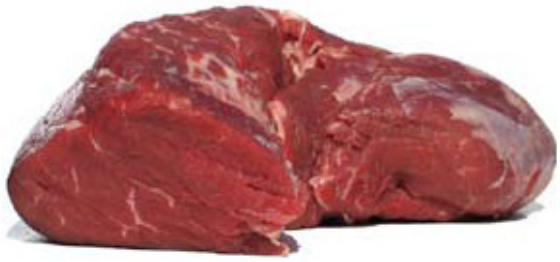
Studies show that saturated fats tend to raise total and LDL cholesterol and are associated with an increased risk for cardiovascular disease.

A women's health study shows us that replacing those saturated fats with carbohydrates in a diet can actually cause a very small reduction in that risk for cardio vascular disease.

Trans Fats

Trans fats are formed from the hydrogenation of vegetable oils. They are man-made fat. Only small amounts occur naturally in a diet in about 2-5% of the total fat in dairy and meat products.

Partially hydrogenated plant oils contain about 45% of the calories from trans fats. However, they increase the shelf life of foods. This is one of the reasons why most processed foods like Twinkies don't biodegrade- and they also taste good and sell. So they are very prevalent in the diet today.



However, trans fatty acids increase systemic inflammation and some experts consider Trans fat to be the major cause of coronary artery disease.

The institute of Medicine in the National Academies of Science stated that the trans fatty acid consumption should be as low as possible. So they really should be avoided like the plague. Now trans fat acids have been banned in Europe and Canada in the last 5 years or so, but instead of banning them here in America, the FDA now requires the amounts of trans fats to be shown on the food labels. That just started in January of 2006.

Another interesting study, back from 1990, actually shows that the same amount of trans fats and saturated fats in the diet both raise total and LDL cholesterol. However, because trans fats decrease HDL, they raise a risk for heart disease exponentially greater than for the same amount of saturated fats in the diet. Remember that Trans Fats can also be referred to as partially hydrogenated oils, so we still need to read ingredient lists.

Our new laws state that the product needs to account for how much Trans Fats are included, but they are allowed to claim zero if there's less than half a gram per serving. So if there's any mention of the word hydrogenated oils on that list, they still should be avoided.

Oils are often used in baked goods and processed foods and trans fatty acids increases their shelf life. So you also find trans fats are prevalent in corn oil, donuts and other friend foods, margarine, palm oil, peanut butter, safflower oil shortening and vegetable oil.

Fat Consumption Summary

To summarize the rules for fat consumption, we want to choose "Wild" or "Alaskan" salmon, trout, tuna, sardines, mackerel and eat those several times weekly.

We should also take 1-4 grams of EPA and DHA from pharmaceutical quality fish oils daily. Other good fatty acids include monounsaturated fats in the form of olive oil, nuts, and avocados. And we need to be careful of the temperature that we cook those oils to about medium and medium high heat to prevent the oxidation of those oils.We also want to limit saturated fats to no more than 10% of the total caloric intake and avoid Trans Fats like the plague.

The Importance of Fiber

Fiber is found in plants. There's no fiber in meat, seafood, dairy products or eggs.

Soluble fiber slows the digestion blunting the rise of blood glucose after a meal. Insoluble fiber adds bulk to the stool and encourages regularity. Soluble fiber also helps to lower cholesterol by increasing the passage of bile acids through the digestive tract. So adults should get about 20-35 grams of fiber daily.

Studies show that for every 10 gram increase in fiber consumption, serum total cholesterol can be reduced by as much as 12.5 mg/dL. Other studies show that fiber helps reduce inflammation and reduce cardio CRP. And as fiber intake increases, the probability of having insulin resistance decreases.

Remember that fiber is found in plants, including fruits. Notice that raspberries have about 8 grams of fiber per cup. They just don't tend to advertise as well as the grain industry does.

Grains are usually targeted as being great sources for fiber; including the new Fiber One cereal, which has outstandingly high levels of fiber at 14 grams of fiber per half cup serving.

Legumes, beans, nuts, seeds and vegetables are also good sources of fibers. You'll find that you can safely eat larger amounds of vegetables than you can for processed grains

The Importance of Protein

Proteins break down into amino acids which are required for the growth and repair of all tissues in the body; including muscles.

Animal proteins contain 100% of the essential amino acids whereas plant proteins are incomplete. They do not contain 100% of the amino acids that we need. We should choose the leanest cuts possible with those meats and poultry choices to reduce the saturated fat and inflammation that they may cause.

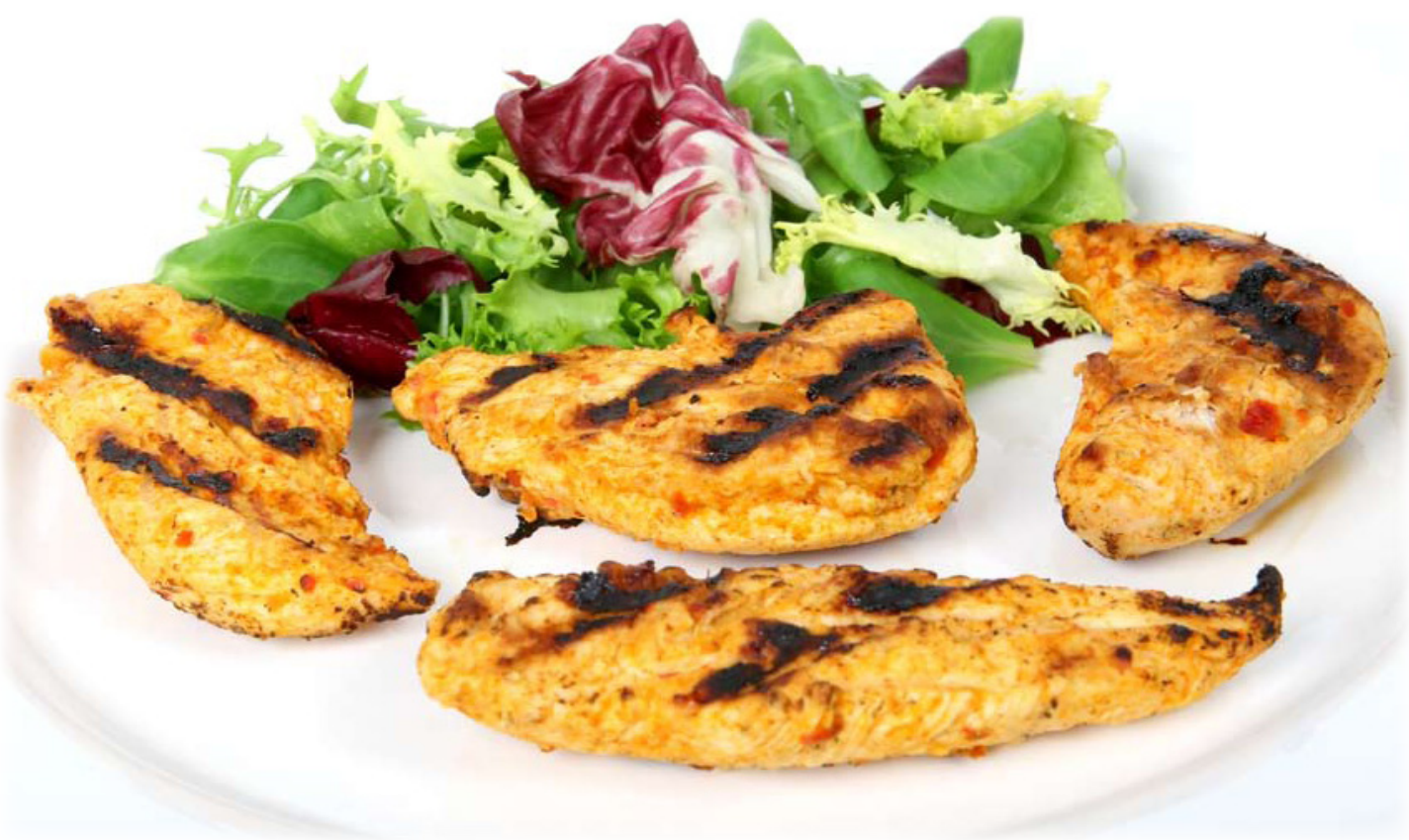
We should also look for free range, hormone free options as often as possible. Other good choices for protein include poultry, fish, eggs, dairy products, lamb, beef, pork, legumes, shellfish and soybeans.

You want to bake, broil, grill or steam these foods rather than frying them. You also always want to choose skinless poultry, the white meat having the least amount of fat will be the best choice. The white of the egg is also where you'll find lots of protein; the yolk includes the fat and cholesterol.

To reduce the saturated fat in the dairy products, you want to choose skim or 1% cottage cheese or milk as well as white or soft cheeses. Good brand names for beef include Boar's Head for deli meats and Coleman. These are both hormone free and nitrate and preservative free.

For shellfish, you want to limit to no more than 2 times a week because we often find high levels of toxins in these.

The best forms of soybeans are the fermented versions, which include Miso, Tempeh and Natto.



Try to avoid any fried protein sources as well as fatty cuts of meat or the marbled meats, like the dark meat from poultry and the skin. Also avoid the farm raised fish and high fat dairy products including anything with 2% or higher in fat content in milk, cottage cheese or regular cheese. In addition, avoid the processed meat products and soy products including hot dogs, spam, preservatives in deli meat, soy milk, cheese, tofu or textured vegetable protein as an additive.

So how much protein do we need? Studies vary drastically on the sensor.

Some studies show that an athlete might need 1.2 to 2.2 grams per kilogram body weight. This is a huge range. The one thing that they can agree on is that there are too many variables involved so it's very difficult to actually calculate the protein requirement. And those variables include a person's digestion, the duration, the intensity of their exercise, the amount of aerobic and anaerobic exercise etc.

Rather than trying to calculate the protein requirement which is just a guesstimate, we recommend using the size of the palm of the hand. Everybody's palm is in proportion to our body. We want to eat that much protein about every 3 hours because the body can only digest and metabolize about 35 grams of protein within that three to four hour period of time.

The way to tell that we are eating the right amount of protein is by how we feel afterwards. If we get hungry before the 3 hour period of time or if we're not getting stronger in the gym and we are lifting weights, then we would increase that portion from the palm all the way up to your first knuckle. If it feels like a brick in the stomach or if strength improves at the gym but the body composition does not, then you would want to decrease the protein.

Protein to Carbohydrate Ratios

There are a lot of different ways to think about how to control the intake of food in order to achieve what we consider to be a healthy diet. It seemed logical that in this section between protein and carbohydrates we should describe briefly that one common way of thinking about nutritional plans is based on looking at their protein to carbohydrate ratio. Here is a brief summary of most nutrition plans, and how they measure up in terms of a protein to carbohydrate ratio.

- Very High Carb/Low Fat/Low Protein—Ornish
- Very High Carb/High Fat/Low Protein—Typical American Diet
- High Carb/Mod Fat/Low Protein—USDA, AHA
- Mod Carb/Mod Fat/ Mod Protein—BFL, Zone, South Beach Diet, Cenegenics
- Low Carb/High Fat & Protein—Atkins

The Importance of Carbohydrates

Rather than looking at carbohydrates as either simple or complex, we have a new method of categorizing them. We're looking at their glycemic index and their glycemic load.

Since carbohydrates are the main source of energy for the muscle and brain, we do want to include them in the diet. The media has kind of misinterpreted this low carb craze and many now think that it means a no carb diet. However, we do want to include carbs, but just the good carbs. We can categorize them by their glycemic index and glycemic load. This has all been confirmed by a very recent study from the Archives of Internal Medicine. The study confirms that a high, still moderate protein diet with reduced carbs by 45% of a moderate glycemic load had the best results in body composition.

The glycemic index is a new way of looking at carbohydrates and how they affect our blood sugar levels. Rather than comparing them calorie to calorie, we'll look at them gram for gram.

Carbohydrates that breakdown quickly during the digestion process have the highest glycemic indexes. The blood glucose response is fast and high. Carbohydrates that break down slowly, releasing glucose gradually into the blood stream have lower glycemic indices.

To test the glycemic index as it was on a nutrition video, a person is fed 50 grams of glucose. The blood sugar levels are tracked for over a 2 hour period of time. That person is then fed 50 grams of a test food and the blood sugar levels again are tracked over 2 hours of time. The response to the test food is divided by the response to the glucose and then multiplied by a hundred; resulting in the glycemic index of that food.

Some of the benefits of low a glycemic diet, as were confirmed in JAMA, also include a smaller rise in blood sugar after the meals. This results in better glucose and insulin utilization, the longer feeling of fullness after a meal with no cravings, prolonged physical endurance, reduced body fat, lowering of the blood pressure, triglycerides, total cholesterol and LDL cholesterol. It also improves HDL cholesterol as well as shows an improvement in endothelial function and reduced inflammation at the cellular level.

Most patients will agree that they can relate to the swinging in the energy and the food cravings that result after eating those high glycemic foods. The goal is to eat lower glycemic foods that cause the blood sugar and insulin to rise only gradually and keep the insulin at a lower level. By doing that, they create an effect where they can burn their own fat for fuel. Also by keeping insulin low, that allows the growth hormone or IGF-1 to get those cells to do its job.

The problem is that we can't go from that sparking, out of control cycle with the high glycemic food to the nice, controlled low glycemic cycle from one day to the next because the body has about a two week memory of our carb consumption.

The digestion of carbohydrates starts in the mouth. When we start eating sugar, the brain tells the pancreas to start making insulin and pushes out balls of insulin based on whatever we ate for the previous two weeks of carbohydrates. So it takes about two weeks for this adjustment to happen.

Since the glycemic index only tells us essentially the absorption rate of the sugars into our bloodstream, it is not necessarily recommended that a patient memorize the glycemic index of each food.

It is important to point out a few comparisons first.

The glycemic index compares the rate of absorption of the carbs to that of glucose. But table sugar, which we know is sucrose, is only 64 on a glycemic index. So the recommended cut off is to avoid foods that are higher than 64. Those above 64 actually enter the bloodstream faster than plain old table sugar. One more thing that we can learn from the glycemic index is that the sweetness of the food does not determine its glycemic index. If that were the case, then sweet potatoes would actually be higher than white potatoes or big potatoes.

Fiber also slows down the absorption rate of carbohydrates which is demonstrated in the difference between grapefruit and grapefruit juice. Removing the fiber actually causes the sugars to enter about as twice as quickly as if we were to eat the whole fruit itself. So we definitely recommend avoiding the juices and eating the fruit instead.

Skim milk has a higher glycemic index compared to whole milk because fat slows down the absorption rate of carbohydrates. Removing the fat from the skim milk causes glucose sugar to enter a little bit faster. It is still recommended to drink skim milk because we are trying to reduce the amount of saturated fat in the diet, but we can apply this to other foods. Adding fat to a carbohydrate or eating it with the carbohydrate causes the other carbohydrates to enter more slowly.

The glycemic index of a regular old spaghetti noodle, or any noodle in general, is about 41. When protein is added, the index reduces to about 27. So this shows us that protein slows down the absorption of carbohydrates. If you think about how food is processed, it's kind of like it is being pre-digested for you.

In the case of rice, the outer coating of bran is removed and sometimes it is pre-cooked so that, when we cook rice, it cooks faster. But, you will see that the index for those instant or processed versions is much higher than the original. So we always want to look for the most natural form of any grain or other food that may be processed.

When looking at the glycemic index ratings of bread, it is surprising that even plain old wheat bread, even with the most fiber that you could find, has a glycemic index at 68. As you can see, this is much higher than plain old table sugar at 64. Wheat has just a higher glycemic index by nature than that of the other grains, so the darker grains are a better choice. Rye/pumpernickel are much lower at only 49. "High fiber white bread" is a label on some of the new products today. It is kind of an oxymoron because the white bread is still very high glycemic. So don't believe the media hype.

The largest glycemic index list available to find is from the JAMA research which was updated most recently in 2002 and that list can be found at http://mendosa.com on the internet. On this list, sucrose or table sugar is only 64 so that's our recommended absolute cutoff.

Foods higher than 64 enter the blood stream faster than table sugar. The recommendation though is to eat more foods that enter slower than table sugar so the recommended cutoff is 45 or lower. That leaves a gray area in between 45 and 64, foods of moderate glycemic index that may be able to be included in moderate proportions.

Carb or Glycemic Rules

The immediate question that most people have is why the glycemic index method of approaching better nutrition is more effective than simply eliminating or greatly reducing all carbs (AKA the infamous Atkins Plan). Simply put, this is how the body works! The more we learn about the body, the more clear it become that eating based on a GI plan can help to control insulin and blood sugar and create the physiological response that we are looking for in order to achieve higher levels of overall health.

The pervasive nature of what eating a higher glycemic index diet can do to our bodies is truly overwhelming. It creates a spiral of downward eating habits, because the higher the GI in your diet, the hungrier you are going to be. When you eat high GI foods you will crave more high carb foods, and will be prone to eating in binges and overeating—leading to our obesity problem.

The mind-body connection is also worth examining here, as more and more medical research is showing how closely linked cognition and the condition of the physical body are. There are many problems such as ADD, ADHD, concentration problems, and behavioral problems which can be linked to the consequences of high glycemic index diets.

Glycemic index research has also been done involving cancer, and it has been found that high glycemic index diets can increase the risk of prostate, breast, colon, and pancreatic cancer. This is such a startling find that much more research is currently being done in these areas to try and show just how important a low GI diet is.

In order to get started, there are some adjustments you can start making on a very basic level that will help reduce the overall glycemic index of your diet. Many of these involve the grains and starchy foods which you are eating.

As far as grains go – you should try and stick to "grainy" products. Things that actually contain a whole seed are much better than products which have been altered in any way. So, as an example, eat cereals made with whole oats, barley, and bran, eat breads with whole seeds in it, and try to stick to brown rice. Breads that are "darker" such as rye and pumpernickel are also going to be better.

Also, you're going to want to decrease the number of potatoes you eat, and instead increase the other vegetables, especially green leafy veggies in your diet. Dress those salads with vinaigrette style dressings. Sugar and sugary foods should be avoided when possible.

Keep in mind that **what** you eat isn't the only determinant of the GI of the foods you eat. When you eat (do it more frequently), cook your food properly, and eat the correct combinations of foods, you can all alter your blood sugar and insulin responses.

Rather than memorizing the glycemic index of each and every carbohydrate, we have a list of carb rules or glycemic index rules that we can apply instead.

First of all, we want to choose foods that are lower than table sugar 64, but preferably lower than 45. We also want to choose natural foods over processed foods because the processing usually increases the glycemic index.

Always eat the carb with protein, good fats and fiber because those three things all slow down the absorption rate of carbohydrates, but the more carbs, or the higher the glycemic index of that

carb, the harder it is to blunt that effect. And NEVER eat a carb in isolation.

Pick your poison. Choose one high glycemic carb at a time. The glycemic index basically just tells us how fast the sugars are broken down and absorbed into the blood stream. But the more carbs we eat at one time, the higher that blood sugar will continue to rise, no matter how fast it was absorbed.

That peak in the blood sugar is more important to us. We call it the glycemic load. Experts agree that this is the better measure but it's pretty complicated to determine and so it hasn't been grasped by most consumers.

We can do a little bit of math and figure out just how high the blood sugar will rise and the essential glycemic load of each food. That calculation is to multiply the amount of carbs that enters the bloodstream, which is the total carbs minus the fiber, so often also been called the effective or net carb count; multiply that by the glycemic index.

If you were to try to calculate the glycemic load for a processed food, you could do so but I want to point out a few things:

First of all, the package shows the total carbohydrates broken down into fiber and sugar. But you'll notice that the fiber and sugar don't usually add up to the total. That's because the label only requires the sugar count to list the amount of actual sucrose in that product. The discrepancy would be any other form of sugar, anything that ends in 'ose'; maltose, lactose, fructose, even high fructose corn syrup are all still absorbable carbohydrates.

The way that we calculate the net effective carbs is by subtracting the fiber from the total, don't just look at the sugar. Another sneaky ingredient that's often used in place of sugar in foods is sugar alcohols. Manufacturers are allowed to claim that these are non effective carbs just like fiber. But fiber never enters the bloodstream.

Sugar alcohols are broken down in the liver and actually still cause a delayed rise in blood sugar. But because it's not immediate, they are not required to be listed as an effective carb. Sugar alcohols do raise our blood sugar levels. If they were non effective they would have a glycemic index of zero. The common sugar alcohols do have a high glycemic index.

Maltitol and Sorbitol are extremely common and it's higher than our recommended cut off of 45. Sugar alcohols can also cause a lot gas and diarrhea and bloating. So it's something that you're trying to avoid if you see it in an ingredient list.

There are actually three things that we want to consider when we pick out a carb; not just its glycemic index value, but its glycemic load or the density of carbs and, in addition, people should consider the nutritional value of a food. Ask yourself is this a natural food or not?

A natural food will always win hands down compared to a processed food.

These suggestions have actually been recently confirmed in the Archives of Internal Medicine. They stated that we should consider the use of glycemic index and glycemic load in conjunction with caloric density and nutrient composition, especially for ranking high-carbohydrate starchy foods.

It's really not necessary to do the math to determine a food's glycemic load. Instead, what you will learn is that a natural food will always win hands down compared to a processed food. This will really help to put it into perspective.

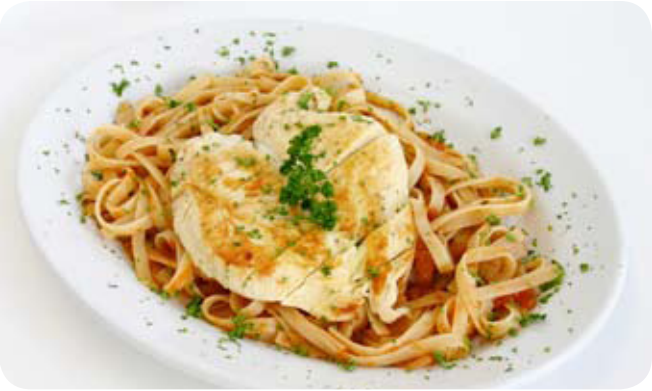
Carrots have about 12 grams of total carbohydrates in a one cup portion, which is actually a pretty large portion. Most people don't eat more than about a half of a cup at a time. Now we subtract the fiber content, which is only 4 grams, so that leaves only 8 grams of carbs entering the bloodstream. It's a pretty fibrous food. A third of the total came from fiber. Multiply the 8 grams of carbs times its glycemic index which is 49. So, round it up to 50 because it looks better on paper. The glycemic load for that one cup of carrots is 400.

The glycemic index was about 45, so if that were the only thing that we're looking at, carrots would be a bad food. But considering its nutritional value, they grow from the ground; they are bright orange in color, and full of all that good beta-carotene, so that makes them a good food. And the glycemic load calculation actually is pretty low as you'll see when we compare it to the next food. So carrots are actually an acceptable food to include in the diet.

Now, we'll show the glycemic load calculation for a cup of whole wheat pasta. A cup of pasta is actually kind of small. We usually serve at least one or two cups at a time.

In that one cup of pasta we have 40 grams of carbohydrates. With the processed food most of the water has been removed, so you can pack more carbs into a smaller portion and they can pack more fiber in there too; ten whole grams in that cup of pasta.

The grain industry tries to brainwash us into thinking that you have to eat grains if you want to get fiber in your diet. However, 10 grams out of 40 is only a quarter of the total. Those carrots were actually more fibrous, had a third of the total. So the net carbs for this cup of pasta is 30 grams. That's a lot of carbs at one time. We multiply that by its index which was about 41. I round it down to 40 and twelve hundred is the glycemic load for only



one cup of pasta. Looking at the glycemic index, lower than 45, yes, it's a good food but that was the only good thing going for that pasta. It's not a natural food; it's devoid of any colorful nutrients, so nutritional value is lacking and the glycemic load is enormous.

So that pasta, despite glycemic index, is really not a good food. You'll find it will be the case with most other processed foods as well.

The best choices for carbohydrates are all the vegetables that are below 45. They have very little sugar that enters the bloodstream and they are also highly nutritious because they grow from the ground. These include green beans, lettuces or any green vegetable like spinach, or collard greens, asparagus, cauliflower, broccoli,

eggplant, onions, bell peppers or even hot peppers, radishes, and summer squash including spaghetti squash. It would be a great alternative to that pasta. Cucumbers, zucchini, water chestnuts, sauerkraut, tomatoes, etc are all great as well.

These foods you can pretty much eat in unlimited quantities because they have such low sugar content in each serving. Chances are you're going to feel fuller before you ever get too much sugar from them.

The next best category of carbs to include is all of the low glycemic fruits that are below 45. They are highly nutritious and loaded with anti-oxidants and fiber. They do however have a little bit more sugar per serving, so we can't eat them in unlimited amounts like with the vegetables. Rather, we want to eat about two to three servings of fruits daily. That list includes oranges, peaches, pears, plums, nectarines, apples, dried apricots (which are the only low glycemic dried fruit), grapefruits and all of the different berries including raspberries, strawberries, blueberries,all of the berries, really.

Olives and nuts we can still include in moderate servings each day. The serving size would be about a closed handful; whatever fits between the thumb and fingers. Those should be limited for their fat content, obviously not because of their sugar. The third category of carbs include those moderately high glycemic vegetables that are between our recommended cut off of 45 for the glycemic index, but not higher than 64 - the sugar cut off. That includes corn, sweet potatoes or yams and carrots. The glycemic index is a little high, but they are highly nutritious foods so we don't want to eliminate them from our diet. Their glycemic load can be controlled by simply reducing the portion size. These side dishes are acceptable.

Other carbohydrates that can be included in side portions include the lower glycemic dairy products and beans. The glycemic index for these foods is very slow because the dairy has fat and protein, which slows down the carbs in them. The beans, however, have protein and fiber to reduce their glycemic index. They are naturally nutritious foods and can be a very good part of a healthy diet, but they do have more carbs per serving. Despite their low glycemic index, large portions of these foods would add up to a very high glycemic load, so they should be included in side portions as well.

The higher ranked these carbohydrates are, the smaller the portion sizes should be. The higher the glycemic index, the higher the load could potentially be. High glycemic fruits such as mangos, papayas, bananas, kiwis, and grapes as well as other whole grains like brown rice, wild rice, oats or barley or other whole grains you might find at a health food store are very nutritious so we don't want to eliminate them either. But because of their high index, we have to keep portion sizes even smaller yet.

Normally, a nutritionist would stop ranking those carbohydrates after that last fourth category, but it's unrealistic to tell a person to never eat a certain food again in their life, especially with these foods that are still at least naturally nutritious.

The vegetables that are highest glycemic are the starchy vegetables and raw vegetables as well as winter squash. That includes parsnips, baked potatoes or white potatoes, red potatoes as well, pumpkin and beets. In the fruit family the less fibrous fruits have the fastest rates of absorption. These include watermelon, pineapple, cantaloupe, honeydew and the dried fruits, raisins and any other dried fruit beside those dried apricots. These still are naturally nutritious, so it's unrealistic to avoid them all together. However, we need to use them in extreme moderation though because of their extremely high glycemic indexes. It is best to avoid all processed foods because of their lack of nutritional value but, again, to be realistic, there is a list of the lesser of the evils.

If a person were to include crackers, Wasa is a brand name which doesn't use as much hydrogenated oil. For a little bit more whole grains, special K, All-bran, and Fiber-1 cereals are at least higher in fiber to reduce their overall glycemic load. The portion size is connected with those and they are still not something that grows from trees, so again, they can only be considered the lesser of the evils.

We already saw that the rye/pumpernickel, the darker breads are much lower glycemic than wheat. Pita bread is also low glycemic but, again, processed. Therefore, extreme moderation is needed with these foods.

Dark chocolate is acceptable as a treat every now and then; its glycemic index is quite low but still a source of sugar in the diet.

Spaghetti should be eliminated because of its extreme load, but a protein enriched brand you might find at health food store could be acceptable. However, this should only be included with a balanced meal to slow down the absorption rate and to provide the other good nutrients we are looking for as well.

So all the worst carbs should be avoided. They include sweets and candies, all the baked goods including pies, cookies, donuts, cake, breads, bagels, crackers, rolls, pretzels, croissants, all the instant versions of what was

once natural food including instant oatmeal, instant rice, instant potatoes.

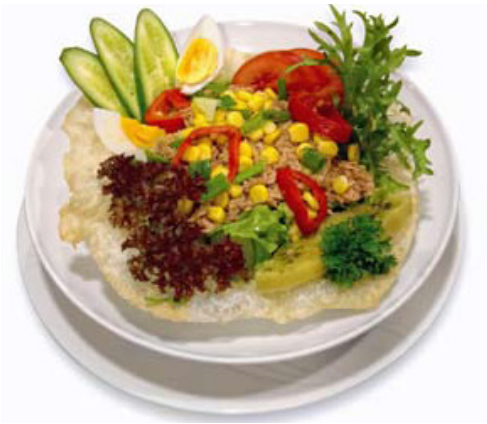
Pasta should be avoided except for maybe the occasional protein enriched pasta that you can find at a health food store. Sweet wines and beer should be avoided as well.

In summary, you see that it is not necessary to calculate the glycemic load of every meal that we consume. That would actually be an impossible calculation because protein, fat and fiber, which should all be part of a meal, would change the glycemic index of the carb. Instead, try to eat four to six small meals a day. Never eat the carb by itself, eat slowly, pick your poison by choosing only one high glycemic carb at a time, and reduce the overall load by eating lower glycemic index carbs, or at least by eating smaller amounts of any higher glycemic index carb.

The ultimate goal is to improve insulin sensitivity or to reverse insulin resistance. That will improve the function of IGF-1. which can be monitored with serum insulin levels and human global A1C.

The goal for fasting insulin is less than 5 micro units per milliliter. The goal for human global A1C is less than 5%. We don't want to wait until those results are at diabetic proportions. We are trying to prevent insulin resistance, not just diabetes.

Other good indicators of insulin blood sugar control are triglyceride/HDL ratio of less than 1.5. The resolution of hunger, craving, binge eating, and mood swings are also good indicators as well as high energy levels.



The Mediterranean Diet

If you want to find a good diet that is going to follow all of the nutritional guidelines that we advocate, you should look towards the typical Mediterranean style diet. This was studied in Italy in the early 2000's and it was found that those exposed to the Mediterranean diet lost a great deal more weight, as well as experiencing reduced insulin sensitivity than those who did not follow the guidelines in the diet.

This type of diet is made up from 30-35% fat, 20-30% protein and 40-50% carbs. The idea is that most of the food comes from plants, meaning a diet high in fiber. Protein is derived from plants, but animal sources are used as well, and focus is put on getting lots of the good fats, i.e. Omega-3 fatty acids while reducing saturated and trans fats. There are also very few refined sugars or grains in this diet.

Typically, the diet's main foods are fruits and vegetables, limited amounts of dairy which are all low or non fat, limited eggs, whole grain only sources of breads and other starches, fish 3-4 times per week, and red meat only rarely, with other sources coming from lean meats like chicken and turkey. The emphasis is on lots of fiber.

During this (or really, any) solid nutritional plan, you're going to also want to try and avoid any significant amount of alcohol, and if you do want a drink, stay away from beers and sweet wines, a glass of dry red is probably just fine.

A diet like this is going to get you well on your way to weight loss goals, but the benefits go beyond that.

You'll lower bad and raise good cholesterol; you will reduce many inflammatory substances in the body, improve glucose and insulin utilization, and lower your blood pressure and triglycerides, all important steps to improving your overall health.

Eat Any Sugar Alcohol Lately?

Sugar alcohols are appearing in more and more food products, and are one of the most commonly misunderstood ingredients on food labels, so it's important to take a minute to address some misconceptions about these ingredients. They are derived from natural sources, and are used as a replacement for sugars in many foods. These are **not** the same as artificial sweeteners, which will be covered later, but are instead a different type of sugar with fewer calories. Don t' let the term alcohol mislead you either, as these substances don't contain any actual alcohol as we perceive it in an alcoholic beverage. Artificial sweeteners and sugar alcohols can both have a role to play in diabetes management, in their own way.

Sugar alcohols show up a great deal now (as do artificial sweeteners) in products which are deemed "sugar free." Another name for these is polyols, and they come in many different forms. They convert to glucose at a slower rate than regular sugar, and contain fewer calories. This makes them a useful ingredient in many food products for diabetics.

However, they still do contain calories, and have other negative effects associated with them. They have been linked to instances of bloating and diarrhea, and have also been linked to weight gain when consumed too frequently. These aren't ingredients that you see in your kitchen, but which are sneakily hidden in many processed foods, which we know we should be avoiding anyway.

Sugar alcohols in themselves are not necessarily bad, but caution needs to be taken when buying "sugar free" products. You're not getting a free pass, and you also have to check how many carbohydrates are in the product, as many sugar free products end up being loaded with carbs instead. An ingredient may be mentioned on a label as being a sugar alcohol, but it may also be identified by its more scientific name, especially if more than one sugar alcohol is present in the food.

More common names of the ingredients include:

- Mannitol: This occurs in many foods such as pineapples, olives, asparagus, carrots, and sweet potatoes. The form they use in processed food comes from seaweed. This is one of the worst sugar alcohols for causing the aforementioned digestive issues because it lingers in the intestines for a very long time. Approximately 50-70% as sweet as sugar.

- Sorbitol: Naturally occurs in many fruits and vegetables and is manufactured from corn syrup. Many sugar free candies and gum companies use this as their sugar alcohol of choice, and it has a much less problematic issue with bloating than Mannitol. Approximately 50% as sweet as sugar.

- Xylitol: Another ingredient used in many gums, is sometimes called wood sugar. Straw, corncobs, and some cereals all contain this sugar alcohol. It is roughly as sweet as sugar.

- Lacitol: While not as sweet, this tastes very much like sugar and so is used in things like ice cream, baked goods, and chocolate. Approximately 30- 40% as sweet as sugar.

- Isomalt: Because isomalt doesn't absorb water, it is used more often in hard candies and sugar free cough drops. Approximately 45-65% as sweet as sugar.

- Malitol: Often appears in chocolate, baked goods, and ice cream, because it helps provide a creamy texture to foods it is used in. Approximately 75% as sweet as sugar.

- Hydrogenated Starch Hydrolysates (HSH) – Derived from corn, this sugar alcohol doesn't crystalize like sugar. Is used in confections and mouthwashes. Approximately 40-90% as sweet as sugar.

Artificial Sweeteners

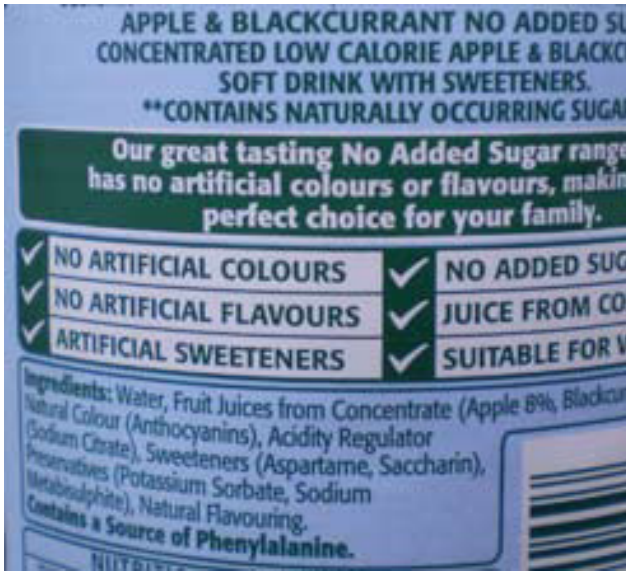
There has been a considerable amount of controversy over the last several years when it comes to artificial sweeteners. There have been studies which have proven both that artificial sweeteners aid in weight loss, and those which have shown that it impedes weight loss, leaving a lot up to personal discretion.

However, there are some interesting findings about certain artificial sweeteners which you should take into consideration if you do decide that you wish to integrate these products into your diet.

- Saccharine – (Sweet'n Low) – This product carried a warning label for many years after a near ban due to studies which linked it with cancer in rats. The warning label has since been removed, but many people remember this warning, and even though further studies have not been conducted, it is worth taking heed.

- Aspartame – (Equal and Nutrasweet) – Although there are studies which proclaim this substance safe, there are many more modern studies which are sponsored by independent agencies, rather than the companies selling products containing aspartame, which have concluded that it may in fact be a carcinogen – that is to say, a cancer causing agent. Dr. Morando Soffritti, and Dr. Chris Lydon, two respected scientists in their field, have both written on the subject of the potentially harmful effects of aspartame. Dr. Soffritti showed that aspartame was increasing the incidence of cancer in rats, many of which cancers are present in humans. There seems to be considerable evidence suggesting that aspartame is hazardous to your health, and there have also been studies showing that people using aspartame as an artificial sweetener in diets have not been successful in losing the weight they desire to lose.

- Sucralose (Splenda) – This is the sweetest and the least controversial of all of the artificial sweeteners, and it has the advantage of being able to be used effectively in cooking and baking.



The Importance of Water

You can't forget the importance of hydration since the body is approximately 65% water. That would be the best choice for beverages.

Water controls the body temperature, it moves nutrients and oxygen to the cells, it's necessary in the metabolization of fat, it reduces the risk of certain cancers, and it's incorporated into the synovial fluid of joints and discs.

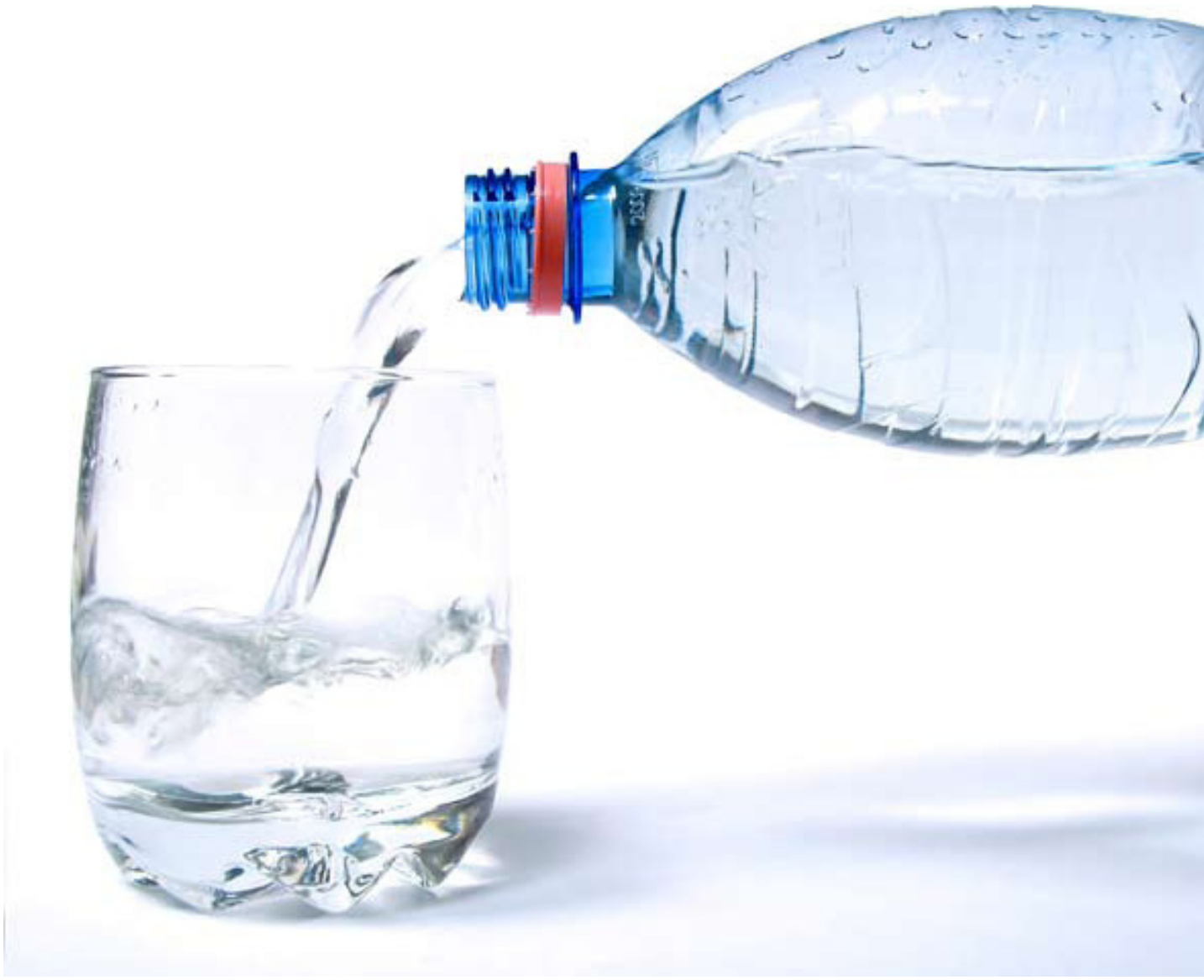
Dehydration can really cause problems for you, and most of the time, people don't even know that they are in fact dehydrated. 73% of American's are chronically dehydrated, clearly indicating that we **all** need to drink more water. Many people even mistake the impulse for thirst, for hunger, creating more weight problems.

There has even been a study done showing that a glass of water helps to eliminate hunger pains. A Univeristy of Washington study on this issue showed an astonishing result where almost 100% of the dieters found their hunger pains eliminated by drinking water. It can help you lose weight by replacing hunger for food in many cases, but it also helps to keep your metabolism running, because even being a tiny bit dehydrated can slow your metabolic rate down up to 3%. More water is also going

to keep your day running a lot more smoothly, and keep you feeling better. If you're only 2% below your optimum hydration levels, you can experience short term memory problems, focus problems, and mathematical reasoning problems, all of which can make the work day drag on. Combined with the fact that lack of water is the single largest trigger of daytime fatigue, it becomes a potent problem for making your day appear longer than it needs to be.

Drinking a lot of water will have other benefits as well. Drinking 8-10 glasses daily has an impact on easing joint and back pain in up to 80% of those who suffer from those problems. On a more long term scale, drinking enough water can help reduce the risk of several different types of cancer by extremely significant margins. Colon, bladder, and breast cancer are all impacted by the amount of water you drink, and it has been suggested that drinking 5 glasses of water daily can slash breast cancer risk nearly 80%.

So to make sure we're getting enough water, it's important not to wait until we are thirsty. The thirst cue can often be too late. A new research suggested that we should drink half of our body weight of water daily, in ounces of course, not in pounds. You should also try to drink an extra glass of water for every caffeinated beverage that you drink and another extra glass before and after exercise to replace what we lose.



Cooking Oils

Choosing the right cooking oil is much more important than many people realize in preserving their overall health. We use oil in the way we prepare so many of our dishes that is important to understand which oils are best for us, as well as **how** they are best used. Oil in itself is not bad, as it helps to boost cellular function and metabolize food, and healthy oils should be a part of any balanced diet.

Fresh oil, no matter which type of oil you opt for, is the only kind you should ever use, so be sure to store it in a dark, dry place. If it has gone bad, simply smelling it will reveal it, as rotten oil has a very distinctive scent. On the flip side to that thought, good oils also have a very distinctive flavor, and can not only make your dishes healthier, but also tastier! They are full of antioxidants from their original seeds, as well as substances like vitamin E and sesamol (from sesame oil).

Healthy oils aren't always best used when cooking, as some are sensitive to heat. Instead, try these oils, especially those rich in omega fatty acids, as part of a dressing for a salad or a dip for some vegetables. One of many people's favorite dishes is some whole grain bread simply dipped in some natural oil alone or with a splash of good balsamic vinegar.

As mentioned, some oils are sensitive to heat, and these are mainly those which are full of fatty acids. These should not be used for frying because they will break down and lose their health benefits and instead cause problems. Flax seed, pumpkin, and walnut sources of oil should just not be heated, but can be used wonderfully in cold applications.

Other oils are fine to cook with, and in fact, plain old butter (not margarine!) is one of the best things to use when frying because it has a high smoke point, meaning that it won't break down easily when heated. Unrefined coconut oil, palm kernel, and butter are among the best oils for not breaking down at high heats. If you see oil start to ripple or smoke, then you've gone too far and have started to break down the oil. This is oil you should not eat as part of a healthy diet.

We've all heard about the benefits of extra virgin olive oil now, and while adding great flavor to food and being great for you are two of its benefits, its downside is a lower smoke point than some other oils, so you have to cook at a lower temperature when cooking with olive oil. A good trick for helping to stop oils from overheating is to cook the oil with some added garlic and onions.

Here is a quick reference list of the best, unrefined oils to eat, and which should be cooked with at what temperatures:

Oils that should not be heated:

- Flaxseed •
- Walnut •
- EFA-rich blends as specified on the labels
- Safflower
- Pumpkin seed
- Sunflower

Hemp oils that can be heated at low temperatures

(added at end of frying, baking, light sautéing):

- Olive
- Hazelnut
- Canola
- Sesame
- Almond

Oils that can be heated at high temperatures:

- Butter
- Clarified butter (ghee)
- Coconut
- Coconut butter

Nutrition Summary

To summarize this nutrition information, I recommend that we start thinking about our body as if we were a car. We often take better care of our car than we do our body. So try not to skip meals. Refill your tank as often as needed; about every three or four hours.

We also want to shop the perimeter of our grocery stores, choosing only natural products where you find more of the vitamins and minerals included with the other macro-nutrients that we need. We should also include protein, for which one serving should be about the size of the palm of the hand. Base your meal around a lean protein source from something like turkey, chicken, lean beef, cheese, cottage cheese, legumes, or yogurt.

We need the carbohydrates to fuel the muscles and the brain. These should be low glycemic carbohydrates, preferably from vegetables and fruits. Try to avoid the higher glycemic carbs, like breads and pastas and processed carbs that are devoid of nutrients. Those will be like trying to give your car diesel fuel when it needs unleaded. This is going to become especially crucial if you also undergo the hormone therapies and want them to be effective (another part of the total program).

Vegetables provide you with fiber, good energy, and also lots of fantastic nutrients and vitamins which are essential for an overall healthy body. Stick to whole fruits and vegetables rather than juices, because juices have the fiber removed. You want to try and have 3-5 servings of vegetables and 1-2 of fruit daily, but stick mostly to non-starchy vegetables. Starchy vegetables like potatoes and corn, and tropical fruit like pineapple and melons should only make up a very limited portion of those servings.

Balance out the meals with omega 3 to omega 9 fats from foods like fish and nuts, and avocados and olive oils or fish oil supplements as well. These should come from wild salmon and ocean fish as well as olive oil and flax seeds.

Drink lots of water. Your car needs water and so does the human body. Keep the alcohol intake to a minimum. Beer and sweet wine are the worst choices, but one or two glasses of a dry red wine or hard alcohol are actually a good low glycemic choice.

Remember, stick to the outside of your grocery store whenever possible. This is where you're not only going to find the produce, but also the majority of fresh and natural foods. You don't want foods that are processed or refined, and should stick to things that are as natural as possible in the form that you are going to eat them in.

Here is a great reference list to get you started with some basic rules for doing your shopping the next time you get to the grocery store.

Avoid:

- All Sweets
- Processed Breads, White Rice, Potatoes (Except Yams), Pasta, Cereals (Except Oatmeal), Chips, Crackers
- Packaged Snack Food
- Corn, Carrots, Beets
- Bananas, Kiwi, Pineapple, Papaya, Honeydew Melon, Watermelon, Cantaloupe, Dried Fruits (Except Apricots)All Fruit Juices
- Beer and sweet wine

"Let food be your medicine and let your medicine be your food"

Hippocrates (460–377 B.C.)

Supplementation

Today, supplementation is strongly recommended. This is mainly because the soils that our foods are grown in are over processed and contain a lot less nutrients than they did even twenty years ago.

Supplements are also extremely important for patients who may not like certain foods, like vegetables or fruits, or who are vegetarians or for older patients who have a harder time breaking down the foods that are eaten and absorbing the nutrients from them.

The quality of the supplements is of utmost importance. Over the counter products are not tested and are not held to the same standards as drugs. They are only required to include about 75% of what the labels claim. Because they are not tested, they can get away with having a lot less than that 75%. For this reason, we recommend using only pharmaceutical grade products.

Any supplements that are purchased should be from pharmacies that use independent testing agencies. The United States Pharmacopeia, (USP) is the agency that tests our drugs. They are also becoming the gold standard for testing the vitamin supplements.

This is an extremely expensive testing program and manufacturers of supplements are not required to be tested by the USP yet. Check the USP website, http://usp.org, to assess the quality of the products you are taking.

You might find that the name brand multi-vitamin may contain half of the ingredients compared to what we suggest. So, at least that is a good quality product, you might just have to take higher amounts of theirs to match the dose in our package.

If you are already taking supplements it is important to point out some key recommendations:

- You want to look for vitamin E in the form of mixed tocopherols not alpha tocopherol all alone
- Capsules are better absorbed than tablets because the pressure and fillers that are added to the tablets make them poorly absorbed
- Creatine is a great aid but it's only necessary and only effective when lifting heavily or with other anaerobic exercises. So it's not necessary on off days.
- CLA increases hemoglobin A^1C level, so it might falsely elevate those levels in the blood.

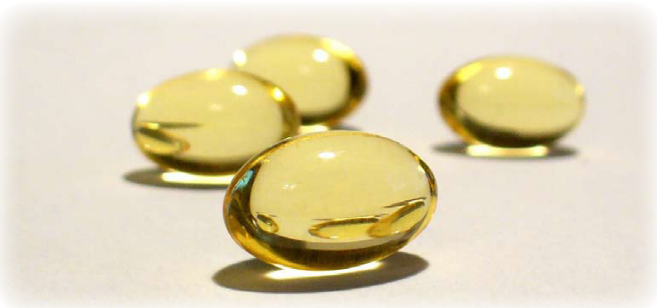
Where Supplements and Nutrition Combine

Supplements play an important role in how our body processes the food we put into it, and by taking the right supplements we can help to further boost the effect on our health that we are having by eating a healthy and low glycemic diet.

We all know how bad highly refined sugars and trans fats are for us. Speculation leads us to believe that if we simply eliminated them altogether from our diets, massive amounts of health problems would be very quickly resolved and even disappear. Supplementation can help take care of the other problems which can't be removed simply by getting rid of trans fats and refined sugars.

Here is a quick recap of why we don't want to eat foods that are high in glycemic index: they raise your blood sugars extremely fast, which means that your body can't lower your blood sugar back to normal right away. This is especially precipitated by all the fast release sugars like high fructose corn syrup which are in many of today's foods. Trans fats are also going to do the same thing. These cause inflammatory reactions which release cancer causing and aging free radicals into the body. This is why it is not only important to eat a proper diet, but also to take the proper supplements which can help to fight free radicals in the body. There are products which are natural supplements that provide a great blend of antioxidants which can help to combat all kinds of free radicals within the body. You always need to eat the best that you can, but it is great to remember that you can help protect your body just that extra bit by ensuring that you're always taking the appropriate supplements. There are a number of natural sources such as berries which contain a great deal of antioxidants, (dark chocolate is also a good source) but extra supplements such as Vitamin C, E, and selenium can also help to provide added protection for the body.

In addition to the anti-inflammatory properties of antioxidants, Omega-3 fish oil capsules are also extremely potent at helping to reduce inflammation. They are useful in helping to treat many different medical conditions such as asthma and arthritis. A note about fish oils: its very difficult to get enough fish oil from dietary sources, which means that it is usually necessary to take a fish oil capsule. These capsules can be filtered to remove the heavy metals and toxins which sometimes are a concern if a person eats too much fish in their diet. Look for supplements that have the highest possible levels of EPA and DHA.



EXERCISE

Exercise is the fourth leg of our stool. It is the last leg to discuss in the complete Age Management program. We will look at all the scientific reasons to exercise. But one of my favorite sayings that most people catch on to is, "Move it or lose it, sister!" That's by Jim Carrey from the movie Dumb and Dumber.

The health benefits of exercise include, but are not limited to, the reduction of low-grade inflammation, reduction of body fat, prevention of degenerative disease, reduction of the risk for stroke and risk for breast and colon cancer, reduce blood clotting, enhancing self image, elevating mood, increasing energy, enhancing feelings of well being, reinforcing healthy eating habits, stimulating Creative thinking, restoring function to organs, muscles joints and bones, improving healing, reducing stress, and improving appearance.

Lypolosis

Lypolosis is the process which occurs when body fat breaks down into free fatty acids and glycerol. This is how we burn body fat for energy, and is really the goal of all programs which are focused even in part on reducing body fat, which we know is important, especially in the case of belly fat. This means that we need to do everything we can to eliminate factors which reduce or inhibit Lypolysis, as well as doing things we can to help boost it as well.

The primary inhibitor of Lypolysis is insulin, which we already know we are trying to reduce through the proper use of diet and supplementation. Blood glucose is the second worst contributor to this, and when both are elevated it makes it extremely hard for the body to burn any fat.

In addition to your diet, you need to consider how you exercise in order to try and lose as much fat as possible. One of the best methods for this is high intensity interval training. You also want to concentrate on doing many resistance exercises which will help you to build lean muscle mass, which in turn creates an effect that will allow your body to burn more fuel even while in a resting state.

Aerobic and resistance training both become an important part of trying to lose body fat. You also need to keep your dietary guidelines in mind unless you want to sabotage your exercise efforts. If you crash diet or short yourself on calories, your body will slow down the metabolism, which will make it very hard to lose weight. On the other hand, eating frequent nutritious meals (5-6 meals per day) will keep your body revving high and burning fat all day long. If you don't eat quite that many meals, be **sure** to always eat breakfast, as many studies have been done linking the skipping of breakfast to obesity.

Fitness levels are also inversely related with C Reactive P protein levels, inflammation, insulin sensitivity and degenerative disease.

It's important to do both aerobic and resistance training, which uses two different muscle fibers within the same body part. Both aerobic and resistance training increase bone density, decrease body fat, increase strength, decrease insulin response to glucose, decrease basal insulin, and decrease insulin sensitivity. Resistance training mainly helps to increase muscle mass and aerobic training increases HDL cholesterol.

Aerobic and resistance training also both help to decrease diastolic blood pressure, improve cardiovascular fitness, increase endurance, improve physical functioning, increase basal metabolism where aerobic training further helps to decrease resting heart rate, increase stroke volume of the heart, and decreases systolic blood pressure.

It's really the intensity of the exercise that is the key. Some exercise equipment measures the metabolic equivalent or MET the exercise intensity of the exercise for us.

1 met is a measure of resting oxygen uptake, which equals 3.5 milliliters of oxygen per kilogram body weight per minute. This correlates directly with oxygen consumption.

A 2 MET activity requires two times the metabolic energy expenditure of resting.

Values in healthy individuals generally range from 7.1 METs to 22.9 METs. People whose maximum exercise capacity is less than five METs are twice as likely to die as those with a maximum exercise capacity of more than eight METs. With each 1 MET increase in exercise capacity, there's a 12% improvement in survival.

MET levels are often measured on cardio equipment and can be a useful tool for setting exercise goals.

Maximal oxygen uptake or VO2 max is another important measurement. The values in healthy individuals generally range from 25 to 80 and

depend on a variety of physiological parameters, including age, overall health and conditioning level.

When exercising on our own, it's important to have an additional way of measuring the intensity of the exercise. This is the rating of perceived exertion. It includes all the feelings of physical stress; including effort and fatigue. It ranges from one to ten, with one being the easiest and ten being the most difficult.

During all aerobic exercise, including being at rest, we are burning fat. The higher the intensity of the exercise, the lower the percentage of fat is burned. This why we have "fat burning zone" and "cardio-zone" options on the majority of exercise equipment.

The low intensity exercise, below about 70% of the max heart rate, is considered the "fat burning zone" because a higher percentage about 50% of the total calories comes from the fat at that time.

Up at the "cardio-zone", the percentage of fat might drop down to about 30% of the total. But, during the higher intensity exercise, we burn more total calories. So even at a lower percentage of the total, the end result is higher calories from fat burned at the higher heart rates.

We do recommend trying to work to those higher levels of intensity. During cardiovascular aerobic exercise, we're always burning a little bit of fat, mostly carbohydrates, and a little protein even for energy. The "cardio-zone" as is labeled on the exercise equipment would be any exercise that increases the heart rate to 70% of the max heart rate or higher.

The "fat burning zone" is that area below the 70% heart rate. As the intensity of exercise increases, the percentage of calories burned from fat decreases. You don't stop burning fat above the 70% of max heart rate as that zone name would imply.

The problem with the scenario is that it's difficult to sustain a high level of intensity for a long period of time. So the answer is to practice interval training.

During a cardio workout, it's recommended to sustain the majority of that session at about a seven on the rating of the perceived exertion scale. To increase the heart rate and burn more calories in less time, we recommend doing sprint drills for resistance. You increase either the speed or the resistance, or both, for as hard and fast as possible for up to about one

minute at a time. Try to do that at least three times within each workout; increasing your intensity to about level nine or ten on that exertion scale.

Studies show that at least three, thirty minute workouts at about seventy to eight five percent of the max heart rate zone help to reduce risk for degenerative disease. So the goal is to do at least ninety minutes of cardio per week.

Now, it may be more realistic to suggest to do daily workouts that are shorter but more brisk; increasing the heart rate as of each workout. You can always increase the time as you develop more of a habit for exercise. It's also recommended to do at least three high intensity intervals within each workout with either speed or resistance or both.

The last suggestion is to keep the routine changing because it's very easy to adapt and usually takes the brain about three weeks to adapt. So we can either work out longer or faster, increase the intensity or change to a different type of cardio exercise.

Now, think about the difference between a sprinter and a marathon runner. Both are very lean, but the sprinter is more muscular, larger muscles compared to the marathoner which is smaller in stature. The difference is in the hormones that are released during these exercises. With high intensity anaerobic exercise, adrenaline is greatly increased, which decreases insulin and also increases lipolysis- the breakdown of fats. Lactate is also increased with high intensity exercise, which stimulates testosterone and growth hormone to be produced as well and that also stimulates muscle growth. So the sprinters develop larger muscles that are very lean.

Cortisols also release during both aerobic and anaerobic exercise. This is often thought of as a negative hormone because it may lead to the increased storage of abdominal fat as well as increased muscle breakdown. The good thing about anaerobic exercise is that the testosterone and growth hormone that are produced actually negate those possibly detrimental side-effects of high cortisol levels. So, to increase your own production of IGF-1 and testosterone, it is definitely recommended to do more the anaerobic type exercises like those sprinters do.

Anaerobic muscle fibers only have about one minute worth of energy stored in them, so that's why we run out of energy half way through a setup of bicep curls. We figure you may be able to do about 15 reps in one minute's time, so that's why we set the upper limits of the reps at 15 when you are lifting weights. Now those anaerobic muscle fibers also require about a day of rest at least to repair, so you don't want to do the same anaerobic exercise two days in a row. If you only want to devote a minimum of two days per week to do anaerobic exercise, you might evenly space those workouts. Do them on a Saturday and a Wednesday, not just on a Saturday and Sunday, so that they have ample time to rest and that they are not waiting too long before doing those same exercises again. You will want to do a total body work out on both of those days if you are only working out two days a week. Now, the more days they you to devote to anaerobic exercise, the more you should split up the routine. For example, with three days of anaerobic exercise, you might do half and half. Upper body/lower body/ upper body or push/pull/push/ pull exercises. Four or more days a week, you might split up the routine even further.

Try doing only one or two body parts on each day, much like the typical body builder workout. Back and Bi's, Chest and Tri's, Legs and Shoulders. Now, abs can be worked out every day. They are not like your biceps that you want to grow and get larger. They will tone, but they don't necessarily need that extra day of rest in between.

The general rules for developing mass and size and strength is to do heavier weights with fewer repetitions. For those who want a leaner appearance, use lighter weights with more reps. However, you still want to try and maximize hormone production so we still keep the upper limit at 12-15 reps for a lean appearance. For a moderate appearance, I suggest 7-12 reps for each set.

The more muscle we have the more fat we burn. So we want to try and work out all the body parts; including chest, upper back, lower back, biceps, triceps, shoulders, abdominals, quads, hams and the calves. A goal is to try and include all the different types of equipment, use those pieces in all the different angles that are possible and change your grip to vary the different muscle fibers that are used.

The chest exercises include bench press, flies, inclined or declined bench - changing all those variables.

Posture corrections

If you have a problem keeping your shoulders and your hips parallel to each other and to the floor (which they should be!), try practicing in a mirror until you can achieve this state and pay careful attention to what muscles you have to activate.

Try to replicate this feeling as often as you can in your everyday activities. Your shoulders need to be over your hips, but one of the most common problems in posture is caused by sitting at a desk which causes the shoulders to hunch forward over the hips. If this happens, practice standing straight and squeezing your shoulder blades together and sliding down your back in order to get closer to good posture. If your rear sticks out excessively behind your heels, you need to squeeze your buns in order to rotate your pelvis forward and straighten out your lower back. (You want a natural curve, but don't want the pelvis tilted artificially down.) Suck in your stomach! How many times have you heard that? Well, it's good posture advice as well – try to imaging squeezing gently the belly button towards the small of your back. Crunches and Pilates and other core strengthening exercises are great for helping to correct posture, but it takes a more conscious discipline than just working out to permanently achieve a change in your posture.

You're going to have to remind yourself every chance you get to try and improve your posture until it becomes second nature. Start by always checking in at certain times, like every time you take a phone call, to make sure that all your posture checkpoints are aligned, and then begin to spread those checks until you are always standing with the best posture possible.

One of the best ways to incorporate it into your daily life is by using a stability ball. You can sit on the ball instead of a chair while at your desk, but also you can perform any upper body exercise on the ball during a workout. This helps to incorporate all those little accessory muscles and improves stability around the spine.

Workouts

Most aerobic exercises incorporate all the lower body muscles but we also want to work them anaerobically. So weight lifting for the lower body is definitely recommended. They are some of the largest muscles in the body and one of the greatest ways to increase muscle mass, decrease body fat, increase hormones and bone density as well. After about three weeks, the effectiveness of exercise begins to plateau; meaning that we need to change the exercise up. So it's recommended to change the workout about every three weeks.

During the initial weeks of an exercise, it's actually the brain that is learning the exercise and it takes a lot of energy to set up the neural programs, the motor pathways, and to put the new mitochondria into the muscles to do the work. After about three weeks, when the brain has figured it out and everything is in place, that's when we plateau, and it gets easier. It's all about survival of the fittest. Therefore, it is recommended to change the workout about every three weeks to prevent hitting a plateau. We can do this by increasing the duration, increasing the speed, changing the intensity, changing to a different piece of equipment, changing the order that we do the exercises in and especially by changing the angles. This is where we get the most variety from our exercise routine.

The ultimate goal of an anaerobic exercise routine is to increase the production of our own hormones, specifically, testosterone and growth hormone naturally. We can do this by working all body parts, at least two days a week, no more than four days a week for each muscle group, we want to lift to the point of momentary muscle failure, fatigue by 15 repetitions at the most and do this with each and every set. Then we want to keep the routine changing so we don't plateau by changing the amount of repetitions, the speed of the contraption, and the number of sets that we do, as well as the amount of weight, the order of the routine, and even the angles that we use those muscles in.

You might have to consider interviewing a couple of trainers in your area.I would suggest looking into both a male and a female so that you have somebody that you feel comfortable with and you want to look into their education, not just their certifications. Trainers with a bachelors degree or greater in exercise physiology would be ideal. This will prevent you from injuring yourself. The best certifications to look for include the NSCA or National Strength and Conditioning Association, which actually requires a college degree.

The NASM also has advanced certifications and are the only certification accepted by the National Basketball Athletic Trainers Association for the NBA teams. Other good certifications to look for include the American Council on Exercise or ACE, or ACSM - The American College of Sports Medicine.

Here are a couple of questions that you might ask yourself before hiring a personal trainer.

• ***How much time and effort are you willing to devote to the process of getting back into shape?*** It requires at least 90 minutes of cardio and two total body workouts per week and consistency is the key. So you'll need to plan on training. If you don't plan, you can plan on failing. You have to schedule those workouts into your day otherwise that will be the first thing to fall off if anything else better comes along.

• ***Do you need to enroll in a gym or do you have enough space and equipment to do it at home?*** Some trainers will go to the home, maybe for an additional fee. However, if the equipment needed isn't present at the home, it would obviously be better to go to the gym.

• ***Are you willing to train hard enough to get to the results?*** This is really the key with the hormone part of the program. You have to increase the intensity of the exercise to the point where you reach momentary muscular fatigue and you want to increase the heart rate to burn a little bit more fat in less time as well.

Aerobic vs. Resistance

Variable	Aerobic Training	Resistance Training
Increased bone density	X	XXX
Decreased body fat	XX	X
Increased muscle mass		XXX
Increased strength	XX	XXX
Decreased Insulin response to glucose	XXX	XX
Decreased basal insulin	X	XX
Increased insulin sensitivity	XXX	XX
Increased HDL	XXX	
Decreased resting heart rate	XX	
Increased stroke volume of heart	XX	
Decreased systolic BP	XX	
Decreased diastolic BP	XX	X
Improved cardiovascular fitness	XXX	X
Increased endurance	XXX	XX
Improved physical functioning	XX	XXX
Increased basal metabolism	X	XX

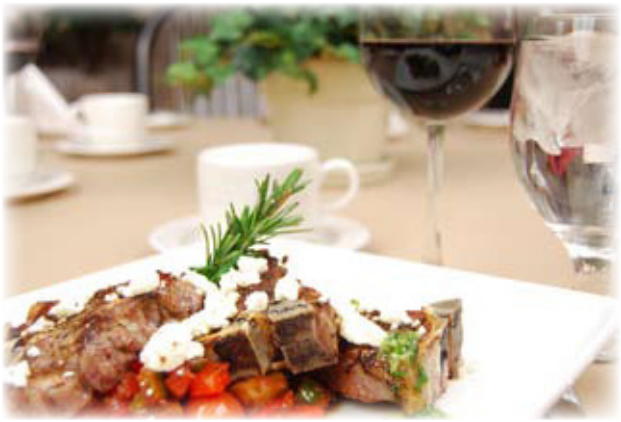
APPEND IX I – FOOD

Best Choices

Meats & Proteins

The leaner, the better Best cooking methods: baked, broiled, grilled, steamed Free range, hormone & additive-free preferably

- Chicken & Turkey – skinless Cottage Cheese – skim or low-fat Eggs – omega-3 enriched, free range (Eggland's Best)
- Fish – ocean fish better than farm-raised or fresh water
- Lamb Beef – Coleman, Boar's Head (less than 2x/week)
- Legumes – lentils, beans, peas, etc.
- Shellfish – crab, shrimp, lobster (less than 2x/week)



Vegetables – Low Glycemic (#1, unlimited amounts)

- Asparagus
- Broccoli/Cabbage/Cauliflower
- Celery
- Cucumber/Squash/Zucchini
- Green Beans
- Leafy Greens (spinach, kale, collards, endive, etc.)
- Mushrooms
- Onions/Peppers/Radishes
- Tomatoes

Fruits – Low Glycemic (#2, 2-3 per day)

- Apples
- Berries
- Dried Apricots
- Grapefruit/Oranges/Citrus Fruits
- Peaches/Nectarines Pears Plums

Good Fats •

- Oils should be organic, cold or expeller pressed
- Avocados
- Nuts – almonds, cashews, walnuts, etc.; raw
- Salmon, Tuna & other ocean fish Sardines/Mackerel (smaller fish have less mercury)
- Olive Oil
- Sesame Oil
- Coconut Oil
- Grapeseed Oil Acceptable – IF in side portions, balanced with protein & good fats

Vegetables – High Glycemic (#3)

- Starchy vegetables & tubers/roots
- Baked Potatoes
- Beets
- Carrots
- Corn
- Parsnips
- Pumpkin

Fruits – High Glycemic (#4)

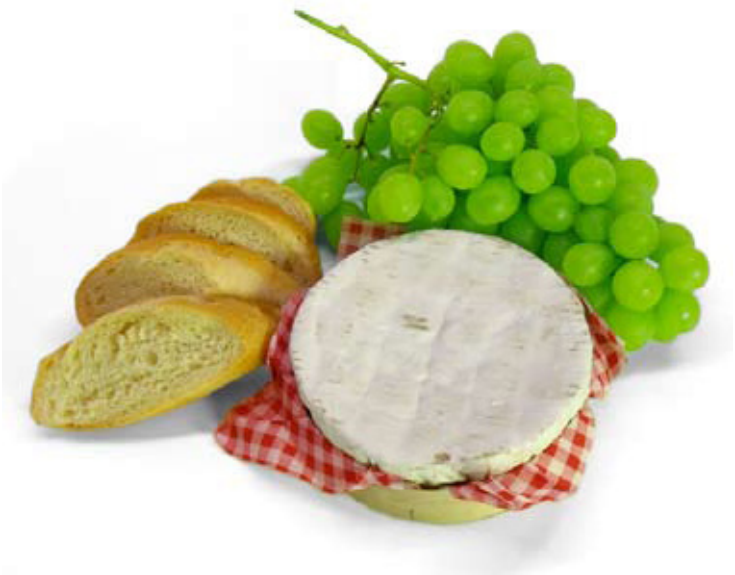
- Tropical & dried fruits
- Bananas
- Dried Fruit (Dates, Raisins, Prunes, etc.)
- Fruit Juices
- Mango/Papaya/Pineapple
- Melons (Cantaloupe, Honeydew, Watermelon)

Dairy (#3)

- Organic, imported and low-fat preferably
- Butter – better to cook with
- Cheeses – white & soft (1oz., less than 5 times/week)
- Cream Cheese – low-fat (Neufchatel)
- Half & Half – small amounts (in coffee?)
- Milk – skim or 1%
- Yogurt – plain, NOT fat-free

Starches (#4)

- 100% Rye/Pita/Pumpernickel/Protein Enriched Bread (1 slice)
- Oatmeal – Old Fashioned/Natural/Steel-Cut
- Pasta – Legume, Artichoke, Spinach, Soy, Egg
- Rice – Wild or Brown
- Sweet Potatoes/Yams
- Wasa Crackers – Made w/ whole grains & good fats



Foods To Avoid

Meats & Proteins

- Fast Food
- Fatty Meats
- Fried Meats
- Poultry Skin

Bad Fats

- Corn Oil
- Donuts
- Fried Foods
- Hydrogenated/Partially Hydrogenated Oils
- Margarine
- Palm Oil
- Peanut Butter – with added sugar & hydrogenated oils
- Safflower Oil
- Shortening
- Vegetable Oil

Dairy

- Bovine growth hormone & antibiotics used
- 2% or Whole Milk
- Cheeses – yellow, hard, with hydrogenated oils, artificial colors & flavors
- Cream & Whipping Cream
- Fat-Free Products
- Yogurt – fat-free or sweetened with NutraSweet

Starches

- Packaged, usually made with hydrogenated oils
- Baked Goods – pies, cookies, donuts, cake, etc.
- Breads – bagels, rolls, croissants, etc. Crackers
- Oatmeal – instant
- Pasta – white, wheat
- Potatoes – white, red, instant
- Pretzels
- Rice – white, instant, rice cakes

APPEND IX II – Meal Ideas

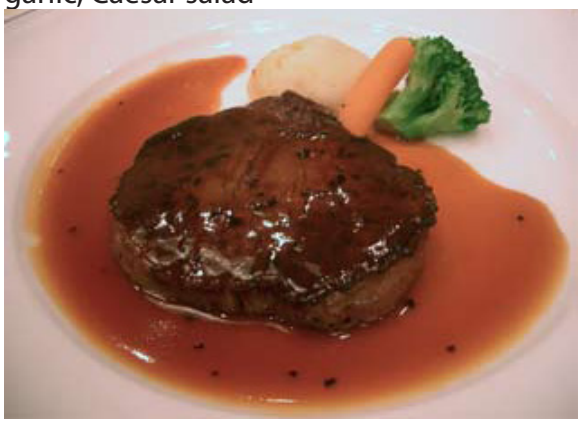
Breakfast

- Natural (old fashioned) oatmeal (cooks quickly in microwave!),1 egg white, 1 Tbsp natural almond butter
- 1 Whole egg, 2 egg whites, scrambled in small amount of butter, apple slices, 1 Tbsp organic peanut butter
- Natural oatmeal, sliced apple, cinnamon, 3 Tbsp fresh ground flaxmeal
- Cottage cheese, chopped apples, pears, raw almonds, 1 Tbsp ground flaxseeds
- Poached organic omega-3 eggs (Eggland's Best), 1 slice whole grain rye toast with butter
- Chicken breast, cubed, black beans, salsa, chopped avocado
- Plain yogurt, berries, small handful of raw nuts
- Smoked salmon (lox) on thick tomato slices, capers, olive oil, 1 apple
- 3 Egg white omelet, chopped green peppers, onions, 1 Tbsp guacamole
- 2 Slices lean ham, 2 slices low-fat cheese, 2 slices tomato, 2 slices avocado
- 1 Hardboiled egg, 1 slice pumpernickel toast with 1 Tbsp almond butter
- Natural oatmeal, 1 scoop vanilla protein powder, 1 cup blueberries, 1 handful walnuts
- Assorted imported low-fat cheese, sliced cucumber, olive oil, 5 dried apricots 1
- Scoop protein powder, water, 1 cup frozen berries, 1 Tbsp organic peanut butter
- 1 Scoop protein powder, 1 cup skim milk, banana, 1 Tbsp natural almond butter
- 1 Whole egg, 2 egg white omelet with spinach, feta cheese, 4 Kalamata olives
- ⅛ Cup almond milk, 1 cup ground almonds, 1 cup blueberries, 1/8 cup ground flaxseeds
- 2 Eggs cooked in olive oil, topped with 2 Tbsp Hollandaise sauce, 4 sliced Kalamata olives
- Chicken breast, cup plain yogurt, berries, 1 Tbsp flaxseeds
- 1 Whole egg, 2 egg whites, scrambled in small amount of butter, apple slices, 1 Tbsp organic peanut butter
- Smoked salmon spread with 1 oz. low-fat cream cheese, rolled and speared with Kalamata olives on a toothpick
- 1 Whole egg, 2 egg white omelet, 1 oz. sausage, mushrooms, 4 Kalamata olives

Lunch & Dinner

- Turkey burger, tomato, low-fat cheese, mustard, relish, wrapped in lettuce, side salad, olive oil & vinegar
- White meat turkey, Dijon mustard, spinach Caesar salad
- Roasted turkey, steamed broccoli, mustard vinaigrette, seasonings to taste
- Broiled lamb chop, cooked asparagus, spinach salad, balsamic vinaigrette dressing
- Chicken breast on 2 cups spinach, 4 Kalamata olives, 4 oz. guacamole, 2 Tbsp olive oil and vinegar dressing
- Cottage cheese, low glycemic fruit salad, 2 Tbsp pecans
- Curried shrimp on 2 cups mixed salad greens, 4 slices avocado, 2 Tbsp balsamic vinaigrette dressing
- Beef soup with lentils, celery, onions, cabbage, spinach or mixed green salad with cup chicken or tuna salad
- Chicken, shrimp or beef stir fry, onions, peppers, water chestnuts, cup brown rice Avoid sweetened sauces (use sesame/peanut oil and rice vinegar)
- Grilled chicken breast, pesto sauce, steamed spinach, rosemary, green salad, olive oil dressing
- Chicken breast, rosemary, cup black eyed peas, roasted onions, garlic, spinach salad
- Large mixed green salad, small can tuna or 1 grilled chicken breast, chopped veggies, olive oil dressing with lemon, blue cheese

- Broiled salmon, 1 cup spaghetti squash, tomato sauce, oregano, thyme, garlic, grilled vegetables
- Albacore tuna pockets: celery, red onion, olive oil mayo, lemon juice, herb seasonings in sprouted wheat pita
- Filet mignon, mushrooms sautéed in butter and garlic, Caesar salad



- London broil, green beans, sweet potato, lowfat sour cream, Caesar salad
- Marinated broiled flank steak, baked sweet potato, steamed squash, green salad, raspberry vinaigrette dressing
- Shrimp or scallops, snow pea pods, onions, bean sprouts, broccoli, stir-fried in 3 Tbsp peanut oil
- Salmon, grilled onions, green salad, balsamic vinaigrette dressing
- Broiled red snapper or grilled tuna, steamed broccoli, tomato soup, baked yam
- Sautéed giant garlic shrimp, 1 Tbsp salsa, mixed green salad, avocado, 4 strips jícama
- 6-8 Pieces brown rice sushi or sashimi with fish, shrimp, crab, green tea, seaweed salad, egg drop soup
- Tuna steak, juice of lime, 1 cup ground hazelnuts, herb seasonings, 1 Tbsp softened butter, (patted onto all sides of the fish), broiled
- Crab and avocado salad: ⅓ cup chopped celery, 1 lb. cooked fresh crab, 1 Tbsp olive oil, mayonnaise, 1 tsp cumin, 1 tsp turmeric, 1 Tbsp capers, juice of lemon, medium avocado. Seasonings to taste, 1 bunch watercress with stems removed (Makes 2 servings)
- Albacore tuna broccoli custard: 1 lb fresh chopped broccoli, 4 oz. tuna, 1 egg, 1 cup milk, cup grated low-fat cheese, 2 Tbsp lemon juice, seasonings. Mix together and bake at 375ºF for 35 minutes
- Spinach and cheddar casserole: sauté 2 minced garlic cloves in 1 Tbsp olive oil, 2 lb. spinach. Cook 5 minutes, then add 2 Tbsp pine nuts, 1 cup grated low-fat cheddar cheese Lightly brown in broiler (Makes 2 servings)
- 1 cup split pea soup, 1 slice pumpernickel toast, 1 Tbsp cashew butter, 1 cup steamed yellow squash
- Ricotta and leek frittata: sauté 1 inch pieces of leek in 1 Tbsp butter. Mix and cook with 1 Tbsp ricotta cheese, seasonings, 4 organic eggs, Place under broiler for 2 minutes to grill top golden brown
- Cucumber and tomato salad with mozzarella: mix 1 Tbsp extra virgin olive oil, 1 Tbsp olive oil, 2 Tbsp lemon juice, fresh parsley, dill, garlic, onion, 1 diced tomato, 1 cup diced cucumber, 1 cup mozzarella
- Salmon burger patty: 6 oz. chopped salmon, onions, dill, 1 egg, cup ground sesame seeds Sautéed in skillet with 1 Tbsp butter, served with small Caesar salad

Salad Dressings

- An olive oil (good fat) dressing is the best choice.
- Newman's Own is a good brand, which is found on the inner aisles of most grocery stores.
- Avoid salad dressings made with hydrogenated oils.
- Avoid fat-free dressings. Usually when fat is removed sugar is added to make up for the lack of taste. Read your labels!
- If you like creamier salad dressings (saturated fats), try those that are found in the refrigerated section of the grocery store, such as Marie's or Lighthouse.
- Ask for dressing on the side and dip your fork in it, rather than the dumping it on the salad.

Beverages

- Water
- Tomato juice or green vegetable drinks
- Herbal teas: chamomile, ginger, peppermint, green tea, etc. with cinnamon stick

Snacks

To increase metabolism and maximize energy throughout the day, it is recommended to eat a small meal about every 4 hours. Snacks between these meals should be minimized. If the time between meals is longer than 4 hours, increase the snack size accordingly.

- Edamame 1 Tbsp nut butter on celery sticks
- Macadamia nuts
- Almonds Veggies & hummus
- Walnuts
- 1 Small can tuna (in water)
- Pumpkin seeds
- Cashews
- 1-2 Hard boiled eggs
- Low-fat cheese cubes
- Cottage cheese
- Protein shake (add nuts) plain yogurt and fresh berries •
- Meat with mustard/horseradish
- 1 Wasa cracker & 1 oz. cheese
- Low glycemic fruit and nut butter
- Smoked fish (salmon/lox)

Quick & Easy

- Ham and cheese salad
- Broiled fish and vegetables
- Broiled/grilled hamburger (no bun)
- Poached eggs
- Tuna fish (no bread)
- Chef's salad
- Veggie omelet
- Chicken Caesar salad

Omega-3 Eggs

Free range or nest eggs from chickens that have been fed flaxseeds, such as Eggland's Best. The eggs actually contain omega-3 fats, a healthy essential fat. Regular eggs are still good, especially if you eat fish frequently or are taking omega-3 supplements.

Free Range/Organic

- Refers to the lack of chemicals present in the growing of a plant or raising of an animal.
- Free range animal meats contain a better ratio of good to bad fats compared to traditionally raised animals that are raised in small pens and fed grains to fatten them up faster.
- Non-organic meats contain certain amounts of antibiotics and bovine growth hormone. Hormone- free animal foods and dairy are recommended if you have access to them and can spare the greater expense.
- Non-organic fruits and vegetables can contain pesticide chemicals. Always wash your fruits and vegetables thoroughly.

Food Allergies

- If you experience symptoms that include but are not limited to the following, you may have a food allergy: chronic congestions, chronic postnasal drip, eczema, gastrointestinal distress and foggy head.
- To test if you have a food allergy, keep a food diary, recording the foods eaten and any symptoms. Eliminate those foods that most often precede the symptom for at least two weeks. If symptoms are alleviated, continue to avoid the food.
- Wheat is the most common allergen. Whole grains are always the best option but very difficult to find – most grain products are processed into flour. Some uncommon but tasty alternatives are amaranth and quinoa.
- For those with gluten intolerance, avoid foods from the acronym B.R.O.W.: Barley, Rye, Oats and Wheat.
- Other common food allergens include: dairy, soy, nuts (especially peanuts), corn and shellfish.

Most Common High Glycemic Offenders:

Alcohol – Beer and drinks made with juice, soda or sugar

Candy – All types

Dried Fruits – Except apricots

Frozen Yogurt – Pure sugar and carbs with no fat or protein to slow the rate of absorption

Sugar-Sweetened Beverages – Coke, Sprite, Snapple, bottled teas,

Spritzers

Sugar – On coffee, tea and on cereal

Tubers & Roots – Parsnips, potatoes, beets, etc.

Watermelon

Refined Foods – Cereal, breads, cookies, rice cakes, crackers

Eat only those carbohydrates that are 45 or lower on the glycemic index. Always eat carbs in combination with protein, fat or fiber in orderto slow the rate of digestion and, therefore, the glycemic index of that carb.

APPENDIX III GLYCEMIC INDEX

Vegetables

Parsnips 97
Baked Potato 85
Pumpkin 75
Beets 64
Corn 55
Sweet Potato 54
Yams 51
Carrots 49
Green Beans 40
All Lettuces 30
Cauliflower 30
Eggplant 30
Onions 30
Radishes 30
Yellow Squash 30
Water Chestnuts 30
Sauerkraut 30
Tomatoes 15

Fruit

Watermelon 72
Pineapple 66
Cantaloupe 65
Raisins 64
Mango 56
Banana 54
Kiwi 53
Grapefruit Juice 48
Grapes 46
Orange 44
Peach 42
Plum 39
Apple 38
Pear 37
Apricots, dried 31
Grapefruit 25
Cherries 22

Sweeteners

Maltose 105
Glucose 100
Sucrose (table sugar) 64
High Fructose Corn Syrup 62
Honey 58
Fructose (fruit sugar) 22
Stevia 3

Dairy Products

Tofutti 115
Ice Cream, full fat 61
Yogurt, sweetened 33
Skim Milk 32
Soy Milk 30
Whole Milk 27
Yogurt, plain 14

Grains and Cereals

French Bread 95
Instant Rice 90
Cornflakes 83
Pretzels 81
White Bread 78
Waffles 76
Cheerios 74
Bagel 72
Shredded Wheat 69
Wheat Bread, high fiber 68
Stoned Wheat Thins 67
Grapenuts 67
Couscous 65
Hamburger Bun 61
White Rice 58
Pita Bread 57
Muesli 56
Brown Rice 55
Special K Cereal 54
Oatmeal, slow cooking 49
Rye Kernel Bread 46
Pita Bread, stone ground 45
All-Bran Cereal 42
Spaghetti, white 41
Spaghetti, protein enriched 27

Legumes

Baked Beans, canned 48
Pinto Beans 39
Chickpeas 33
Black Beans 30
Kidney Beans 29
Lentils 29
Peas, dried 22
Soy Beans 18

Other Foods

Dates 80
Jelly Beans 77
Rice Cakes 77
Vanilla Wafers 75
French Fries 74
Graham Crackers 60
Pizza, cheese 55
Popcorn 49
Chocolate 18
Olives 15
Nuts 15-30

BIOGRAPHY

Frances Dee Filgas, M.D. DAAPM

Dr. Filgas finished her university training in biochemistry cum laude at the *University of Maine* in Orono in 1972. She subsequently entered the Master's program in Public Health at the *University of California, Berkeley,* but was accepted into the medical school at the *University of California, Davis* before completing her M.P.H.

At Davis, she completed her M.D. in June 1979. Subsequently she entered and completed her internship through the *University of California, San Francisco*. Her emphasis in training was in Critical Care, and she began practicing Emergency Medicine in 1980, becoming Board Certified in April 1994. She practiced Emergency Medicine in a number of locations but primarily at **St. Helena Hospital** in Deer Park, California.

In 1988 she pioneered the Job Care program in Occupational Medicine at St. Helena Hospital. It later became a model for that program throughout **Adventist Health Systems West.** She acted as the medical consultant for State Compensation Insurance Fund September 1990 through 1991. She began collaborating with the **Spine Care Medical Group**, subsequently practicing Orthopedic Medicine, and ultimately became interested in Pain Management. She became certified by exam with the **American Academy of Pain Management** in 2006. In the course of practicing pain management, she realized that there are hormonal and metabolic issues which normally become prevalent in mid-life. This has led her into the realm of Age Management where prevention of chronic disease through proper hormonal, metabolic, exercise, lifestyle and nutritional interventions become the concern of the clinician.