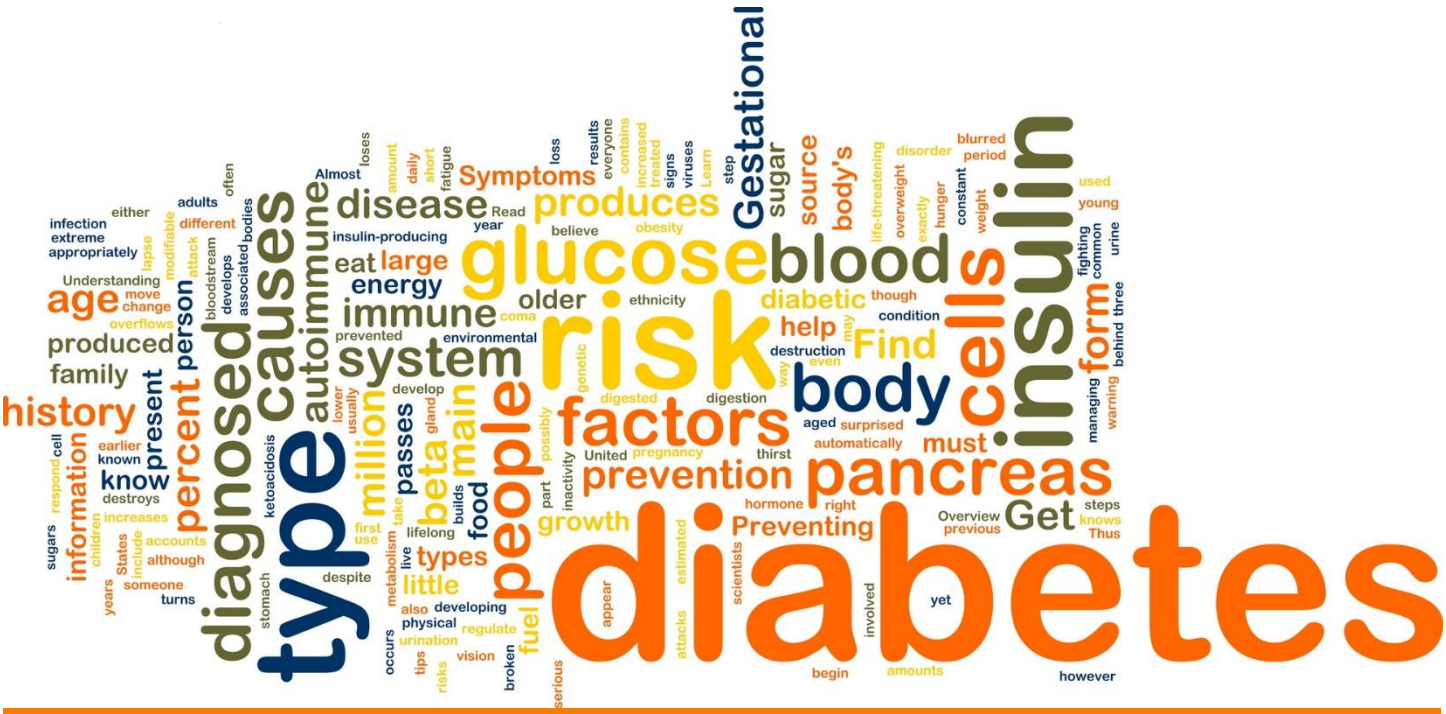

HOW TO MANAGE YOUR

TYPE II DIABETES

A GUIDE FOR ATHENS, GA COMMUNITY MEMBERS

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CHAPTER ONE.

WHAT IS TYPE II DIABETES?

WHAT IS TYPE II DIABETES?

Type II Diabetes is a chronic metabolic condition that impacts the way in which the body metabolizes glucose. It was formerly known as adult-onset because it is much more common in adults. However, rates are increasing in children as childhood obesity becomes more and more prominent.

With Type II Diabetes, the body either becomes resistant to insulin's effects or fails to produce enough insulin to maintain a healthy blood glucose level. Rather than entering cells, glucose builds up in the bloodstream. As blood glucose levels increase, the pancreas attempts to compensate by producing more insulin. However, this continues to be ineffective. As the pancreas continues trying to overproduce insulin, its beta cells (the cells that produce insulin) eventually become impaired and fail to produce enough insulin to meet the body's demands. There is no cure for diabetes, but it can be managed as a chronic disease via medication, therapy, and certain behavior changes (Mayo Clinic, 2015).

HOW IS TYPE II DIABETES DIFFERENT FROM TYPE 1 DIABETES?

Type II Diabetes is substantially more common than Type I Diabetes. Approximately 9 out of every 10 people living with Diabetes have Type II(National Institute of Health, 2016). With Type I Diabetes, the issue is not that the body has become resistant to insulin or that insulin-producing beta cells have somehow become damaged over time. In Type I Diabetes, the issue is that the body has simply destroyed the beta cells in the pancreas. This leaves the body with little to no insulin at all (Mayo Clinic, 2015). Without insulin, blood glucose levels are not regulated and glucose does not enter or provide energy to the cells of the body.

WHAT IS THE ROLE OF GLUCOSE IN THE BODY?

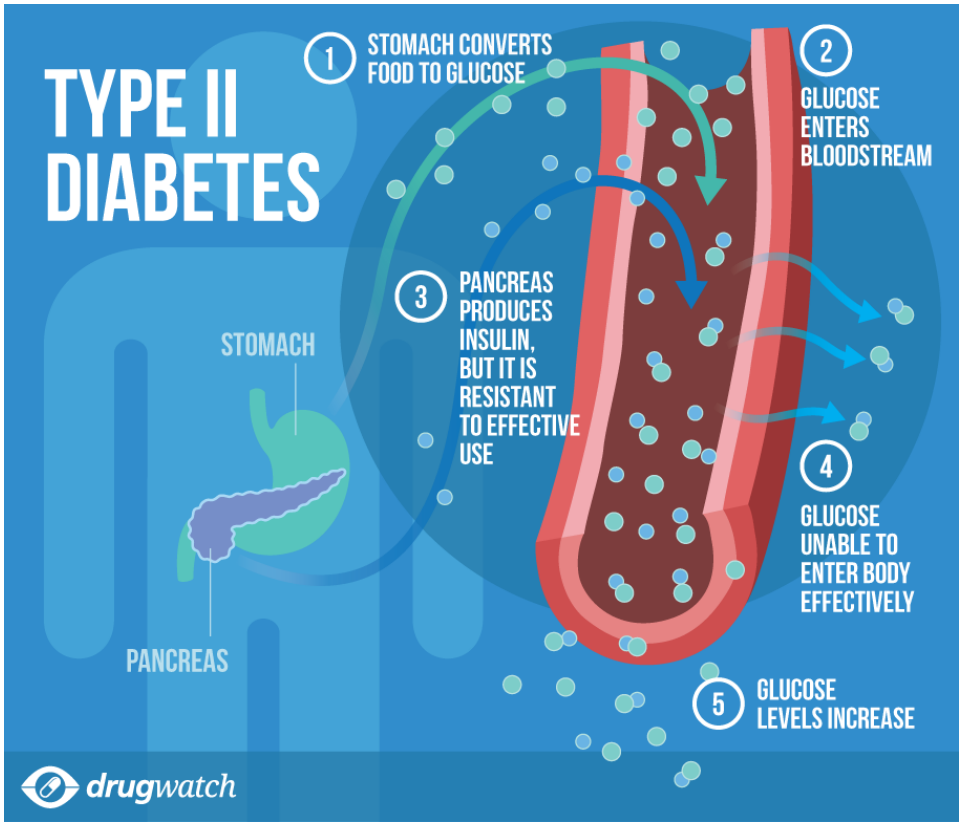
Glucose, a sugar, is the primary source of energy used by cells that make up muscles and other tissues in the body. Glucose is obtained from two main sources: food and the liver. The liver not only generates glucose, but also stores it in the form of glycogen.

When blood glucose levels are low, such as after going hours without eating, the liver breaks down its stored glycogen into glucose and releases it into the body(Mayo Clinic, 2015).

WHAT IS THE ROLE OF INSULIN IN THE BODY?

Insulin, which is produced by the pancreas, is the primary hormone impacted by Type II Diabetes(Mayo Clinic, 2015). Insulin's job is to regulate the movement of sugar (glucose) from the blood into other cells of the body. Once the pancreas secretes insulin into the bloodstream, the insulin circulates throughout the body, enabling glucose to enter cells. Thus, insulin lowers the blood glucose level. As the level of glucose in the bloodstream continues to drop, the pancreas secretes less and less insulin (Mayo Clinic, 2015).

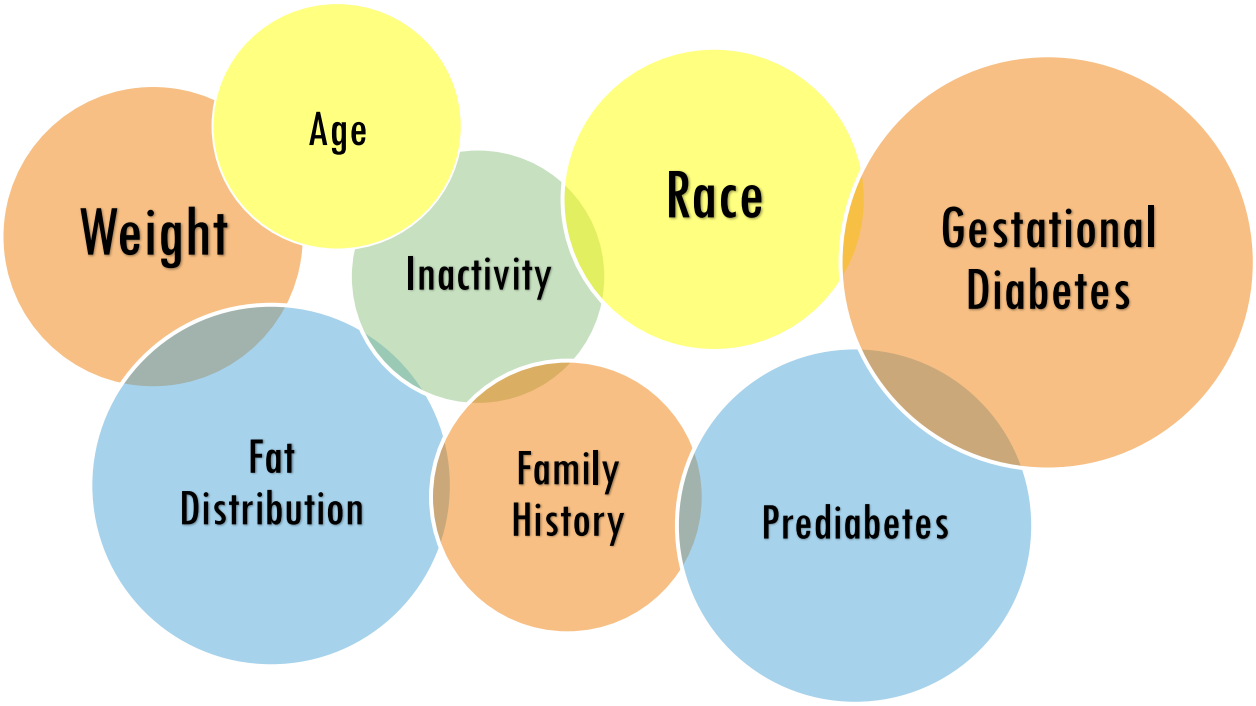
When an individual has Type II Diabetes, insulin is either ineffective in its ability to regulate blood glucose levels due to the body's resistance, or an insufficient amount of glucose is produced by the pancreas.



https://yurielkaim.com/is-type-2-diabetes-curable/

WHAT ARE THE RISK FACTORS FOR TYPE II DIABETES?

Although the reasoning behind why the body becomes resistant to insulin or fails to produce a sufficient amount is unknown, there are a number of identified risk factors that increase an individual's likelihood of developing Type II Diabetes(Mayo Clinic, 2015).



[1) Weight: Controlling your weight is very important. Being overweight is a primary risk factor for Type II Diabetes. The greater the amount of fatty tissue in your body, the more resistant your cells become to the hormone insulin. However, being overweight is not a requirement. Even if you have kept your weight under control, you can still develop Type II Diabetes(Mayo Clinic, 2015).

[2) Fat Distribution: If your body primarily stores fat in your abdomen (stomach area), you are at a greater risk of developing Type II Diabetes than if your body stores fat primarily in your hips or thighs (Mayo Clinic, 2015).

[3) Inactivity: Exercise and physical activity are incredibly important. The less active you are, the greater your risk of developing Type II Diabetes. Participating in physical

activity helps you to control your weight and also uses up glucose and energy, making your cells more sensitive to insulin(Mayo Clinic, 2015).

[4] Family History: You are at a greater risk for Type II Diabetes if one of your parents or siblings has had the chronic disease(Mayo Clinic, 2015).

[5] Race: Although it is unclear as to why, Blacks, Hispanics, American Indians, and Asian Americans are at a greater risk for Type II Diabetes than Whites(Mayo Clinic, 2015).

[6] Age: Your risk for Type II Diabetes increases as you get older, particularly once you hit age 45. This is likely tied to the fact that individuals typically tend to exercise less, lose muscle mass, and gain weight as they get older(Mayo Clinic, 2015).

[7] Prediabetes: Prediabetes is a condition in which your blood sugar levels are elevated above normal levels, but are not high enough to be classified as diabetes. If left untreated, this condition can progress to Type II Diabetes(Mayo Clinic, 2015).

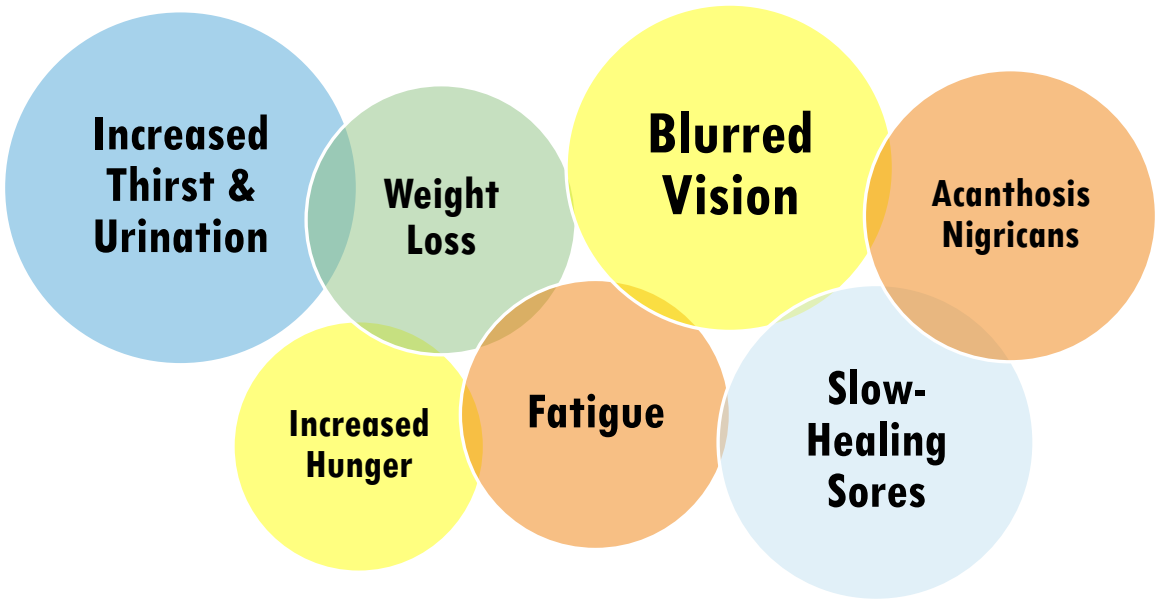
[8] Gestational Diabetes: Gestational diabetes is diabetes that develops during and as a result of pregnancy, usually around the 24th week of pregnancy. Having gestational diabetes does mean that you will certainly have diabetes after your pregnancy(American Diabetes Association, 2016b). However, having gestational diabetes does increase a woman's risk of developing Type II Diabetes later on. You are also at increased risk for Type II Diabetes if you give birth to baby that weighs more than 9 pounds(Mayo Clinic, 2015).

[9] Polycystic Ovarian Syndrome:

Polycystic Ovarian Syndrome is a condition characterized by irregular menstrual periods, excess hair growth, and obesity. Having this condition increases a woman's risk of developing Type II Diabetes(Mayo Clinic, 2015).

WHAT ARE THE SIGNS AND SYMPTOMS OF TYPE II DIABETES?

Because signs and symptoms of Type II Diabetes generally develop slowly, the condition can go unnoticed for years. However, there are a number of symptoms that you and your healthcare provider can look out for. The following are some of the signs and symptoms your doctor will look for before diagnosing you with Type II Diabetes (Mayo Clinic, 2015).



[1) Increased Thirst and Frequent Urination: When you have Type II Diabetes, excess sugar builds up in the bloodstream. This causes fluid to be pulled from other tissues in the body, making you thirsty. As you drink more fluids to combat your thirst, you will likely have to use the bathroom more often.

[2) Increased Hunger: Because glucose builds up in the bloodstream instead of moving into cells, the muscles become depleted of energy. This lack of energy triggers intense hunger.

[3) Weight Loss: Despite eating more to relieve your hunger.

[4) Fatigue: Because the cells in your body are deprived of glucose, and thus energy, you may become tired and irritable.

[5) Blurred Vision: Because your blood sugar is so high, your body will pull fluid from other parts of the body to lower blood sugar. One of the places from which your body may pull fluid is the lenses of your eyes. This may blur your vision and affect your ability to focus your vision.

[6) Slow-healing Sores: Type II Diabetes affects your body's ability to heal and resist infections properly.

[7) Acanthosis Nigricans: Some people with Type II Diabetes develop Acanthosis Nigricans, which is a skin condition characterized by having velvety skin in the folds and creases of the body, usually in the armpits and on the neck. Having this skin condition is a sign of insulin resistance.

HOW IS TYPE II DIABETES DIAGNOSED?

Individuals will usually develop Type II Diabetes gradually, and will oftentimes show no or only minor symptoms early on. A routine check-up will typically detect unusually high blood sugar levels in the blood or urine. Your healthcare provider will likely then ask about any symptoms or other health conditions you may have (National Institute of Health, 2016).

To confirm a diabetes diagnosis, you will receive a physical examination and your blood sugar levels will be tested (MedLine Plus, 2016).

WHAT IS THE A1C TEST?

The primary laboratory test used to diagnose diabetes is the A1C test (National Institute of Health, 2016). It also goes by a number of other names, including an HbA1C test, a Glycated Hemoglobin test, a Diabetes-A1C, and several others. This test shows your average blood sugar levels over the last 2-3 months. An abnormal test result indicates that you have had high levels of sugar in your blood over a period of weeks to months (MedLine Plus, 2016). It is used both as a screening tool to diagnose diabetes and as a way to measure how well you have been managing your diabetes. Once you have been

diagnosed with Type II Diabetes, you should have an A1C test done every three to six months (2-4 times each year) (MedLine Plus, 2016).

An A1C test involves having a blood sample drawn in a lab. You may feel a slight pinch or a sting during the drawing of the sample, and you may have a slight bruise or experience some throbbing afterward (MedLine Plus, 2016).

The test result values and their interpretations for the A1C test are as follows:

Normal (no diabetes): less than 5.7%

Prediabetes: 5.7% - 6.4%

Diabetes: 6.5% or higher

If you have not already been diagnosed with diabetes and your test results come back higher than 6.4%, you may be diagnosed with diabetes. If you have been diagnosed, your doctor will talk with you about what blood glucose level range is right for you. For the majority of people with Type II Diabetes, the goal is control your blood glucose so that your A1C levels stay below 7% (MedLine Plus, 2016).

WHAT OTHER TESTS ARE USED TO DIAGNOSIS TYPE II DIABETES?

If access to the A1C test is limited, or if the A1C results are inaccurate, there are a few other ways in which your healthcare provider can diagnose your Type II Diabetes. Your A1C test results may be skewed or incorrect if you have any of the following conditions: anemia, kidney disease, or certain blood disorders, such as thalassemia. Certain medications can also affect your A1C test (MedLine Plus, 2016). Be sure to inform your doctor of any conditions you may have and any medications you are taking (Mayo Clinic, 2015).

If necessary, your doctor can run the random blood sugar test. For this test, you will have a blood sample drawn at a random time, regardless of when you last ate. A test result of 200mg/dL or higher suggests diabetes, especially if you are experiencing any of the signs or symptoms (Mayo Clinic, 2015).

Another test that can be run is the fasting blood sugar test. You will have a blood sample taken after you fast overnight. The values and their interpretations for this test are as follows:

Normal (no diabetes): 100mg/dL

Prediabetes: 100 – 125mg/dL

Diabetes: 126mg/dL or higher

If your test results come back higher than 125mg/dL, your doctor should run a second fasting blood sugar test to corroborate the first one before diagnosing you with diabetes (Mayo Clinic, 2015).

A third potential test is the oral glucose tolerance test. For this, you will fast overnight and your fasting blood sugar level will be measured. Afterward, you will drink a sugary liquid. Your blood sugar levels will then be tested periodically over the course of two hours (Mayo Clinic, 2015). The values and their interpretations for the follow-up tests are as follows:

Normal (no diabetes): 140mg/dL

Prediabetes: 140 – 199mg/dL

Diabetes: 200mg/dL or higher after 2hrs

HOW OFTEN SHOULD YOU BE SCREENED FOR DIABETES?

The American Diabetes Association recommends routine screenings for individuals age 45 and older, especially for individuals who are overweight. You should have tests run every three years as long as your results come back normal. If your results come back borderline abnormal or abnormal, ask your doctor when you should go back to have more tests taken. Your healthcare provider will also probably run specific test to distinguish your diabetes as Type II(Mayo Clinic, 2015).

HOW DOES TYPE II DIABETES COMPLICATE OTHER HEALTH ISSUES?

Type II Diabetes can be easy to ignore and write off as a minor condition, especially early on when your signs and symptoms are not severe and you feel relatively fine. However, as your diabetes continues to develop, it can affect many of the organs in your body, sometimes creating disabling and life-threatening comorbidities. Some of your major organs that can be impacted include your heart, blood vessels, nerves, eyes, and kidneys. Some of the potential health complications related to Type II Diabetes are listed below (Mayo Clinic, 2015).

[1) Heart and Blood Vessel Disease: Having Diabetes greatly increases your chances of developing a number of cardiovascular problems, including angina (coronary artery disease with chest pain), heart attack, stroke, atherosclerosis (narrowing of arteries), and hypertension (high blood pressure) (Mayo Clinic, 2015).

[2) Neuropathy (Nerve Damage): The walls of the capillaries (tiny blood vessels) that nourish your nerves can be damaged as a result of excess sugar in the bloodstream. The capillary walls in the legs are particularly at risk of damage. This can result in tingling, numbness, and burning or pain that typically begins at the ends of your extremities (toes or fingers) and gradually moves up the legs or arms. If you poorly manage and control your blood sugar, you may lose all sense of feeling in your affected limbs. Damage to nerves involved in digestion can lead to nausea, vomiting, diarrhea

and constipation. Additionally, erectile dysfunction may become an issue for men (Mayo Clinic, 2015).

[3) Nephropathy (Kidney Damage): There are millions of tiny blood vessel clusters in the kidneys that filter waste from the blood. Diabetes damages this system. Severe damage can result in kidney failure or irreversible end-stage kidney disease, which often requires dialysis or a kidney transplant (Mayo Clinic, 2015).

[4) Eye Damage: Having diabetes can cause damage to the blood vessels in your retinas (diabetic retinopathy). This condition can potentially cause blindness. Diabetes also leads to an increased risk of other serious vision impairments, including cataracts and glaucoma (Mayo Clinic, 2015).

[5) Foot Damage: Nerve damage and poor blood flow in the feet both increase risk of foot complications. Minor cuts and blisters may turn into serious infections and may heal poorly if left untreated. Severe damage often requires toe, foot, or even leg amputation (Mayo Clinic, 2015).

[6) Hearing Impairment: Hearing problems tend to be more common in individuals with Diabetes than in those who do not suffer from the chronic condition (Mayo Clinic, 2015).

[7) Skin Conditions: Because Type II Diabetes impairs the body's ability to heal and resist infections, you may be more susceptible to bacterial and fungal skin infections (Mayo Clinic, 2015).

[8) Alzheimer's Disease: Although the exact link between this disease and Type II Diabetes is unclear, having Type II Diabetes has been said to increase your risk of developing Alzheimer's. The risk of developing Alzheimer's is increased for individuals who poorly regulate their blood glucose levels (Mayo Clinic, 2015).

CHAPTER TWO.

HOW TO MANAGE TYPE II DIABETES

HOW CAN MEDICATIONS HELP YOUR TYPE II DIABETES?

Even though there is no cure for Type II Diabetes, there are many different options regarding treatment and care. Treatments include diet, exercise, and medication. Medications can be broken down into five categories: insulin, anti-diabetic medication, blood thinners, statin, and alternative medicines/other (Mayo Clinic, 2015).

INSULIN & BLOOD GLUCOSE MONITORS

Insulin is a naturally occurring hormone in the body, but people with Type II Diabetes cannot properly produce insulin and/or are resistant to the hormone. However, insulin is essential to energy production. Therefore, those with Type II Diabetes must receive regular insulin injections.

There are different types of insulin. The first type is called rapid-acting insulin. This type of insulin beings to work about fifteen minutes after injection, peaks within the body after an hour but continues to work for up to four hours. Another type is regular or short-acting insulin. This type usually reaches the bloodstream within thirty minutes after injection, peaks between two to three hours and works for approximately three to six hours. Next is intermediate-acting insulin, which reaches the bloodstream anywhere from two to four hours after injection, peaks four to twelve hours later, and works for about twelve to eighteen hours. Lastly is long-acting insulin which begins to work several hours after injection and tends to lower blood sugar levels evenly over a twenty-four-hour period (American Diabetes Association, 2016c). Insulin injections are often combined with other medications, such as diabetic pills, in order to more effectively manage Type II Diabetes (American Diabetes Association, 2016c).

A life-saving device, called a Blood Glucose Monitor, helps those with Type II Diabetes better manage their condition. This device is used at home to measure the amount of glucose within your blood at any given time. To use the device, you first prick your finger with a small needle to get a drop of blood. Then you'll place the blood on a "test strip"

that is then inserted into your meter. The test strip has chemicals that react with the glucose in your blood, so the device can report glucose levels. It is very important to have this device because it detect dangerously high or low levels of glucose, determine your daily adjustments in treatment, and it can help you understand how diet and exercise can change your glucose levels. Furthermore, since each person with Type II Diabetes is different, you should follow your doctor's recommendations regarding how often you should test your glucose (U.S. Food and Drug, 2016).

Some other important things to know about insulin include site injection, timing, and delivery. You should inject insulin into the same general area of the body every time for consistency, but not in the exact same place. Injections should also be given with meals to effectively process the glucose that'll be entering your body (American Diabetes Association, 2016c). Additionally, there are other devices used besides a syringe to inject insulin, which include insulin pens or insulin pumps. An insulin pen looks like a fountain pen and holds replaceable cartridges of insulin (American Diabetes Association, 2016c). Insulin pumps are devices that deliver insulin through a catheter, which is a flexible plastic tube. The catheter is inserted through the skin and is taped into place. Pumps can be programmed to release continual small doses of insulin throughout the day or can release a surge dose closer to mealtimes to help control the rise of blood sugar levels. This delivery system is the closest method that mimics the body's natural release of insulin (American Diabetes Association, 2016c). It is important to remember to talk to your doctor before starting any new type of medication and learn how to properly self-administer insulin.

http://www.revolutionhealthsarasota.com/

ANTI-DIABETIC

The second category for Type II Diabetes management is anti-diabetic medications. These drugs help control the amount of sugar in the blood and can be further broken down into several classes (American Diabetes Association, 2016d).

The first class of anti-diabetic medications help your body secrete more insulin by stimulating beta cells, which are a type of cell that stores and produces insulin simultaneously within the pancreas (Diabetes UK, 2015; Mayo Clinic, 2015). Some examples include DiaBeta, Glynase, Glucotrol, and Amaryl (Diabetes UK, 2015).

The second class of anti-diabetic medications works like the first by stimulating beta cells in your pancreas to secrete more insulin. Examples include Prandin and Starlix. However, because both anti-diabetic medications stimulate the release of insulin, there is a possibility of developing hypoglycemia (low blood sugar). This is because insulin secretions result in an increased breakdown of glucose or sugars within the blood (Mayo Clinic, 2015).

Another common second class anti-diabetic medication works by decreasing the amount of glucose produced by the liver. They help lower blood sugar by making your body's tissues more sensitive to insulin, so glucose can be absorbed properly (Diabetes UK, 2015; Mayo Clinic, 2015). An example of this anti-diabetic medication is Glucophage. Doctors typically recommend trying Glucophage first.

The final two classes of anti-diabetic medications are new classes of medications. The first are called DDP-4 inhibitors. They help lower blood sugar levels by preventing the breakdown of GLP-1, which reduces blood sugar levels in the body. By interfering with the breakdown of GLP-1, DPP-4 inhibitors allow GLP-1 to remain active in the body longer, which allows the body to lower blood sugar levels only when they are elevated (Tsai, 2015). This process mimics the body's natural process of lowering blood sugar.

The last class of anti-diabetic medication are called SGLT2 inhibitors. They work by preventing the kidneys from reabsorbing sugar into the blood. Instead, excess sugar is eliminated through the urine (Tsai, 2015).

All of the anti-diabetic medications mentioned are taken orally. Additionally, one or more of the anti-diabetic medications may be taken together and are potentially more effective if taken simultaneously. However, taking multiple drugs can be costly and could potentially increase the risk of side effects (American Diabetes Association, 2016d). Due to possible medication interactions, it is essential that you tell your doctor about all medications you are taking before starting anything new, including over the counter medications (American Diabetes Association, 2015).

BLOOD THINNERS

The third category of medication used to manage Type II Diabetes is blood thinners. A commonly used type of blood thinner is aspirin. Taking 100mg of aspirin twice daily reduces your risk of developing heart disease. Aspirin helps keep red blood cells from clumping together, which is commonly seen in people with diabetes (American Diabetes Association, 2016a). When these blood cells clump together, a blood clot can potentially form and narrow or block a blood vessel. This could lead to a heart attack or stroke (American Diabetes Association, 2016a). Thus, by taking aspirin, you can reduce your chances of having a heart attack and/or stroke.

STATINS

The fourth category of medication used to manage Type II Diabetes is Statin. Statins are cholesterol lowering drugs that decrease the liver's production of harmful cholesterol (Diabetes UK, 2017). Statins work by changing the way the liver manufactures cholesterol. It lowers levels of LDL cholesterol (aka "bad" cholesterol) and raises levels of HDL (aka "good" cholesterol) (Diabetes UK, 2017). Some examples of Statins prescribed are Lipitor, Lescol, Mevacor, and Altocor. Statins are frequently used

because people with Type II Diabetes have a greater chance of developing heart disease and having a heart attack or stroke (Diabetes UK, 2017).

ALTERNATIVE MEDICINES

Besides traditional forms of medication, there are also alternative forms of management, including natural remedies and surgery. It has not been proven that dietary or herbal supplements help manage diabetes, so you should consult your doctor before taking any kind of supplement (American Diabetes Association, 2017). Also, if you decide to try an alternative therapy do not stop taking the medications that your doctor has prescribed. There is no treatment (traditional or alternative) that can cure diabetes, so it is critical for people who are on medications (insulin or other) to continue using their prescribed treatment unless directed otherwise by their doctor (Mayo Clinic, 2015).

Additionally, surgery is another alternative form of management. Because obesity is the primary cause of Type II Diabetes, bariatric surgery is an option for patients who have a body mass index (BMI) of 35 or above (American Society for Metabolic and Bariatric Surgery, 2014; Mayo Clinic, 2015). According to the American Society for Metabolic and Bariatric Surgery (ASMBS), “Surgery improves Type II Diabetes in nearly 90% of patients by lowering blood sugar, reducing the dosage and type of medication required, and improving diabetes-related health problems.” Additionally, the ASMBS says “Surgery causes Type II Diabetes to go into remission in 78% of individuals by reducing blood sugar levels to normal levels and eliminating the need for diabetes medication” (American Society for Metabolic and Bariatric Surgery, 2014).

The four types of surgeries are gastric bypass, sleeve gastrectomy, adjustable gastric band, and duodenal switch. The primary objective of the bariatric surgeries is weight loss. The gastric bypass surgery involves altering the gastrointestinal tract causing food to detour most of the stomach and upper part of the small intestine. The gastric bypass surgery is the most common type of bariatric surgery and has the highest success rate. Sleeve gastrectomy is an operation that removes a large part of the stomach. Next, the

adjustable gastric band procedure involves placing a band around the upper part of the stomach, which will limit the amount of the food that will fit into the stomach. Lastly, the duodenal switch is a surgery that alters the way your stomach absorbs nutrients. The duodenal switch is not performed as often due to the complexity of the procedure and high risk for complications (American Society for Metabolic and Bariatric Surgery, 2014).

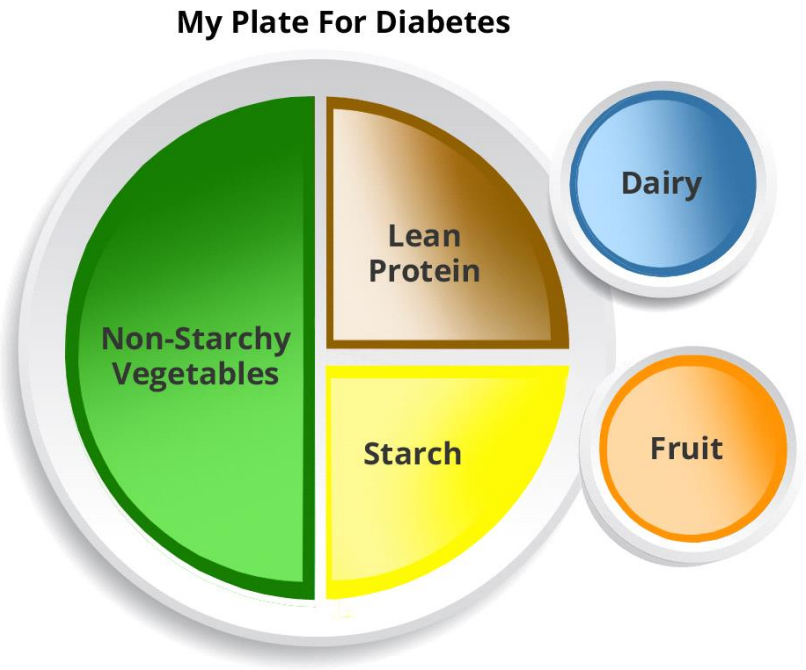
If you are considering surgery, you should first attend a patient education seminar. This seminar informs potential patients on the various types of surgeries available. Then you'll consult with surgeons, attend nutrition and behavior modification classes, consult with a dietitian and mental health professional, complete preliminary tests, screenings, and, finally, obtain any other necessary clearances. This can take three to six weeks to accomplish. Once you have completed all the necessary forms, a committee will meet to review your information and verify that you're a qualified candidate for the surgery. Next, you'll get insurance authorization, attend a preoperative education class, and complete any preoperative paperwork. Then you will have the surgery. The surgery will take between one to three hours, and you will typically spend two nights at the hospital depending on the surgery. Overall, the full process from consultation to surgery generally takes three to four months. On top of that, once the surgery is performed, you will have weekly follow up visits that will eventually become annual visits (Cedars-Sinai, 2014). This is a very intensive and prolonged process, so for more information about bariatric surgery including the risks and benefits, you should contact your doctor.

HOW CAN CHANGING YOUR DIET HELP YOUR TYPE II DIABETES?

Nutrition and physical activity play an important role in the lifestyle of individuals diagnosed with Type II Diabetes. It is important to have a balance between your food, physical activity, and medications in order to keep your glucose levels in the target range. Often times, your physician will refer you to a registered dietitian (R.D.) to determine a healthy eating plan. That process is often referred to as medical nutrition therapy (National Institute of Diabetes and Digestive and Kidney Diseases, 2016). The plan helps control glucose levels, manage weight, and control risk factors for heart disease, such as high blood pressure. Most diets are based on eating meals three times a day at regular time intervals (Mayo Clinic, 2015). There are two ways to create a meal plan: the plate method and carbohydrate counting.

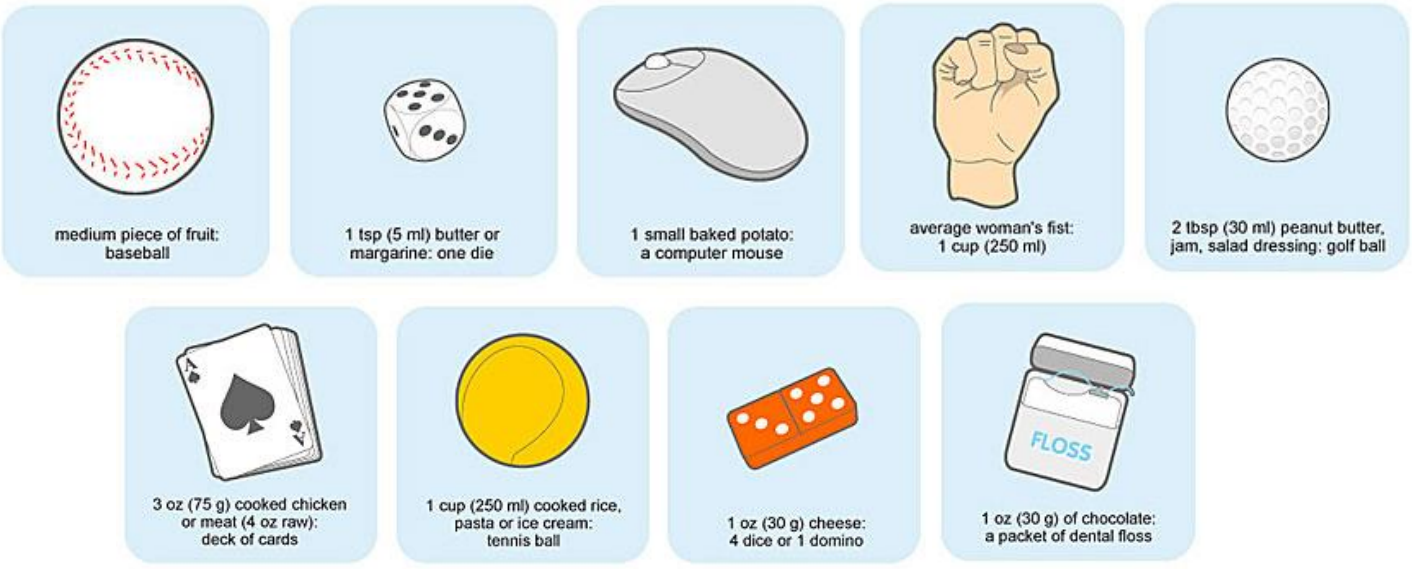
THE PLATE METHOD

The plate method helps control portion size. Using a 9-inch plate, divide the plate in half. Then divide one of halves in half. Half of your plate should contain non-starchy vegetables. One fourth should be used for grains or a starch, and the remaining fourth should be used for a meat. Here is an example:



http://sites.psu.edu/nmcnutr/wp-content/uploads/sites/34552/2015/11/My-Plate-Diabetes.jpg

PORTION SIZE is a huge factor in healthy eating, but if dividing up your plate is not as helpful, there are several other ways to consider portions. Here are some everyday objects that can be used to determine food portions:

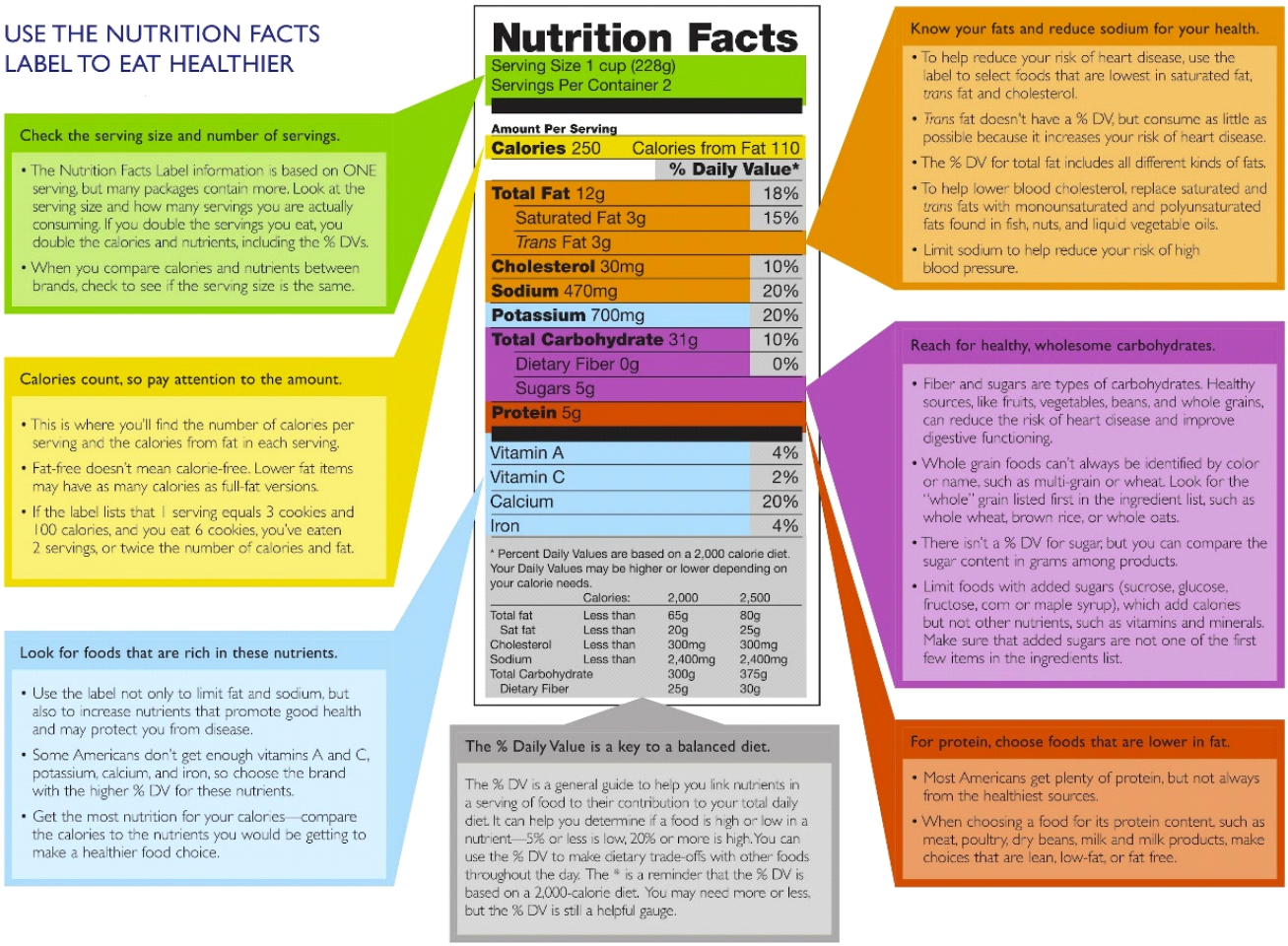


http://remakemyplate.com/resources-tips-and-tools/size-it-up-portion-sizes/

THE CARBOHYDRATE COUNTING METHOD

Carbohydrate counting involves keeping track of the number of carbohydrates that you take in throughout the day. The right number of carbohydrates is dependent on how active you are and what medications you take. Carbohydrate counting may not be 100% accurate, but by using specified portion sizes, general estimates can be found. You can find the number of carbohydrates in foods at grocery stores by reading the nutrition label on the package. The total number of carbohydrates is listed in grams along with the percent daily value. Depending on the number of carbohydrates your dietician has recommended, this number can help you keep count based on the serving size. Typically, based on a 2,000 calorie diet, it is recommended to eat at least 300 g of carbohydrates each day. Therefore, using the figure below, the total number of carbohydrates is 31 g which is an estimated 10% of the daily value.

The figure below gives more detailed instructions on how to read a label:



http://sites.psu.edu/nmcnutr/2015/11/09/how-to-read-a-nutrition-label/

RECOMMENDED FOODS

There are a few recommended food groups to keep in mind when on a diabetic meal plan. During digestion, carbohydrates are broken down into glucose. Try to limit foods with added sugars or refined grains, such as white bread and white rice. Instead, get your carbohydrates from fruit, vegetables, whole grains, legumes, and low-fat or nonfat dairy products (Mayo Clinic, 2015).

Fiber-rich foods such as vegetables, fruit, and whole wheat bran help control how your body digests food and helps control blood sugar levels. It is important to eat a diet rich

in fiber. Additionally, eating fish twice a week, such as salmon and tuna, promotes heart health by lowering blood fats. Also, try to incorporate “good fats” such as avocados, almonds, peanuts, and olive oil into your diet. These “good fats” help lower cholesterol levels which also reduces the risk of heart disease (Mayo Clinic, 2015).

FOODS TO AVOID

It is important to avoid saturated fats, such as animal fats including beef or high-fat dairy products. Also try avoiding trans-fats, which can be found in processed foods, baked goods, and margarine. Reduce your intake of foods high in cholesterol like egg yolks or liver protein. You should aim for no more than 200mg of cholesterol a day. Also, try to avoid foods high in sodium. You should not intake more than 2,300mg of sodium a day (Mayo Clinic, 2015).

EXAMPLE OF WHAT TO EAT USING DIETARY GUIDELINES

BREAKFAST →

1 Slice of whole-wheat bread with 2 teaspoons jelly
1/2 cup shredded wheat cereal with a cup of 1 percent low-fat milk
A piece of fruit
Coffee

LUNCH →

Cheese and veggie pita
Medium apple with 2 tablespoons almond butter
Water

DINNER →

Salmon with 1 1/2 teaspoons vegetable oil
Small baked potato
1/2 cup carrots
Side salad (1 1/2 cups spinach, 1/2 of a tomato, 1/4 cup chopped bell pepper, 2 teaspoons olive oil, 1 1/2 tsp red wine vinegar)
Unsweetened iced tea

SNACK →

2 1/2 cups popcorn or an orange
1/2 cup one percent low fat cottage cheese

HOW CAN EXERCISE HELP YOUR TYPE II DIABETES?

Being active is very important and has many health benefits, especially for individuals with diabetes. Because skeletal muscles and the brain use glucose as fuel during exercise, physical activity makes cells more sensitive to insulin. During exercise the cells work more efficiently and remove more glucose from the blood. This ultimately lowers blood glucose levels. Exercise also improves blood flow, mood, memory, sleep patterns, and prevents falls in older adults. For those who are overweight, combining physical activity with a reduced-calorie diet is even more beneficial (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

It is recommended that you get at least 30 minutes of moderate or vigorous activity at least 5 times a week. Moderate activity feels somewhat hard to do and vigorous activity feels difficult to do. You may need to aim for 60 minutes of physical activity each time instead of 30 minutes if you are hoping to lose weight or maintain your weight loss (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

HOW TO SAFELY EXERCISE WITH DIABETES

It is always important to ensure your safety when participating in physical activity. The following are a few ways in which you can maximize your safety when exercising or planning to exercise:

[1) Plan Ahead: Before incorporating a new physical activity routine into your schedule, you should talk to your doctor or healthcare provider. Your provider(s) can help you develop an exercise schedule and can give you tips on how to exercise safely (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

[2) Prevent Low Blood Glucose: Physical activity causes hypoglycemia, or low blood glucose. Hypoglycemia can occur up to 24 hours after exercising, and usually occurs after a long rigorous workout or if you skipped a meal before you participated in physical activity. Individuals taking insulin or other certain diabetes medications are at a higher

risk of experiencing hypoglycemia during or after physical activity. You will likely need to balance your physical activity with your meals and insulin doses to avoid low blood sugar. Again, speaking to your healthcare provider is key. They may be able to provide you with tips on how and when to exercise. They may also direct you on whether to take your insulin or eat a carbohydrate-heavy snack before, during, or after physical activity. You may need to use your blood glucose monitor to keep track of your blood sugar before, during, and/or after you participate in physical activities (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

[3) Take Care of Your Feet: Individuals with Type II Diabetes often have health complications involving their feet due to poor blood circulation and nerve damage. You should wear comfortable and supportive shoes to prevent foot problems. Although this applies during physical activity, it is also recommended to be cautious of your shoes on a daily basis (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

CREATING A DAILY PHYSICAL ACTIVITY ROUTINE

Older adults that are typically inactive may feel that beginning and maintaining an exercise routine may be not be achievable for them. However, there are many ways to slowly incorporate exercise into your daily activities. The key for individuals who are just starting out is to start slow. Aim for as little as 5-10 minutes each day and add a little more time each week. You can start out simply watching less TV or spending less of your free time on a computer. This will allow you to be more active and is a simple behavior change. You can also get up and walk around when commercials come on TV or while you're talking on the phone. You can park farther from your work building so you have to walk across the parking lot. Or you can take the stairs instead of the elevator. Doing chores that require some activity, such as washing your car or gardening, is also a good idea (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

For those who find themselves sitting for long periods of time, whether at a desk at work or watching TV at home, you can do light activities for about 3 minutes every half hour. Options include leg lifts or extensions, desk chair swivels, overhead arm stretches and

more (National Institute of Diabetes and Digestive and Kidney Diseases, 2016). You can also try stretching exercises which relieves stress, increases flexibility, and help to increase blood flow.

You do not have to start out doing very rigorous or difficult activities. You can slowly incorporate more and more activity into your schedule over time. Just remember, something is better than nothing.

AEROBIC EXERCISE

Aerobic exercise makes your heart work harder and beat faster, and makes you breathe harder. Aerobic exercises can include dancing, walking briskly, hiking, swimming, biking, running, or playing sports. You should aim for 30 minutes a day. It is important to note that you do not have to do all your daily aerobic exercise at once. You can split up the exercise and get active a few times each day. To maximize the benefits of your aerobic exercise, your exercise should be at a moderate or vigorous level. Be sure to talk with your healthcare provider about the proper ways to warm up prior to and cool down after your exercise (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

STRENGTH TRAINING

Strength training is another form of exercise that is recommended for individuals with Type II Diabetes, and it is important for both men and women. Strength training builds muscle and maintains bone health (National Institute of Diabetes and Digestive and Kidney Diseases, 2016). When you build more muscle and lose body fat, you will actually burn more calories, which can help you lose and keep off excess weight. There are a number of different ways you can do strength training exercises. You can use hand weights, elastic bands, or weight machines. Start with small weights, slowly increasing the size. Aim to participate in strength training 2-3 times per week at a light to moderate level. Be sure to talk to your doctor before participating in strength training (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

STRETCHING EXERCISES

Lastly, stretching, a light or moderate physical activity, is a very important part of any exercise routine. Stretching improves flexibility, lowers stress, and help prevent having sore muscles. There are numerous types of stretching exercises as well. Yoga is very popular and is a form of stretching that emphasizes breathing and relaxation. Yoga can even be modified for individuals who have a hard time moving or balancing. Just as any form of exercise, discuss with your doctor whether yoga, and which other forms of stretching, would be safest and most beneficial to you (National Institute of Diabetes and Digestive and Kidney Diseases, 2016).

A SAMPLE 7-DAY EXERCISE ROUTINE

SUNDAY →	Take a walk in the park in the early morning for 30 minutes
MONDAY→	Take a walk during your lunch break for 20 minutes
TUESDAY→	Do 10 leg-lifts and 10 sit-ups before dinner
WEDNESDAY→	Participate in a 45 minute yoga class
THURSDAY→	Do 15 leg-lifts and 15 push-ups before going to bed
FRIDAY→	Park at the far end of the lot and walk, this should take 10 minutes
SATURDAY→	Take time and wash your car. This should take at least 30 minutes

(BD Medical Technology, 2012)

WHERE TO GET PHYSICALLY ACTIVE IN ATHENS, GA

There are several fitness facilities in Athens, GA that offer access to gym space, equipment, personal trainers, and fitness classes. Listed below are a few options.

CRUNCH FITNESS

(706) 850-9900
196 Alps Rd. Athens, GA 30606
www.crunch.com
Crunch Fitness offers membership for as low as $9.95 a month. You can even fill out a form for a 1 day free pass. They offer a wide range of high intensity classes including cycling, Zumba, and Pilates. Personal trainers are also available.

YMCA

(706) 543-6596
915 Hawthorne Ave. Athens, GA 30606
www.athensymca.org
The YMCA Athens offer classes at various intensity, such as yoga and boot camp. Membership rate is based on age. Seniors age 60 and plus can pay as low as $31 dollars through direct bank account draft.

ORANGE THEORY FITNESS

(706) 521-0595
196 Alps Rd. Athens, GA 30606
www.orangetheoryfitness.com
Orange Theory Fitness offers three different memberships. Basic includes 4 sessions per month, elite includes 8 sessions per month, and premier offers an unlimited number of session per month. You can sign up for a free 1-hour workout.

ABOVE BARRE

(706) 521-5188
2631 W Broad St. Athens, GA 30606
www.abovebarre.com/classes
Above Barre offers fitness classes that help strengthen, lengthen, and tone muscles. They offer three 55 minute classes, including Classic Barre, Core-Express, and HIIT Barre.

CHAPTER THREE.

GET HELP MANAGING YOUR TYPE II DIABETES

GET HELP MANAGING YOUR TYPE II DIABETES

JOINING LOCAL SUPPORT GROUP

Being diagnosed with Type II Diabetes can be a daunting and emotional process, but it is important to know that you're not alone. One way to take control of your health, mental and physical, is by joining a local support group. Coping is easier within a supportive community of people undergoing similar experiences. Through a support group, you will be able to understand how others manage their Type II Diabetes, and you will be able to learn from their experiences. Living with Type II Diabetes requires you to change many aspects of your life, including your diet, physical activity, social settings, and medications. However, making changes along with others in a support group has been proven to be more effective. In fact, health improvements begin to diminish within six months without ongoing support. However, for individuals who regularly attended support group meetings, maintaining and building on their health improvements is much more manageable and successful (Theobald, 2014).

Although, before joining a local support group, there may be factors you want to consider. Most importantly, would you prefer an online support group or one that meets in person? There are many reputable national online support groups, and many are headed by the American Diabetes Association (ADA). Joining an online support group allows for anonymity and, for some, remaining anonymous makes it easier to ask questions. Online support groups can also be beneficial for those living in areas that do not have access to local, in-person support groups, and they also have the advantage of being available 24/7. However, many find in-person support groups to be more to their liking. In-person support groups have the benefit of face-to-face, one-on-one conversations. One of the biggest advantages of in-person support groups is the opportunity to make friends within your group. Making connections with people in the support group will help you look forward to meeting on a regular basis (Theobald, 2014).

LOCAL EDUCATIONAL RESOURCES

Within the Athens-Clarke County area, there are multiple resources for those with Type II Diabetes. For example, St. Mary's Hospital is a reliable resource that provides diabetes self-management classes. Students in these classes learn about healthy eating, physical activity, medical management of diabetes, and how they can reduce risk of long-term complications. Additionally, these classes are not just for people who have been newly diagnosed with diabetes. Anyone who has previously been diagnosed, needs updated information, or is a family member or friend looking for information on how to help a loved one manage Type II Diabetes is welcome. Those who need insulin pump training or anyone affected by diabetes during pregnancy can also benefit from these educational programs (St. Mary's Health Care System, 2014).

More information about local support groups in Athens-Clarke County and Gwinnett County can be found below:

SUPPORT GROUPS IN ATHENS-CLARKE COUNTY:

DIABETES EDUCATION PROGRAM

Hawthorne Internal Medicine
(706) 353-8700
120 Hawthorne Park Athens, GA 30606

OUTPATIENT DIABETES EDUCATION PROGRAM

Athens Regional Medical Center
(706) 549-9977
1199 Prince Avenue Athens, GA 30606

ST. MARY'S WELLNESS CENTER DIABETES EDUCATION PROGRAM

St. Mary's Health Care System Inc.
(706) 613-9355
105 Trinity Place Athens, GA 30606

SUPPORT GROUPS IN GWINNETT COUNTY:

OUTPATIENT DIABETES EDUCATION SERVICES

Nutrition & Lifestyle Center in Gwinnett Hospital System
(678) 584-7660
3855 Pleasant Hill Road, Suite 130 Duluth, GA 30096

OUTPATIENT DIABETES EDUCATION SERVICES

Gwinnett Medical Center
100 Medical Center Blvd, Suite 290 Lawrenceville, GA 30045

OUTPATIENT DIABETES PROGRAM

Emory Eastside Medical Center
(770) 736-2513
1700 Medical Way Snellville, GA 30078

ENDOCRINOLOGISTS IN ATHENS, GA

Endocrinologists are practitioners who treat disorders of the internal glands, such as the thyroid and adrenal glands. These professionals specialize in disorders such as diabetes, as well as metabolic and nutritional disorders, pituitary diseases, and menstrual and sexual problems (MedicineNet, 2016). A list of available endocrinologists in Athens can be found below:

ISHWARBHAI V. THAKKAR AIYAN DIABETES CENTER

(706) 850-7346
1270 Prince Ave Athens, GA 30606

CARLOS M. COSSIO, M.D.

(706) 613-0313
1077 Baxter St, Suite K Athens, GA 30606

NORTHEAST GEORGIA DIAGNOSTIC CLINIC

(770) 536-9864
1240 Jesse Jewell Pkwy SE, Suite 500 Gainesville, GA 30501

ONLINE RESOURCES & HELPLINES

AMERICAN DABETES ASSOCIATION (ADA)

http://www.diabetes.org/?referrer=https://www.google.com/
HOTLINE: 1-800-DIABETES

CENTER FOR DISEASE CONTROL AND PREVENTION (CDC)

https://www.cdc.gov/diabetes/home/

NATIONAL INSITUTE OF HEALTH (NIH)

https://www.niddk.nih.gov/health-information/diabetes

RESOURCES

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