
Authors: Mei Yook Woo
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This presentation is intended to be used by clinicians during discussions with patients about carbohydrates and blood glucose. It is culturally tailored to reflect foods commonly consumed by Ethiopian and Eritrean Americans.

Background:
Harborview Medical Center (HMC) physician Dr. Carey Jackson identified a need for a culturally-tailored visual reference tool to use during conversations about diet with diabetic patients. Author Mei Yook Woo created this tool to fulfill practicum requirements for the University of Washington’s School of Public Health, Nutritional Sciences. The project was coordinated by Ethnomed.org’s student author program, Contribution Pathways.

Methods/Acknowledgements:
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https://commons.wikimedia.org/wiki/File:Cucurbita_pepo_Summer_Squash_Yellow_and_Green_Zucchini_zucchine.jpg
Mohammed Abdul-Kadir: Shorba [pg 122]
Mrs. Keo Chanbo: www.chanbokeo.com
Foods and drinks are made up of carbohydrates, proteins, and fats.

Carbohydrates are used by the body for energy. When you eat them, they raise blood sugar. If you have diabetes, your body cannot control this rise in blood sugar in a normal, healthy way.
If you have diabetes, it is important to keep your blood sugar as normal as possible. You can do this by making healthier food choices. You can still eat carbohydrates, but you should eat less of them.
If you control your blood sugar well, this can help reduce the need for medications and help prevent blindness, kidney problems, amputations, and other complications from diabetes. A healthy lifestyle may also help reduce risk factors of other problems like hypertension, stroke, and heart attack.
Introduction

Insulin is one type of medication that may be necessary for management of your blood sugar. Insulin is a hormone that your body makes naturally. With diabetes, you may need additional insulin because your body is not making the right amount.
Your blood sugar levels may improve with a healthy diet, exercise, and correct use of medications. If your blood sugar levels improve, this does not mean that your diabetes is cured. You still need to follow diet, exercise, and medication recommendations to control your blood sugar.
Most foods and drinks have carbohydrates and raise blood sugar. However, some foods and drinks raise blood sugar more than others do. People with diabetes need to pay special attention to carbohydrates.
When you first learned that you had diabetes, your health care provider probably asked you about what you eat between the time you wake up and the time you go to bed. Sometimes people think that the provider is asking only about the main meals eaten in the morning, afternoon, and evening. But your provider is asking about all food and drinks that you eat or drink – even if you did not have a hot meal or a meal that you shared with others.
For example, maybe you stopped by a café or friend’s house on the way home from work to have a snack or drink. Because you have diabetes, it is especially important to think about all the food and drink you have during the day and evening. This is because many foods and drinks raise blood sugar.
To improve your diabetes, it may not be necessary to change which foods you eat. Eating more of some foods and less of others may be helpful.
If you came to the United States from Ethiopia or Eritrea, your lifestyle has probably changed a lot. The American lifestyle is less active, so your body may not need as much energy from food as it did in Ethiopia or Eritrea. In addition, our bodies need less energy from food as we age.
Many people with diabetes want to eat the same foods that their families are eating. Changing the portions of these foods can help with your diabetes. If you eat or drink more than one item that will raise blood sugar at a meal, you should have a smaller amount of each of those items.
This presentation can show you the types and amount of food to eat to help control your blood sugar.
Carbohydrates:
Introduction
Carbohydrates: Introduction

Carbohydrates raise blood sugar. Many foods and drinks contain carbohydrates, like:

- Starches
- Fruit
- Dairy Products
- Sweets
Carbohydrates:
Starches
Starches raise blood sugar. Examples of starches include injera, grains, beans, bread, baguettes, pasta, porridge, and some vegetables.
Foods that are made of whole grains are healthier for you than grains that are processed. When grains are processed, most of the fiber, vitamins and minerals are removed. Whole grains slow digestion and keep you full longer.
Teff and barley are both examples of whole grains. You can buy pasta, brown rice, and breads that are made with whole grains. These whole grain products are more nutritious, but they will still increase blood sugar.
Examples of whole grain starches include:

- Injera made from 100% teff
- Bread made from 100% whole wheat flour
- Pasta made from 100% whole grain
In the Ethiopian and Eritrean culture, injera is an important staple in the diet. This may make it hard to control diabetes because injera raises blood sugar.
Teff is a whole grain. Choosing injera made with 100% teff is healthier because it has more nutrients, but it will still increase blood sugar.
For someone with diabetes, changing how much injera you eat can lead to lower blood sugar. Whether choosing 100% teff injera or injera made with self-rising flour, keep portions small during mealtime.
The pictures on the following slide show the appropriate portion of injera for one meal. Note that the portions are appropriate only if injera is the only carbohydrate in the meal.
This picture shows ½ injera on the left next to a whole injera on the right. ½ injera is an appropriate portion for one meal. This amount should be the same for 100% teff or self-rising flour injera. These portions are appropriate only if injera is the only carbohydrate in the meal.
These foods contain injera and raise blood sugar. When you make fitfit or firfir for yourself, only use ½ injera. The appropriate portion of fitfit or firfir is 1 cup, which is about the size of your fist.
Like injera, bread raises blood sugar. Whole wheat bread is healthier than white bread, however all types of bread raise blood sugar. If you’re eating sliced bread, 2 pieces is the correct portion size for one meal.
Carbohydrates: Starches

1 piece of baguette the size of your hand.

2 palm size pieces of kita.

These are the correct portions for baguette and kita.
Because bread is made from flour, it raises blood sugar. Adding sugar or jam will raise blood sugar even more.
2 ያስታ እኹል መንገድ ሰብ።
2 cups of pasta is too large a portion.

1 ያስታ እኹል መንገድ ሰብ።
1 cup of pasta is the right amount.

Limit noodles or pasta to 1 cup per meal. One cup of cooked noodles or pasta is about the size of your fist. Note that 1 cup is the correct amount if cooked noodles or pasta are the only carbohydrate in the meal. Keep in mind, if you are having injera or other carbohydrates at the same time, you cannot have this much pasta.
Like bread, rice raises blood sugar. Brown rice is healthier than white rice. However, all types of rice raise blood sugar.
One cup of cooked rice is the correct portion size for one meal. The amount should be the same for white and brown rice. One cup of rice is about the size of your fist. **Note that 1 cup is the correct amount only if cooked rice is the only carbohydrate in the meal.** Keep in mind, if you are having lentils, injera, or other foods that have carbohydrates at the same time, you cannot have this much rice.
Oatmeal raises blood sugar. One cup of cooked oatmeal is the right portion for one meal. One cup of cooked oatmeal is about the size of your fist. Adding sugar, fruit, or jam to oatmeal will raise blood sugar even more. Making porridge from barley, wheat or pancake mixes will also raise your blood sugar.
Cereals are carbohydrates, too. Non-sugary cereals, such as cornflakes and Cheerios will raise blood sugar. They do not raise blood sugar as much as sugary cereals.
Sugary cereals, such as Frosted Flakes, Raisin Bran, and Honey Nut Cheerios raise blood sugar a lot. People with diabetes should avoid sugary cereals.
These are vegetables, but they are also starches. They are carbohydrates and raise blood sugar. Eat small amounts of them. One cup of these cooked starchy vegetables, or a fist sized portion, is the correct portion if they are the only carbohydrate in a meal.
Lentils, garbanzo beans, and yellow split peas are starches, but they also have some protein. Because they are starches, they will raise blood sugar. They are carbohydrates, similar to injera and bread.
Limit cooked lentils and cooked beans to 1 cup per meal. **Note that 1 cup is the correct amount only if lentils are the only carbohydrate in the meal.** Remember if you are also having injera or pasta at the same time, you cannot have as many beans or lentils.
Carbohydrates: Starches

If you’re eating lentils or beans with injera, you can choose to either eat a ½ cup of lentils or beans with ½ injera or 1 cup of lentils or beans with ¼ injera. The pictures above show these two choices.
Carbohydrates:
Fruits
All fruits raise blood sugar. Fruit is healthy, but it should be eaten in small portions. Eating 1 to 2 portions of fruit per day as a snack (in between meals) is fine. These are the correct portions of fruit to eat.
Here are the recommended portions of fruit to eat.
Canned fruit will raise blood sugar a lot. Avoid canned fruit and eat fresh or frozen fruit, if possible.

Canned fruit has more sugar because it is stored in syrup. This raises blood sugar. Avoid canned fruit and eat fresh or frozen fruit, if possible.
Dates are a dried fruit

Raisins

Dried apricots

There is more sugar in dried fruit than there is in fresh fruit. It is healthier to eat fresh fruit, instead.
Carbohydrates:
Dairy
Milk raises blood sugar. Low fat milk is healthier, but will raise your blood sugar, too. Drink milk in small portions, whether full fat or low fat.
Yogurt can be a great snack. Flavored yogurts are higher in sugar and will raise your blood sugar more than plain yogurt. The correct portion of flavored and plain yogurts is pictured above.
Carbohydrates:
Sweets
Sweets have a lot of sugar and flour. They raise blood sugar.

People with diabetes should try to avoid sweets, or eat small amounts of them on special occasions.
These sweet foods will raise blood sugar a lot.
Drinks
Some drinks have very high amounts of sugar. They will raise blood sugar quickly and are unhealthy for people with diabetes.
Water is important for health. Water does not raise blood sugar.
Plain coffee or tea without milk and sugar do not raise blood sugar.
Adding sugar (white or brown) or honey to coffee or tea raises blood sugar. If tea or coffee is made in large amounts, prepare a plain cup without sugar or honey for yourself.
These are sugar substitutes. They can be used to sweeten drinks or other foods. They do not raise blood sugar.
100% fruit juices and smoothies contain a lot of sugar. It is best to avoid them. Instead, try eating a small amount of fresh fruit.
Soda is almost all sugar and raises blood sugar quickly. Try to avoid soda. Diet beverages are OK.
Different kinds of alcohol, such as tej, tella, beer, liquor, and wine, affect your blood sugar in different ways. Please discuss this with your provider. Do not drink alcohol on an empty stomach.
ተወሰኽ胫Extras
Spices, like berebere, do not raise blood sugar.

Cooking with flour or sugar will raise blood sugar.

People often add sugar, honey, flour, or spices to foods. These are used when marinating or breading meat. Adding sugar, honey, or flour raises blood sugar. Adding spices does not raise blood sugar.
You can buy sugar-free jam. It will raise your blood sugar less than regular jam.
Adding herbs and spices to food will not raise your blood sugar. Many of the spices commonly used in Ethiopian and Eritrean cooking have health benefits.
Salt does not raise blood sugar. However, salt can raise blood pressure. Eating less salt is good for everyone. Spices are a good replacement for salt.
Canned items, including canned fava beans, are also high in salt. Look for low-salt canned items. You can also drain and rinse regular canned beans prior to eating. **Note that 1 cup is the correct amount only if beans are the only carbohydrate in the meal.** Remember if you are also having injera or pasta at the same time, you cannot have as many beans.
Foods That Do Not Raise Blood Sugar
Proteins, fats, and non-starchy vegetables will not raise blood sugar. Examples include cooked lamb, canola oil, and collard greens.
Proteins
Proteins are foods that build muscle and help the body heal. When you eat a meal, include protein foods. Protein helps slow digestion of food. When digestion slows down, it helps slow the release of sugar into the blood. This will help keep blood sugar under control. Eating protein with your meal can also help you feel full longer.

Plain protein foods do not raise blood sugar. However, marinades, sauces and breading will raise blood sugar if they are made with sugar, honey, corn starch or flour.
These plain protein foods do not raise blood sugar.
These plain protein foods do not raise blood sugar.
Fats
Fat does not raise blood sugar, but too much fat is unhealthy. Adding too much fat can lead to weight gain and some fats cause heart disease.

To limit fat, buy leaner cuts of meat or trim the fat. Remove the skin from chicken before eating. If you are making a stew (wot), try skimming the grease off the top.
When preparing foods at high heat, like wots, make sure to use high heat fats like canola oil or butter. Even when using healthy oils it’s important to limit the amount used when cooking; use half the amount of oil or butter you normally use.
Non-Starchy Vegetables
Non-Starchy Vegetables

Vegetables that are non-starchy do not raise blood sugar.
These non-starchy vegetables do not raise blood sugar.
These non-starchy vegetables do not raise blood sugar.
Non-Starchy Vegetables

These non-starchy vegetables do not raise blood sugar.
These non-starchy vegetables do not raise blood sugar.
Non-Starchy Vegetables

These non-starchy vegetables do not raise blood sugar.
These non-starchy vegetables do not raise blood sugar.
This salad will not raise blood sugar. This salad does not have dressing on it yet.
Salad dressings will raise your blood sugar if they are made with sugar, honey, or corn syrup. Most bottled salad dressings contain sugar. You can make your own dressing with lemon, vinegar, and oil. This will not raise your blood sugar.
Non-Starchy Vegetables

Remember that some vegetables are starches. The starchy vegetables on the right will raise blood sugar. Eat smaller amounts of them. The vegetables on the left are not starchy. They will not raise blood sugar.
Meals
Portion control is important for good health. Portion control is especially important for people with diabetes. When eating together from one large plate, it can be more difficult to estimate portions. Placing your portions on a separate plate can help manage blood sugar.
Planning Meals

This plate shows healthy portions of different types of foods. Make half (½) of your plate non-starchy vegetables. Make one quarter (¼) of your plate a grain food, beans, or starchy vegetables. Make the other quarter (¼) of your plate protein.
Some people may want to have injera, lentils, and potatoes in the same meal at the same time. If you choose to eat all three, the portion of each starchy item should be smaller. This is because injera, lentils, and potatoes all raise blood sugar.
Planning Meals

It can be difficult to measure portions of food when eating from a shared platter. One way to help with portion control when eating from a communal platter is to separate the correct portion of injera, wot, salad, and vegetables on to a different plate.
Planning Meals

Make ¼ of your plate protein

Fill ½ your plate with non-starchy vegetables

Fill ¼ of your plate with starchy foods

Here are the steps to create a separate portion.
A healthy portion of protein – beef, lamb, chicken, or fish – for one meal is about the size of your palm or 1 cup, which is about the size of your fist.
If you are eating foods that raise blood sugar, eat them in smaller amounts. The following photographs show examples of meals that raise blood sugar more and meals that raise blood sugar less.
Comparing Meals

Which meal is better for someone with diabetes?
The meal on the right is better. Having ½ injera is better than having a full amount. Splenda is used instead of sugar in the coffee. There are more non-starchy vegetables.
Which meal is better for someone with diabetes?
The meal on the right is better. Having a smaller bowl of porridge is better than the larger portion. Splenda is used instead of sugar in the tea. The hard-boiled egg adds protein to the meal.
Which meal is better for someone with diabetes?
The meal on the right is better than the one on the left. It has fewer carbohydrates because there is one piece of bread and the tea is sweetened with Splenda instead of sugar. The bread is healthier because it is made of whole wheat flour.
Comparing Meals

Which meal is better for someone with diabetes?
Comparing Meals

The meal on the left is better than the one on the right because it has more vegetables, and less rice. The protein (chicken) fills ¼ of the plate, which is a healthy portion. This meal has brown rice, which is healthier than white rice.
Comparing Meals

Which meal is better for someone with diabetes?
Comparing Meals

The meal on the left is better than the one on the right because it has less pasta and includes a salad. The protein (meat sauce) fills ¼ of the plate, which is a healthy portion.
Which meal is better for someone with diabetes?

Which meal is better for someone with diabetes?
Comparing Meals

The picture on the right is better than the one on the left. The jam/marmalade is sugar-free and there is less bread. This meal uses Splenda instead of sugar to sweeten coffee.
Sometimes you may not be able to have three meals a day: for example, in the morning, afternoon, and evening. If you have diabetes, you should not go for long periods of time without eating. Waiting a long time between meals could lead to low blood sugar or even high blood sugar.

It is better for people with diabetes to have a small meal or snack every 4 hours during the day. This will help control blood sugar and reduce hunger.
Kolo is a snack made of roasted barely, which will raise blood sugar. The correct portion of kolo is ½ cup, which is about 1 handful. Popcorn is a snack made of corn, which will raise blood sugar. The correct portion of popcorn is 3 cups popped.
Fasting
Fasting is very important for Christian-Orthodox and Muslim people. For people with diabetes, it can be difficult to control blood sugar during fasts. The following slide lists fasting periods throughout the year.
Fasting

Christian-Orthodox

• ከአ ንር ድሬም ፈርድ ቤት እስከ እጋ ከአ ከሆ ከራ የጋ መጋፍ ይሆንታት። ከአ ከራ ድሬም ይሆንታት እጋ ከነ የጋ መጋፍ ዋወ ከአ ከራ ድሬም ይሆንታት።

All Wednesdays and Fridays, except for the fifty days after Easter, and also if the Feasts of Christmas and Epiphany fall on these days.

• ከአ ከር ድሬም ያሩ ያሉ የጋ መጋፍ ይሆንታት ባ ከአ ከራ ድሬም ይሆንታት።

The Great Lent Fast of fifty-five days. (Abye Tsome)

• ከአ ከረ የጋ መጋፍ ያረ የጋ መጋፍ ያሩ ያሉ የጋ መጋፍ ይሆንታት ባ ከአ ከራ ድሬም ይሆንታት።

Fast of the Prophets (Tsone Nebiyat)

• ያሉ ከጋ ከረ ይሆንታት ያሩ ያሉ የጋ መጋፍ ይሆንታት ባ ከአ ከራ ድሬም ይሆንታት።

Christmas Eve and Epiphany (The Vigils)

• ከአ ከሆ ድሬም ያሆ ያሉ የጋ መጋፍ ይሆንታት ባ ከአ ከራ ድሬም ይሆንታት።

Jonah's Fast of Three Days Ninevah (Nenawe)

• ከአ ከሆ ድሬም ያሆ ያሉ የጋ መጋፍ ይሆንታት ባ ከአ ከራ ድሬም ይሆንታት።

Apostles Fast (Tsone Hawariat)

• ከአ ከሆ ድሬም ያሆ ያሉ የጋ መጋፍ ይሆንታት ባ ከአ ከራ ድሬም ይሆንታት።

Assumption of the Virgin Mariam (Tsone Filseta)
The amount (dose) of many medications people take for diabetes is given for usual food amounts and usual meal times. If you are observing the fast, it is important to make a plan with your health care provider before fasting begins, so that your blood sugar does not go too low or too high.
Fasting:
Orthodox Christian
If you eat vegan (no meat or dairy) or vegetarian during fasts it is important to eat healthy portions of the grains, lentils, beans, and starchy vegetables that will increase your blood sugar.
Remember to limit the portion of starchy foods—like injera, lentils, fruit, or potatoes—to ¼ of your plate, which is about the size of your fist. Fill the remaining space on your plate with non-starchy vegetables.
After breaking the fast, use only ¼ of your plate for foods that increase blood sugar. Fill the remainder of the plate with non-starchy vegetables.
On the left are starchy foods that will raise your blood sugar. Limit your portion to 1 cup, which is about the size of your fist. On the right are non-starchy foods that will not raise your blood sugar. Eat a larger portion of non-starchy vegetables when you break the fast.
For those who eat vegetarian or vegan during fasts, these are foods that won’t raise your blood sugar.
Fasting:
Muslim
Fasting

If you are fasting from sunrise to sundown, it can be hard to control your blood sugar. Make sure you talk to your health care provider about how to prevent high or low blood sugar during fasts.

When you break the fast, make ½ your plate non-starchy vegetables and ¼ of your plate lean proteins. Limit the amount of starchy, sweet, and fried foods.
Here are some examples of healthy meals to have before sunrise. These meals are healthy because they have protein and they do not have too many carbohydrates.
Fasting

When breaking the fast, take only 2 or 3 dates and use Splenda or another sugar substitute in your coffee or tea. Shorba is a soup made with barley. Two cups is the correct portion size for one meal.
After breaking the fast, if you are going to eat again, use only ¼ of your plate for foods that increase blood sugar. Fill the remainder of the plate with vegetables and protein.
Like all other times of the year, be sure to include protein with your meals during fasting periods. This will help keep blood sugar under control. It may also help you feel full longer.

To decrease thirst, it will be helpful to cut down on fried foods and salt.
All of these foods raise blood sugar.
Fasting

Remember that these foods all raise blood sugar. Try not to eat more than one of these at a time.
If you eat several meals during the night, be sure to space meals out by 2 to 3 hours throughout the night.
Changing the way you eat is difficult. However, it can help control diabetes and can even reduce the need for medications, like insulin. A healthy diet will benefit everyone in your family.
Additional Diabetes Information

For more information about diabetes in Tigrinya, see the list below:

The American Diabetes Association [www.diabetes.org](http://www.diabetes.org) or call: 1-800-DIABETES (800) 342-2383. Interpretation in all languages is available.
