

- **The word “insulin” brings up a lot of different feelings for people.**
- **These are some of the common feelings patients have.**

QUESTIONS FOR DISCUSSION:

What have you heard about insulin?

What worries or questions do you have about insulin?

TEACHING TIPS:

Acknowledge worries, normalize concerns, address misconceptions.

Patients often have negative perceptions of diabetes in general and insulin specifically that they've heard from friends, family, media.

Be positive. Show support and empathy for the patient.



PATIENT CONCERN	PROVIDER RESPONSE
"I'm afraid of needles."	Giving an injection hurts much less than checking your blood sugar. Shorter needles are available to make injections even less painful. Try it and see for yourself.
"If I start insulin, I'll never be able to stop."	Everyone is different. Sometimes people can use insulin temporarily and are then able to go off insulin. Most people need insulin long-term because the body makes less and less insulin over time. When you use insulin, it's because your body needs insulin; this is different from being "addicted" to drugs.
"I didn't follow my diet and exercise."	You didn't fail. You have diabetes. Your body is not producing enough insulin like it used to because of diabetes.
"I feel fine. I don't need insulin."	You might feel OK but high blood sugars can damage the body over time. That's why it's important to look at your blood sugar levels and your A1C. You can decide when it's right for you to start insulin. The decision is in your hands.
"My life is going to change completely."	You've already made changes to how you eat and stay active. Insulin can also help control your blood sugars but doesn't have to change your life completely. All these changes help keep you healthy. Most people start with one insulin injection a day. You can do more when you're ready.
"Insulin causes blindness and amputations."	High blood sugars can cause problems with the eyes and feet. Insulin is a natural hormone that lowers your blood sugar. Insulin can help prevent problems like blindness and amputations.
"Insulin will make my blood sugar to go too low."	Blood sugars that are too low or too high aren't good for you. You can learn to use insulin safely and correctly.

- **You're not alone.**
- **It's normal to have worries about insulin in the beginning.**
- **Many people who use insulin say that they feel better and their blood sugars get better.**
- **We're here to help you learn to do it right.**
- **Using insulin takes less than a minute.**

QUESTIONS FOR DISCUSSION:

How might insulin help you?

Are you ready to learn more about insulin now?

TEACHING TIPS:

Psychological barriers are a large part of patient resistance to starting insulin.

Summarize what the patient says about the benefits of starting insulin vs. fears/worries about insulin.

Do the benefits outweigh the fears?



- **Controlling your blood sugars depends on a balance of healthy eating, being active and taking medications.**
- **You've already done your best with eating and staying active.**
- **Most people also need pills and insulin to control their diabetes.**

QUESTIONS FOR DISCUSSION:

How are you staying active?

Do you have any questions about healthy eating?

TEACHING TIPS:

Patients often blame themselves for "not doing enough" with diet and exercise and taking their pills.

It's important to reinforce to the patient that he/she hasn't failed.

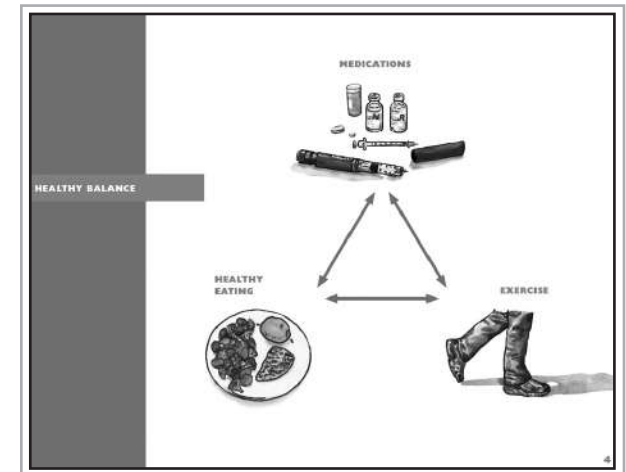
Some patients may have underlying beliefs against and mistrust of medications.

This may be related to actual/perceived side effects of medications, negative experiences of friends/family members, cultural beliefs, beliefs that Western medications are not "natural", cost of medications, denial that one has a chronic illness, fear of drug-drug interactions.

Resistance to taking medications is important to address up-front.

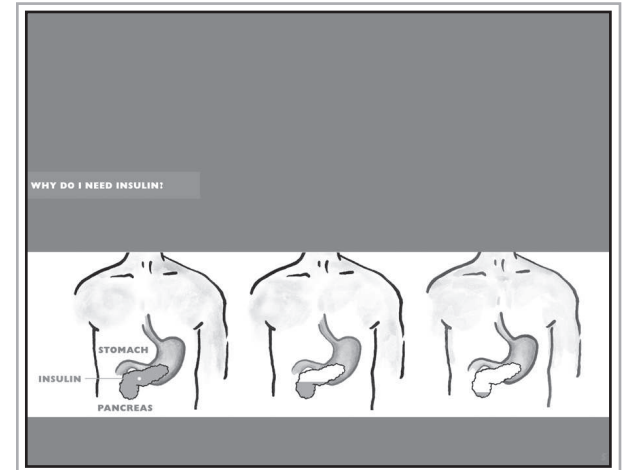
Emphasize that safe and correct use of medications can help control blood sugars.

Emphasize insulin is natural.



PATIENT CONCERN	PROVIDER RESPONSE
<p>"Let me work on my diet and exercise more before starting insulin."</p>	<p>Eating healthy and being active are always important. Starting insulin now will help because your blood sugars are high. You can always use less insulin later as your blood sugars come down.</p>
<p>"My doctor told me if I didn't do better, I would have to start insulin."</p>	<p>Even if you do the perfect diet and exercise, your body makes less insulin over time. It's normal to have to adjust medications as diabetes progresses. Eating healthy and staying active are always important. If your body needs more insulin, it will help to try insulin injections.</p>

- **The pancreas naturally makes enough insulin to keep blood sugars normal. With diabetes, your pancreas makes less and less insulin, so your blood sugars go up. Injecting insulin replaces the natural insulin that is missing. When sugar stays in your blood, you can't use it for energy. Insulin takes the sugar out of the blood and into your body so you have energy.**



QUESTIONS FOR DISCUSSION:

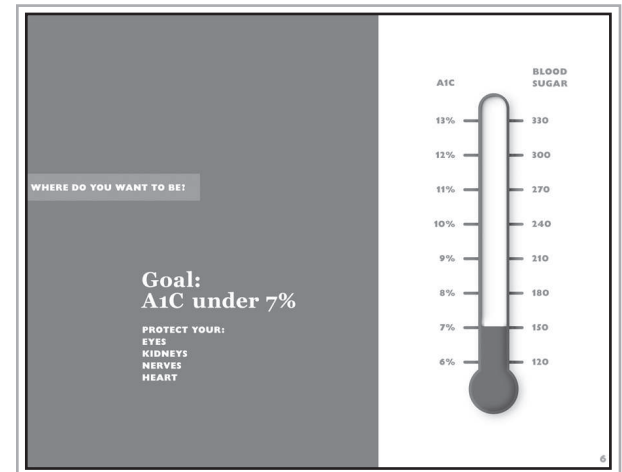
- What is the difference in these three pictures of the pancreas?  
(amount of insulin decreases over time)
- How can you tell if your pancreas is still making enough insulin? (by your blood sugar level)
- Why do you need insulin now?

TEACHING TIPS:

- Diabetes is chronic. Over time there is usually a progressive loss of insulin production despite healthy diet and exercise. This happens to everyone. In some people, this happens quickly, in others it happens more slowly. How quickly or slowly this happens depends on a combination of genetics and lifestyle.
- Don't use insulin start as a threat.
- Some patients may understand analogies to a battery or gas tank that is running low.

PATIENT CONCERN	PROVIDER RESPONSE
"Is there an insulin pill?"	Insulin is only available as injections. Insulin is not made as pills because it would be destroyed by the acid in the stomach. If you take pills like glipizide or glyburide, these medications tell your pancreas to make more insulin. Without enough insulin left in your pancreas, the pills won't work anymore.
"It's not natural to take insulin."	In fact, insulin is a natural part of our bodies. Insulin has been available since the 1920s, and has been life-saving for people with diabetes.
"If I lose weight I might not need insulin."	It's true that being overweight makes your body "resistant" to insulin. The good news is that losing even 5% of your body weight can help. However, your body still might not be making enough insulin. Giving insulin injections can help if your body just needs more insulin.
"Insulin will harm me."	Insulin is safe when used correctly. Children, pregnant women and adults can all use insulin. It's actually the high blood sugars that harm the body.

- **The “A1C” blood test is another way to show your average blood sugars over the last 3 months.**
- **Studies show that for most people, keeping the A1C level under 7% is best to protect the heart, eyes, kidneys and nerves.**
- **If you already have these problems, controlling your blood sugars may prevent them from getting worse.**



QUESTIONS FOR DISCUSSION:

- Do you want to know your numbers? (have patient's A1C level ready)
- Where do you want to be?
- Why is this important to you?
- Let's talk about how to get there.

TEACHING TIPS:

- Focus on patient's motivation to be healthy and avoid complications.
- If the A1C is high, the patient is generally experiencing high blood sugars throughout the day, even if they have a few blood sugars that are lower.
- A patient's A1C goal should be individualized. For frail or elderly patients with multiple cardiovascular risk factors or life expectancy < 5 years, a higher A1C may be appropriate. For patients who are younger, without multiple co-morbidities or are pre-conception, a lower A1C may be appropriate.

PATIENT CONCERN	PROVIDER RESPONSE
"My A1C is high but I feel fine. I don't feel sick."	Diabetes is tricky. You might feel okay but high blood sugar levels can quietly cause damage in your body over time. That's why it's important to look at your blood sugar levels and A1C.
"My morning sugars are fine."	It's great you're checking your sugars in the morning. Starting the day off at the right level helps. But if your A1C number is high, it means that there are other times during the day when your sugar is higher. Testing before or 2 hours after other meals can tell which medications will work best for you.

- **Using insulin is a new skill.**
- **It's normal to feel nervous.**
- **Most people who give themselves an injection for the first time say there's no pain.**
- **Try a practice shot so you can see for yourself.**

QUESTIONS FOR DISCUSSION:

(when the needle is inserted fully) How do you feel...does that hurt?

(have patient pause to recognize the moment of no pain)

TEACHING TIPS:

Have syringe and sharps container available for practice.

Be positive. Don't rush. For the very nervous patient, modeling by the provider first or starting with injecting the back of the arm rather than the abdomen may help.

Support the patient for overcoming their fears and doing a practice injection.

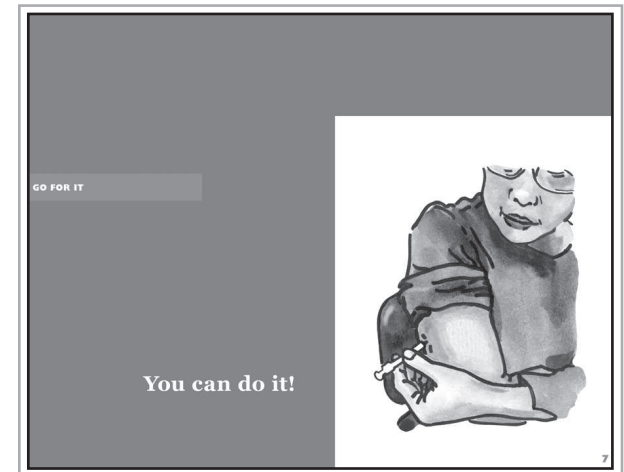
Be aware of your own fears of self-injection.

Practice doing a dry injection yourself so you can speak to the patient from experience.

STEPS FOR PRACTICE INJECTION:

1. Give the patient the option to choose the site to try the injection. Pinch skin on abdomen or "hug yourself" for injections to the back of the arm.
2. Remove the cover of the needle.
3. Hold the syringe like a pen.
4. Put the needle straight in all the way and hold for 6 seconds.
5. Pull the syringe out and throw it away in the sharps container.

**Congratulations!**



- **Learning to draw up insulin is a new skill and takes time to learn.**
- **Once you get comfortable, it should take less than a minute to do all these steps.**

QUESTIONS FOR DISCUSSION:

Let's look at a typical insulin syringe. The black top of the plunger should line up with the amount of insulin you want to draw up. This is where 10 units is.

(Tip: pull the plunger out of the syringe completely and touch or point to the top of the plunger to show that this is the part that lines up with the dose of insulin.)

Ensure patient can correctly read small lines on the syringe that are not marked by a number.

Can you show me where 25 units is?

7 units?

19 units?

46 units?

Now we'll practice the steps of how to draw up insulin.

TEACHING TIPS:

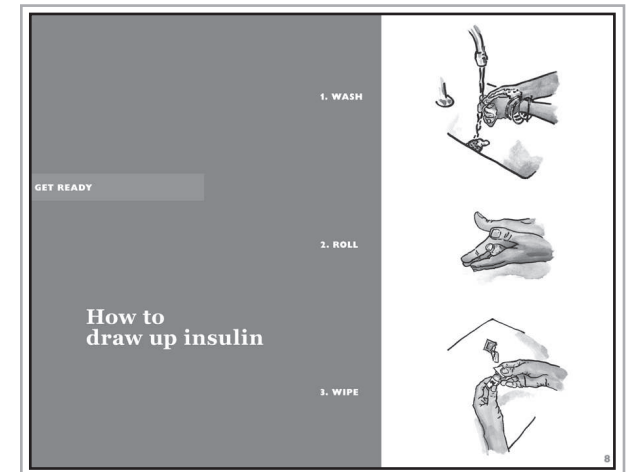
Have real syringes and vials for patients to practice on.

Assess patient for the motor/visual skills to use vial and syringe accurately, especially for doses that are not factors of 5 or 10.

Otherwise, assess patient's ability to use insulin pens. Most insulin pens for most insurances require PA. (Note any motor/visual problems in PA for justification).

Note: "Roll" step is only necessary for NPH insulin (or premix insulin containing a long-acting insulin).

Use the smallest syringe appropriate for the doses the patient will be using.



FOR DOSES UP TO...	USE THIS SIZE SYRINGE	PREFERRED NEEDLE LENGTHS
30 units	1/3 mL	5/16" (short)
50 units	1/2 mL	5/16" (short)

- **Preparing the syringe and injecting may feel awkward at first.**
- **With more practice, it becomes easier.**

QUESTIONS FOR DISCUSSION:

Show me from the beginning how you will draw out 12 units of insulin.

(Return demo to assess patient's accuracy)

TEACHING TIPS:

Use back of the arm, thigh or abdomen for long-acting basal insulins.

Use abdomen for mealtime fast-acting insulins or premixed insulins containing fast-acting insulin.

Rotate injections to avoid lipodystrophy that will affect absorption of insulin.

If away from home, carry insulin supplies or a pre-filled syringe with you.

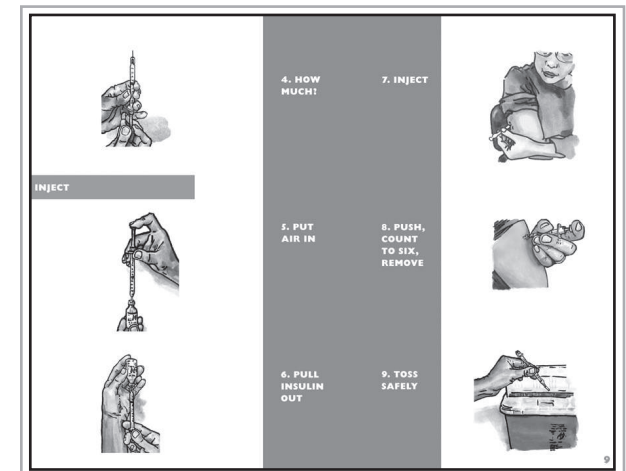
Brainstorm places to give insulin injections (e.g., bathroom, car or in the presence of family/friends).

Tips for storing insulin:

You do NOT have to refrigerate the bottle of insulin you're using. Keep it at room temperature and it's OK for up to one month.

Keep insulin away from sunlight and heat. E.g., keep it in the original box to protect it from sunlight or in a drawer.

Keep extra bottles of insulin that are new and not opened yet in the refrigerator until you need them. Do not freeze insulin.





- **Your body uses blood sugar for energy. You get blood sugar from the food you eat and your liver, which stores sugar.**
- **When you have diabetes, your liver might release too much sugar while you're sleeping.**
- **You may wake up with a high sugar.**



QUESTIONS FOR DISCUSSION:

What is your morning blood sugar?

What would you like your morning blood sugars to be? (80-130 for most people)

TEACHING TIPS:

Giving a long-acting slow insulin at bedtime helps the morning blood sugars.

Most people need to gradually adjust the dose of the long-acting slow insulin to control the morning blood sugars.

The amount of basal insulin needed is generally consistent and is not adjusted on a sliding scale day-to-day depending on the blood sugars.

Some patients may understand the analogy of the liver as a “bag of sugar.” Thus, insulin represents the “purse strings” controlling how much sugar is allowed to “come out.” Without the “purse strings,” blood sugar is not controlled and goes up.

You don't need a bedtime snack when you give NPH or glargine at bedtime.

(A small bedtime snack is only recommended for dinnertime NPH or dinnertime NPH/Reg 70/30 to avoid low blood sugars when it peaks overnight.)

INSULIN TYPE	ONSET	WHEN TO GIVE	PEAK	DURATION
NPH	2-4 hrs	Bedtime only or morning + bedtime	6-10 hrs	14-18 hrs
Glargine (Lantus)	1 hr	Usually once daily, usually at bedtime	None theoretically	11-24+ hrs
NPH/Reg 70/30	½ hr	Usually ½ hr before meals twice daily	2-12 hrs	up to 24 hrs

- **Some diabetes pills and insulin can cause your blood sugar to go too low. You might feel some symptoms.**
- **Or, you might feel fine but your blood sugar is low.**
- **Dangerous low blood sugars under 70 can happen if you skip meals, eat less than usual or exercise without eating enough.**
- **Low blood sugars are not good for your body.**



QUESTIONS FOR DISCUSSION:

- Have you ever experienced a low blood sugar?
- What did it feel like?
- Why do you think it happened?
- What did you do?

TEACHING TIPS:

- Dispense glucose tabs if needed.
- When in doubt or if unable to check blood sugar, treat for a possible low blood sugar anyway.
- Discuss how to prevent low blood sugars from happening:
  - Don't skip meals.
  - Talk to your provider before starting new/different exercise. Check your blood sugar after exercise to see what happens afterwards.
  - Try to eat the same size meals day to day.
  - Assess if low blood sugars are due to taking sulfonylureas or mealtime insulin at the wrong time (i.e., after meals, hours before meals, bedtime)

PATIENT CONCERN	PROVIDER RESPONSE
"I feel better when my blood sugar is higher."	You can start insulin at a low dose to get used to it, then adjust slowly depending on your blood sugars.
"I feel weak even when my sugar is in the 100s."	Sometimes if your blood sugar has been high for a long time, your body feels different when your numbers start coming down. Having a blood sugar in the 100s is not low or dangerous. If you gradually get your body used to what a normal sugar feels like, you may gradually feel better at lower numbers.

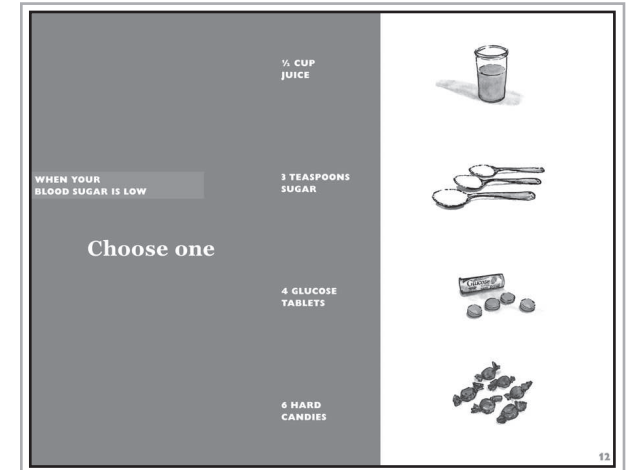
- **Know how to treat a low blood sugar if it happens to you.**

QUESTIONS FOR DISCUSSION:

- What do you have to treat low blood sugars?
- Do you have glucose tablets?
- Do you wear a Medic Alert bracelet or tag?
- Always carry some sugar or juice with you.

TEACHING TIPS:

- Review options for treating low blood sugars.
- Eat 15 grams of any carbohydrate if juice, glucose tabs, candy or sugar are not available.
  - Retest in 15 minutes.
- Consider prescribing glucagon if the patient lives with someone who can be trained to administer it in an emergency.
- The best strategy is to prevent low blood sugars from occurring in the first place.
- Patients who mix NPH with Regular insulin at dinner, or use a premix insulin at dinner, should eat a small snack at bedtime to avoid overnight low blood sugars when the NPH peaks. Ideally, NPH is best given at bedtime and a bedtime snack would not be necessary at that time.



PATIENT CONCERN	PROVIDER RESPONSE
<p>"I'm getting low blood sugars a lot."</p>	<p>Certain diabetes pills and insulin can cause low blood sugars if you take them at the wrong time, or too much. Skipping meals, eating less than usual or exercising more than you're used to can also cause low blood sugars. If you use glipizide, glyburide or Regular insulin, are you taking them half an hour before meals? If you use NPH insulin and have low blood sugars in the middle of the night, what time do you take your insulin? If you are changing how you eat or starting a new kind of exercise, your medications may need to be adjusted to avoid low blood sugars.</p>
<p>"My blood sugars go up and down."</p>	<p>Sometimes people are so afraid of low blood sugars that they deliberately eat more when they're low, then have high blood sugars afterwards. If this happens often, it can cause weight gain because of the extra calories. Keeping notes about what you eat and when you exercise can be helpful in figuring out why your blood sugars go up and down.</p>

- **You're doing a lot to take care of your diabetes.**
- **Using insulin can be a part of your plan to be healthy.**
- **You don't have to do it alone. We're here to help you.**

#### QUESTIONS FOR DISCUSSION:

Are you ready to start insulin?

If yes, develop the plan (e.g., type of insulin, starting dose, change in other medications if necessary, when to check blood sugars).

Have patient teach back, set goals and write the plan down.

If no, explore barriers and obstacles again.

Where do you want to be in 1 month? 1 year? 10 years?

Are there other changes you want to make to be healthy?

#### TEACHING TIPS:

Your blood sugar numbers will tell you if insulin is helping.

After 3 months, you can also check the A1C again to see if the average blood sugar is coming down.

Most people need adjustments to the starting dose of insulin.

You might also start to have more energy and go to the bathroom less.

Develop an action plan with the patient if they choose to make a lifestyle change:

Reduce my stress

Be physically active/exercise

Take my medications

Stop smoking

Check my blood sugars

Eat healthy foods

Learn to problem solve

Make a plan for follow-up.



**THIS CONCLUDES THE SECTION ON STARTING BASAL INSULIN.**

- **People with diabetes don't need special foods.**
- **Eating healthy portions of food is most important.**
- **Carbohydrates are the sugars and starches in your food that affect your blood sugar the most.**
- **Keep carbohydrate portions consistent at each meal.**

QUESTIONS FOR DISCUSSION:

Which are the carbohydrates in this picture?

What carbohydrates do you eat?

What do you eat on a typical day? How much?

What do you usually drink?

Do you snack? (When? What?)

TEACHING TIPS:

Have a 1 cup measuring cup available to compare with the patient's fist.

Key teaching points:

Eat plenty of vegetables. Fill half your plate with vegetables.

Eat a little lean protein. Keep the portion about  $\frac{1}{4}$  of your plate, or the size of your palm.

Control the portion of starchy foods which affect your blood sugars the most.

Keep the portion about  $\frac{1}{4}$  of your plate, or the size of your fist, or 1 cup if you're measuring.

Know what kinds of foods are starchy foods.

Don't skip meals.

Drink plenty of water. Diet drinks, tea and coffee are OK.

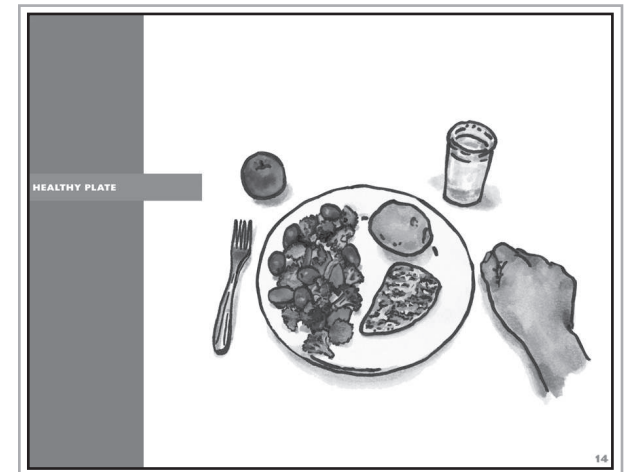
Avoid regular sodas and juices for now.

Look for drinks that contain less than 16 calories per serving.

Fruit and milk also contain carbohydrates, but these are healthy things to include in moderation.

It's OK to eat 2-3 small pieces of fruit everyday, and 2-3 cups of milk per day if you like milk.

Refer to nutritionist for individualized counseling if patient is ready.



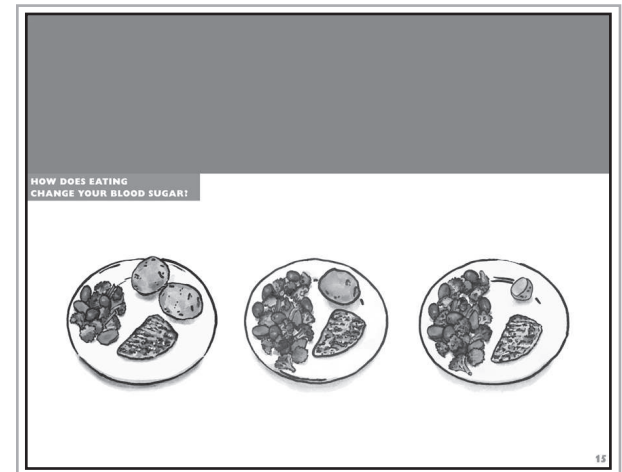
- **Carbohydrates affect your blood sugars the most.**
- **It's important to control portions of carbohydrates.**

QUESTIONS FOR DISCUSSION:

- What is different about these plates?
- Which one is the best example of healthy portions?
- How do you think each plate will affect your blood sugar?

TEACHING TIPS:

- Do brief diet recall with patient to identify what types of carbohydrates/starches they typically eat and portion size.
- Assess if patient understands what kinds of foods count as carbohydrates/starches.
- Encourage limiting carbohydrate portions to a fist size for starters.
- It also helps to keep the carbohydrate portions in each meal about the same from day to day (i.e., dinner portions of carbohydrates should be about the same from day to day, even if the type of carbohydrate can vary).
- Discuss what types of foods count as carbohydrates:



GRAINS	STARCHY VEGETABLES/FRUIT	DAIRY	SWEETS
Rice Noodles Bread Tortillas Crackers	Potatoes Corn Peas Beans Fruit (fresh or dried)	Milk Yogurt Ice cream  **but not cheese or cottage cheese	Cakes Cookies Regular soda Juice Sweetened drinks

**OPTIONAL PAGE: MOST PATIENTS START WITH BASAL INSULIN FIRST. ADDITION OF MEALTIME INSULIN IS USUALLY STARTED AFTER BASAL INSULIN.**

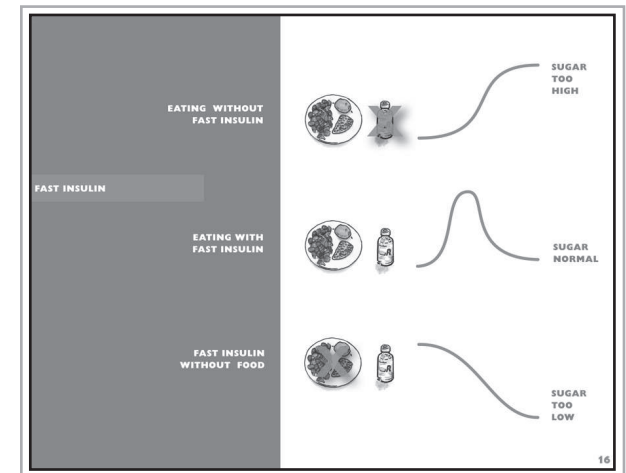
- **Everyone needs carbohydrates for energy but not too much.**
- **When you eat, your blood sugars go up.**
- **You may need a short-acting insulin that works with meals to bring your blood sugar back to normal.**

QUESTIONS FOR DISCUSSION:

- What are your blood sugars during the day?
- What do you want your blood sugars to be before meals? (80-130 for most people)
- What do you want your blood sugars to be 2 hrs after meals? (under 180 for most people)

TEACHING TIPS:

- Talk about the middle graphic showing the ideal balance between mealtime insulin and the amount of carbohydrates eaten.
- If mealtime insulin is correctly matched to the amount of carbohydrates in a meal, the expected highest 2 hr postprandial peak blood sugar is no more than 50 mg/dL more than the pre-meal blood sugar, or under 180
- Mealtime insulin starts working quickly but only lasts for one meal.
- When starting, mealtime insulin can be given empirically at the largest meal of the day,
  - or the meal whose postprandial sugars are highest,
  - or split among 2-3 meals of the day.
- (Tip: if morning blood sugars are at goal but A1C is still high, patient is likely high other times during the day associated with eating.)
- Some patients may understand the analogy of insulin as a “key” that helps insulin get from the blood into the cells where it can be used for energy, thereby lowering the sugar in the blood back to normal levels after meals.



INSULIN TYPE	ONSET	WHEN TO GIVE	PEAK	DURATION
Regular U-100	½-1 hr	½ hr before eating, up to 3x/day	2-3 hrs	6-8 hrs
Aspart (Novolog) or lispro (Humalog)	10-15 min	5-15 min before eating, up to 3x/day	1-3 hrs	3-5 hrs
NPH/Reg 70/30	½ hr	½ hr before breakfast and dinner	2-12 hrs	up to 24 hrs

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