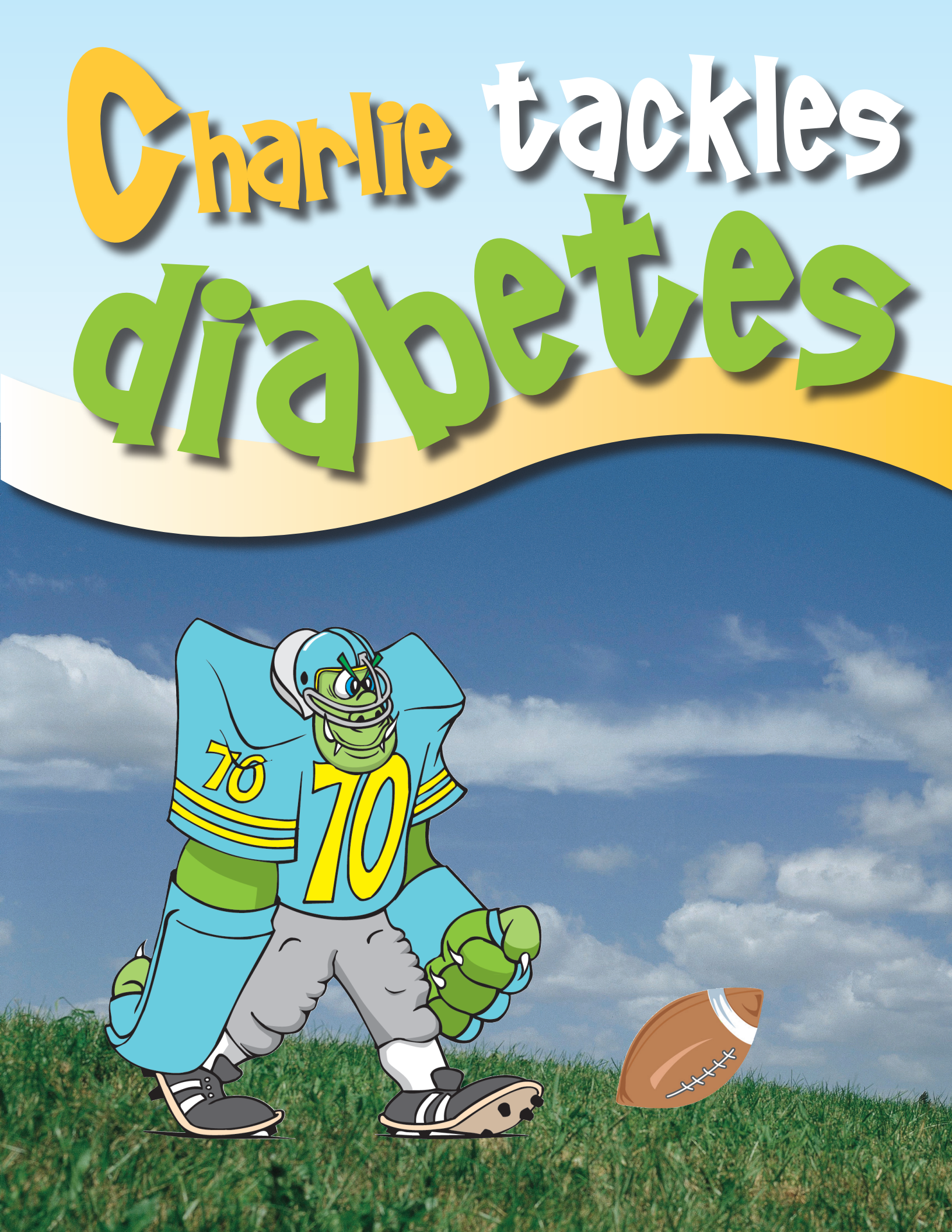
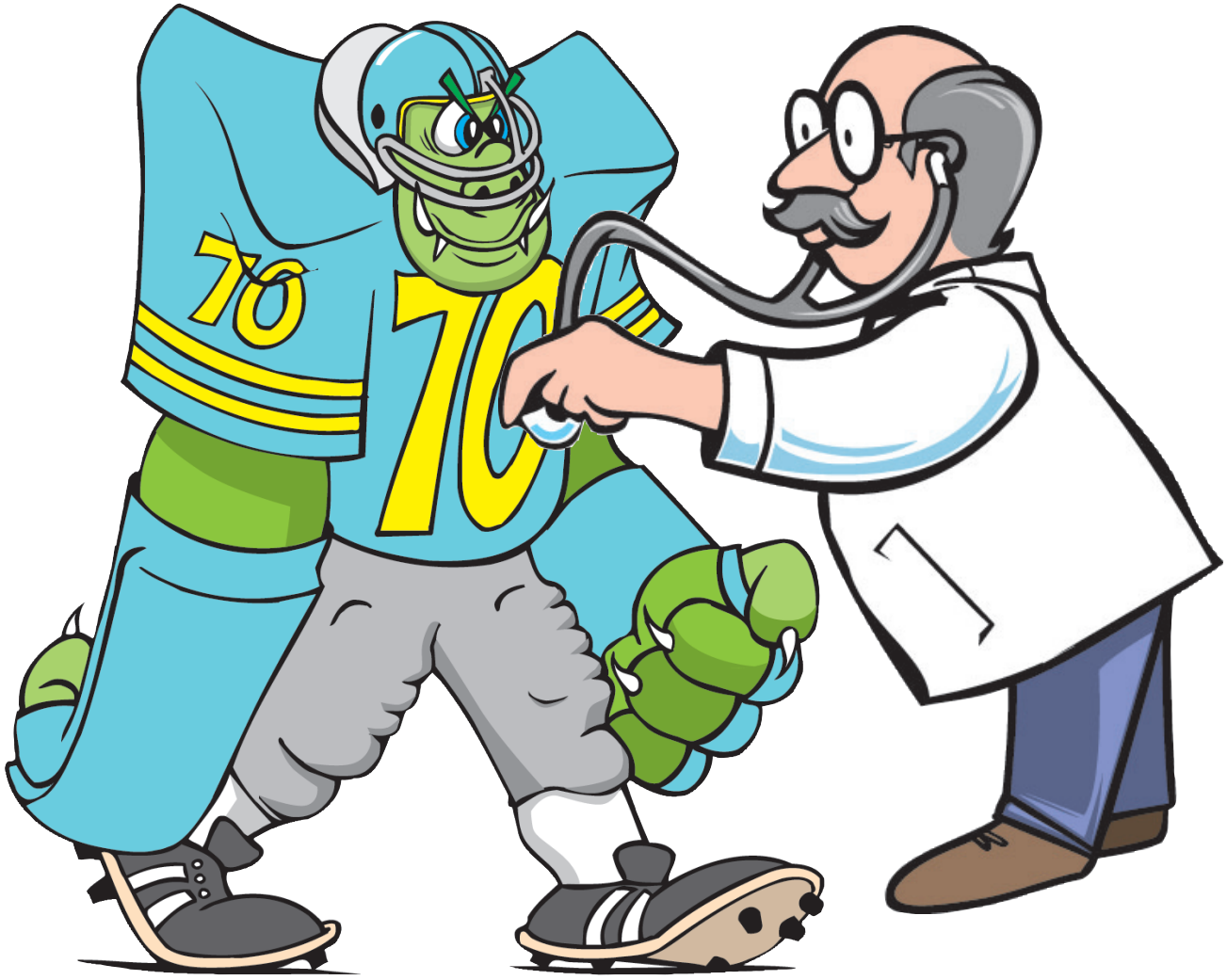
Charlie tackles diabetes



charlie goes to the doctor



charlie has type 1 diabetes

What is diabetes?

Diabetes is a condition in which your body can not use food like it should.

What happens with diabetes?

With diabetes, blood glucose levels are higher than normal. This can cause many health problems for people.

What are the symptoms of diabetes?

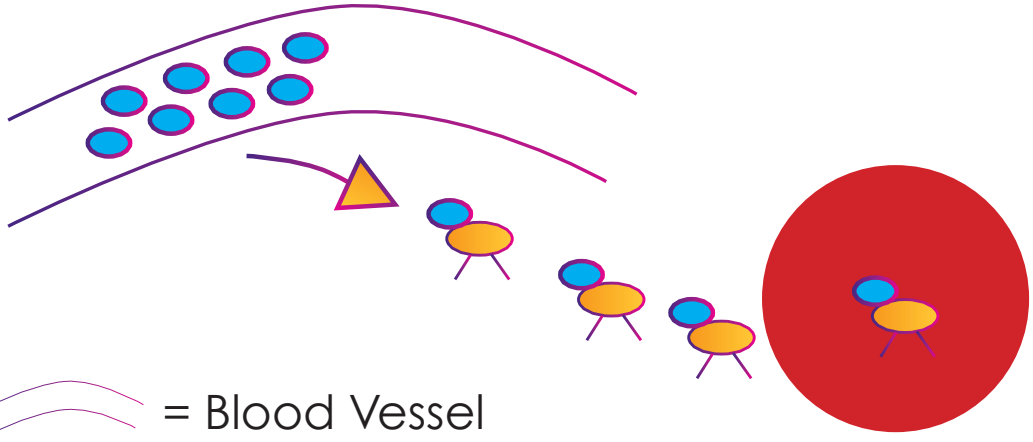
- Blurred Vision
- Fatigue
- Dry Skin
- Frequent Urination
- Increased Thirst
- Increased Hunger
- Unexplained Weight Loss

What is diabetes?

Food is the fuel that our bodies use for energy. The body's digestive system changes food energy into glucose.

Blood Glucose = Blood Sugar

How does the glucose get into the body to do its work?



= Blood Vessel

= Glucose

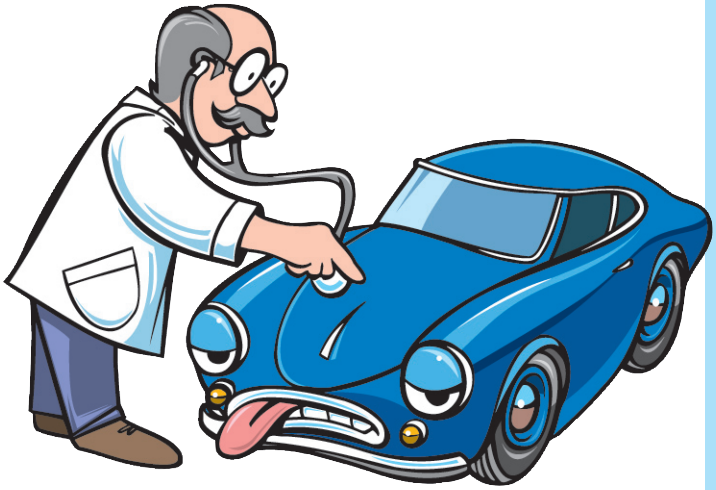
= Insulin

= Cell

type 1 diabetes

What happens with type 1 diabetes?

The body stops making insulin, so insulin must come from other sources.



Ways to get insulin into the body

Injections (Syringe, Pen)
Insulin Pump

What affects blood glucose?

Blood Glucose ↑

Food
Growth
Sickness
Stress

Blood Glucose ↓

Diabetes medications
Physical activity

goals for diabetes care

Managing type 1 diabetes helps to

- Promote overall health
- Support normal growth and development
- Keep blood glucose in the target range
- Prevent or delay complications
- Develop self care skills
- Have a healthy, typical life

managing diabetes

Game rules for diabetes

1. Eat healthy
2. Take insulin on time
3. Check your blood glucose regularly
4. Keep good records

Goals for blood glucose

Where do we get energy?

Carbohydrates, fat and protein in food and beverages.
Carbohydrates have the greatest effect on blood glucose.

http://whitesoxmusings.mlblogs.com/GasCan_Full.jpg

food planning

A healthy diet is important for everyone, but it is essential for good diabetes control. You and your dietitian can develop a food plan to guide you. The food plan will focus on carbohydrates, but will provide for all of your nutrient needs.

The food plan helps you to

- Make healthy food choices
- Maintain a healthy body weight
- Keep blood glucose in the target range
- Keep normal levels of blood cholesterol and triglycerides
- Prevent complications of diabetes

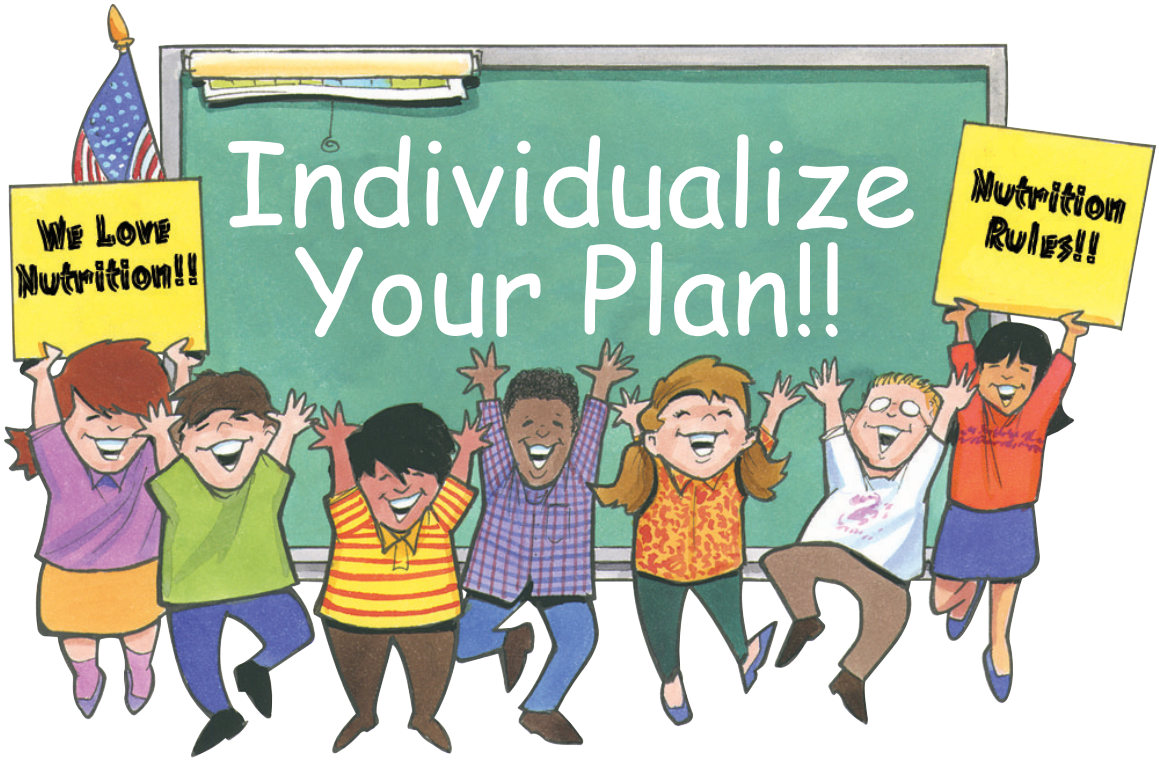
Checking your blood glucose regularly helps you know how well your plan is working.

food planning

Your food plan is individualized based on your health needs and preferred dietary habits. Enjoying foods you like is possible while taking care of diabetes. Work with a dietitian or a diabetes educator to create a food plan that works.

Your food plan should be based upon your

- Age
- Gender
- Weight goals
- Diabetes medications
- Physical activity
- Diet preferences
- Daily schedule
- Health status



carbohydrate counting

Carbohydrate counting, or carb counting, is a meal planning tool for managing blood glucose levels. Foods that contain carbohydrate raise blood glucose. Balancing the amount of carbohydrates you eat with the right amount of insulin will improve glucose management.

Two methods of carbohydrate counting

Basic carbohydrate counting

Follow a food plan with a consistent amount of carbohydrates at each meal and snack

Advanced carbohydrate counting

Adjust insulin for changes in carbohydrate intake using an insulin to carbohydrate ratio. This ratio can be affected by a number of factors. Your diabetes educator will teach you how to adjust the ratio.

carbohydrate exchanges

In carbohydrate counting, approximately 15 grams of carbohydrate equals 1 carbohydrate serving, exchange or choice. Food plans are used to balance carbohydrate intake. Learning the amounts of carbohydrates in foods can help you keep your blood glucose in the target range.

Sample food plan

	Carbohydrate Exchanges
Meals	3-5
Snacks	1-2

grains

Carbohydrates in Foods

1 Serving = 15 g Carbohydrates

Grain Group
Make half your grains whole

Breads	Serving Size
Bagel	1/4 or 1 oz.
Biscuit	2 1/2"
Bread	1 slice
Bun	1/2
Crackers	4-6
English Muffin	1/2
French Toast	1 slice
Melba Toast	4 slices
Muffin	1/4 or 1 oz.
Oyster Crackers	24
Pancake/Waffle	4"
Saltines	6
Stuffing	1/3 cup
Tortilla	6"

Cereals	Serving Size
Cold, Unsweet	3/4 cup
Cold, Sugar	1/2 cup
Granola	1/4 cup
Oatmeal, Grits	1/2 cup
Puffed Cereal	1 1/2 cups

Grains – cooked	
Barley	1/3 cup
Couscous	1/3 cup
Pasta	1/3 cup
Rice	1/3 cup

Source: Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

fruits

Carbohydrates in Foods

1 Serving = 15 g Carbohydrates

Fruit Group
Focus on fruits

Fruit	Serving Size
Apple	1 small
Banana, Large	1/2 or 4 oz.
Blueberries	3/4 cup
Cantaloupe	1 cup cubed
Cherries	12
Grapes, Small	17
Grapefruit	1/2
Juice, Unsweet	1/2 cup
Juice, grape	1/3 cup
Kiwi	1 or 3 1/2 oz.
Orange	1 small
Papaya	1 cup cubed
Peach	1 medium
Pear	1 medium
Pineapple	3/4 cup
Plum	2 small
Raisins	2 tbsp
Raspberries	1 cup
Strawberries	1 1/4 cup
Watermelon	1 1/4 cup

Source: Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

Vegetables

Carbohydrates in Foods

Vegetable Group
Vary your veggies

Starchy Vegetables
1 Serving = 15 g Carbohydrates

Food	Serving Size
Corn/Peas	1/2 cup
Corn on the cob, large	1/2 cob
Lima beans	2/3 cup
Mixed Vegetables	1 cup
Potato, baked	1 small - 3oz.
Potatoes, mashed	1/2 cup
Squash, acorn, butternut	1 cup
Sweet potato	1/2 cup

Non-Starchy Veggies
1 Serving = 5 g Carbohydrates

For the following vegetables, 1 serving = 1 cup raw, 1/2 cup cooked, 1/2 cup juice, 1/4 cup tomato sauce

- Bean sprouts
- Beets
- Broccoli
- Brussels sprouts
- Cabbage
- Carrots
- Cauliflower
- Celery
- Cucumber
- Eggplant
- Green Beans
- Greens
- Lettuce
- Mushrooms
- Okra
- Onions
- Pea pods
- Peppers
- Radishes
- Rutabaga
- Spinach
- Tomatoes
- Wax Beans
- Zucchini

Source: Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

dairy

Carbohydrates in Foods

1 Serving = 15 g Carbohydrates

Milk Group

Get your calcium-rich foods

Food*	Serving Size
Fat-free milk	8 oz.
Reduced fat milk	8 oz.
Whole milk	8 oz.
Chocolate milk	4 oz.
Soy Milk	8 oz.
Low fat, plain yogurt	8 oz.
Light, fruit flavor yogurt	6 oz.

* Plain dairy products contain similar amounts of carbohydrate. However, reduced fat or fat free are healthier choices.

Source: Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

beans

Carbohydrates in Foods

1 Serving = 15 g Carbohydrates

Meat & Bean Group

Go lean with protein

Food	Serving Size
Baked beans	1/3 cup
Beans, peas, lentils	1/2 cup
Garbanzo beans, cooked	1/3 cup
Hummus	1/3 cup
Refried beans, canned	1/2 cup

Source: Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

snacks and sweets

Carbohydrates in Foods

1 Serving = 15 g Carbohydrates

Sweets	Serving Size
Brownie, unfrosted	2" square/1oz.
Cake, unfrosted	2" square/1 oz.
Cookie, sandwich	2 small
Doughnut, plain	1 small/1oz.
Fruit juice bars	1 bar/3oz.
Ice cream	1/2 cup
Regular jam/jelly	1 tbsp
Regular gelatin	1/2 cup
Sports drink	1 cup
Yogurt, frozen, fat-free	1/3 cup

1 Serving = 30 g Carbohydrates

Sweets	Serving Size
Frosted cupcake	2 oz.
Glazed doughnut	2 oz.
Chocolate milk	1 cup
Pumpkin pie	1/8 pie
Regular pudding	1/2 cup
Sherbet	1/2 cup

Source: Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

Combination foods

Carbohydrates in Foods

Food	Serving Size	Carbohydrate (g)
Casserole	1 cup	30
Chili (beef & bean)	1 cup	30
Lasagna, meat	1 cup	30
Macaroni & cheese	1 cup	30
Hamburger	1 whole bun (2 oz.)	30
Pizza, thin crust, cheese	1/4 of 12"	30
Pot pie	1 small	45
Spaghetti w/ meatballs	1 cup	30
Stew	1 cup	15
Taco (meat/cheese)	1 taco	15
Submarine sandwich	6"	45

Choose Your Foods: Exchange Lists for Diabetes, American Diabetes Association and American Dietetic Association, 2007.

free foods

A free food is any food or drink that has **less than 20 calories or less than 5 g of carbohydrate per serving**. The foods listed below are some examples of free foods. These foods should be consumed in no more than 3 servings per day, if you eat all of these servings at one time, it may affect your blood sugar levels. Those without a serving size can be eaten at any time.

0 to 5 grams of carbohydrate per serving

Food/Beverage	Serving Size
String cheese	1
Sugar-free gelatin	1
Cottage cheese	1/4 cup
Hard boiled egg	1
Nuts	1 oz.
Diet sodas	
Tea (unsweetened)	
Coffee (unsweetened)	
Mayonnaise (fat free)	1 tbsp.
Mayonnaise (reduced fat)	1 tsp.
Mustard	
Salad dressing (fat free)	1 tbsp.
Tomato based salsa	1/4 cup
Raw veggies	1 cup
Sugar substitutes	
Sugar-free gum	
Vinegar	

carbohydrate counting school lunch

COUNTING SCHOOL LUNCH

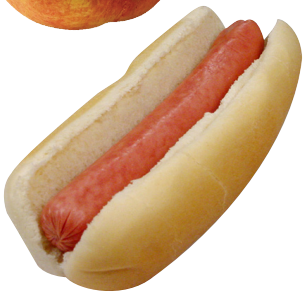
Planning is important for school lunch. Children often have the choice of packing a lunch or eating school lunch. The dietitian or school nutrition director can help you calculate the carbohydrates on your child's school menu. Put a note card on each food item in a packed lunch so the teachers and staff can help your child count carbs.





Examples of School Lunch Items	Carbohydrates (g)
Applesauce	15
Baked potato	30
Beef burrito	45
Broccoli with cheese sauce	0
Carrot and raisin salad	30
Carrot sticks	0
Cheeseburger	30
Cheese sandwich	30
Chicken, baked or fried	0
Chicken filet sandwich on bun	30
Chicken nuggets	15
Coleslaw	0
Corn	15
Corn dog	23
Fish sandwich	30
French fries , 2 ounces	30
Fresh fruit	15
Fruit cocktail	15
Garden salad	0
Glazed apples	15
Green beans	0
Green peas	15
Grilled cheese sandwich	30
Hamburger with bun	30
Hot dog with bun	23
Jello	1
Lasagna or ravioli	30
Macaroni and cheese	30
Milk ,whole, lowfat or nonfat, 8 ounces	12
Peanut butter and jelly sandwich	45
Pizza slice	30
Spaghetti	30
Taco, hard or soft, 6 inch	15
Tater tots	15




food planning school lunch

COUNTING CARBS IN SCHOOL LUNCH

SCHOOL LUNCH	Carbohydrate (g)
6 baked chicken nuggets	15
½ cup mashed potatoes	15
½ cup green beans	5
½ cup canned fruit (in natural juices)	15
1 carton 2% low fat milk	12
TOTAL CARBS	62 GRAMS OF CARBS

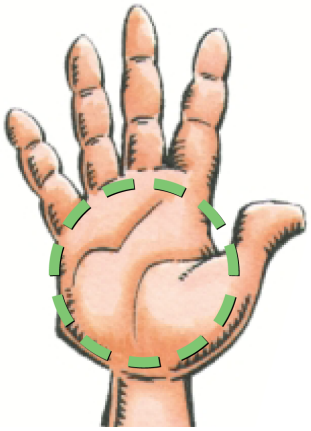
PACKED LUNCH	Carbohydrate (g)
½ meat and cheese sandwich	15
1 ounce bag chips	15
15 small grapes	15
2 sandwich cookies	15
Bottled water	0
TOTAL CARBS	60 GRAMS OF CARBS

The Secret to Serving Size is in Your Hand

Keeping general serving sizes in mind will help you estimate how much carbohydrate you are eating.

A fist or cupped hand = 1 cup

1 serving = ½ cup cereal, cooked pasta or rice
or 1 cup of raw, leafy green vegetables
or ½ cup of cooked or raw, chopped vegetables or fruit



Palm = 3 oz. of meat

Two servings, or 6 oz., of lean meat (poultry, fish, shellfish, beef) should be a part of a daily diet. Measure the right amount with your palm. One palm size portion equals 3 oz., or one serving.

A thumb = 1 oz. of cheese

Consuming low-fat cheese is a good way to help you meet the required servings from the milk, yogurt and cheese group. 1 ½ - 2 oz. of low-fat cheese counts as 1 of the 2-3 daily recommended servings.

Thumb tip = 1 teaspoon

Keep high-fat foods, such as peanut butter and mayonnaise, at a minimum by measuring the serving with your thumb. One teaspoon is equal to the end of your thumb, from the knuckle up. Three teaspoons equals 1 tablespoon.

Handful = 1-2 oz. of snack food

Snacking can add up. Remember, 1 handful equals 1 oz. of nuts and small candies For chips and pretzels, 2 handfuls equals 1 oz.

1 tennis ball = 1 serving of fruit

Healthy diets include 2-4 servings of fruit a day.

label reading

Reading labels is a great way to know how much carbohydrate is in a food. For foods that do not have a label, try to estimate how much carbohydrate is in a serving.

Start Here - In this label, one serving equals one cup. If you ate the whole package you would eat two cups. That would be double the calories and other nutrients.

Check Calories - This part of the nutrition facts tells us how many calories are in one serving of this food and how many of those calories are from fat.

Limit these nutrients - Eating too much fat, cholesterol, or sodium may increase your risk for certain chronic diseases.

Total Carbohydrate - Look at the grams of total carbohydrate. Total carbohydrate on the label includes, sugar, starch, and fiber.

Get enough of these nutrients - Eating enough of these nutrients can improve your overall health.

Quick guide to % daily value - If the Daily Value is 5% or less that means this food is low in that nutrient. If the value is 20% or more then the food is a high source of that nutrient.
Try to get 100% calcium (1,300 mg) each day. When reading the label it is easy to find out how much calcium is in the food: drop the percent sign and add a zero, this is how many milligrams there are!

Nutrition Facts

Serving Size 1 cup
Servings per container 2

Amount Per Serving
Calories 250 Calories from Fat 110

	% Daily Value*
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 4g	

Vitamin A	4%	• Vitamin C	20%
Calcium	2%	• Iron	4%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Fiber		25g	30g

Calories per gram
Fat 9 • Carbohydrate 4 • Protein 4

treating lows

Here's how to treat for hypoglycemia (low blood glucose levels)

1. Take 15 grams of carbohydrate, such as 3-4 glucose tablets, 1/2 cup of fruit juice, or 1/2 cup of regular soda.

2. Wait 15 minutes, then check your blood glucose.

3. If your blood glucose is below your target range, take another dose of 15 grams of carbohydrate and check again after 15 minutes.

4. Once your blood glucose returns to your normal range, you may need to eat a snack with carbohydrates and protein. Crackers with cheese or peanut butter or 1 cup of milk are good choices.

If your blood glucose stays too low even after treatment, your parents should contact your health care provider or diabetes educator.

choosing healthy snacks

Snack	Serving Size
Animal Crackers	8 crackers
Gingersnaps	3 items
Graham Crackers	3 squares
Rice Cakes	2 cakes
Popcorn	3 cups
Pretzels	3/4 oz
Snack Chips	15-20 chips
Vanilla Wafers	5 wafers

physical activity

ADVANTAGES OF REGULAR PHYSICAL ACTIVITY

- Lowers blood glucose
- Makes you feel better
- Improves body weight
- Lowers blood pressure
- Strengthens the heart
- Lowers fats in the blood
- Improves circulation

KEEP FIT!

At least 30-60 minutes of physical activity every day or most days of the week.

physical activity

CARBOHYDRATE ADJUSTMENTS FOR PHYSICAL ACTIVITY

TYPES OF ACTIVITY	BLOOD GLUCOSE	ADDED CARBOHYDRATES
Short (less than 20 minutes) Examples: walking less than than one mile or cycling at a slow pace	less than 100	15 grams
	100 or above	no extra carbohydrates
Medium (20 – 60 minutes) Examples: tennis, swimming, cycling, vacuuming	less than 100	15 grams before activity and then 15 grams per hour of activity
	100 – 180	15 grams per hour
	180 – 250	no extra carbohydrates
Hard (60 minutes or more) Examples: soccer, basketball, football	less than 100	30 grams of carbohydrate before activity; check blood glucose carefully during activity; a snack may be needed after 45 to 60 minutes
	100 – 180	15 grams before activity; a snack may be needed after 45 to 60 minutes
	180 – 250	15 grams after first hour of activity depending on blood glucose and intensity of activity; more snacks may be needed

If your blood glucose is greater than 250 contact your diabetes educator or healthcare provider for advice prior to engaging in physical activity.

Adapted from Kids and Diabetes: Basic Survival Skills, WakeMed Children's Center, Pediatric Diabetes Program, 2005

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