

## SECTION 3: MEDICAL NUTRITION THERAPY

Concern	Care/Test	Frequency
Medical Nutrition Therapy	<ul style="list-style-type: none"> <li>◆ Refer for medical nutrition therapy (MNT) provided by a registered dietitian (RD), preferably one who is also a CDE .....</li> </ul>	At diagnosis or first referral to RD: 3 to 4 visits, completed in 3 to 6 months; then, annually. RD determines additional visits based needs/goals.

Main topics included in this section:

- ◆ Nutrition Care Process
- ◆ Medical Nutrition Therapy Goals
- ◆ Frequency of Visits
- ◆ Recommended Amount of Daily Carbohydrates
- ◆ Dietary Fats and Cholesterol
- ◆ Dietary Fiber
- ◆ Dietary Choices for Pre-diabetes
- ◆ Nutritional Guidance for Non-Dietitian Health Professionals
- ◆ Referral to a Registered Dietitian and Coordination of Care
- ◆ Essential Education
- ◆ Additional Resources
- ◆ Medical Nutrition Therapy – Question and Answer
- ◆ References

Tools included in this section:

- ◆ Meal Planning with the Plate Method: Lunch/Dinner – English (1 page)
- ◆ Meal Planning with the Plate Method: Lunch/Dinner – Spanish (1 page)
- ◆ Seven Ways to Size Up Your Servings – English (1 page)
- ◆ Seven Ways to Size Up Your Servings – Spanish (1 page)
- ◆ How to Use a Food Label to Select Foods – English (1 page)
- ◆ How to Use a Food Label to Select Foods – Spanish (1 page)

Medical nutrition therapy (MNT) is a cornerstone of diabetes management. It is strongly recommended that a person with diabetes be referred to a registered dietitian who is preferably also a certified diabetes educator (CDE) to provide MNT. MNT includes a nutrition assessment, goal-setting for clinical and behavioral outcomes, and a self-management training plan for reassessment and communication to other members of the health care team.

Intervening early with MNT is essential. MNT is an integral component of diabetes self-management education. Even small consistent dietary changes can be critical in achieving and maintaining glycemic control to reduce the risk of cardiovascular disease and other complications associated with poor blood glucose control. MNT can assist with the prevention of Type 2 diabetes, management of existing diabetes, and preventing (or at least slowing) the development of costly diabetes-related complications and hospitalizations. MNT can assist people at risk for or with diabetes to make informed and beneficial dietary changes to assist in reducing the amount of oral medication(s)/insulin needed to optimize glycemic control.

A registered dietitian (RD) has specific expertise and resources to carry out the entire process from nutrition diagnosis to intervention, monitoring, and evaluation. It is important to note that Medicare Part B and most insurance plans only reimburse MNT when it is provided by a RD.

### ***Nutrition Care Process***

The nutrition recommendations for MNT must incorporate the evidence-based guidelines developed by the American Dietetic Association and be based on a comprehensive assessment of medical history, nutrition, lifestyle factors, and learning ability. Interventions must include strategies that encourage responsibility for self-management. Several meal-planning approaches are available to help people develop realistic and achievable goals. Standardized calorie-level meal plans are no longer recommended. Nutrition recommendations may be as simple as three regularly scheduled meals without sweetened beverages, or as complex as the use of carbohydrate-insulin ratios for people using insulin pumps.

The RD should monitor and evaluate food intake, medication(s), metabolic control (glycemia, lipids, and blood pressure), anthropometric measurements, and physical activity. To evaluate the achievement of goals and effectiveness of MNT, the RD uses blood glucose results. Home blood glucose results can serve as a basis for making adjustments in amounts and types of foods eaten at meals to achieve blood glucose goals. The RD can suggest medication(s)/insulin adjustments if it is determined that sufficient nutrients and calories are achieved yet blood glucose values are not at goal. The RD bases MNT goals on the specific situation (e.g., age, type of diabetes). For more on situation-specific goals, see Table 3.

### ***Medical Nutrition Therapy Goals***

Medical nutrition therapy goals for diabetes include:

- 1) Attain and maintain optimal metabolic outcomes:
  - Blood glucose levels in the normal range (or as close to normal as is safely possible) to prevent or reduce the risk of diabetes complications,
  - Lipid and lipoprotein profile that reduces the risk for vascular disease,
  - Blood pressure level that reduces the risk for vascular disease.

*For blood glucose goals, see Section 4: Glycemic Control. For lipid and blood pressure goals, see Section 5: Cardiovascular Care.*

- 2) Prevent, or at least slow, the rate of development of chronic complications by modifying nutritional intake and lifestyle.
- 3) Maintain the pleasure of eating while making food choices as indicated by scientific evidence.
- 4) Assess individual nutritional needs, taking into consideration lifestyle, personal and cultural preferences, and food security, while respecting the individual's wishes and willingness to change behavior.
- 5) Assess literacy and other special educational needs.

**Table 3: Situation-specific Medical Nutrition Therapy Goals**

Situation	Medical Nutrition Therapy Goals
Type 1 – Youth	Provide adequate energy to ensure normal growth and development. Integrate insulin regimens into normal eating and physical activity habits.
Type 2 – Youth	Facilitate changes in eating and physical activity habits to reduce insulin resistance, improve metabolic status, and promote a healthy weight.
Pregnancy and Lactation	Provide adequate energy and nutrients needed for optimal outcomes for mother and baby.
Older Adults	Provide for the nutritional and psychosocial needs of an aging individual.
Individuals who take insulin	Provide self-management education for treatment and prevention of hypoglycemia, acute illnesses, and physical activity-related blood glucose fluctuations.
Pre-diabetes	Encourage physical activity and promote food choices to facilitate moderate weight loss or at least prevent weight gain. <i>(For additional information, see Section 13: Identification and Diagnosis of Pre-diabetes and Type 2 Diabetes.)</i>
Metabolic Syndrome	Encourage physical activity and promote food choices to facilitate moderate weight loss (or at least prevent weight gain) and help achieve optimal blood pressure, lipid, and glucose goals. <i>(For additional information, see Section 13: Identification and Diagnosis of Pre-diabetes and Type 2 Diabetes.)</i>

### ***Frequency of Visits***

An initial series of three to four MNT encounters, each lasting 45 to 90 minutes, is recommended. Completing this series within three to six months, beginning at diagnosis of diabetes or at first referral to an RD for MNT for diabetes, is optimal. The RD should determine if additional MNT encounters are needed after the initial series, based on nutrition assessment of learning needs and progress toward desired outcomes. The RD is the key to assessing for disordered eating patterns and eating disorders. Of particular concern are adolescent girls with Type 1 diabetes, as they have a higher rate of eating disorders.

After completing the initial series of MNT visits, a person with diabetes should see an RD for a minimum of one visit annually. More frequent appointments may become necessary during major changes in therapy, at times of uncontrolled diabetes, in the event of hospitalization for diabetic ketoacidosis or hypoglycemia, at the onset of complications, during preconception counseling, and during pregnancy. Family members or other caregivers are encouraged to attend MNT visits to assist and support healthy eating for the person with diabetes as well as the entire family.

## ***Recommended Amount of Daily Carbohydrates***

The primary goal of diabetes management is to achieve an individual's optimal glycemic control. Nutrition interventions to regulate pre- and post-prandial blood glucose levels are key to improving glycemic control. Both the quantity and type/source of carbohydrates found in foods influence post-prandial blood glucose levels. A registered dietitian can assist the person with diabetes to evenly distribute his or her carbohydrate intake to keep blood glucose in the goal range; this may include matching doses of insulin to the carbohydrate content in each meal. There are a variety of methods that an RD can use to estimate the nutrient content of meals, including carbohydrate counting or the exchange system.

Carbohydrate counting is the most common meal planning method. When using carbohydrate counting, the amount of carbohydrates per meal is individualized to each person, based on their nutrition goals, weight goal, present eating habits, and physical activity level. Choosing carbohydrates from whole grains, fruits, vegetables, beans, and low-fat dairy are encouraged. A helpful tool entitled "Ready, Set, Start Counting: Carbohydrate Counting – A Tool to Help Manage Your Blood Glucose," is available at: <http://www.dce.org/publications/slicks.htm>.

Evidence shows that RDs should encourage people with diabetes to consume between 45 to 50 percent of their daily calorie intake in carbohydrates. Depending on age and other factors, this is between 150 and 300 grams per day for most people. Keeping meal and snack carbohydrate intake consistent on a day-to-day basis supports glycemic control. Children and adults need a minimum of 130 grams of carbohydrates per day for proper brain and body functions. There is no evidence to recommend carbohydrate restriction to less than 130 grams per day.

## ***Dietary Fats and Cholesterol***

The primary goal regarding dietary fats for people with diabetes is to limit saturated fats, *trans* fats, and cholesterol intake to reduce the risk for cardiovascular disease. Weight loss and physical activity can also significantly improve lipid levels. Goals for people with diabetes are the same as for individuals with pre-existing cardiovascular disease (CVD), as people with diabetes have the same cardiovascular risk as people with CVD. Foods containing saturated fat and *trans* fats are the prime sources of plasma LDL cholesterol. People with diabetes need a fasting lipid panel at least once a year to monitor cholesterol and triglyceride levels. The National Cholesterol Education Panel recommends therapeutic lifestyle changes that can help one reach lipid goals. For additional information on cholesterol and cardiovascular disease, see *Section 5: Cardiovascular Care*.

Saturated fat should be limited to < 7% of caloric intake, or not greater than 15-20 grams per day. Saturated fat is commonly found in meats, full-fat milk and cheese, butter, ice cream, sausage, lard, and coconut. Lean meats, such as skinless chicken and fish, and low-fat dairy products, such as fat-free or 1% milk are preferred. Limit *trans* fat intake to as little as possible. *Trans* fat is commonly found in fried foods from restaurants, stick margarines, and processed foods. The federal government now requires that *trans* fats be listed on all food labels. For information on how to read a food label, see the tool titled "How to Use a Food Label to Select Foods" at the end of this section.

Despite the listing of *trans* fat on food labels, it should be noted that according to the United States Food and Drug Administration rules, a product claiming to have zero *trans* fat can actually contain up to a half gram. If “partially hydrogenated” is found anywhere in the ingredient list, the product does contain a small amount of *trans* fat, even if the label states that 0 grams of *trans* fat are in the product.

Monounsaturated fat can lower total cholesterol and LDL cholesterol, as well as raise HDL cholesterol. An RD can make recommendations regarding the amount, as this again is individualized. Good sources of monounsaturated fats include olive oil, canola oil, avocados, sesame seeds, peanut oil, peanut butter, almonds, macadamia nuts, pecans, peanuts, and pistachios. Suggested daily amounts may be 1-2 tablespoons of olive oil, 2 tablespoons of peanut butter, or ¼ to ⅓ cup of nuts per day, while keeping within total calorie goals.

Polyunsaturated fat in place of saturated fat can reduce blood cholesterol and help lower the risk of heart disease. Omega-3 fatty acid is a polyunsaturated fat that lowers risk of cardiovascular disease. Omega-3 fatty acids are found in certain fish such as salmon, tuna, herring, and sardines. Two or more 3-ounce servings of non-fried fish per week are recommended. Plant sources include flaxseed and walnuts.

Plant sterol and stanol esters block the intestinal absorption of dietary and biliary cholesterol. This lowers the LDL-cholesterol without lowering the HDL-cholesterol. Plant stanols and sterols do not interfere with cholesterol-lowering medications. The National Cholesterol Education Program/Adult Treatment III program guidelines recommend plant sterols/stanols as part of a heart-healthy eating plan. Studies show effectiveness with dosages of 2 to 3 grams plant stanols per day. Examples of current products (and suggested daily servings) include Benecol<sup>®</sup> or Benecol<sup>®</sup> Light Margarine (1 ½ Tablespoon), Promise Activ<sup>®</sup> or Promise Activ<sup>®</sup> Light Margarine (2 Tablespoons), Promise<sup>®</sup> Activ Supershots<sup>®</sup> (1 unit), or Nature Made Cholest-Off<sup>™</sup> (4 capsules).

### ***Dietary Fiber***

People with both Type 1 and Type 2 diabetes are advised to choose a variety of fiber-containing foods. Whole grain-containing foods are associated with improved insulin sensitivity independent of body weight. Dietary fiber is also associated with improved ability to secrete insulin and reduced insulin resistance in Type 2 diabetes. Good sources of fiber-containing foods are legumes, fiber-rich cereal, fruits, vegetables, and whole grain products. To ensure that a product is whole grain, look in the ingredient list for the words “whole grain” or “whole wheat.” It is best if these words are the first ingredient listed. High-fiber foods also provide vitamins, minerals, and other nutrients important to good health. Potential barriers to achieving a high-fiber diet are palatability, limited food choices, and gastrointestinal side effects. Introduce high-fiber foods gradually to minimize the risk of gastrointestinal side effects. A higher fiber diet is desirable for people with diabetes. The recommended amount of dietary fiber is 14 grams of fiber per 1000 calories or between 21 to 38 grams each day for most adults.

## ***Dietary Choices for Pre-diabetes***

The Finnish Diabetes Prevention study and the Diabetes Prevention Program (DPP) found that reduced intake of calories – especially calories from saturated fat – may reduce the risk for developing Type 2 diabetes by promoting improvement in insulin resistance and promoting weight loss. Several other studies provide evidence that increased intake of whole grains and dietary fiber can also reduce risk for developing Type 2 diabetes. People with pre-diabetes benefit from intensive lifestyle programs, including MNT, for the prevention or delay of Type 2 diabetes. For additional information on pre-diabetes, see *Section 13: Identification and Diagnosis of Pre-diabetes and Type 2 Diabetes*.

## ***Nutritional Guidance for Non-Dietitian Health Professionals***

Non-dietitian health professionals can provide nutrition education when access to MNT is delayed or not accessible. Frequently, a non-dietitian health professional will need to answer nutrition questions on diabetes. When answering questions, it is important to remember that both the health professional and the person with diabetes may have received their nutrition information from a wide variety of sources and have varying levels of knowledge and beliefs. In addition, people with diabetes may have a number of comorbidities that require additional diet modification. For these reasons, it is best to provide general information until the person is able to meet with a registered dietitian.

Table 4 provides eight initial suggestions for non-dietitian health professionals to share with people until they are able to see a registered dietitian for MNT. The majority of people will see improvements in their blood sugar levels as they implement these eight strategies. In addition, there are several tools at the end of this section that may be helpful.

**Table 4: Suggestions for Non-Dietitian Health Care Professionals to Share with People**

- 1) Start with a daily eating schedule by encouraging three small to medium-sized meals at the same time every day. If snacks are necessary, choose small amounts of healthy foods. Discourage large evening meals or large evening or late-night snacks.
- 2) Discourage skipping meals, especially breakfast.
- 3) Encourage eating about the same amount of food every day.
- 4) If the person needs to lose weight, encourage reduced portion sizes for all foods (carbohydrate, fat, and protein). Choose second helpings in vegetables.
- 5) Aim for ½ plate at lunch and supper coming from vegetables, ¼ lean protein, ¼ whole grains.
- 6) Suggest that he/she look carefully at his/her beverage intake. Ask him/her to discontinue regular soda/pop, regular kool-aid, and limit juice intake to ½ cup (4 ounces) per day, and low-fat milk intake to 1 cup (8 ounces) per meal, for a total of 3-4 cups per day.
- 7) For thirst, encourage water, diet soda/pop, or any calorie-free beverage.
- 8) Use a salad plate at meals to help decrease portions.

People often ask very specific questions, such as, “Can I eat corn?” or “How many carbs should I eat in a day?” or “Is sugar-free ice cream okay?” Remember the standard of care for diabetes is an individualized meal plan and all foods, depending on their portions, fit into a good plan for diabetes. A registered dietitian can answer more individualized questions during the recommended MNT appointment.

## ***Referral to a Registered Dietitian and Coordination of Care***

Due to the complexity of diabetes nutrition issues, referral to a registered dietitian (RD) skilled in the current recommendations of diabetes care (preferably who is also a certified diabetes educator) is strongly recommended. Although other health professionals can contribute to and support MNT, the registered dietitian is the member of the diabetes treatment team responsible for coordinating overall MNT in order to ensure assessment, planning, intervention, evaluation, and follow-up for a person with diabetes. The registered dietitian is the only health professional allowed to bill for MNT. Many insurance providers cover MNT by a registered dietitian when referred by a physician, but coverage varies greatly among insurers. It is important for people with diabetes to check with their insurance provider for coverage of MNT and diabetes self-management education (DSME). Medicare Part B covers MNT for diabetes and kidney disease. Wisconsin-based insurance policies that include “mandated benefits” and cover the treatment of diabetes are required to cover DSME, including nutrition counseling.

## ***Essential Education***

People with diabetes need to understand the importance of MNT. Educational strategies must take into consideration special educational or cultural needs and literacy level/skill, while respecting the individual’s wishes and willingness to change behavior. Education may include, but is not limited to:

- Understanding the relationship between nutrition, physical activity, and medication(s)/insulin and how they can help achieve optimal A1c, blood glucose, lipid profile, blood pressure, and weight.
- Making healthy food choices while maintaining the pleasure of eating.
- Understanding how the selection, amount, and types of dietary fats, protein, and carbohydrates affect blood sugar.
- Adjusting protein intake (if indicated).
- Understanding the value of modest weight reduction (5-10% of body weight) for overweight or obese people. While modest weight loss is shown to improve insulin resistance in overweight and obese insulin-resistant individuals, research on sustained weight-loss interventions lasting one year or longer reported inconsistent effects on A1c.
- Using blood glucose self-monitoring results to adjust diet and activity level.
- Assisting in development of realistic glycemic goals, lifestyle changes, and education goals.
- Ongoing MNT visits are essential to capture new and current diabetes nutrition recommendations for continued dietary changes to optimize diabetes control and metabolic outcomes.
- Informing person with diabetes about other potential resources and support.

## ***Additional Resources***

- 1) A variety of patient and professional publications are available at the American Dietetic Association: <http://www.eatright.org>.
- 2) American Dietetic Association Evidence Analysis Library website: <http://adaevidencelibrary.com>. The library is only accessible to ADA members and subscribers.

- 3) A variety of patient and professional publications are available at the American Diabetes Association: <http://www.diabetes.org/home.jsp>.
- 4) “Life with Diabetes: A Series of Teaching Outlines by the Michigan Diabetes Research and Training Center, 3rd edition.” Published by the American Diabetes Association, 2004. Product number 5507-03. Available to order at: <http://store.diabetes.org>.
- 5) Diabetes Prevention Program Lifestyle Manuals of Operations: <http://www.bsc.gwu.edu/%20dpp/manuals.htmlvdoc>. Slide set also available for download: <http://www.bsc.gwu.edu/%20dpp/slides.htmlvdoc>.
- 6) Dietary Guidelines for Americans. Current edition (2005) available at: <http://www.health.gov/dietaryguidelines/>.
- 7) Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. National Heart, Lung, and Blood Institute: [http://www.nhlbi.nih.gov/guidelines/obesity/ob\\_home.htm](http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm).
- 8) National Diabetes Education Program: <http://www.ndep.nih.gov/>.
- 9) The Dietary Approaches to Stop Hypertension (DASH) Eating Plan. National Heart, Lung, and Blood Institute: <http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/index.htm>.
- 10) Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) Full Report: [http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3\\_rpt.htm](http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3_rpt.htm).
- 11) National Institute of Diabetes and Digestive and Kidney Diseases. Health Information – Nutrition: [www.niddk.nih.gov/health/nutrition.htm](http://www.niddk.nih.gov/health/nutrition.htm).
- 12) American Association of Diabetes Educators – Industry Allies Advisory Council. This is a listing of pharmaceutical and diabetes supply companies that provide a variety of materials including blood glucose logs, food and physical activity record forms, flow sheets, and patient and professional educational materials: <http://www.diabeteseducator.org/About/iaac/>.
- 13) The Portion Doctor. Plates, bowls, and glasses with guidance for food choices and portion sizes: <http://www.portiondoctor.com>.
- 14) Joslin Diabetes Center. Website contains extensive diabetes library separated into topics that are outlined and addressed in a question-and-answer format. Website also contains a “Beginner’s Guide to Diabetes” and an online class that provides information on the pathophysiology and treatment of diabetes: [www.joslin.harvard.edu](http://www.joslin.harvard.edu).
- 15) Diabetes Monitor. Website contains extensive index of links to a wide variety of reliable sources. Links are monitored and updated on a regular basis. Also included is a list of links for websites in other languages like Spanish, Russian, Korean, and many more: [www.diabetesmonitor.com](http://www.diabetesmonitor.com).
- 16) Patient Education Slicks from the Diabetes Care and Education; a dietetic practice group of the American Dietetic Association. Reproducible patient education slicks available in PDF format: <http://www.dce.org/publications/slicks.htm>.

### ***Medical Nutrition Therapy – Question and Answer***

#### **Q: Is annual MNT necessary for people who are meeting their goals?**

**A:** Early intervention and ongoing MNT at the recommended time is essential to help people achieve glycemic control and reduce the risk of cardiovascular disease and other complications. An annual visit with a registered dietitian provides the message that MNT is a necessary component of diabetes management. These visits can offer updates, support, education, and

follow-up recommendations, as well as potential adjustments needed throughout the life cycle; they are critical to help people attain and maintain the necessary lifestyle changes to optimize glycemic control. The RD can assist people in determining if additional visits are needed based on glycemic goals. If providers choose to decrease visits for people with no problems who are truly stable and achieving all metabolic outcomes, they should refer them back to a dietitian at the first sign of any deterioration in control. Waiting to refer to a dietitian after the person's blood glucose is out of control is not satisfactory.

**Q: What role does sodium play?**

**A:** A low sodium diet of 2300 mg of sodium or less per day can assist in lowering blood pressure. If a person's blood pressure remains above goal, decreasing sodium to 1500 mg or less per day may be helpful in reaching goal. Foods highest in sodium are lunchmeats, canned goods, and frozen entrees. People with diabetes can limit sodium intake by not using the salt shaker. Just one teaspoon of salt has 2300 mg sodium in it. Use other seasonings such as Mrs. Dash<sup>®</sup>, garlic powder, onion powder, and other herbs or spices to flavor foods without additional sodium. Increasing physical activity and weight loss may also help decrease blood pressure.

**Q: Are low or modified carbohydrate diets (Atkins, South Beach, or Zone) safe to use?**

**A:** There are no known health risks with modifying carbohydrates to promote weight loss. After one year, the total weight loss between low-carbohydrate and low-fat diets was similar. Safety of the Atkins diet in individuals with diabetes has not been established, since it is a very low carbohydrate diet. The body needs a minimum of 130 grams of carbohydrates daily to fuel the brain and central nervous system.

**Q: What role do supplements play?**

**A:** It is claimed that some supplements may assist with diabetes control. Examples of supplements include alpha-lipoic acid, chromium, garlic, magnesium, cinnamon, polyphenols, prickly pear cactus, gumar, and others. There is not enough scientific evidence to prove that dietary supplements benefit people with diabetes. The United States Food and Drug Administration (FDA) review and approval of supplement ingredients and products is not required before marketing. Persons with diabetes must know that labels on supplement bottles may not accurately reflect the actual amount of supplement that is present. All persons with diabetes who are interested in taking supplements should discuss with their health care provider(s).

**Q: What are strategies for maintaining weight loss?**

**A:** The National Weight Control Registry (NWCR) is a longitudinal, prospective study of individuals 18 years and older who have successfully maintained a 30-pound weight loss for a minimum of one year. Findings of the NWCR show that of those individuals who successfully maintain weight loss:

- 78% eat breakfast every day;
- 75% weigh themselves at least once a week;
- 62% watch less than 10 hours of television per week;
- 90% are physically active, on average, about 1 hour per day.

For more information on the NWCR: <http://www.nwcr.ws/>.

**Q: I take insulin and use carbohydrate counting for management of my diabetes. I noticed that on some food labels the manufacturer has added a statement defining “net effective carbs,” which is often a different number compared to the total number of carbohydrates. How does the number of “net carbs” affect my calculations for carbohydrate counting?**

**A:** The terms “net carbs,” “impact carbs,” or “net effective carbohydrates” are frequently seen on food packaging and nutrition facts labels and are often very confusing to consumers. Manufacturers developed these terms from the concept that some types of carbohydrates have minimal effects on blood sugar levels. These terms were created by manufacturers and do not have a government definition from the United States Food and Drug Administration (FDA). The information used to count carbohydrates is found on the nutrition facts panel. Total grams of carbohydrates are recorded and broken down into dietary fiber, sugar alcohols, and sugars.

Although carbohydrate counting is mainly focused on using the total grams of carbohydrates per serving consumed, special types of carbohydrates have individualized effects on blood sugar levels. Fiber is a non-digestible carbohydrate that has a negligible impact on blood sugar levels.

However, the same is not true for sugar alcohols. Sugar alcohols affect blood sugar levels less than the same amount of other carbohydrates, but individuals with diabetes need to take them into account when counting carbohydrates. Some manufacturers include a “net carbs” calculation by subtracting all of the sugar alcohols from total carbohydrates. Even so, sugar alcohols are still partially absorbed in the small intestine and people who are counting carbohydrates should pay attention to these ingredients. Examples of sugar alcohols include sorbitol, mannitol, and xylitol. Keep in mind that because sugar alcohols are only partially absorbed, they may cause some intestinal discomfort. Some individuals may experience varying degrees of a laxative side effect following ingestion of foods containing these sugar derivatives.

In most cases, it is best to ignore any “net carb” calculations on food packaging. There are calculations you can use to adjust for fiber and sugar alcohols:

- 1) Check total grams of carbohydrates listed on nutrition facts label.
- 2) Look for grams of dietary fiber:
  - If the total grams of dietary fiber per serving consumed is **greater** than 5g, then **subtract** half of the grams of dietary fiber from the total grams of carbohydrates.
  - If the total is grams of dietary fiber per serving consumer is **less** than 5g, then there are insignificant effects on blood glucose levels; therefore, you should not subtract the grams of dietary fiber from the total grams of carbohydrates.
- 3) Look at total grams of sugar alcohols.
  - Subtract **half** of the total grams of sugar alcohols from total carbohydrates.

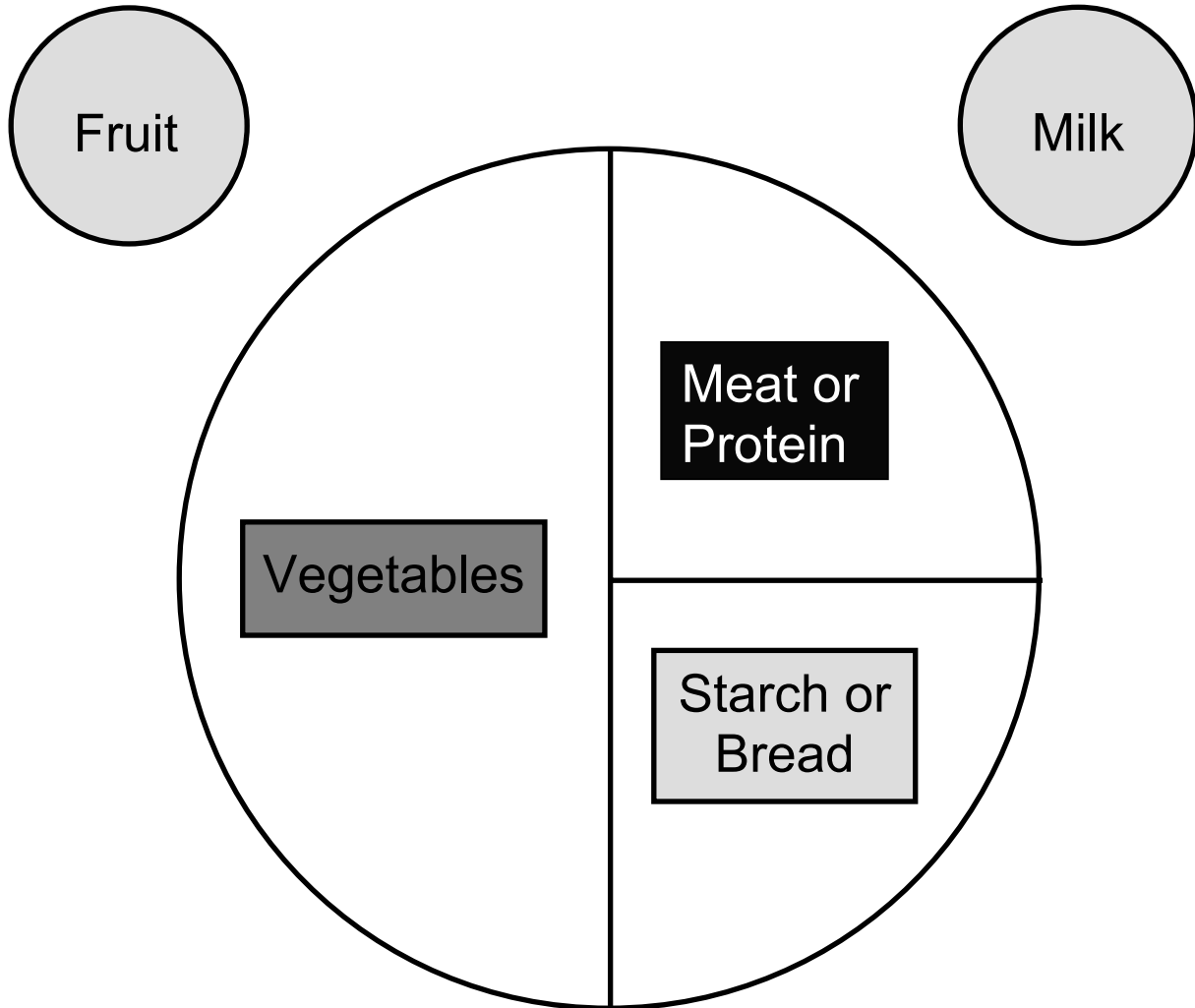
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**MEAL PLANNING WITH THE PLATE METHOD: LUNCH/DINNER – ENGLISH**

The Plate Method is a method of meal planning that provides an even distribution of carbohydrates, a lower fat intake, and a greater amount of fruits and vegetables. Plan your meals by dividing up your plate in this way:



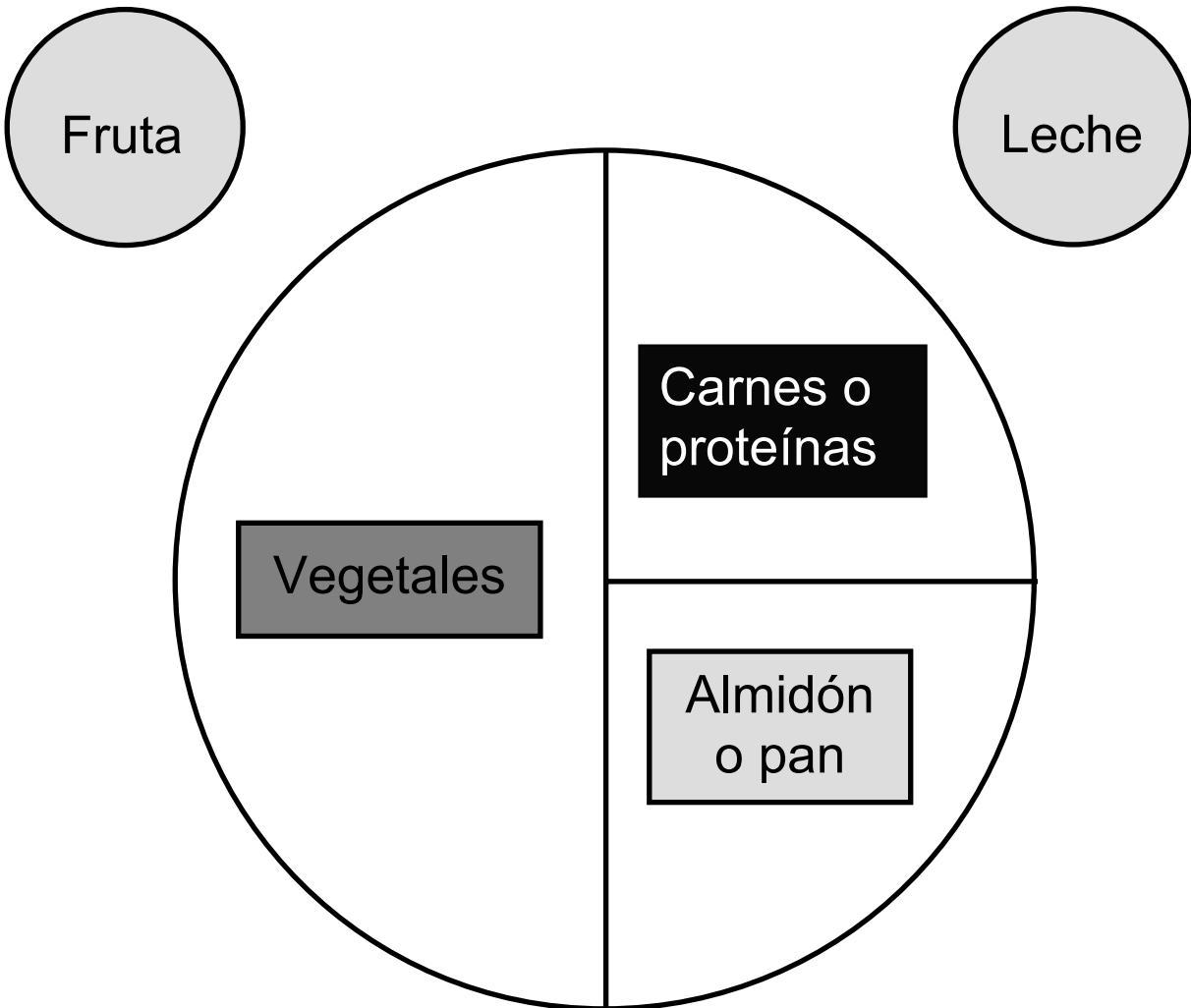
**Starch & Bread, Fruit, and Milk food groups raise blood sugar.**

**Low carbohydrate vegetables raise blood sugar in tiny amounts.**

**Meat/Protein foods raise blood sugar in tiny amounts.**

## PLANIFICACIÓN DE LAS COMIDAS CON EL MÉTODO DE PLATOS: ALMUERZO/CENA

El método de platos es un método de planificación de comidas que proporciona una distribución uniforme de los carbohidratos, un consumo más bajo de grasa y una mayor cantidad de frutas y vegetales. Planifique sus comidas al dividir sus platos de la manera siguiente:



**El grupo de alimentos tales como almidón y pan, frutas y leche elevan el nivel de azúcar en la sangre.**






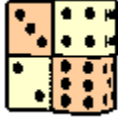







**Los vegetales con pocos carbohidratos elevan muy poco el nivel de azúcar en la sangre.**

**Las carnes o proteínas elevan muy poco el nivel de azúcar en la sangre.**

## SEVEN WAYS TO SIZE UP YOUR SERVINGS – ENGLISH

Measure food portions so you know exactly how much food you're eating.  
When a food scale or measuring cups aren't handy, you can still estimate your portions.

### Remember:

1	3 ounces of meat is about the size and thickness of a deck of playing cards or an audiocassette tape.		=	
2	A medium apple or peach is about the size of a tennis ball.		=	
3	1 ounce of cheese is about the size of 4 stacked dice.		=	
4	1/2 cup of ice cream is about the size of a racquetball or tennis ball.		=	
5	1 cup of mashed potatoes or broccoli is about the size of your fist.		=	
6	1 teaspoon of butter or peanut butter is about the size of the tip of your thumb.		=	
7	1 ounce of nuts or small candies equals one handful.		=	<b>1 oz.</b>

### **MOST IMPORTANT**

If you're cutting calories, remember to keep your diet nutritious:


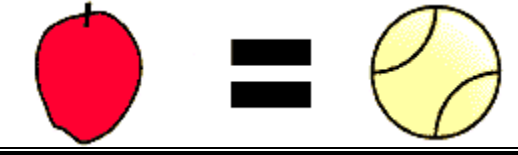





- 2-4 servings from the Milk Group for calcium
- 3-5 servings from the Vegetable Group for vitamin A
- 2-3 servings from the Meat Group for iron
- 2-4 servings from the Fruit Group for vitamin C
- 6-11 servings from the Grain Group for fiber

Courtesy of the National Dairy Council.

## SIETE MANERAS DE MEDIR SUS PORCIONES

Mida las porciones de comida para saber exactamente cuánto está comiendo. Cuando una pesa de comida o las tazas de medida no resulten prácticas, todavía puede estimar sus porciones.

### Recuerde:

1	3 onzas de carne es más o menos el tamaño y espesor de un mazo de cartas o un cassette de audio.	
2	La mitad de una manzana o melocotón es más o menos el tamaño de una bola de tenis.	
3	1 onza de queso es más o menos el tamaño de 4 dados apilados.	
4	1/2 taza de helado es más o menos el tamaño de una bola de ráquetbol o tenis.	
5	1 taza de puré de papas o brócoli es más o menos el tamaño de su puño.	
6	1 cucharadita de mantequilla o crema de cacahuete es más o menos el tamaño de la punta de su dedo pulgar.	
7	1 onza de nueces o caramelos pequeños es igual a un manojito.	

### **LO MÁS IMPORTANTE**

Si está reduciendo calorías, recuerde mantener una dieta nutritiva:

- 2 a 4 porciones del grupo de lácteos para calcio
- 3 a 5 porciones del grupo de vegetales para vitamina A
- 2 a 3 porciones del grupo de carnes para hierro
- 2 a 4 porciones del grupo de frutas para vitamina C
- 6 a 11 porciones del grupo de granos para fibra

Cortesía del Consejo Nacional de Productos Lácteos.

## HOW TO USE A FOOD LABEL TO SELECT FOODS – ENGLISH

### 1. Locate the serving size

- The information on the label is for this serving size.
- How does it compare to your serving size?

### 2. Locate the total carbohydrate grams (g)

- **Women:** 150-180g total carbohydrate per day  
45-60g per meal      0-15g per snack
- **Men:** 200-225g total carbohydrate per day  
60-75g per meal      0-30g per snack
- 15g carbohydrate = 1 carbohydrate serving or “exchange”

### 1. Locate dietary fiber grams (g)

- Aim for 25-35 grams fiber per day.
- Aim for 3-5 grams fiber per serving.
- Fiber does not turn to sugar like other carbohydrate does.
- You can subtract half of the dietary fiber grams from the total carbohydrate grams.

$$\begin{array}{r} \text{Total carb grams (30)} \\ - \text{Dietary Fiber grams (10/2 = 5)} \\ \hline = \text{Net carb grams that you count (30 - 5 = 25)} \end{array}$$

- Soluble fiber may help lower cholesterol levels.
- Soluble fiber sources = oats, beans, lentils, vegetables, fruits.

### 2. Locate total fat grams (g)

- **Women**                                  **Men**  
60g fat or less per day      75g fat or less per day  
15g or less as saturated fat      20g or less as saturated fat

- “Low fat” = less than 3g fat per serving.
- Choose cheese with less than 5g total fat per ounce.
- Choose frozen entrees with less than 15g total fat each.

### 3. Locate cholesterol milligrams (mg)

- Aim for 200mg cholesterol or less per day.
- Cholesterol is found in animal foods (meat, egg, milk, cheese, butter, etc.).

### 4. Locate sodium milligrams (mg)

- Aim for 2300mg sodium or less per day.
- Choose frozen entrees with less than 800mg sodium.

### Breakfast Cereal

<h1 style="margin: 0;">Nutrition Facts</h1>	
Serving Size 1 cup (52 g)	
Servings per container 8	
Amount Per Serving	
<b>Calories</b> 148	Calories from Fat 9
% Daily Value*	
<b>Total Fat</b> 1g	2%
Saturated Fat 0g	1%
Trans Fat 0g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 86mg	4%
<b>Total Carbohydrate</b> 30g	10%
Dietary Fiber 10g	41%
Sugars 6g	
<b>Protein</b> 14g	
Vitamin A      1%	Vitamin C      0%
Calcium          7%	Iron              14%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	
©www.NutritionData.com	

Adapted from material provided by: UW Health Medical Foundation, Health Education and Nutrition Department.

## COMO USAR LAS ETIQUETAS DE COMIDAS PARA SELECCIONARLAS

### 1. Localice el tamaño de la porción

- La información en la etiqueta es para este tamaño de porción.
- ¿Cómo se compara al tamaño de su porción?

\*Cereal de desayuno

### 2. Localice los gramos (g) totales de carbohidratos

- **Mujeres** 150 a 180 g totales de carbohidratos por día 45 a 60g por alimento 0 a 15 g por bocadillo
- **Hombres** 200 a 225 g totales de carbohidratos por día 60 a 75g por alimento 0 a 30 g por bocadillo
- 15 g de carbohidratos = 1 porción de carbohidratos o "intercambio"

### 3. Localizar los gramos (g) de fibra dietética

- Procure consumir de 25 a 35 gramos de fibra por día.
- Procure consumir de 3 a 5 gramos de fibra por porción.
- La fibra no se convierte en azúcar como lo hacen otros carbohidratos.
- Puede sustraer la mitad de los gramos de fibra dietética del total de gramos de carbohidratos.

$$\begin{aligned} &\text{Gramos totales de carbohidratos (30)} \\ &\text{– Gramos de fibra dietética (10/2 = 5)} \\ &= \text{Gramos de carbohidratos netos que usted cuenta} \\ &\quad \quad \quad (30 - 5 = 25) \end{aligned}$$

- Las fibras solubles ayudan a bajar los niveles de colesterol.
- Fuentes de fibras solubles = avenas, frijoles, lentejas, vegetales y frutas

### 4. Localizar los gramos (g) totales de grasa

- **Mujeres** 60g de grasa o menos por día  
15g o menos de grasa saturada
- **Hombres** 75 g de grasa o menos por día  
20 g o menos de grasa saturada
- “Grasa baja” = menos de 3 g de grasa por porción.
- Escoja un queso con menos de 5 g de grasa total por onza.
- Escoja platos congelados con menos de 15 g de grasa total cada uno.

### 5. Localice los miligramos de colesterol (mg)

- Procure consumir 200 mg o menos de colesterol por día.
- El colesterol se encuentra en comidas que provienen de animales (carne, huevo, leche, queso, mantequilla y otros).

### 6. Localice los miligramos de sodio (mg)

- Procure consumir 2300 mg o menos de sodio por día.
- Escoja platos congelados que tengan menos de 800 mg de sodio.

<b>Datos de nutrición</b>		
Tamaño de la porción 1 taza (52 g)		
Porciones por recipiente 8		
<b>Cantidad por porción</b>		
<b>Calorías 148</b>	Calorías de grasa 9	
<b>Valores diarios y %*</b>		
<b>Total de grasa 1g</b>	2%	
Grasa saturada 0g	1%	
Ácido graso 0g		
<b>Colesterol 0mg</b>	0%	
<b>Sodio 86mg</b>	4%	
<b>Total de carbohidratos 30g</b>	10%	
Fibra dietética 10g	41%	
Azúcares 6g		
<b>Proteína 14g</b>		
Vitamina A 1%	Vitamina C	0%
Calcio 7%	Hierro	14%
<small>* Los valores diarios y porcentajes se basan en una dieta de 2,000 calorías. Sus valores diarios pueden ser más altos o más bajos según la cantidad de calorías que necesita.</small>		
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Adaptado del material proporcionado por la Fundación Médica y de Salud UW, Departamento de Educación de la Salud y Nutrición.

