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# ***Lifestyle Management (1): Nutritional Guidelines***

**9 April 2020  
1100 - 1200**



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**Denise C. Sprague, MS, RD**  
**Certified Diabetes Educator**

BAMC Diabetes Education Program  
Brooke Army Medical Center  
San Antonio, Texas

*“The fork is more powerful than the pill!”*

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# *Learning Objectives*

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At the conclusion of this knowledge-based activity, participants will be able to:

- Review current recommendations for medical nutrition therapy (MNT) for people with diabetes (PWD).
- Distinguish the goals of nutrition therapy for PWD.
- Compare strategies to facilitate healthy eating behaviors

For many individuals the most challenging part of the treatment plan is determining ***what to eat*** and ***following a meal plan***.



[https://lh3.googleusercontent.com/VI-dRPuWfsnB\\_ltnjok8PoGNh3ktaAsECgsBSokdMMH7zJx\\_SPGLaGpkvsvXQB5PABHw=s140](https://lh3.googleusercontent.com/VI-dRPuWfsnB_ltnjok8PoGNh3ktaAsECgsBSokdMMH7zJx_SPGLaGpkvsvXQB5PABHw=s140)



<https://lh3.googleusercontent.com/EPZQxHlyJH23we9IISe92XaDMLeCkICuEtIqY8vWvi3sMHfUWAmptkugxTf24X3VIdI7=s85>

*It is important that all members of the health care team know and **CHAMPION** the benefits of nutrition therapy and key nutrition messages.*

***Joint Position Statement: ADA, AADE & AND:**  
...so they can facilitate **basic meal planning, clarify misconceptions and provide reinforcement** of the nutrition plan*

# Goals of Nutrition Therapy

## ADA Standards of Medical Care, 2020

- To promote and **support healthful eating patterns** emphasizing a variety of nutrient-dense foods in appropriate portion sizes, to improve overall health and:
  - Achieve and maintain **body weight goals**
  - Attain **individualized glycemic, blood pressure and lipid goals**
  - Delay or prevent the complications of diabetes



# Goals of Nutrition Therapy

## ADA Standards of Medical Care, 2020

- To address **individual nutrition needs** based on **personal and cultural preferences**, health literacy and numeracy, access to healthful foods, **willingness and ability** to make behavioral changes and barriers to change
- To **maintain the pleasure of eating** by providing **nonjudgmental** messages about food choices
- To provide individuals with **practical tools** for developing healthy eating patterns rather than focusing on individual macronutrients, micronutrients, or single foods



<https://lh3.googleusercontent.com/YoU0q-4A7aTvFOJ6iq7m8uDwXK78YTQFTxKZnBa7fomrHJBrFY6sMDKpFoOFYb1fhm9=s129>

American Diabetes Association. (2020).

# *How Do We Start the Conversation?*

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- What foods or drinks affect your blood sugars most?
- What do you usually drink?
- What's your main goal?
- What has worked for you in the past to
  - Lose weight?
  - Get your blood sugars down?
- What are you / they willing to do?
- Keep your personal prejudices out

*Don't give your BEEF EATER the VEGAN diet handout!*

# ADA Recommendations

- Total **energy** intake to attain weight management goals
- There is **no ideal percentages** of calories from **carbohydrate, protein and/or fat**
- Should be based on **individualized** assessment
- **Typical American Diet**
  - Carbohydrate    44 - 46%      RDA = 130 grams / day
  - Fat                    36 - 40%      AMDR 20 – 35%
  - Protein                16 - 18%      AMDR 10 – 35%    RDA = 0.8g/kg

RDA = Recommended Daily Allowance

AMND = Acceptable Macronutrient Distribution Ranges

- **Fiber** – at least same as general population:
  - 14 grams / 1000 kcal -
  - Increase fiber with vegetables, pulses, fruits and whole intact grains or supplement
  
- **Sugar Sweetened Beverages** – replace with water
  
- **Non-Nutritive Sweeteners** – encouraged to reduce and replace with water
  
- **Sodium** – same as general population: < 2300 mg/d
  - <1500 mg is not recommend
  - Consider palatability, availability, affordability and difficulty

## ■ Micronutrients & Supplements

- Same as general population
- No clear evidence of benefit without underlying deficiencies
- **Metformin** is associated with B 12 deficiency
  - Annual assessment especially with anemia or peripheral neuropathy

## ■ Alcohol – moderation - same as general population

- $\leq 1$  drink per day for women
- $< 2$  drinks per day for men
- Educate on **risks** of alcohol and hypoglycemia

- **Protein** - *No evidence for that adjusting the typical intake of protein will improve health in individuals without diabetic kidney disease*
  - **Typical protein intake**
    - 1 – 1.5 g/kg body weight (90 – 150 g/d)
    - 15 – 20% of total calories (16%)
- **With Diabetic Kidney Disease - RDA 0.8 g/kg body weight / day**
  - **Reducing amount below RDA does not improve:**
    - Rate at which GFR declines
    - Cardiovascular risk
    - Glycemic measures
    - Increases risks of malnutrition

- **Protein** - may increase insulin response without increasing plasma glucose concentrations
- Carbohydrate sources **high in protein** should **NOT** be used to treat or prevent hypoglycemia in type 2 diabetes due to potential rise in endogenous insulin



<https://www.thediabetescouncil.com/best-ways-to-bring-high-blood-sugar-down/>

# ADA Recommendations

## ■ Quality of fat more important than total amount of fat

- Reduce saturated fat
- Avoid trans fat
- Replace with healthy fats
- Include Omega 3 fatty acid foods / not supplements
- Do not replace fat with refined carbohydrates



## ■ Saturated Fat – Limit to < 10% of total daily calories

- ~22 grams in 2000 kcal diet

## ■ Minimize *trans* fats

## ■ Cholesterol not limited

- Not correlated with CVD events
- May correlate with serum cholesterol levels

	% Daily Value*
<b>Total Fat</b> 8g	<b>10%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	<b>0%</b>
<b>Cholesterol</b> 0mg	<b>0%</b>

## ■ Total Amount of carbohydrate

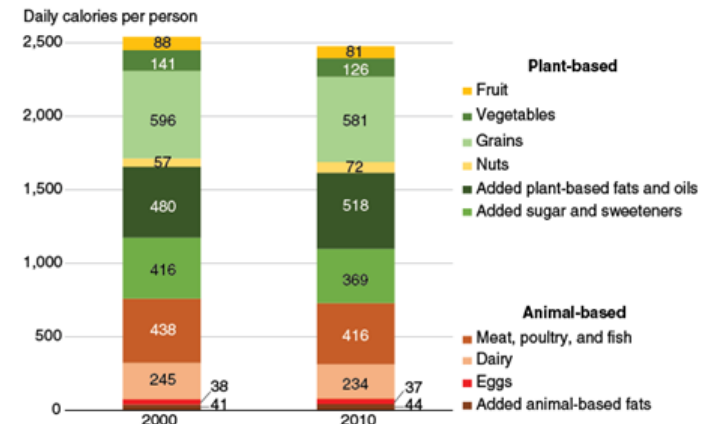
- Primary predictor of glycemic response

## ■ Quality and type of carbohydrate

influence glucose levels / post-prandial blood glucose

## ■ Monitoring carbohydrate intake is a Key strategy in achieving glycemic control

Seventy percent of Americans' calories in 2010 were from plant-based foods



Added fats and oils are added to food during processing or preparation and do not include naturally occurring fats, such as in meat, dairy products, nuts, and avocados. Added animal-based fats include butter, lard, and edible beef tallow.  
Source: USDA, Economic Research Service Loss-Adjusted Food Availability data.

<https://www.ers.usda.gov/amber-waves/2016/december/a-look-at-calorie-sources-in-the-american-diet/>

# Quality of Carbohydrate: Whole Grains

- **Include nutrient dense carbohydrate sources high in fiber**
  - **Vegetables, fruits, legumes, whole grains and dairy products**
- **Intact grains** slow the breakdown of starch into glucose
- **Intact whole grains**
  - Brown rice
  - Bulgur
  - Barley
  - Buckwheat
  - Corn
  - Oats
  - Quinoa
  - Rye
  - Whole wheat
  - Wild Rice



[https://www.girlshealth.gov/nutrition/healthy\\_eating/choosemyplate.html](https://www.girlshealth.gov/nutrition/healthy_eating/choosemyplate.html)

# Carbohydrates: Glycemic Index / Glycemic Load

- Provides an assessment of the **quality** of carbs

- **Glycemic Index**

- Reflects of the **rate carbs are digested and absorbed** as glucose
- **High GI** - quickly converted with a **rapid rise** in BG and larger insulin secretion
- **Low GI** - are converted more **slowly** and produce a **lower** blood glucose and insulin response

- **Factors that affect GI**

- Ripeness                      Processing
- Cooking method          Fat content
- Meal content



<https://www.thediabetescouncil.com/best-bread-for-people-with-diabetes/>

- **Glycemic Load** – takes into account the quantity of food consumed and may be a more realistic measure

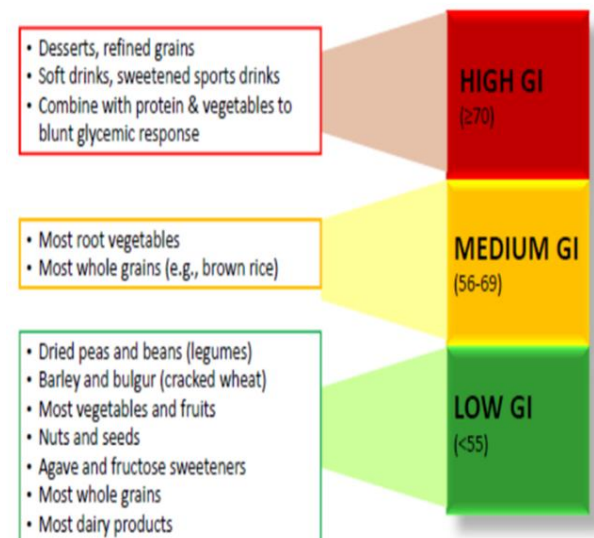
# Carbohydrates: Glycemic Index / Glycemic Load

## ■ Recommended by VA/DOD CPG (2017)

■ **\*\*Replacing high GI carbs with GI carbs** in mixed meals clinically significant benefit for glycemic control

■ **Diets high in GI and GL** associated with increased CVD and type 2 diabetes

### The Spectrum of Glycemic Index



[https://lh3.googleusercontent.com/nZsSLavd\\_GyTlezmIFo9Bkueq60BGh6ZaOi\\_68Wlpfe3jip8kpyfOVvD3AVKS2tUpsS=s85](https://lh3.googleusercontent.com/nZsSLavd_GyTlezmIFo9Bkueq60BGh6ZaOi_68Wlpfe3jip8kpyfOVvD3AVKS2tUpsS=s85)

\*\*Canada Diabetes Clinical Practice Guidelines, 2018

# Choose Low GI Carbohydrates

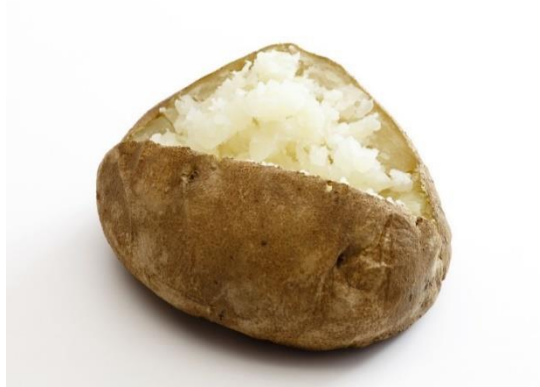
LOW GI (55 or less) * † Choose most often	MEDIUM GI (56-69) * † Choose more often	HIGH GI (70 or more) * † Choose less often
<b>BREADS:</b> 100% stone ground whole wheat Heavy mixed grain Pumpernickel	<b>BREADS:</b> Whole wheat Rye Pita	<b>BREADS:</b> White bread Kaiser roll Bagel, white
<b>CEREAL:</b> All Bran™ Bran Buds with Psyllium™ Oat Bran™	<b>CEREAL:</b> Grapenuts™ Puffed wheat Oatmeal Quick oats	<b>CEREAL:</b> Bran flakes Corn flakes Rice Krispies™
<b>GRAINS:</b> Barley Bulgar Pasta/noodles Parboiled or converted rice	<b>GRAINS:</b> Basmati rice Brown rice Couscous	<b>GRAINS:</b> Short-grain rice
<b>OTHER:</b> Sweet potato Yam Legumes Lentils Chickpeas Kidney beans Split peas Soy beans Baked beans	<b>OTHER:</b> Potato, new/white Sweet corn Popcorn Stoned Wheat Thins™ Ryvita™ (rye crisps) Black bean soup Green pea soup	<b>OTHER:</b> Potato, baking (Russet) French fries Pretzels Rice cakes Soda crackers

[https://lh3.googleusercontent.com/yjt2A3hgZqCQh5DNgnZ4bQbRT6ZOU6E3b6a19q\\_D6sXu6A0i7\\_70Sn530RT1gMOP6fs7yA=s111](https://lh3.googleusercontent.com/yjt2A3hgZqCQh5DNgnZ4bQbRT6ZOU6E3b6a19q_D6sXu6A0i7_70Sn530RT1gMOP6fs7yA=s111)

\*expressed as a percentage of the value for glucose

† Canadian values where available

# Glycemic Index / Glycemic Load Trivia

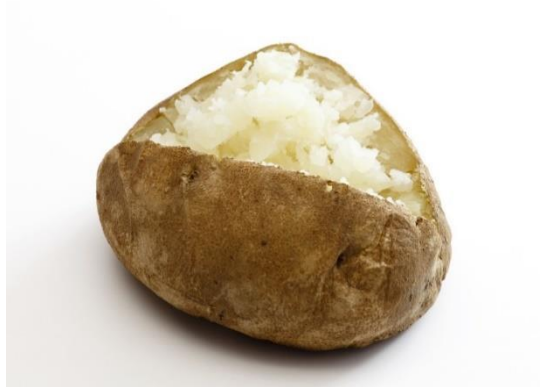


Or



Or





Or



Or



GI: 98  
GL 29

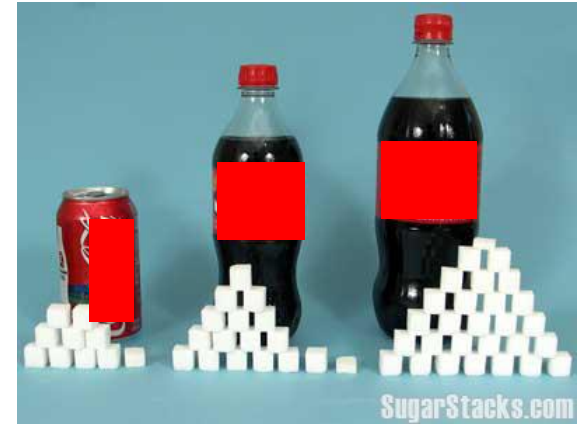
57  
9

43  
18

# ***SUGAR SWEETENED BEVERAGES***

## ■ **Avoid sugar-sweetened beverages**

- Including fruit juices
- High fructose corn syrup
- Improves glycemic control
- Supports weight loss
- Reduces cardiovascular disease
- Improves fatty liver



## ■ **Encourage to decrease both sugar sweetened and nonnutritive-sweetened beverages**

- Use diet drinks in transition
- Emphasize **WATER, coffee or tea**

# Non-Nutritive Sweeteners

Non-Nutritive Sweetener	Brand Name	Acceptable Daily Intake (pkts)
Acesulfame potassium	Sweet One, Sunette	
Aspartame	Equal, Sugar twin	
Neotame	Neotame	
Saccharin	Sweet & Low	
Sucralose	Splenda	
Stevia	Stevia, Truvia	

# Non-Nutritive Sweeteners

Non-Nutritive Sweetener	Brand Name	Acceptable Daily Intake (pkts)
Acesulfame potassium	Sweet One, Sunette	23
Aspartame	Equal, Sugar twin	75
Neotame	Neotame	23
Saccharin	Sweet & Low	45
Sucralose	Splenda	23
Stevia	Stevia, Truvia	9

# Meal Planning Strategies

- Healthy Plate Method
- Portion Control
- Carbohydrate Counting
  - Basic
  - Advanced
- Healthy Eating Patterns
  - To promote weight loss
  - To promote glycemic control



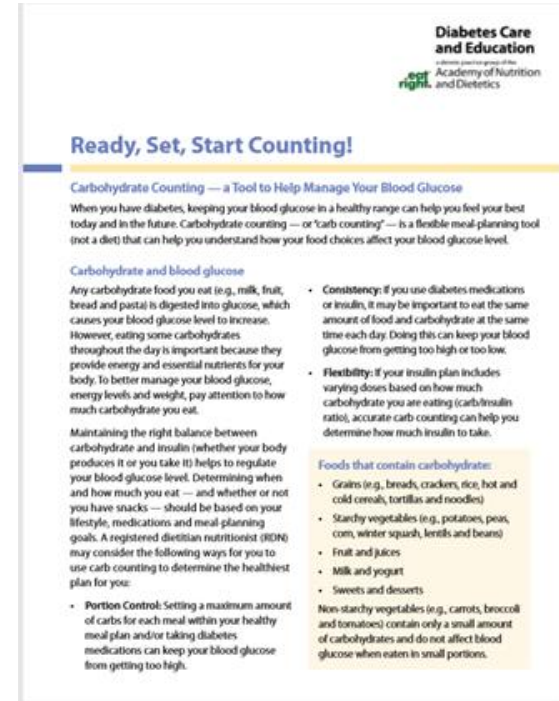
American Diabetes Association. (2018).  
Nutrition Therapy Recommendations for the Management of Adults with Diabetes. *Diabetes Care*, 41(Suppl. 1), S39-S43.

## Create a healthy plate

- **1/2 plate vegetables**
  - Spinach, carrots, lettuce, greens, cabbage, green beans, broccoli, cauliflower, tomatoes
- **1/4 plate starchy food**
  - Whole grain
  - High fiber veggies
- **1/4 plate lean protein**



- **Basis** of all diabetes meal planning
- Carbohydrate **affects blood glucose more** than any other nutrient
- **Increases flexibility**
  - With diet
  - With insulin
- **Improves blood sugar control**



**Diabetes Care and Education**  
a practice group of the  
**eat right.** Academy of Nutrition and Dietetics

## Ready, Set, Start Counting!

**Carbohydrate Counting — a Tool to Help Manage Your Blood Glucose**

When you have diabetes, keeping your blood glucose in a healthy range can help you feel your best today and in the future. Carbohydrate counting — or “carb counting” — is a flexible meal-planning tool (not a diet) that can help you understand how your food choices affect your blood glucose level.

**Carbohydrate and blood glucose**

Any carbohydrate food you eat (e.g., milk, fruit, bread and pasta) is digested into glucose, which causes your blood glucose level to increase. However, eating some carbohydrates throughout the day is important because they provide energy and essential nutrients for your body. To better manage your blood glucose, energy levels and weight, pay attention to how much carbohydrate you eat.

Maintaining the right balance between carbohydrate and insulin (whether your body produces it or you take it) helps to regulate your blood glucose level. Determining when and how much you eat — and whether or not you have snacks — should be based on your lifestyle, medications and meal planning goals. A registered dietitian nutritionist (RD/N) may consider the following ways for you to use carb counting to determine the healthiest plan for you:

- **Portion Control:** Setting a maximum amount of carbs for each meal within your healthy meal plan and/or taking diabetes medications can keep your blood glucose from getting too high.
- **Consistency:** If you use diabetes medications or insulin, it may be important to eat the same amount of food and carbohydrate at the same time each day. Doing this can keep your blood glucose from getting too high or too low.
- **Flexibility:** If your insulin plan includes varying doses based on how much carbohydrate you are eating (carb/insulin ratio), accurate carb counting can help you determine how much insulin to take.

**Foods that contain carbohydrate:**

- Grains (e.g., breads, crackers, rice, hot and cold cereals, tortillas and noodles)
- Starchy vegetables (e.g., potatoes, peas, corn, winter squash, lentils and beans)
- Fruit and juices
- Milk and yogurt
- Sweets and desserts

Non-starchy vegetables (e.g., carrots, broccoli and tomatoes) contain only a small amount of carbohydrates and do not affect blood glucose when eaten in small portions.

# Basic Carb Counting

## ■ Identify Carbohydrates

## ■ Know portion sizes

## ■ Balance over the day

- Women 2 – 4 svgs per meal
- Men 3 – 5 svgs per meal

## ■ Be consistent



*1 Serving Carbohydrate = 15 grams carbohydrate*

# Basic Carbohydrate Counting

## Carbohydrate Foods:

*Emphasize nutrient dense carbohydrates, high in fiber*

- Grains
- Starchy Vegetables / Legumes
- Fruit
- Milk & yogurt
- Sugars
- Non-starchy vegetables
  - Very low in carbohydrate

Food Group	Serving Size
Grains, Starchy vegetables, Legumes	1 slice bread 1/3 cup cooked pasta 1/2 cup beans 4 – 6 crackers
Fruit	1 small piece of fruit 1/2 cup fruit juice
Milk & yogurt	1 cup milk 3/4 cup yogurt
Desserts	2 small cookies 1/2 cup ice cream

# Basic Carbohydrate Counting

**All carbohydrates → GLUCOSE**

## Men:

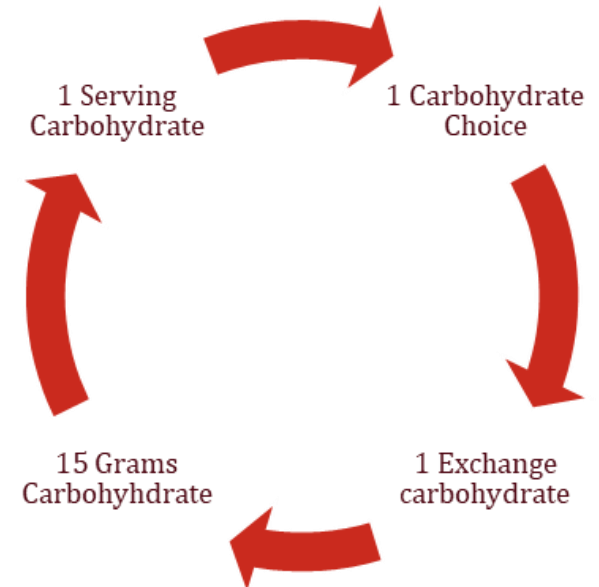
3 – 5 servings /  
meal

0 -2 servings /  
snack

## Women:

2 – 4 servings /  
meal

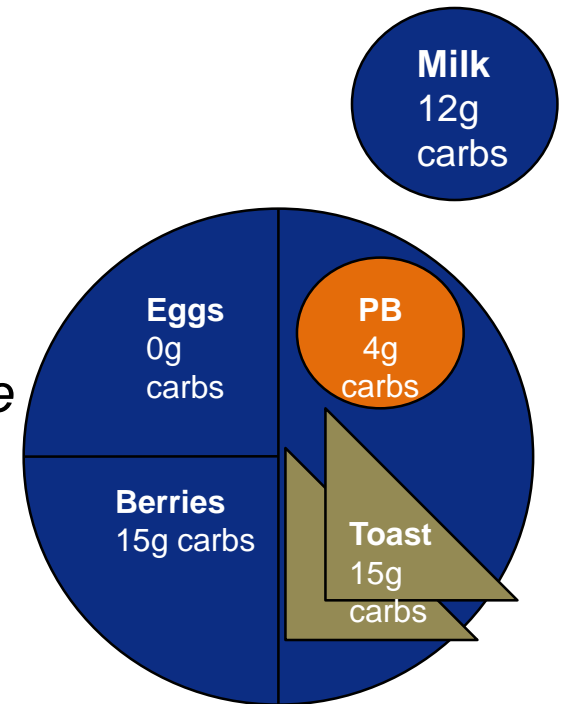
0 - 1 serving /  
snack



**1 Carbohydrate Serving = 15 Grams of Carbohydrate**

# Advanced Carbohydrate Counting

- *Type 1 or type 2 on meal-time insulin*
- **Fixed meal-time insulin**
  - *Education on consistent carbohydrate intake with respect to both amount and timing*
- **Flexible meal-time insulin**
  - *Intensive and ongoing education on insulin based on carbohydrate intake*
  - *Advanced Carbohydrate Counting*
  - *Insulin to carbohydrate ratios to modify insulin dose from meal to meal*



# Advanced Carbohydrate Counting Insulin to Carbohydrate Ratio (ICR)

- Amount of carbohydrate covered by 1 unit of insulin
- Varies with each patient & determined by



ICR = 1:10

Meal = 60 grams CHO

6 units insulin needed

Kulkarni K. (2005, July). Carbohydrate Counting: A Practical Meal-Planning Option for People With Diabetes. *Clinical Diabetes*, 23(3), 120-122.

- **Mediterranean Style Diet**
- **DASH**
- **Plant-Based Diets**
  - Vegetarian
- **Low Fat**
- **Low Carbohydrate**
  - Paleo
  - Ketogenic

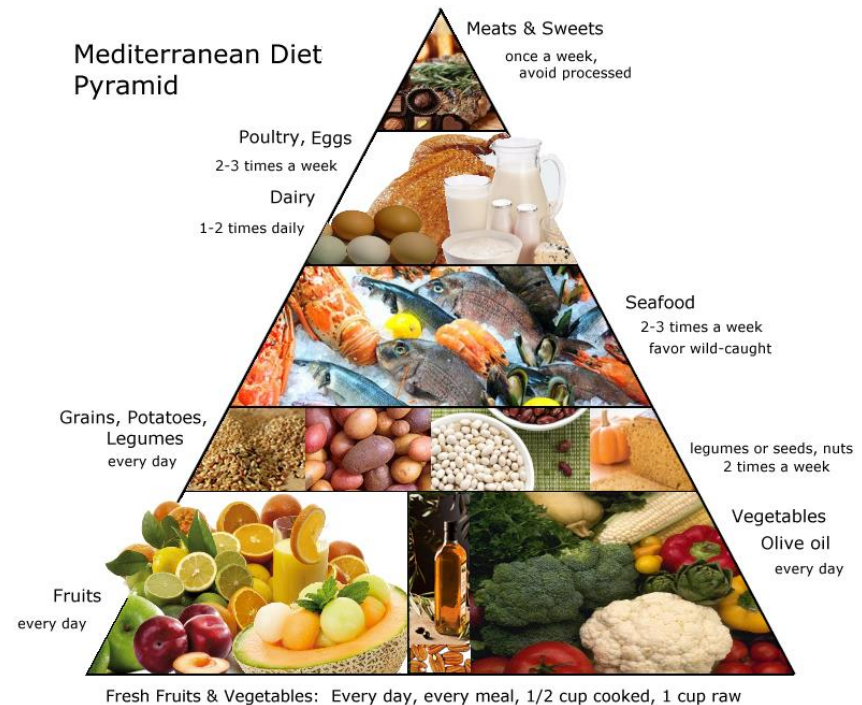
# ***Mediterranean Style Diet***

- *Inspired from the diets of countries along the coast of the Mediterranean*
- Emphasizes plant-based foods
  - Daily intake of whole grains, olive oil, fruits, vegetables, beans and other legumes, nuts, herbs and spices
  - Preference for fish and seafood
  - Dairy in low to moderate amounts
  - Little to no red meat (few x/mo)
  - Healthy fats
    - Olive oil vs saturated fats (butter)
    - Avocado, nuts and oily fish, walnuts
  - Wine in moderation



## Benefits:

- **Prevention of diabetes**
  - **A1c reduction**
  - **Delays** the time to first pharmacologic intervention
  - Lowers triglycerides
  - Reduces risk of major CV events
  - Reduces **inflammation**
  - Improves **cognitive function**
  - Improves **hepatic steatosis** and **insulin sensitivity**
- 
- ***Antithesis of “low fat eating”***



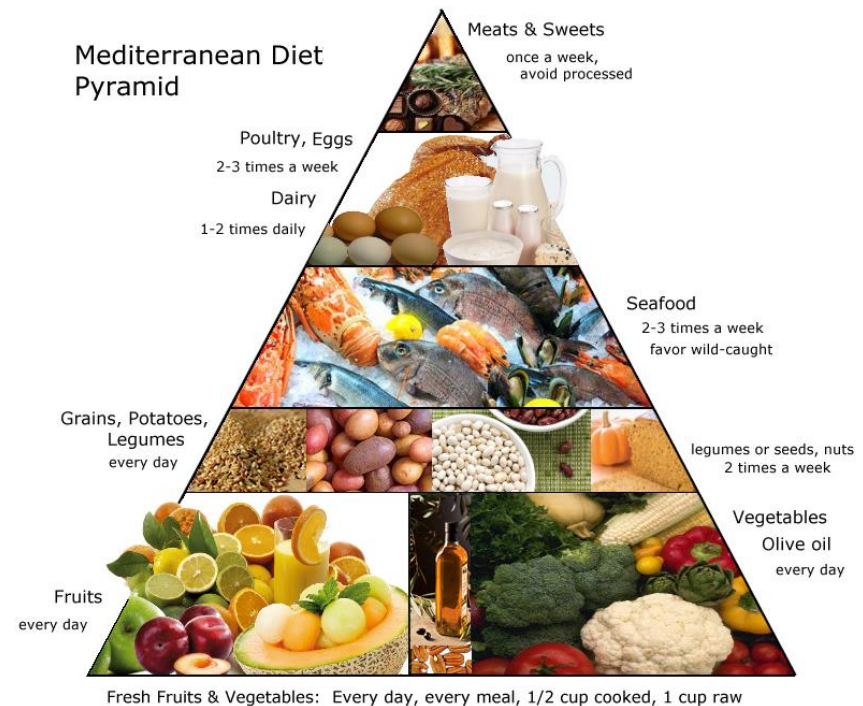
## Benefits:

### ■ Weight loss

- Promotes satiety
- Enables long term adherence

## Cons:

- Potential for excessive calories
  - Typically 39 – 42% fat
- Combination of foods vs single foods
  - Cannot merely add olive oil to their current diet



## ■ Recommends

- Olive oil  $\geq 4$  T per day
- Tree nuts and peanuts  $\geq 3$  svgs per week
- Fresh fruits, including  $\geq 3$  servings per day natural
- Vegetables  $\geq 2$  servings per day
- Seafood (primarily fatty fish)  $\geq 3$  servings per wk
- Legumes  $\geq 3$  servings per wk
- Sofrito  $\geq 2$  servings per wk
- White meat In place of red meat
- Wine with meals (optional) Discuss with provider

## ■ Discourages

- Soda < 1 drink per day
- Commercial baked goods, sweets & pastries < 3 svgs per week
- Spread fats < 1 svg per day
- Red and process meats < 1 svg per day

# DASH DIET

## Dietary Approaches to Stop Hypertension



- Focuses on **whole plant based foods**
  - Fruits, vegetables, low fat milk, whole grains, fish, poultry, beans and nuts
- Reduces **processed foods, red meats and SSB**
- Emphasizes
  - Olive oil vs saturated fats
  - Increases **potassium, magnesium and sodium**
  - Reduced sodium/salt

## Potential benefits:

- Lowers **blood pressure**
- Reduces **risk** of diabetes
- Improves **insulin** resistance
- Improves **hyperlipidemia**
- Improves **A1c**
- Decreases **uric acid**
- Weight Loss

## Cons:

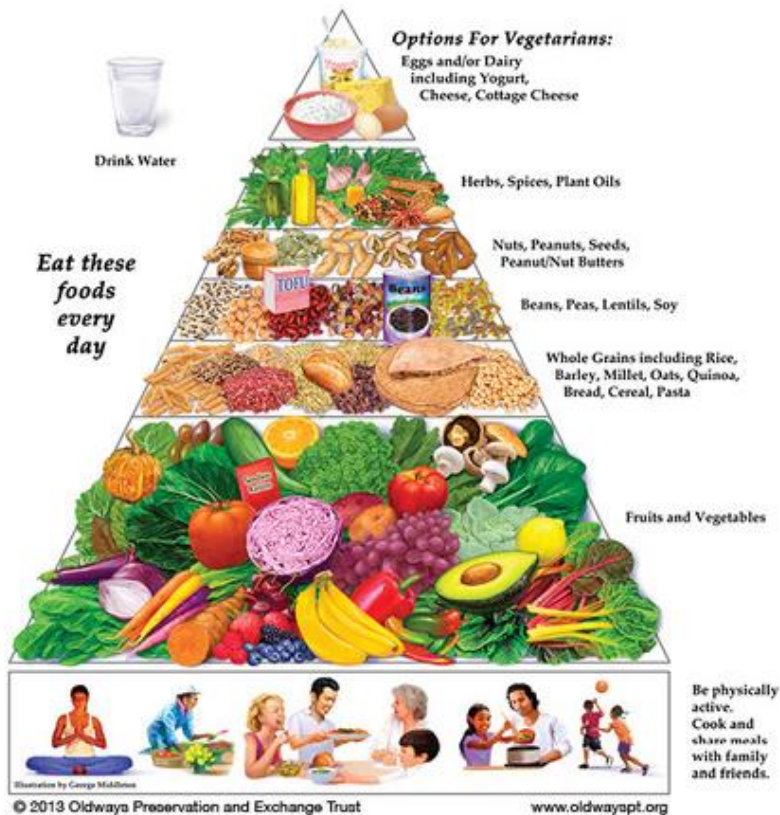
- Requires planning
- Requires cooking
- ***Can be high in carbohydrate***

Food Group	Daily Servings	Serving Sizes (1 serving is equivalent to)
Grains	6-8	<ul style="list-style-type: none"> <li>• 1 slice bread</li> <li>• 1 ounce dry cereal</li> <li>• ½ cup cooked rice, pasta, cereal</li> </ul>
Vegetables	4-5	<ul style="list-style-type: none"> <li>• 1 cup raw leafy vegetables</li> <li>• ½ cup cut up raw or cooked vegetables</li> </ul>
Fruits	4-5	<ul style="list-style-type: none"> <li>• 1 medium piece of fruit</li> <li>• ¼ cup dried fruit</li> <li>• ½ cup fresh, frozen or canned fruit</li> <li>• ½ cup fruit juice</li> </ul>
Fat-free or low-fat milk and milk products	2-3	<ul style="list-style-type: none"> <li>• 1 cup milk or yogurt</li> <li>• 1½ ounce cheese</li> </ul>
Meat and alternatives: Lean meats, poultry, and fish Nuts, seeds, and Legumes	6 or less	<ul style="list-style-type: none"> <li>• 1 ounce cooked meats, poultry, fish, 1 egg</li> <li>• 1/3 cup nuts</li> <li>• 2 tbsp peanut butter</li> <li>• 2 tbsp of seeds</li> <li>• ½ cup cooked legumes</li> </ul>
Fats and oils	2-3	<ul style="list-style-type: none"> <li>• 1 tsp soft margarine (non-hydrogenated)</li> <li>• 1 tsp vegetable oil</li> <li>• 1 tbsp mayonnaise</li> <li>• 2 tbsp salad dressing</li> </ul>

[https://www.nhlbi.nih.gov/files/docs/public/heart/new\\_dash.pdf](https://www.nhlbi.nih.gov/files/docs/public/heart/new_dash.pdf)

**OLDWAYS**  
HEALTH THROUGH HERITAGE

## Vegetarian & Vegan Diet Pyramid



## Plant Based Diet

- Increases plant-based food does not necessarily eliminate animal products

- Vegan
- Vegetarian
- Ovo-Lacto Vegetarian
- Pescatarian
- Flexitarian

# ***Benefits of Whole Foods Plant-Based Diet***

- Reduced risk of diabetes
- **A1c reduction** / blood glucose
- Lowered triglycerides
- Reduced risk of major CV events
- Reduces BMI (weight)
- Decreases risk of obesity
- Improves blood pressure
- Decreases risk of heart disease, certain types cancer (i.e. GI, prostate, breast) as well as Alzheimer's



WHASC/BAMC Plant Based Healthy Eating Guidelines

## Considerations:

- Can contain up **high amounts of carbohydrate**
- **Type / quality** of vegetables sources important
- Lower in **Omega 3 fatty-acids**
- Vitamin B12 (Metformin)
- Vitamin D
- Calcium
- Iron
- Zinc
- Maybe challenging to stick with

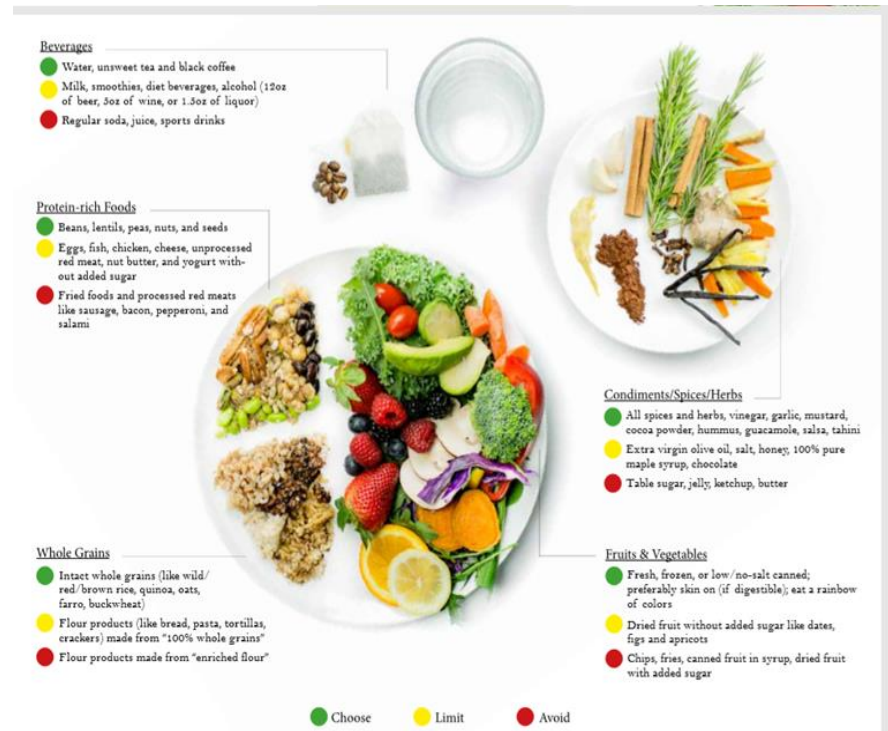
# Whole foods Plant Based Diet ~ Basic Principles

- A healthy **whole foods plant-based diet** focuses on plant foods like vegetables, fruits, whole grains, legumes, nuts and seeds

- Minimal processing

## ■ Animal products

- Included smaller quantities
- Choose higher quality
- Complement a meal not be the main focus



# Whole foods Plant Based Diet ~ Basic Principles

- Excludes **refined foods**, like added sugars, white flour and processed oils

- Focuses on food **quality**

- Consider **locally** sourced
- Consider organic foods
- **Healthier** animal products





# Eating Patterns ~ Low Fat

- Percentage of fat in the average American diet has declined from **45%** to **approx. 33%**
- **Lowering fat** often encouraged to reduce weight and improve CV health
  - Low fat < 30% fat in diet
- **Lower total fat**
  - **Glycemic control** –does not consistently improve
  - Inconsistent long-term weight loss
  - Beneficial effect on lipids if saturated fats are replaced monounsaturated or polyunsaturated fats and if they lose weight



# *Eating Patterns ~ Low Carbohydrate*

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## **Pros:**

- Recommended by VA/DOD CPG
  - Lower carbohydrate to < 26%
  - 14 – 45%
- **Typical intake** reported by average diabetic patient is ~44 - 46% carbohydrate

## **Cons:**

- Attempts to modify percentage is usually unsuccessful in the long-term
- Challenges with long-term sustainability

# *Eating Patterns ~ Low Carbohydrate*

## **Benefits:**

- Improved **glycemic** status
- **Delay or reduction** in diabetes medications
- Improvement in **cardiometabolic factors**
  - When protein and fat from healthy sources
  - Lowers TG & LDLs; increases HDLs
  - Lowers blood pressure



## **Cons:**

- Challenges for long-term **sustainability**
- Use with caution w/ SGLT2, insulin and secretagogues

# Low Carb / High Protein

## ■ High Protein (20 – 30%)

- Longer benefits on **weight control**
- Improved **cardiovascular risk**
- Decreased **adipocytes**
- Increased satiety



## ■ Concerns:

- Animal protein associated with higher markers of inflammation

## **Potential Benefits:**

- Weight loss
- Reduces LDL cholesterol
- Increases HDL cholesterol
- Reduces triglycerides
- Improves blood sugar

## **Cons:**

- Insufficient research
- Mixed results
- Inconclusive evidence
- Elimination of whole food groups

*Emphasizes foods theoretically eaten regularly during early human evolution – pre agriculture*

## **Emphasizes:**

- Lean meats
- Fish, shellfish
- Vegetables
- Eggs
- Nuts
- Berries
- Fats (olive oil, coconut oil, grass fed butter)

## **Avoids:**

- Processed foods
- Grains
- Dairy
- Refined fats (soybean oil, canola oil, etc.)
- Sugar / HFCS
- Salt

*The ketogenic diet is a low-carbohydrate, fat-rich eating plan that has typically been used for epilepsy*

## **Typically**

- Fat 70 – 80%
  
- Protein moderate
  - 10 – 20%
- Carbohydrate
  - 5 – 10% carbohydrate
  - <50 grams / day

## **2000 calorie diet**

- 165 grams fat
  
- 75 grams protein
  
- 40 grams carb

## **Foods Allowed**

- *Bullet-proof coffee*
- **Meats including processed meats**
- Eggs
- Cheese
- Fish
- Nuts
- Seeds
- Non-starchy vegetables
- **Butter**
- **Lard**
- Olive oil
- Avocado oil
- Canola oil
- Flaxseed
- **Palm / Coconut oils**
- Mayonnaise

## Potential **benefits** reported:

- Weight loss
- Decreased insulin resistance
- Reduced diabetes medications
- Lowered blood pressure
- Increased HDL-C
- Lowered triglycerides

## **Cons:**

- Limited research
- High protein / processed meats
- Poor quality fats
- Low in fiber
- Increased risk of
  - kidney stones
  - Osteoporosis
  - Gout

## **The MIND Diet**

### **Mediterranean-DASH Diet Intervention for Neurodegenerative Delay**

#### **Every day**

- 3 servings whole grains
- 1 serving of non-starchy vegetables
- 1 glass of red wine (5 oz)  
or purple grape juice
- 1 T. Olive oil

#### **Most days**

- Leafy green vegetables (6 x week)
- Nuts (5 x week)

#### **Every other day**

- Beans (3 x week)

#### **Twice a week**

- Poultry
- Berries

#### **Once a week**

- Fish

## The MIND Diet

### Mediterranean-DASH Diet Intervention for Neurodegenerative Delay

#### WHAT TO LIMIT

≤ 1 T. a day	<ul style="list-style-type: none"> <li>• Butter and stick margarine</li> </ul>
≤ 3 times per week	<ul style="list-style-type: none"> <li>• Pastries and sweets</li> </ul>
≤ 3 times per week	<ul style="list-style-type: none"> <li>• Red meat</li> </ul>
< 1 x week	<ul style="list-style-type: none"> <li>• Whole-fat cheese</li> <li>• Fried Fast Food</li> </ul>
Moderate compliance 7-8	High compliance = >9

- 67 year old patient with type 2 diabetes
- **Diabetes medications:**
  - **Lantus 34 units daily AM**
  - **Novolog - ac meals**
    - Breakfast – 8 units
    - Lunch - 11 units
    - Dinner - 14 units
- Not good at math
- Reports he is dyslexic
- **DOES NOT COOK AT HOME**

## ■ Breakfast

- Jimmy Dean breakfast bowl meat lovers
- 1 quart 2% milk or 2 cups orange juice
- Coffee with sugar substitute

## ■ Snack: Piece of coffee cake

## ■ Lunch

- Subway spicy Italian flatbread
- Baked chips,
- Sugar free monster or diet soda

## ■ Dinner

- HEB Chef Style meal
- Steak, red potatoes, broccoli

# *How Do We Start the Conversation?*

---

- What foods or drinks affect your blood sugars the most?
- What do you usually drink?
- What's your main goal?
- What has worked for you in the past to
  - Lose weight?
  - Get your blood sugars down?
- What are you / they willing to do?
- Keep your personal prejudices out

*Don't give your BEEF EATER the VEGAN diet handout!*

---

## ■ Breakfast

- Jimmy Dean breakfast bowl meat lovers
- 1 quart 2% milk or 2 cups orange juice
- Coffee with sugar substitute

## ■ Snack: Piece of coffee cake

## ■ Lunch

- Subway spicy Italian flatbread
- Baked chips,
- Sugar free monster or diet soda

## ■ Dinner

- HEB Chef Style meal
- Steak, red potatoes, broccoli

## Grams

## Carbohydrate

- 64 grams
  - 16 grams
  - 48- 60 grams

- 23 grams

- 55 grams
  - 39 grams
  - 16 grams

- 30 grams

# *Take Home Message*

---

- There is not a “one-size-fits-all” eating pattern
- Nutrition therapy should be individualized
- Emphasis on variety of minimally processed nutrient-dense foods in appropriate portion sizes as part of a healthful eating pattern
- All members of the health care team should be able to talk about healthy eating patterns
- Provide *PRACTICAL TOOLS* for day-to-day meal planning and behavior change

- **DASH / Mediterranean Diets / MIND**
- **Avoid weight gain / weight loss 7%**
- **All Carbohydrates Count!**
- **Eat a diet rich in **vegetables, fruits and whole grains****
  - 3 + servings **whole grains** daily
  - 1 serving **leafy green vegetables**
  - 1 serving any **vegetable**
  - **Fruit 2 – 3** servings daily (2 servings of blueberries / strawberries per week)

- **Drink water or other healthy beverages**
  - Eliminate sugary beverages
- Include **healthy fats** (olive oil / canola oil)
- **Include healthy protein**
  - **Fish** 2 – 4 servings per week
  - Minimum of 1 serving **fish** weekly
  - Include **poultry** 2+ times per week
  - Limit **red meat** and processed meats (**Saturated fats**)
    - **Red meat** not more than 3 times week
- **Avoid trans fats** (**hydrogenated**)  
(processed foods/ sweets / fast foods)
- **Limit fried/fast food** to < 1 time per week

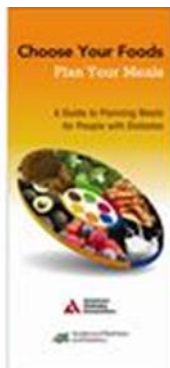
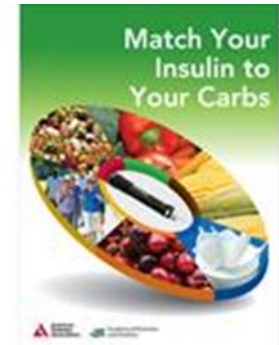
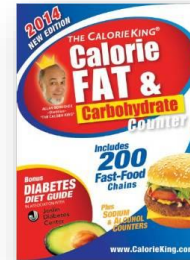
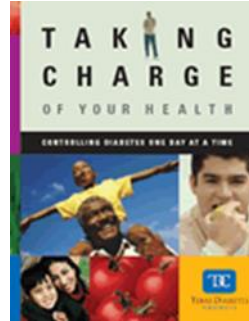
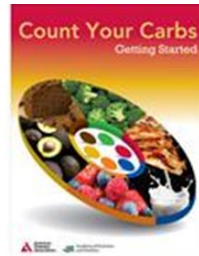
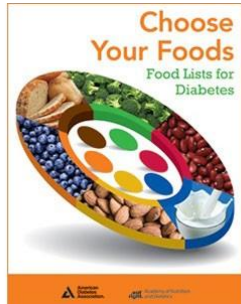
# Referral for Dietetic Services

- Enter the referral into CHCS or AHLTA
- TRICARE covers limited number of services for Nutritionist
  - Must be Registered Dietitian (RD)
  - Medical Nutrition Therapy
  - Nutrition services provided as part of Diabetes Outpatient Self-Management Services

*\*Ensure all information included to cover benefit otherwise patient may have to pay out of pocket*

<https://tricare.mil/CoveredServices/IsItCovered/Nutritionist>

# Patient Resources



**Diabetes Care and Education**  
A Division of the Academy of Nutrition and Dietetics

### Ready, Set, Start Counting!

**Carbohydrate Counting — a Tool to Help Manage Your Blood Glucose**  
When you have diabetes, keeping your blood glucose in a healthy range can help you feel your best today and in the future. Carbohydrate counting — or “carb counting” — is a flexible meal planning tool (not a diet) that can help you understand how your food choices affect your blood glucose level.

**Carbohydrate and blood glucose**  
Any carbohydrate food you eat (e.g., milk, fruit, bread and pasta) is digested into glucose, which causes your blood glucose level to increase. However, eating some carbohydrates throughout the day is important because they provide energy and essential nutrients for your body. To better manage your blood glucose, energy levels and weight, pay attention to how much carbohydrate you eat.

Maintaining the right balance between carbohydrate and insulin (whether your body produces it or you take it) helps to regulate your blood glucose level. Determining when and how much you eat — and whether or not you have snacks — should be based on your lifestyle, medications, and meal planning goals. A registered dietitian nutritionist (RD) may consider the following ways for you to use carb counting to determine the healthiest plan for you:

- Portion Control** Setting a maximum amount of carbs for each meal within your healthy meal plan and/or taking diabetes medications can keep your blood glucose from getting too high.
- Consistency** If you use diabetes medications or insulin, it may be important to eat the same amount of food and carbohydrate at the same time each day. Doing this can keep your blood glucose from getting too high or too low.
- Flexibility** If your insulin plan includes varying doses based on how much carbohydrate you are eating (carb/insulin ratio), accurate carb counting can help you determine how much insulin to take.

**Foods that contain carbohydrates:**

- Grains (e.g., breads, crackers, rice, hot and cold cereals, tortillas and noodles)
- Starchy vegetables (e.g., potatoes, peas, corn, winter squash, beets and beans)
- Fruit and juices
- Milk and yogurt
- Sweets and desserts

Non-starchy vegetables (e.g., carrots, broccoli and tomatoes) contain only a small amount of carbohydrates and do not affect blood glucose when eaten in small portions.

**Diabetes Care and Education**  
A Division of the Academy of Nutrition and Dietetics

### Advanced Insulin Management: Using Insulin-to-Carb Ratios and Correction Factors

A nutrition resource for living well with diabetes


If you are using long- and/or rapid-acting insulin to manage your blood glucose, you may benefit from using insulin-to-carbohydrate ratios and a blood glucose correction factor to determine your meal-time insulin dose. Additionally, insulin-to-carb ratios may change over the course of your lifetime or even throughout the day, from people to one rate for breakfast and a different rate for lunch and dinner.

**What Is An Insulin-to-Carb Ratio?**  
An insulin-to-carb ratio helps you determine how much insulin you need to cover the carbohydrate you will eat at a meal or snack. For example, some people might use a 1:15 ratio for every carb. That means for every 15 grams of carbs, they would need 1 unit of insulin.

**What Is An Insulin Correction Factor?**  
The insulin-correction factor (sometimes called an insulin sensitivity factor) is used to calculate the amount of insulin you need to bring your blood glucose into target range. The higher or lower a blood glucose level that may be higher or lower than desired before a meal, the correction dose is added, or subtracted from, the pre-meal insulin dose. For example, some people might take 1 unit if blood glucose is 10 mg/dL higher than the target, and others might take 1 unit for every 20 mg/dL higher than the target.

**Target Blood Glucose Range**  
Your health care provider should give you individualized guidelines for what your blood glucose range should be for safety and good health. Example goal meal target range: 90-130 mg/dL. Example goal post-meal target range: Less than 180 mg/dL one hour after food intake.

**Example goal meal target range:** 90-130 mg/dL  
**Example goal post-meal target range:** Less than 180 mg/dL one hour after food intake.



# Patient Resources

**IN BRIEF:**  
Your Guide To Lowering Your Blood Pressure With DASH

What you eat affects your chances of developing high blood pressure (hypertension). Research shows that high blood pressure can be prevented—and reversed—by following the Dietary Approaches to Stop Hypertension (DASH) eating plan, which includes eating low salt and sodium.

High blood pressure, which is blood pressure higher than 140/90 mmHg,\* affects more than 67 million—or 1 out of every 3—American adults. Another 59 million Americans have prehypertension, which is a blood pressure between 120/80 and 140/90 mmHg. This increases their chances of developing high blood pressure and its complications.

High blood pressure is dangerous because it makes your heart work too hard, thickens the walls of your arteries, and can cause the brain to hemorrhage—or the kidney to function poorly or not at all. If not controlled, high blood pressure can lead to heart and kidney disease, stroke, and blindness.

*\*Blood pressure usually is checked in a doctor's office.*

**U.S. Department of Health and Human Services**  
National Center of Diabetes Endocrinology and Metabolism

**OLDWAYS**  
HEALTHY. TASTY. SUSTAINABLE.

### Mediterranean Diet Pyramid

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### HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.

Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

The more veggies – and the greater the variety – the better. Potatoes and French fries don't count.

Eat plenty of fruits of all colors.

Choose fish, poultry, beans, and nuts; limit red meat and cheese; avoid bacon, cold cuts, and other processed meats.

**STAY ACTIVE!**  
Be Physically Active: Enjoy Meals with Others

Harvard T.H. Chan School of Public Health  
The Nutrition Source  
www.hsph.harvard.edu/nutritionsource

Harvard Medical School  
Harvard Health Publications  
www.health.harvard.edu

**YOUR GUIDE TO Lowering Your Blood Pressure With DASH**

### DASH Eating Plan

Lower Your Blood Pressure

### Mediterranean-Style Eating

Academy of Nutrition and Dietetics

**Beverages**

- Water, carbonated tea and black coffee
- Milk, unsweetened, diet beverages, alcohol (100% fruit juice, wine, or 1 oz of liquor)
- Papaya, soda, sports drinks

**Protein-rich Foods**

- Beans, lentils, peas, corn, and nuts
- Eggs, fish, chicken, cheese, unprocessed red meat, and yogurt with no added sugar
- Plant-based and processed meat options (lean sausage, bologna, pepperoni, and salami)

**Whole Grains**

- Intact whole grains (like wild rice, barley, quinoa, oats, and farro)
- Flour products (like bread, pasta, tortillas, crackers) made from "100% whole grain"
- Flour products made from "enriched flour"

**Condiments/Spices/Herbs**

- All types and herbs, vinegar, garlic, mustard, onion powder, balsamic, pomegranate, salsa, tahini
- Flavoring agents like salt, honey, 100% pure maple syrup, sherry
- Taste agents (oil, ketchup, butter)

**Fats & Oils**

- Fresh, frozen, or low-fat salted, preferably olive or (if digestive) not a number of colors
- Dressings and reduced-sodium sugar-free dips, dips and salsas
- Chips, fries, canned fish in spring, dried fish with added sugar

● Choose ● Limit ● Avoid

**Why should we eat plant-based?**

- Plants are the ONLY source of fiber and over 90% of Americans do not meet the recommended dietary allowance for fiber
- Plants are the richest source of dietary antioxidants and phytochemicals, which can prevent and reverse chronic disease
- For increased energy, improved sleep quality, mood stability, enhanced immune performance, and healthy weight loss

**Three important rules for healthy eating:**

- Food processing can turn a very healthy food into a very unhealthy food
- Focus on food quality more than calories, carbs, fats, and proteins
- Cook more often at home

**Practical Cooking Resources**

- Eat Your Way: "Create and Reveal Food for Life" cooking class (see book from Harvard school of public health)
- Fooducate - www.fooducate.com
- App that rates your food with a barcode not giving suggestions for healthier alternatives
- Meal planners: "Cooking: Recipes" www.eatright.org/food www.mediterranean.com www.dietitiansofindia.org
- Meal delivery kits: Recipe: [www.gardenofeatin.com/vegetable-recipes/](http://www.gardenofeatin.com/vegetable-recipes/) or any local delivery service to assist in article

**References & Resources**

- NutritionFacts.org - 10 minute videos reviewing nutrition research
- Eat, Drink and Be Healthy: Great nutrition tips from Harvard school of public health
- True Food TV YouTube channel about how specific plants are green
- How It's Made TV series with some segments focusing on how processed food is made
- Slus by Design: Book focusing on simple methods to change your food environment
- Kaiser Permanente Eating Guide: www.kaiserpermanente.org/Healthy-Eating-Action-Living-Program/Plant-Based-Diet
- Academy of Nutrition and Dietetics Guidance: www.vegetarianism.org

For help making healthy dietary changes, we strongly recommend a visit with one of our Registered Dietitians. No referral needed.  
Call B.A.M. Christiana Care Nutrition 856.222.1400 ext. 250-753

**WHISK Nutrition**  
202-753

**Plant-Based Healthy Eating Guidelines**

# Carb Counting Resources

- [www.mynetdiary.com](http://www.mynetdiary.com)
  - [www.calorieking.com](http://www.calorieking.com)
  - [www.nutritiondata.com](http://www.nutritiondata.com)
  - <http://fooducate.com>
  - <http://ndb.nal.usda.gov/>
  - <https://www.diabetesfoodhub.org>
  - [www.eatingwell.com/diabetes/diabetesdietcenter](http://www.eatingwell.com/diabetes/diabetesdietcenter)
- Apps
    - Myplate calorie tracker
    - Lose it!
    - My fitness pal
    - Sparkpeople



- American Diabetes Association:  
[www.diabetes.org](http://www.diabetes.org)
  - Academy of Nutrition and Dietetics  
[www.eatright.org](http://www.eatright.org)
  - American Association of Diabetes Educators  
[www.diabeteseducator.org](http://www.diabeteseducator.org)
  - National Diabetes Information Clearinghouse  
[www.diabetes.niddk.nih.gov/index](http://www.diabetes.niddk.nih.gov/index)
  - Veterans Health Administration  
[www.va.gov/diabetes](http://www.va.gov/diabetes)
  - Joslin Diabetes Center  
[www.joslin.org](http://www.joslin.org)
  - Centers for Disease Control and Prevention  
[www.cdc.gov/diabetes](http://www.cdc.gov/diabetes)
- Texas Diabetes Council  
<https://www.dshs.texas.gov/TDCtoolkitOrder.asp>

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- Diet Review: Paleo Diet for Weight loss, The Nutrition Source, [www.hsph.harvard.edu/nutritionsource](http://www.hsph.harvard.edu/nutritionsource)
- Dr. Weil’s Guide to Popular Diets, [www.drweil.com/diet-nutrition/diets-weight-loss/dr-weils-guide-to-popular-diets](http://www.drweil.com/diet-nutrition/diets-weight-loss/dr-weils-guide-to-popular-diets)
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- Mediterranean Eating Pattern, *Diabetes Spectrum*, vol 30. no 2, Spring 2017
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- Vegetarian Diets in the Prevention and Management of Diabetes and It Complications, *Diabetes Spectrum*, vol 30, no 2., Spring 2017, pp 82-88

**To receive CE credits you must complete the course posttest and evaluation before collecting your certificate. The posttest and evaluation will be available from 10-24 April 2020 at 2359 ET. Please complete the following steps to obtain CE credit:**

1. Go to URL <https://www.dhaj7-cepo.com/>
2. In the search bar on the top left, copy and paste the activity name: **Diabetes Champion Course #16** . This will take you to the activity home page.
3. Click on the REGISTER/TAKE COURSE tab.
  - a. If you have previously used the CEPO LMS, click login.
  - b. If you have not previously used the CEPO LMS click register to create a new account.
4. Verify, correct, or add your profile information.
5. Enter the Access code
6. Follow the onscreen prompts to complete the post-activity assessments:
  - a. Read the Accreditation Statement
  - b. Complete the Evaluation
  - c. Take the Posttest
7. After completing the posttest at 80% or above, your certificate will be available for print or download.
8. You can return to the site at any time in the future to print your certificate and transcripts at <https://www.dhaj7-cepo.com/>
9. If you require further support, please contact us at [dha.ncr.j7.mbx.cepo-lms-support@mail.mil](mailto:dha.ncr.j7.mbx.cepo-lms-support@mail.mil)



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# Questions