

Standards of Nutrition Care in Diabetes in 2023:

Hurdling Patient Barriers with Changing Resources and Perspectives

Nebraska Academy of Nutrition and Dietetics

Annual Conference

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Nebraska Department
of Health and Human
Services

Sponsors

Diabetes
Advocates/Audience

NAND Organizing
Committee



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Perspective and Objectives

Nutrition Management is increasingly complex, yet-diabetes programs are dispersing, dissolving and consolidating professional resources

Objective 1

List recommended type 2 diabetes diet approaches reviewed in the 2023 American Diabetes Association Standards of Care for Diabetes.

Objective 2

Compare clinical effectiveness and appropriateness of the diets reviewed in the ADA 2023 standards of care.

Objective 3

Describe patient barriers noted in the referenced literature, and new , innovative and novel approaches currently implemented in diabetes care clinical communities

Objective 4

List resources, provide examples of novel and standard DSMES program access and participation outcomes

"Evidence suggests that there is not an ideal percentage of calories from carbohydrate, protein, and fat."

"Therefore, macronutrient distribution should be based on an individualized assessment of current eating patterns, preferences, and metabolic goals."

Eating patterns

Preferences

Metabolic goals

Recommended Diet Patterns for Diabetes



Vegetarian or Vegan



Mediterranean



Low Carb

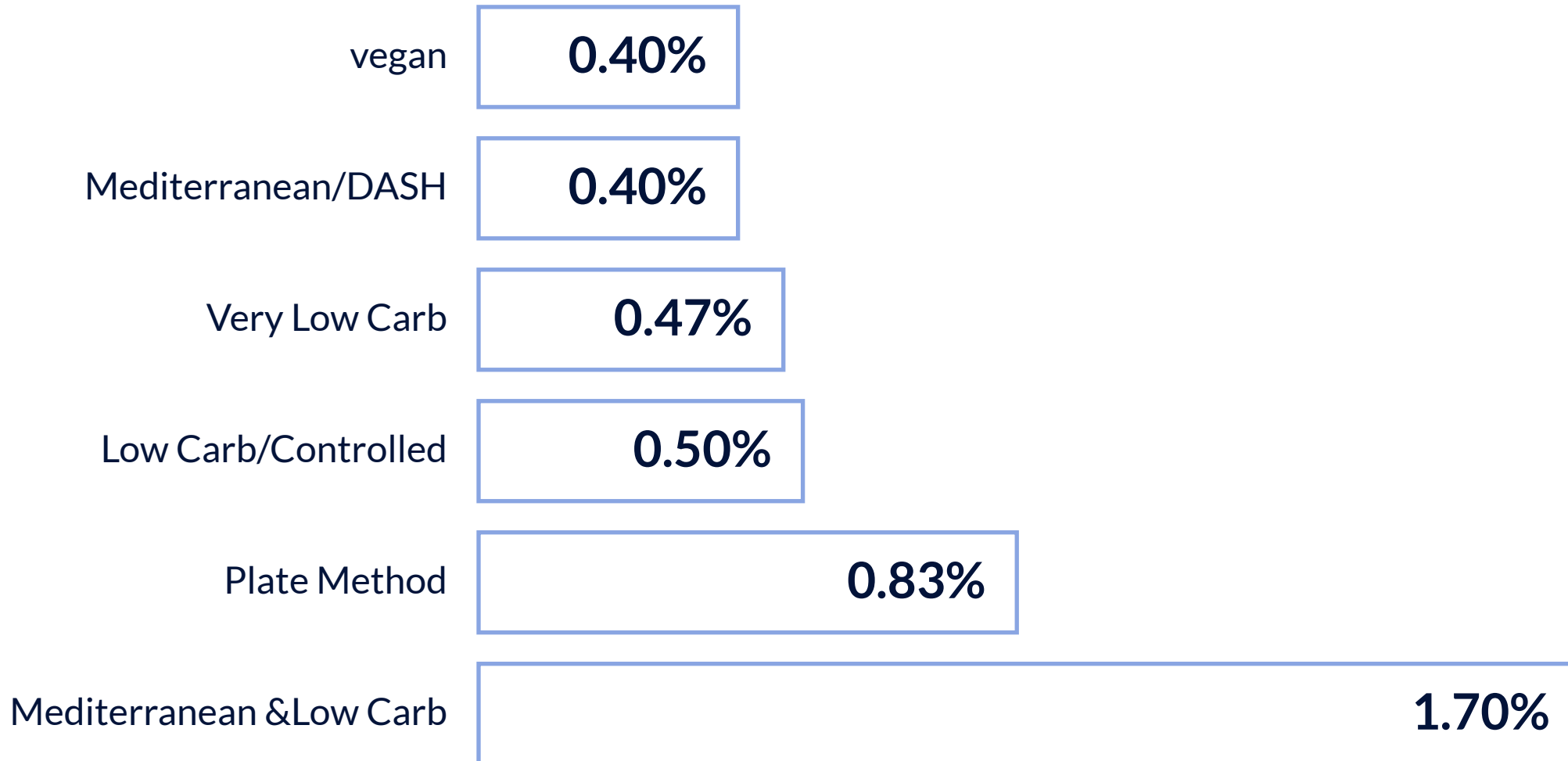


Plate Method



Very Low Carb

Average A1C reduction by diet type



Average A1C Reduction by Diet

SOURCES

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4931976/pdf/nihms773122.pdf>
[https://www.diabetesresearchclinicalpractice.com/article/S0168-8227\(17\)31171-3/fulltext](https://www.diabetesresearchclinicalpractice.com/article/S0168-8227(17)31171-3/fulltext)

<https://pubmed.ncbi.nlm.nih.gov/30007275/>

<https://spectrum.diabetesjournals.org/content/diaspect/33/2/125.full.pdf>

<https://link.springer.com/content/pdf/10.1007/s10654-017-0352-x.pdf>

Low Carbohydrate Diet

is this a lot of
potatoes
or a little?



Low Carb vs Very Low Carb Diet

10 randomized trials - 1,376 participants

Low Carb 45-60% CHO

Very Low Carb 14-49% CHO

- The greater the carbohydrate restriction, the greater the glucose-lowering effect
($R = -0.85$, $p < 0.01$)
- The effect of the 2 types of diet on BMI/body weight, LDL cholesterol, QoL, and attrition rate was similar throughout interventions.

Low Carb

(Carb Controlled)

Low Carb/Carb Controlled Diets

Having a 'meal plan' or 'carb goal'

- [typically]
- 45-60 grams per meal for women and
- 60-75 grams per meal for men
- Subtract -15 grams for weight loss
- Add + 15 grams for active people

Low Carb Diet

- **Assessment**

Numeracy, nutrition literacy, food access, DM
Medication regimen

- **Interventions**

support fiber intake

educate on lean proteins

plant oils

patient education: carbs, proteins, fats, free
foods, high satiety choices

- **Monitoring and Evaluation**

Monitor for accuracy (e.g)fruits are carbs, look
for ade

- **Populations with success**

Have some cooking ability

Works great in assisted care/meal planned
homes.

- **Populations to deter from diet**

youth

oncology active on treatment

Can clash with cultural preferences, food
insecure and family/caregiver dynamics

LOW CARB DIET RESOURCES

AKA CARB COUNTING

Eli Lilly Meal Planner

IDC My Food Plan (\$\$\$)

AND Nutrition Care Manual(\$)(Stanford

Health has it online "Carb Counting for People
with Diabetes"



VERY LOW CARB DIET

Very Low Carb Diets

Definition: Having a strict avoidance of CHO

Might substitute protein or fat, or a mix

Very Low Carb Resources

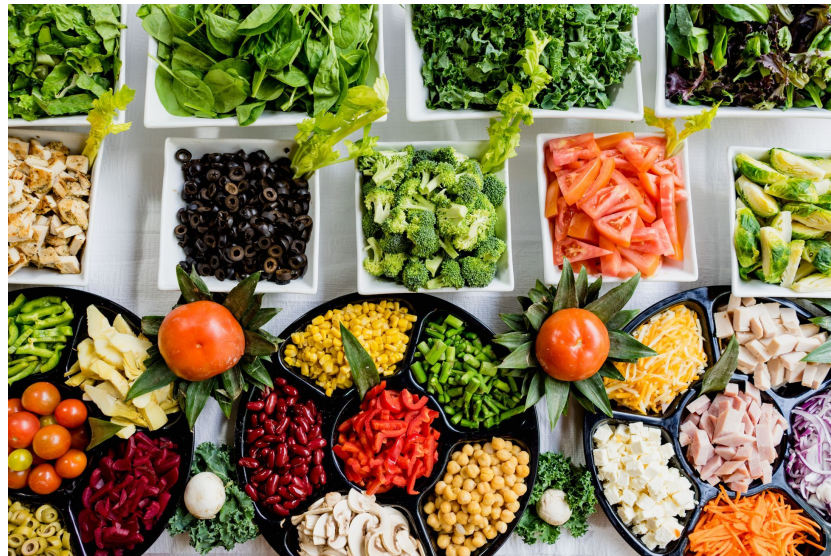
Eli Lilly Meal Planner

IDC My Food Plan

Pinterest Recipes

Instagram

Structured Programs - Bariatric Programs, New Directions



Very Low Carb Diets

Definition: Having a strict avoidance of CHO

Some focus on replacing with fat = KETO DIET (< 10% CHO)

Some focus on replacing with protein = ATKINS DIET (20% CHO)

Some focus on lean pro and with veg = SOUTH BEACH (20-30% CHO)

Very Low Carb Diet

- **Assessment**

Adherence is key

is this person well nourished/appropriate for restriction of grains/fruit/dairy

DM medication adjustment

- **Interventions**

education of food groups, SMBG, meal prep and planning, ketone testing in IDD

- **Monitoring and Evaluation**

adherence related sx/patterns

assess fat intake

assess Ca intake

- **Populations with success**

high self efficacy

autonomy of diet

motivated by wt loss

- **Populations to deter from diet**

GI:Gastroparesis.Pancreatitis/EPI

Oncology on Tx

Youth

Hx DKA

Insulin Dependent with hypo unawareness

Pregnancy

Very Low Carb Diet

Patient Scenario

47 yo female with T2DM, obesity, anxiety

A1C 9.6%

Single mom with travel recruitment job

DIET

has lunch with clients 4-5 days of the week.

Weekends no breakfast or lunch- dinner out with kids. usually pizza.

Concern: will not stay in ketosis (job, family priorities)

recommend modified plan = south beach or carb controlled plan

Vegan

Vegan/Vegetarian Diet

- **Assessment**

support, education needs, is this a healthy approach /vs restrictive, pt motivation level

- **Interventions**

B12 supplement, educate sources calcium and D and Fe, look at typical patterns, recipes, social scenarios/eating out

- **Monitoring and Evaluation**

B12 checks,
assess for excess tropical oils or sat fat in dairy
assess if adequate Ca and Fe

- **Populations with success**

most successful are 'flexitarian'
have social support- family, church, SO
like vegetables

- **Populations to deter from diet**

gastroparesis- can be challenging
dialysis/high protein need pops

VEGAN DIET HOW-TO

<https://www.eatingwell.com/article/7902516/vegan-meal-plan-for-beginners/>



Breakfast (255 calories)

- 1 serving [Strawberry-Pineapple Smoothie](#)

A.M. Snack (272 calories)

- ½ cup dry-roasted unsalted almonds

Lunch (381 calories)

- 1 serving [Vegan Superfood Buddha Bowls](#)

P.M. Snack (106 calories)

- 1 cup unsweetened coconut milk yogurt

Dinner (509 calories)

- 1 serving [Beefless Vegan Tacos](#)
- 2 cups mixed greens
- 1 serving [Lemon-Garlic Vinaigrette](#)

Daily Totals: 1,523 calories, 51 g protein, 138 g carbohydrate, 39 g fiber, 96 g fat, 1,232 mg sodium

To Make it 1,200 Calories: Change the A.M. snack to 1 plum and change the P.M. snack to 1 clementine.

To Make it 2,000 Calories: Add 1 serving [Sprouted-Grain Toast with Peanut Butter & Banana](#) to breakfast, add 1/4 cup blueberries to the P.M. snack and



Mediterranean

Mediterranean Diet

4 meta analyses found Mediterranean diet associated with lower A1C (20.3 to 20.47% lower)

2 meta analyses found improvement in CVD risk factors compared mainly to lower-fat diets



Mediterranean Diet

In RCTs, a **low calorie** Mediterranean eating pattern compared with low fat diet in new Dx T2DM resulted

- a greater reduction of A1C
- higher rates of diabetes remission
- delayed need for diabetes medication (by ~2 years)

A 12-month study comparing a low-carbohydrate Mediterranean diet to a traditional Mediterranean diet

a 2004 American Diabetes Association (ADA) diet found A1C reductions in all three groups (21.6 to 22.0)

largest A1C reduction occurred in the low carbohydrate Mediterranean diet group

the percentage of carbohydrate among the three groups only differed by 3.5%

Mediterranean Diets

A Plant-Based Diet, Low in Processed Foods, Limits Added Fat, Sugar

2.5 cups veg/6 svgs grain/2 svgs fruit/3 oz fish + 1 oz other pro/2 Tbsp oils/2 svgs dairy/ little vino

Allows variety in diet. No restricted foods.

Works with oral, basal and MDI regimens.

Requires patient education: carbs, proteins, fats, free foods, high satiety choices

Can clash with cultural preferences, family/caregiver dynamics

Mediterranean Diet

- **Assessment**

Readiness to learn about whole foods, plant based fats, omitting processed foods

- **Interventions**

Target animal products, add plant and fish oils* sparingly, increase variety of plant foods

- **Monitoring and Evaluation**

glucose patterns, impact of fiber/sat fat reduction, weight changes, satiety, healthy coping and support. Adequate Ca/Fe/B12

- **Populations with success**

Newly diagnosed T2DM

Pregnancy/Pre Conception Planning

People with cooking skills

Food Insecure

- **Populations to deter from diet**

Social eaters

Gastroparesis

MEDITERRANEAN DIET

Resource

EXPLORE **EatingWell**



Week 2



How to Meal Prep for Your Week of Meals:



1. Prepare the Sheet-Pan Roasted Root Vegetables to use throughout the week. Store in an air-tight container to keep fresh. (**To buy:** [amazon.com](#), \$15 for 1)
2. Cook the Basic Quinoa to use throughout the week. Expand the recipe so it makes 6 cups by using 1 1/2 cups quinoa and 3 cups water or broth. Store in an air-tight container to keep fresh. (**To buy:** [amazon.com](#), \$15 for 1)
3. Make the Herb Vinaigrette. (Use the mason jar from week 1 to store the vinaigrette: **To buy:** [amazon.com](#), \$13 for 4.)
4. Meal prep the Slow-Cooker Pasta e Fagioli Soup Freezer Pack and store in a large freezer bag to have for dinner on Day 11. (**To buy:** [amazon.com](#), \$20 for 1 large) Remember to transfer the freezer pack to the fridge on the night of Day 10 to defrost overnight.
5. Pull out 1 serving of the Muffin-Tin Quiches with Smoked Cheddar & Potato from the freezer to have for breakfast on Day 8. To reheat, remove plastic, wrap in a paper towel and microwave on High for 30 to 60 seconds.



Breakfast: 1 serving [Muffin-Tin Quiches with Smoked Cheddar & Potato](#) (238 calories)

A.M. Snack: 1 cup sliced cucumber with a squeeze of lemon juice and salt & pepper to taste (16 calories)

Lunch: 1 serving [Stuffed Sweet Potato with Hummus Dressing](#) (472 calories)

P.M. Snack: 1 plum (30 calories)

Dinner: 1 serving [Roasted Root Veggies & Greens over Spiced Lentils](#) (453 calories)

Meal-Prep Tip: Prepare 1 serving of [Creamy Blueberry-Pecan Overnight Oatmeal](#) to have for breakfast tomorrow

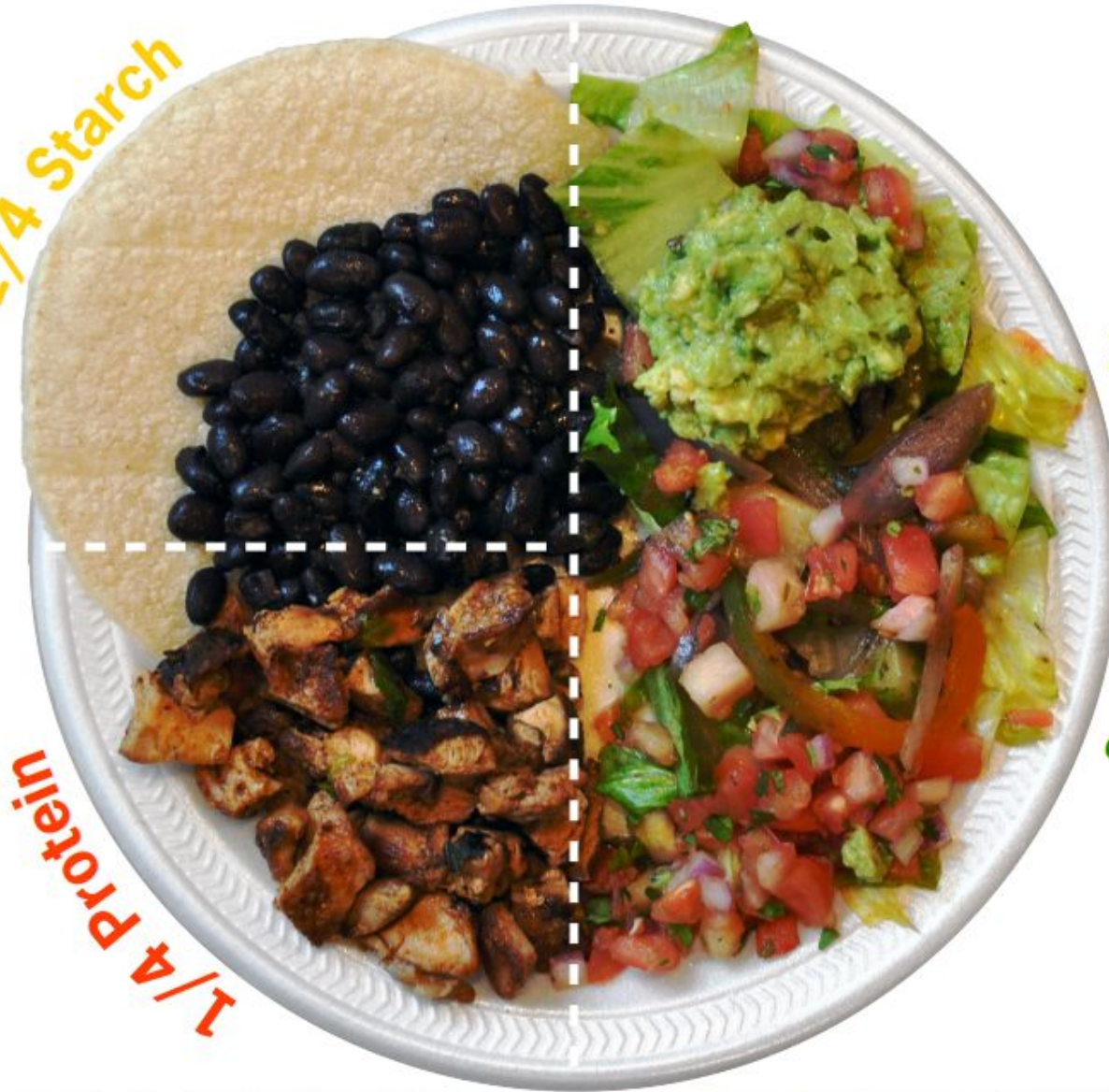
Daily Totals: 1,209 calories, 54 g protein, 157 g carbohydrates, 39 g fiber, 45 g fat, 1,622 mg sodium.

Plate Method

My Healthy Plate



1/4 Starch



1/4 Protein

1/2 Vegetables

Plan the portions on your plate.

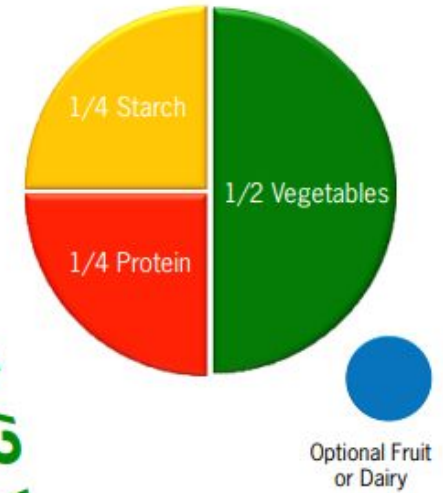


Plate Method Diet

- **Assessment**

Desire to eat vegetables, ability to 'flex'

- **Interventions**

educate on food groups, give LOTS of examples, each meal, eating out, mixed foods, lean protein choices

- **Monitoring and Evaluation**

BG trends, density of CHO choices, including fruit, dairy, grains, legumes vs 'same' carbs

- **Populations with success**

social eaters

family dynamics

cultures with 'separate' foods

People who do not want to carb count

- **Populations to deter from diet**

Persons with I:C needs < 1:10 need to count carbs.

Gastroparesis

PLATE METHOD RESOURCES

- ADA - Diabetes Food Hub (Create your plate)
- Cornerstones for Care - Novo Nordisk (diabeteseducation.resources.novocare.com)
- My Meal Planner - Eli Lilly
- Pinterest - search 'Plate Method Meals'

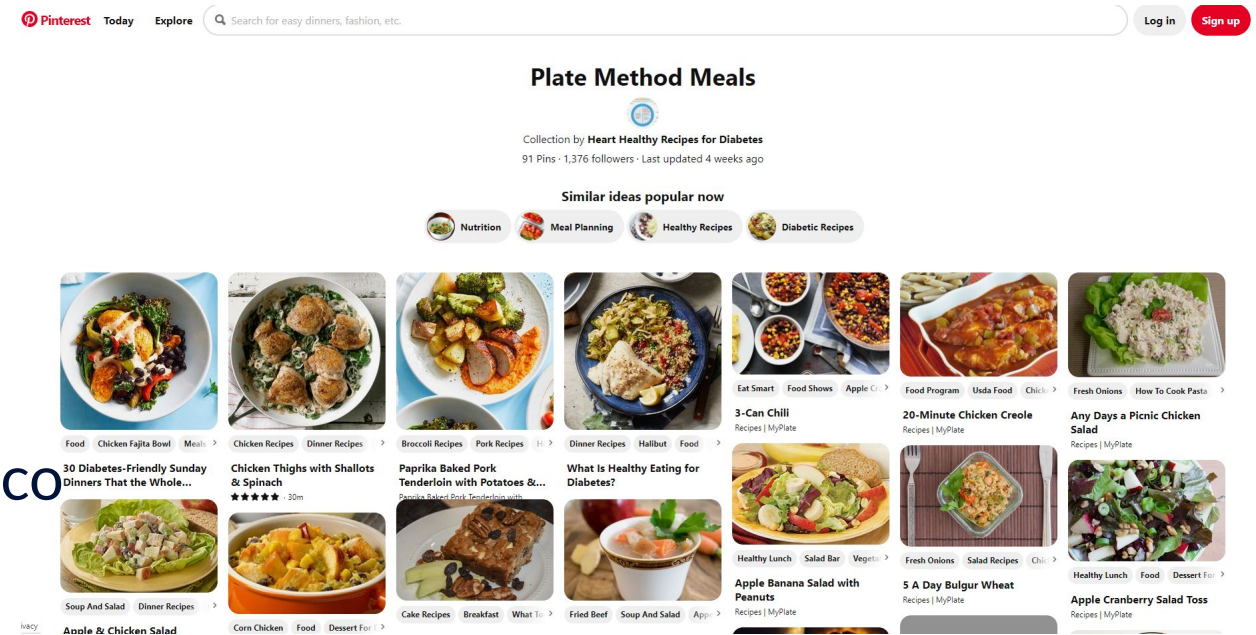


PLATE METHOD RESOURCES


ate-your-plate-simplify-meal-planning-with-the-plate-method.html

American Diabetes Association | Diabetes Food Hub

Create-Your-Plate: Simplify Meal Planning with the Plate Method


by The Diabetes Food Hub Team

The Diabetes Plate Method is the easiest way to create healthy meals that can help manage blood sugar. You can create perfectly portioned meals with a healthy balance of vegetables, protein, and carbohydrates—without any counting, calculating, weighing, or measuring. All you need is a plate! Read on for ideas and recipes for perfectly balanced meals.



Share

To create meals using the Diabetes Plate Method, simply fill half your plate with nonstarchy vegetables, a quarter with lean protein, and one quarter with carbohydrate foods like whole grains, starchy vegetables, or fruit.



[Learn more about the Diabetes Plate Method](#)

Here are some sample plates to help you get started! You can fit these recipes into your weekly meal plan in whatever way works best for you. Use the interactive [Meal Planner](#) on Diabetes Food Hub to plan out your week. Once you have [created your free account](#), you can save recipes, then drag-and-drop them into your meal plan.

American Diabetes Association - Diabetes Plate Hub

<https://www.diabetesfoodhub.org/articles/what-is-the-diabetes-plate-method.html>

Metabolism of Macronutrients -Pattern Management

- **Very Low Carb Diets:**
 - KETO diets may need overall basal increases or post prandial /overnight increases/am corrections
 - High Protein diets may need post prandial increase in basal rates or correction injections
- **Vegan and Mediterranean diets:**
 - may be higher in fiber, you may see post prandial hypos/late rise in BG

Management of Diet with Insulin Pump and Sensor Technology

Continuous Glucose Monitors

1 Can utilize to view post prandial patterns

with changes in fiber, fat, protein (bolus vs basal changes)

2 Consider needed alarms for hypo prone individuals

- may help build confidence, reduce excess eating

3 Consider diet reviews with CGM interpretation

pre/1 week post/and at point of 5% wt loss

Insulin Pumps

1

High Fat Meal(over 20g):

consider using extended bolus/dual wave/square wave bolus if warranted. Typically 70/30 over 3 hours “the pizza bolus”

2

High Protein Meal(over 30g):

may need to adjust basal pattern 5-10 hours post if part of pattern. Otherwise, PP corrections

3

High FiberMeal (over 5g)

Specific correction and CHO dosing may help build confidence, reduce excess eating/underbolusing

4

Consider diet reviews with CGM interpretation

pre/1 week post/and at point of 5% wt loss

Utilizing Apps

1 Meal Planning Apps

ADA Diabetes Hub

Cooklist

SuperCook

2 Glucose Tracking Apps

MySugr

BG Star

3 Medication Delivery Apps

InPen

Bigfoot (coming soon)

4 Meal/Medication Reminder Apps



Case Example

Hypoglycemia with Plant-based Diet Changes
Pt with CGM and Insulin Pump

Problem:

Noted no post prandial rise, hypoglycemia 50% of time pp

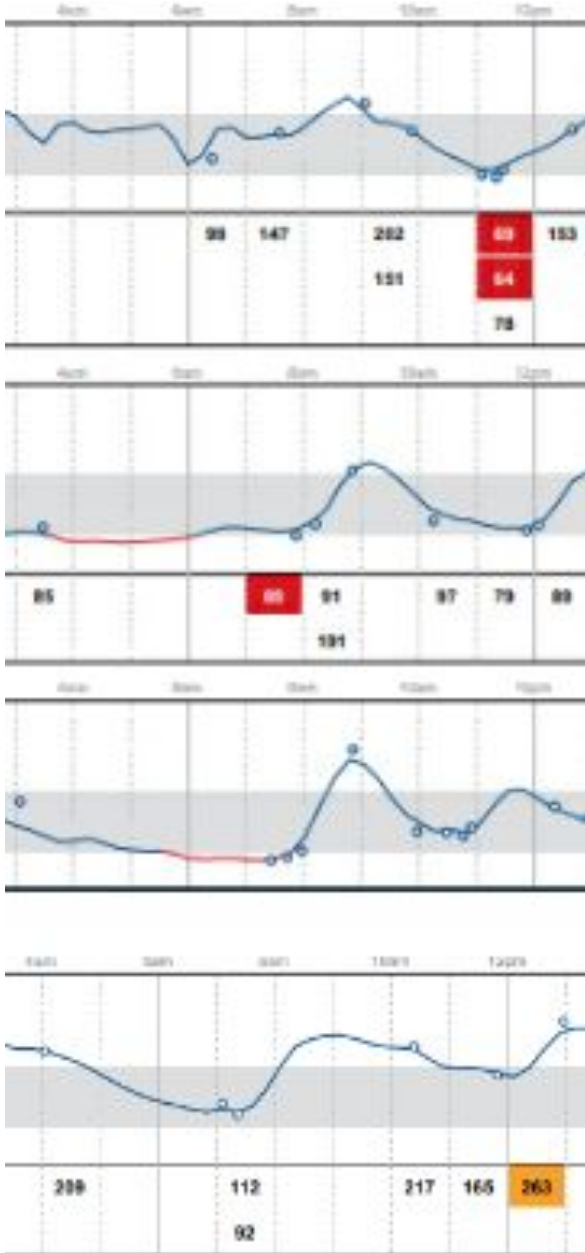
Additionally, pt having late/possibly delayed rise in BG.

Breakfast:

nuplus shake, Almonds or peanut butter, cocoa bliss, half banana, green powder 1/4 cup blueberry, 1/2 avocado

Totals 49g CHO 22g fiber

Pt was taking 1 u for every 10 grams of carb = 5 units





Case Example

Hypoglycemia with Plant-based Diet Changes
Pt with CGM and Insulin Pump

Assessment and Plan

Hypoglycemia related to excessive insulin/delayed absorption of CHO and high fiber meal (meeting approx 88% daily needs).

Goal: Maintain pt healthy diet preferences. Prevent post prandial hypos, rule out rebound hyperglycemia vs late absorption of CHO.

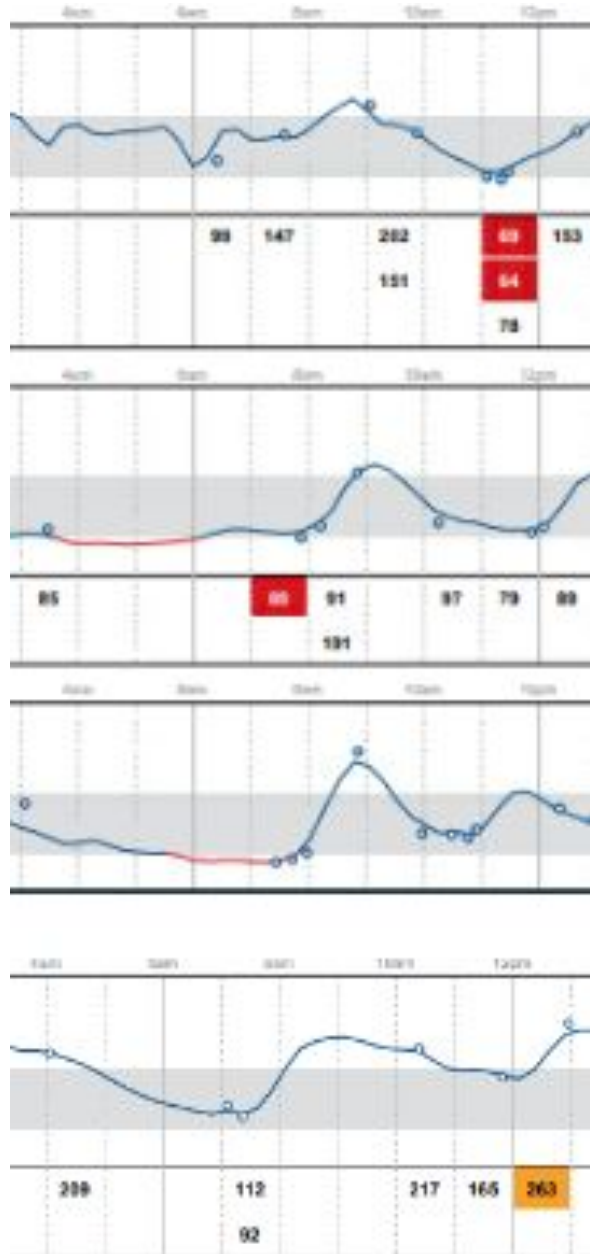
Pt would likely benefit from fiber adjustment:

- 50% of CHO for grams of fiber above 5g
(22g fiber - 5g fiber = 17/2 = subtract 8g CHO from 49g CHO total
= subtract approx 1 unit (I:C ratio 1:10)

RECOMMEND : 4 units vs 5 (20% reduction)

Follow Up:

if post prandial hyperglycemia continues, consider using an extended bolus on pump or late bolus per CGM Trend.



pattern
control
balance
choices
glycemic
carbohydrate
CARDIOPROTECTIVE
INDIVIDUALIZED
control variety
Optimized Nutrition

Choosing the Best-Fit Diet for Your Patient

	Safe for Patients on Basal Insulin?	Safe for Patients on MDI?	Numeracy Skill Level
Low Carb/Carb Controlled	Yes. Needs Oversight	Yes. Needs Oversight	Moderate to Advanced
Very Low Carb	Maybe. .Needs Oversight	Maybe. Needs Intensive Oversight.	Moderate to Advanced
Mediterranean	Yes	Yes	Moderate to Advanced
Vegan	Yes	Yes	Low
Plate Method	Yes	Yes. Needs Oversight	Low

Choosing the Best-Fit Diet for Your Patient

	Safe for Patients on Basal Insulin?	Safe for Patients on MDI?	Numeracy Skill Level	Additional Health Protective Benefits?	Weight Loss Expected?
Low Carb/Carb Controlled	Yes. Needs Oversight	Yes. Needs Oversight	Moderate to Advanced	Maybe	Yes
Very Low Carb	Maybe. Needs Oversight	Maybe. Needs Intensive Oversight.	Moderate to Advanced	Not Likely	Yes
Mediterranean	Yes	Yes	Moderate to Advanced	Yes	Maybe
Vegan	Yes	Yes	Low	Yes	Maybe
Plate Method	Yes	Yes. Needs Oversight	Low	Maybe	Yes

Choosing the Best-Fit Diet for Your Patient

	Additional Health Protective Benefits?	Weight Loss Expected?
Low Carb/Carb Controlled	Maybe	Yes
Very Low Carb	Unknown	Yes
Mediterranean	Yes	Maybe
Vegan	Yes	Maybe
Plate Method	Maybe	Yes

Diet Considerations



Low Carb

assess fiber intake
educate on lean proteins
plant oils



Plate Method

focus on lean protein choices
assess for excess sat fat



Vegetarian or Vegan

B12 supplement
assess for excess tropical oils
or sat fat in dairy
assess if adequate Ca and Fe



Very Low Carb

assess fat intake
assess Ca
DM medication adjustment



Mediterranean

assess if adequate Ca, Fe, B12
assess CHO load

Healthy Eating Barriers for PWD

Additionally, in response to the growing body of evidence that associates potentially judgmental words with increased feelings of shame and guilt, health care professionals are encouraged to consider the impact that language has on building therapeutic relationships and to **choose positive, strength-based words and phrases that put people first**



Novel Integrations of PH Programs **FOOD PHARMACY**

RDN and Chef Collaboratively Teach Lessons

1 year program, monthly meetings, fresh and pantry items provided with recipes each class

Diverse cohort, all with diabetes. Chosen by clinic RN for invite

Clinic RDN CDCES and RN Case Manage/Follow/Support

Multiple partners: food pantries, corporate sponsors, nonprofits and clinic combine resources with the established Cooking Matters Curriculum



- Wanting help to lower costs of eating
- Knowing what is actually healthy
- I want to lower my cost of eating
- What is a portion size
- Need new approach to diabetes
- Tired of bland food
- Dealing with family life and demands and taking care of myself
- Want to be able to manage this myself
- Bring down my morning blood sugars
- Sugar control is getting harder long term
- Need a baseline lesson, don't really understand diabetes



Novel Integrations of PH Programs **FOOD PHARMACY**

OUTCOMES

Engagement

Support

Label Reading

Food Acceptability

Lower A1C

Diet Interventions in the context of disparities in diabetes

DISPARITIES IN DIABETES - CDC

DIABETES IN COMMUNITIES OF COLOR



PREVALENCE



CDC. National Diabetes Statistics Report, 2020 pg. 4

BMI 23



Asians are at higher risk for diabetes, high blood pressure and high cholesterol at lower BMI levels (23 vs. 25).

Diabetes Care Jan 2015, 38 (1) 150-158; DOI: 10.2337/dc14-2391

3X

Less likely to use diabetes-related technology than Pediatric Caucasians.

Will, SM. et al. Racial-Ethnic Disparities in Management and Outcomes Among Children with Type 1 Diabetes. Pediatrics Vol 135 (3) 2015.



Hispanics and African American youth are less likely to be offered a pump.

3X



Less likely for Asian, Hispanic, or Black Medicare patients to be on any diabetes technology.

Internal Data. Medicare 5% sample FFS Enrollees with T1DM. Cross sectional analysis during CY2018.

2X



African Americans and Hispanics are 2X more likely to die from diabetes related complications.

CDC, 2019. National Vital Statistics Report. Vol. 68, No. 9, Table 10.

Poorly managed diabetes leads to serious short- and long-term complications and early death.



50%

Asians are 50% more likely to be diagnosed with end stage renal disease.

3.5x

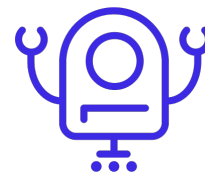
African Americans are 3.5x more likely to have end stage renal disease.

1.4x

Hispanics are 1.4x more likely to have diabetes-related amputations.

as compared to Caucasians

Diabetes, Diet and Technology



Finding (and maintaining...) Support

- The “S” in DMSES is for Ongoing Support
- The current standard of care is for PWD to have an ongoing diabetes support plan . Peers with diabetes can address unique social support needs when compared to healthcare professionals(HCPs), family and friends, or community leaders .
- Peer support can be provided via multiple venues including attending classes and/or education visits with a PWD, participating in community support groups and DOCs .
- One-third of Diabetes Care and Education Specialists recommended participation in **DOCs**

Meal Plan,
Info, Support
Resource
**Beyond
Type 2**

beyondtype2.org/management-diabetes-carbs/

BEYOND TYPE 2

ABOUT

DIABETES

RESOURCES

STORIES

COMMUNITY



**WHY PEOPLE WITH DIABETES COUNT CARBS
INSTEAD OF SUGAR**

WRITTEN BY: NAZEEN SHAH

beyondtype2.org

Resources

- Access to Food and Supplies

Omaha <https://www.whisperingroots.org/food-delivery-and-logistics>

- Access to Programs for Patients (standard DSMT)

ADA CDC

- Access for Clinicians to Provide Education

ADA

Finding (and maintaining...) Support For Professionals and Patients

- **Community Level -AND, DHHS**
- **National Resources - ADCES**
<https://www.diabeteseducator.org/living-with-diabetes/peer-support>
- **Diabetes Online Communities -**
 - **Twitter, Insta, Facebook, Tik Tok**

Resources

Focusing on the Learner

<https://cookingmatters.org/community-resources/#facilitator-training>

AVOID LECTURE FORMATS

HANDS-ON IS BEST

CONVERSATIONS

GROUP SHARING

VARIETY

Resources

Access for Clinicians to Provide Education

<https://cookingmatters.org/community-resources/#facilitator-training>

Adults Decide What They Want to Learn

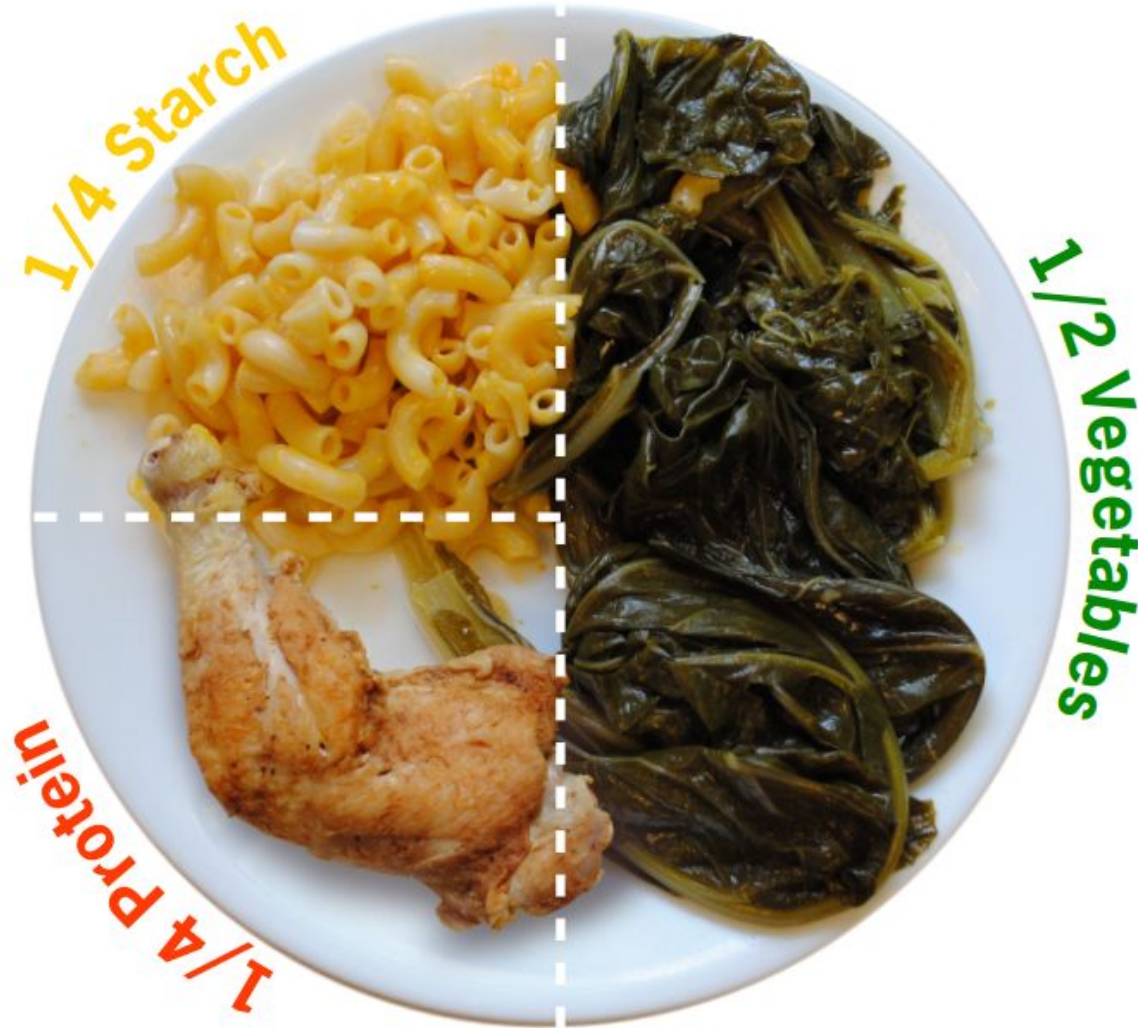
Adults Want Info They Can Use Now

Adults May Have Fixed Points of Views

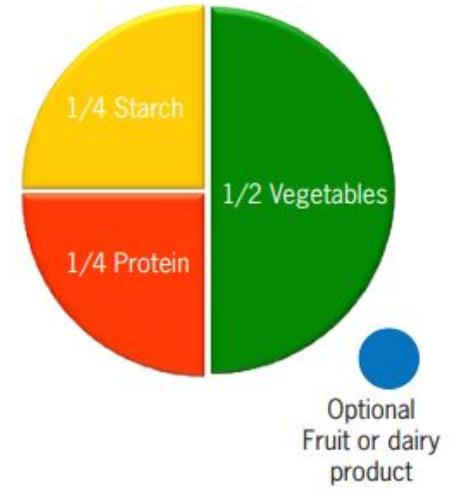
Adults Are Resources For The Class

Adults Have Different Learning Styles and Pace

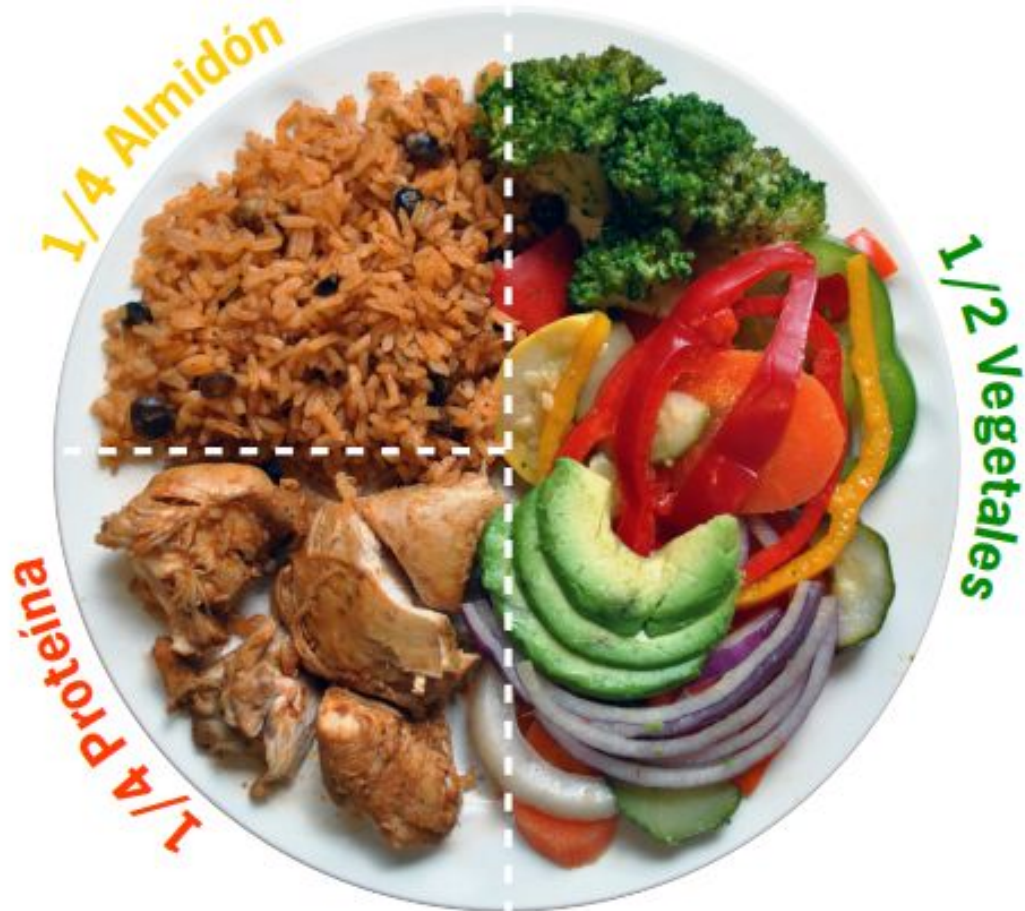
My Healthy Plate



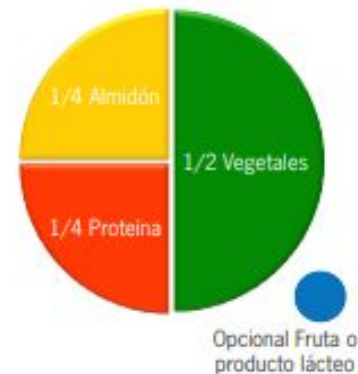
Plan the portions on your plate.



Mi Plato Saludable



Planee las porciones en su plato



THANK YOU ALL!!