



# Nutrition Basics *for* Primary Care

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# OBJECTIVES

To gain a basic understanding of:

- ❖ nutrition foundations
- ❖ dietary guidelines
- ❖ practical counseling





# PEDIATRICS

- Developing healthy eating habits at an early age
- Importance of parents/guardians modeling behavior
- Prevention of chronic health conditions
- Rising prevalence of obesity in childhood



# INTRODUCTION

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THIS IS A  
FOUNDATIONAL  
OVERVIEW

NUTRITION  
SCIENCES ARE  
COMPLEX

COLLABORATE WITH  
EXPERT DIETICIANS





# NUTRITION FOUNDATIONS

# MANY ACRONYMS

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- Dietary reference intakes (DRIs)
  - set of scientifically developed reference values for nutrients
- Recommended Dietary Allowance (RDA)
  - avg daily intake sufficient to meet needs of 97-98% of healthy people
- Adequate Intake (AI)
  - when there is insufficient evidence for RDA, AI set based on amount most healthy people consume
- Tolerable upper limit (UL)
  - max daily limit that is thought to be safe
- Daily values (DV):
  - 5% DV or less of a nutrient per serving is considered low
  - 20% DV or more per serving considered high

# CALORIE BASICS

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- Basal Metabolic Rate / Resting Energy Expenditure
  - Number of calories we burn at rest
  - Age, weight, height, sex
  - Mifflin-St Jeor Equation
- Daily activity level
- Food processing (thermic effect of food)
- Balancing calorie intake with expenditure



# SIX ESSENTIAL NUTRIENTS

## *Macronutrients*

- Carb 4kcal/g
- Protein 4kcal/g
- Fat 9kcal/g

## *Micronutrients*

- Vitamins
- Minerals

## *Other*

- Water

# CARBOHYDRATE BASICS

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- Quality matters!
- Encourage whole grains
- Fiber (minimum daily intake)
  - Women at least 25g/day
  - Men at least 38g/day
  - Children age + 5-10 for estimated g/day
- Limit added sugars
  - Ingredients ending in “-ose”, “juice”, “syrup”, “concentrate”
- Awareness of glycemic index of foods

# CARBS – RECOMMENDATIONS FOR PEDIATRICS

- Carbs should constitute 45-65% of total energy intake per AAP
- Important source of energy
- Supports the transport of vitamins, minerals, and trace elements
- Adequate intake contributes to sufficient intake of dietary fiber, iron, thiamine, niacin, riboflavin, and folic acid





# TIP FOR READING INGREDIENTS

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## Ingredients

WHOLE WHEAT FLOUR, WATER, WHEAT GLUTEN, WHOLE GRAIN MIX (BULGUR WHEAT, WHEAT, RYE, OATS, BARLEY, TRITICALE, CORN, MILLET), MODIFIED WHEAT STARCH, SUGAR, YEAST, CELLULOSE FIBER, SALT, PRESERVATIVES (CALCIUM PROPIONATE, SORBIC ACID), VEGETABLE OIL (SOYBEAN), MONOGLYCERIDES, DATEM, NATURAL FLAVOR, WHEAT BRAN, CELLULOSE GUM, HONEY SOLIDS, MONOCALCIUM PHOSPHATE, GROUND FLAXMEAL, SOY LECITHIN, REB A (STEVIA LEAF SWEETENER), CITRIC ACID, GRAIN VINEGAR. CONTAINS WHEAT, SOY. MADE IN A BAKERY THAT MAY ALSO USE MILK, TREE NUTS.

## Ingredients

ENRICHED WHEAT FLOUR [FLOUR, MALTED BARLEY FLOUR, REDUCED IRON, NIACIN, THIAMIN MONONITRATE (VITAMIN B1), RIBOFLAVIN (VITAMIN B2), FOLIC ACID], WATER, WHOLE WHEAT FLOUR, SUGAR, WHEAT GLUTEN, YEAST, HONEY, SEA SALT, WHEAT BRAN, OLIVE OIL, SOYBEAN OIL, CALCIUM PROPIONATE (TO PRESERVE FRESHNESS), MONOGLYCERIDES, DATEM, NATURAL FLAVORS, CITRIC ACID, SOY LECITHIN, POTASSIUM IODATE.

# WHAT IS A WHOLE GRAIN?

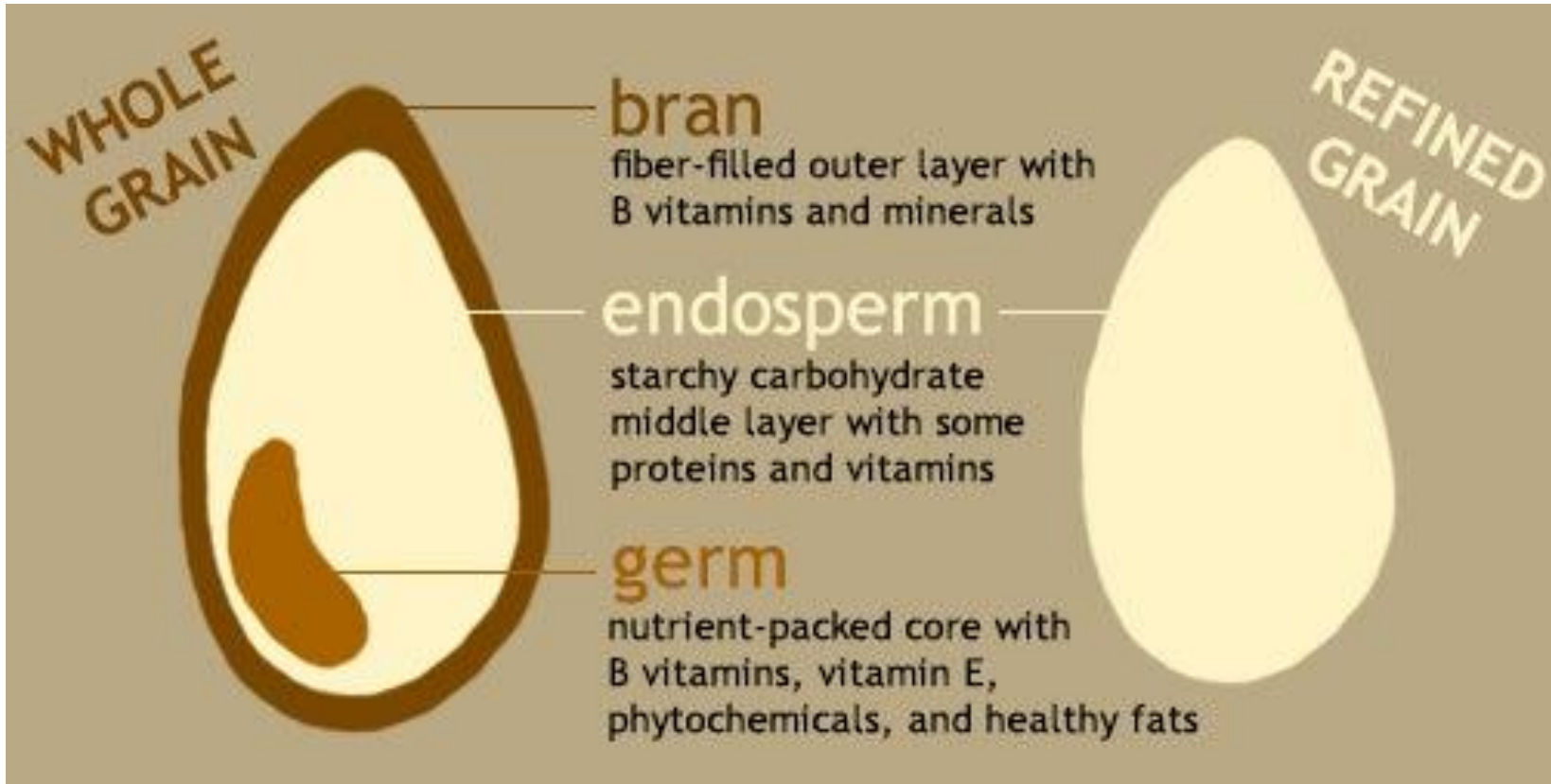


Image: Harvard School of Public Health, Nutrition Source

# WHAT IS FIBER?



- Type of carb that the body doesn't digest
- Dietary fiber found in plant foods like fruits, veggies, whole grains, and beans
- Fiber can be soluble or insoluble:
  - Soluble fiber:
    - Dissolves in water, helps lower cholesterol and improve blood sugar control
    - Slow passage through GI system, more time for food absorption, helps person feel full
  - Insoluble fiber:
    - Does not dissolve in water, helps with constipation
    - Creates soft, bulky stools and helps pass food quickly through the stomach and intestines
- Most foods high in fiber are a balance of soluble and insoluble ([example](#))



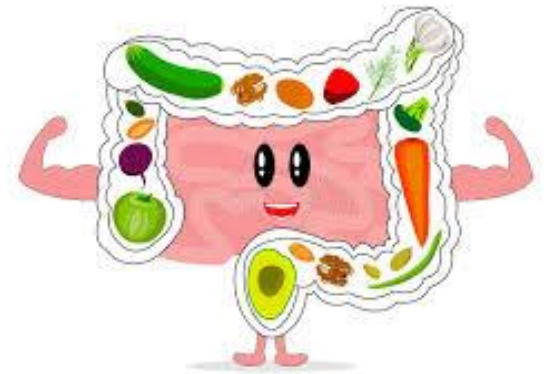
# BENEFITS OF FIBER

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A diet high in fiber:

- helps prevent or relieve constipation
- increases feelings of fullness, which may help with weight control
- lowers cholesterol
- helps prevent heart disease and diabetes
- may lower the chances of getting some types of cancer

Increase gradually to allow body to adjust & encourage hydration!



# FIBER GOALS FOR KIDS

Age in years + 5 to 10 for minimum recommended grams of fiber per day

Dietary Reference Intakes (DRI) provides the following recommendations:

- Children 1-3 years: 19 grams of fiber per day
  - Under age 2, focus on providing a variety of fruits, vegetables, beans, and whole grains as you introduce solid foods
- Children 4-8 years: 25 grams of fiber per day
- Boys 9-13 years: 31 grams of fiber per day
- Girls 9-13 years: 26 grams of fiber per day
- Boys 14-18: 38 grams of fiber per day
- Girls 14-18: 26 grams of fiber per day



# TIPS FOR ADDING FIBER

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- Read nutrition labels & choose foods with 3+ grams of fiber
- Choose whole grains instead of refined grains
- Choose whole fruit instead of juice
- Top yogurt, cereal, or oatmeal with fruit and nuts
- Put veggies, like lettuce, tomato, or avocado, on sandwiches
- Add beans to soups and salads
- Offer air-popped popcorn, whole-grain crackers, fruit, or vegetables as healthy snack options
- Provide families with references







# FIBER



## SOME EXAMPLES FROM MAYO CLINIC HIGH FIBER CHART

Fruits	Serving size	Total fiber (grams)*
Raspberries	1 cup	8.0
Pear	1 medium	5.5
Apple, with skin	1 medium	4.5
Banana	1 medium	3.0
Orange	1 medium	3.0
Strawberries	1 cup	3.0

Vegetables	Serving size	Total fiber (grams)*
Green peas, boiled	1 cup	9.0
Broccoli, boiled	1 cup chopped	5.0
Turnip greens, boiled	1 cup	5.0
Brussels sprouts, boiled	1 cup	4.0
Potato, with skin, baked	1 medium	4.0
Sweet corn, boiled	1 cup	3.5
Cauliflower, raw	1 cup chopped	2.0
Carrot, raw	1 medium	1.5

Grains	Serving size	Total fiber (grams)*
Spaghetti, whole-wheat, cooked	1 cup	6.0
Barley, pearled, cooked	1 cup	6.0
Bran flakes	3/4 cup	5.5
Quinoa, cooked	1 cup	5.0
Oat bran muffin	1 medium	5.0
Oatmeal, instant, cooked	1 cup	5.0
Popcorn, air-popped	3 cups	3.5
Brown rice, cooked	1 cup	3.5
Bread, whole-wheat	1 slice	2.0
Bread, rye	1 slice	2.0

Legumes, nuts and seeds	Serving size	Total fiber (grams)*
Split peas, boiled	1 cup	16.0
Lentils, boiled	1 cup	15.5
Black beans, boiled	1 cup	15.0
Baked beans, canned	1 cup	10.0
Chia seeds	1 ounce	10.0
Almonds	1 ounce (23 nuts)	3.5
Pistachios	1 ounce (49 nuts)	3.0
Sunflower kernels	1 ounce	3.0

\*Rounded to nearest 0.5 gram.

Source: USDA National Nutrient Database for Standard Reference, Legacy Release



# FIBER SUPPLEMENTS

- Sometimes dietary fiber is still not enough
- Common fiber supplements
  - psyllium (Metamucil<sup>®</sup>, Konsyl<sup>®</sup>, others), soluble and insoluble fiber
  - inulin (Benefibre<sup>®</sup>), soluble fiber
  - methylcellulose (Citrucel<sup>®</sup>), soluble fiber
- Increase dose gradually
- Hydration is key
- Best to separate timing of fiber supplement from meds by 2-3 hours



# AVOID ADDED SUGARS

## Dietary Guidelines for Americans (2020 to 2025)

- Children <2 years of age – Avoid added sugars
- Children  $\geq 2$  years of age – Limit added sugars to <10% of total daily energy intake
  - For most school-aged children, limiting added sugars to  $\leq 25$  g (approx. 100 kcal or 6 tsp)
  - Older child consuming balanced diet at 2000 calories/day, up to 50g (approx. 200kcal)

## World Health Organization recommendation

- Adult & children max of 10% of calories with goal of being <5%
  - Ex. 2000 calories/day, goal is <25-50g (<100kcal – 200kcal or <6-12 tsp sugar)



# Choose Low Glycemic Index (GI)

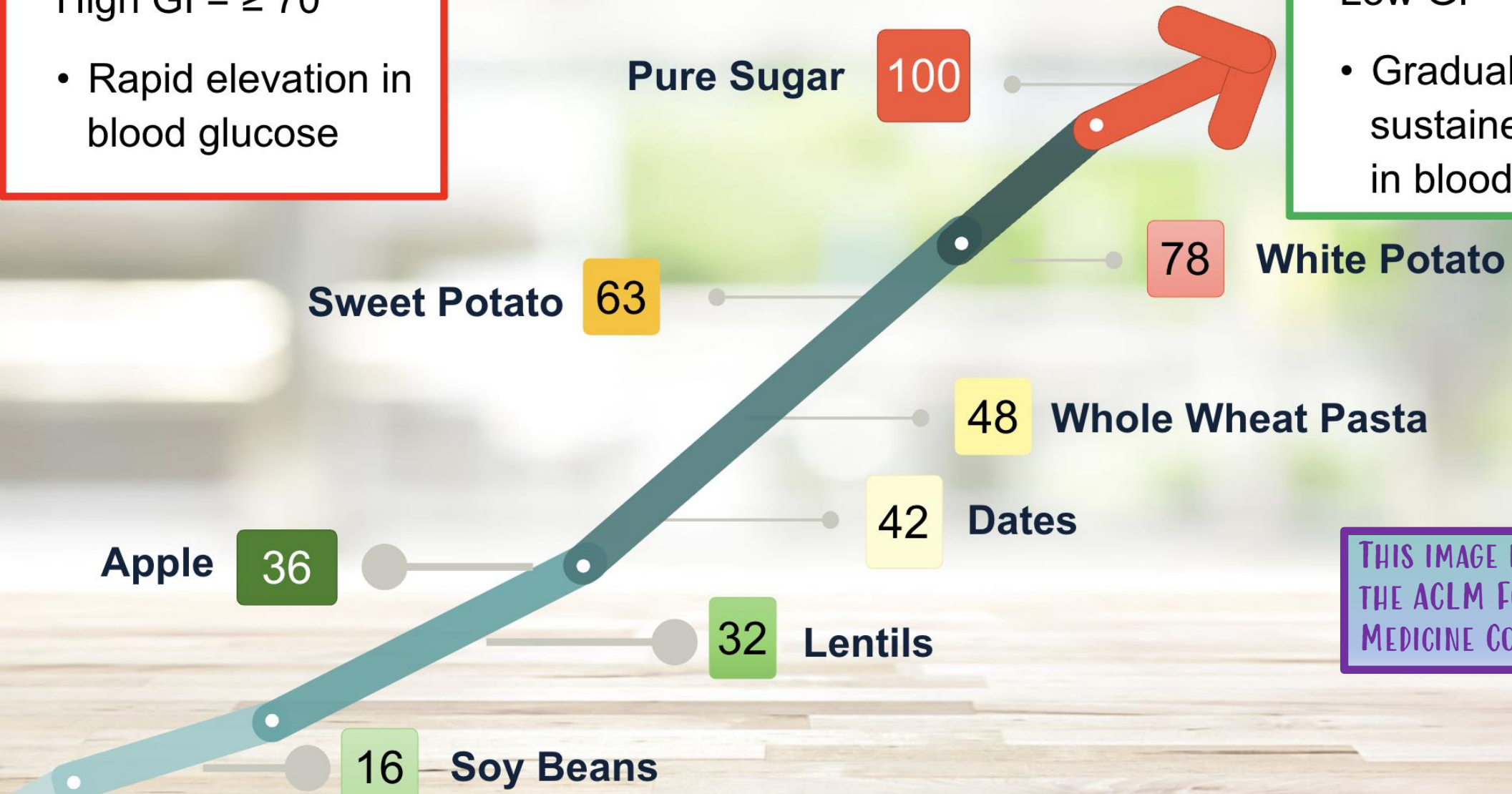


High GI =  $\geq 70$

- Rapid elevation in blood glucose

Low GI =  $\leq 55$

- Gradual and sustained elevation in blood glucose



THIS IMAGE IS FROM  
THE ACLM FOOD AS  
MEDICINE COURSE



# FATS

- All fat sources are a mix of both saturated and unsaturated
- Shift balance to be higher in the mono- and polyunsaturated fats and lower in saturated fats
  - Foods higher in unsaturated fats are usually liquid at room temp (except avocados!)
  - Foods higher in saturated fats are usually solid at room temp
- Focus on meeting omega-3 needs
- Minimize or eliminate trans fat



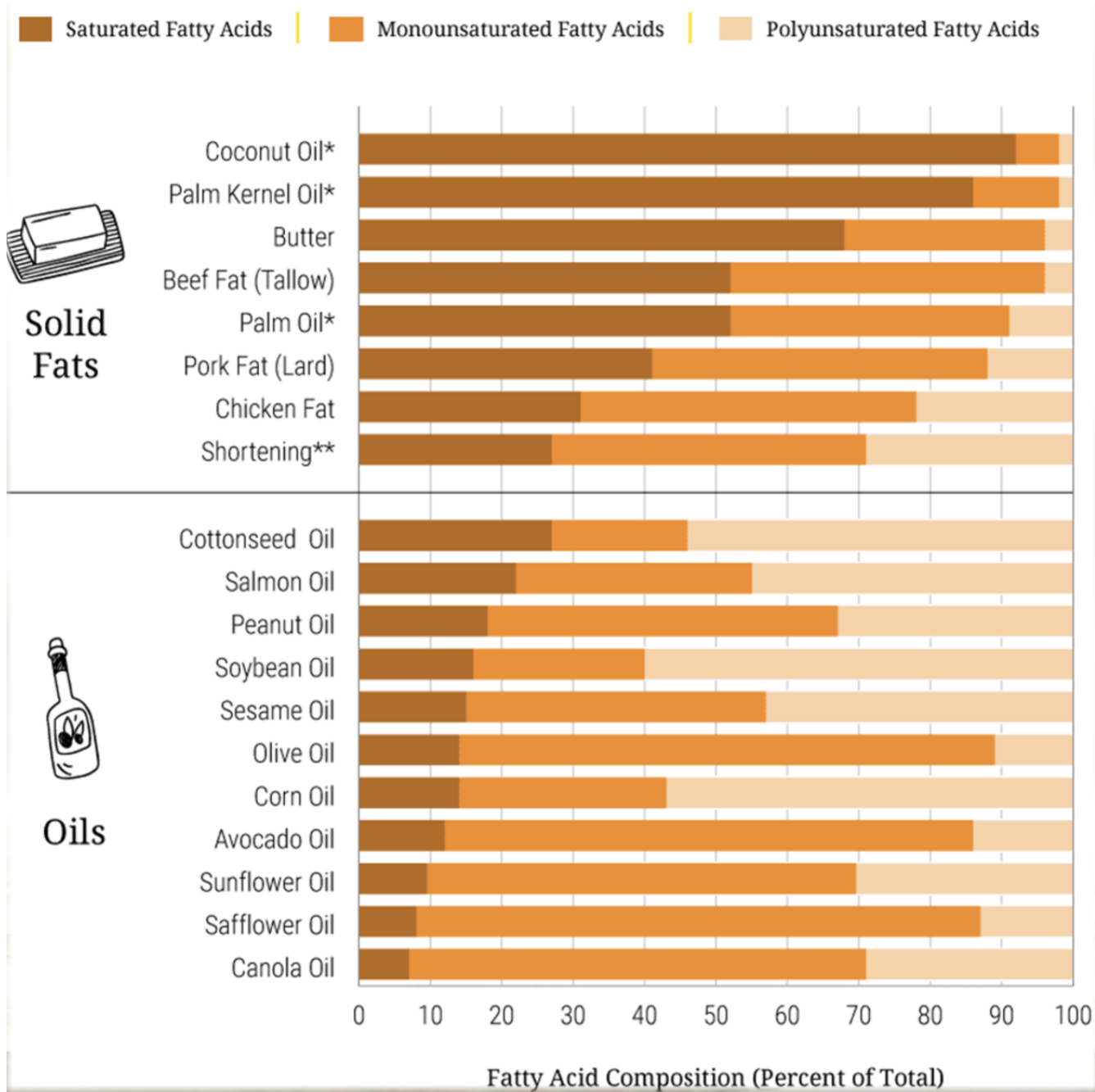
# FATS – RECOMMENDATIONS FOR PEDIATRICS

Per the AAP fat should constitute at least 20% of total energy intake

Recommended intake of fat varies with age:

- Age 1 to 2 years – dietary fat is not restricted
- Age 2 to 3 years – 30 to 40 percent of total energy intake
- Age 4 to 18 years – 25 to 35 percent of total energy intake





FOODS ARE A  
SYMPHONY OF  
MANY NUTRIENTS,  
INCLUDING MANY  
TYPES OF FATS

THIS IMAGE IS FROM THE ACLM  
“FOOD AS MEDICINE” COURSE

ALA DIETARY REFERENCE INTAKES   OMEGA-3		
AGE	MALE mg/day	FEMALE mg/day
1-3	700	700
4-8	900	900
9-13	1,200	1,000
14+	1,600	1,100
Pregnancy		1,400
Breastfeeding		1,300

OMEGA-3

ALA AMOUNTS IN PLANT FOODS   OMEGA-3		
FOOD	SIZE	ALA mg
Chia Seeds	1 tsp	713
Flaxseed Oil	1/4 tsp	608
Flaxseeds - ground	1 tsp	570
Walnuts - (English)*	3 halves	515
Soybeans - cooked	1/2 cup	500
Soy oil	1-1/2 tsp	450
Canola oil	1 tsp	433
Tofu - firm	1 cup	400
Tempeh	1 cup	400

\*Always grind nuts and mix with food for 1-4 year olds to avoid choking.

# OMEGA-6



Increase Omega 3 to have a more balanced Omega 6/3 ratio

PLANT FOODS WITH CORRESPONDING FAT CONTENT							
PLANT FOODS	AMOUNT	SFA (%cal)	MUFA (%cal)	PUFA (%cal)	N6 (LA) b (g)	N3 (ALA) b (g)	N6:N3
Avocado	1 cup	17	69	14	2.8	0.2	16.6
Almonds (dry roasted)	1 oz	8	67	25	3.6	0	
Brazil nuts (dried)	1 oz	26	36	38	6.7	0	
Cashews (dry-roasted)	1 oz	21	62	16	2.2	0	
Chia seeds (dried)	1 oz	11	7	82	1.6	5	0.33
Flaxseed (ground)	1 Tbsp	9	19	72	.4	1.6	0.26
Hazelnuts/Filberts (dry-roasted)	1 oz	8	78	14	2.4	0	
Macadamias (dry-roasted)	1 oz	16	82	2	0.4	0.1	6.6
Olive - large	5	14	77	9	0.2	0	12.3
Peanuts (dry-roasted)	1 oz	15	52	33	4.4	0	
Pecans (dry-roasted)	1 oz	9	62	29	5.6	0.3	19.7
Pistachios	1 oz	13	55	32	3.9	0.1	52.2
Soybeans (boiled)	1/4 cup	16	24	61	1.9	0.3	7.5
Soybeans (dry-roasted)	1/4 cup	16	24	61	4.6	0.6	7.5
Sunflower seeds (dry-roasted)	1 oz	11	20	69	9.3	0	
Tempeh - cooked	100 g	35	38	27	2.5	0.1	21
Tofu - raw, firm (prepared w/Ca sulfate)	1/2 cup	16	24	61	5.5	0.7	7.5
Walnuts - Black	1 oz	7	24	70	9.5	0.9	10.1
Walnuts - English	1 oz	10	14	76	10.8	2.6	4.2

# PROTEIN

- AMDR = 10-35% of calories
- RDA for adults 0.8 g/kg of body weight
- Higher needs: older adults, pregnancy, athletes, children
- Encourage lean meats, fish & plant-based protein
- Reduce red meat and processed/cured meats



# PROTEIN – RECOMMENDATIONS IN PEDIATRICS

- AAP recommendations:
  - Children 1 to 3 yrs old: 5-20% of total daily calories from protein
  - Children 4+ yrs old & adolescents: 10-30% of total daily calories from protein
- Most children do not have hard time meeting protein requirements
- Often getting 2-3x their needs in Western countries
- Focus on obtaining from whole foods
- Uncommon for children to need extra protein supplementation

## Plant-Based Protein Sources

It's easy to find plant-based sources of protein at the grocery store. Just look at all these options! These foods also tend to be high in fiber, vitamins, minerals and other important nutrients.

			
Beans	Broccoli	Chickpeas	Greens
			
Lentils	Nut Butter	Nuts and Seeds	Peas
			
Potatoes	Quinoa	Seaweed	Soymilk
			
Spinach	Tempeh	Tofu	Veggie Patties

 Healthy For Good™

# PROTEIN PORTION

Our bodies need protein to be healthy and strong, but a serving is probably smaller than you think. Here's what a healthy serving of some common protein foods looks like.

- NON-FRIED FISH**  
3.5 ounces
- LEAN BEEF**  
3 ounces
- SKINLESS CHICKEN**  
3 ounces
- BEANS & LEGUMES**  
1/2 cup cooked
- EGGS**  
1 egg or 2 egg whites
- YOGURT (low-fat or fat-free)**  
6 ounces
- MILK (low-fat or fat-free)**  
1 cup

EAT SMART ADD COLOR MOVE MORE BE WELL

LEARN MORE AT [HEART.ORG/HEALTHYFORGOOD](https://heart.org/healthyforgood)

Estimated energy requirements and recommended dietary allowance of selected nutrients for infants, children, and adolescents

Age	Energy (kcal/day)	Protein (g/day)	Total fat (% of energy)	Iron (mg/day)	Calcium (mg/day)	Zinc (mg/day)
1 to 2 years						
Males and females	800 to 1000	13	30 to 40	7	700	3
2 to 3 years						
Males	1000 to 1400	13	30 to 40	7	700	3
Females	1000 to 1400	13	30 to 40	7	700	3
4 to 8 years						
Males	1200 to 2000	19	25 to 35	10	1000	5
Females	1200 to 1800	19	25 to 35	10	1000	5
9 to 13 years						
Males	1600 to 2600	34	25 to 35	8	1300	8
Females	1400 to 2200	34	25 to 35	8	1300	8
14 to 18 years						
Males	2000 to 3200	52	25 to 35	11	1300	11
Females	1800 to 2400	46	25 to 35	15	1300	9

Data from: Dietary Guidelines for Americans, 2020-2025. United States Department of Agriculture. <https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials> (Accessed on November 6, 2023).

# Dietary Guidelines 2020-2025

# MICRONUTRIENTS



- Vitamins
  - Water soluble: Vit C and B vitamins
  - Fat soluble: ADEK
- Minerals
  - Calcium, chloride, chromium, copper, iodine, magnesium, manganese, phosphorus, potassium, selenium, sodium, zinc
- Encourage individuals to “eat the rainbow” for diverse phytonutrients
- Adequate Vit D and Ca for bone health



# VITAMINS & MINERALS – PEDIATRICS

- Vitamin D
  - 400 IU daily for breastfed infants, unless receiving at least 800mL formula daily
  - 600 IU daily for children age 1-18 through diet and/or supplementation
- Calcium requirements
  - 6-12 months 260mg/day
  - 1-3 years 700mg/day
  - 4-8 years 1000mg/day
  - 9-18 years 1300mg/day
- Standard pediatric multivitamin generally low risk if parents wish to use
- Talk about bone health with kids!
  - Calcium, Vitamin D, and weight bearing exercise!
  - Bone density peaks around age 20





# HOW MUCH WATER?

National Academy of Medicine  
established fluid recs:

- Women 9 cups fluid per day
- Men 13 cups fluid per day
- Around 20% of water intake needs  
come from water-rich foods
- This of course does not apply to  
patients who require fluid restriction  
such as CHF, ESRD hyponatremia

60+% of human body is water

Needs are variable: normal water loss  
(urine/BM), sweating, fevers, altitude,  
pregnancy/lactation, other PMH



# DAILY WATER INTAKE GUIDE

Age	Daily Adequate Intake
1-3 years	4 cups, or 32 ounces
4-8 years	5 cups, or 40 ounces
9-13 years	7-8 cups, or 56-64 ounces
14-18 years	8-11 cups, or 64-88 ounces
men, 19 and older	13 cups, or 104 ounces
women, 19 and older	9 cups, or 72 ounces
pregnant women	10 cups, or 80 ounces
breastfeeding women	13 cups, or 104 ounces

General guide from the National Academy of Medicine,  
as each person's exact fluid needs vary and also vary day-to-day

# WATER – RECOMMENDATIONS FOR PEDIATRICS

- General guideline is cups of water per day matches age in years
  - Until age 8, then continue 8 cups a day
  - Ex: 1 cup/day at 1 yr old, 4 cups/day at 4 yr old, 8 cups/day at 8, 9, 10+ yrs old
- Older children & teenagers, can estimate by 0.5oz/lb
  - Ex. 125lb → ~64oz or 8 cups of 8oz daily
- Adjust based on activity, weather, other health conditions
- No water before age 6 months
- At 6 months can start to give infant 2-3 oz of water at a time, breastmilk or formula remains primary hydration
- Parents as role models demonstrating good hydration

## US Standard Drink Sizes



**12 ounces**  
5% ABV beer



**8 ounces**  
7% ABV malt liquor



**5 ounces**  
12% ABV wine



**1.5 ounces**  
40% (80 proof)  
ABV distilled spirits  
(gin, rum, vodka,  
whiskey, etc.)

ABV = Alcohol by Volume



# ETOH GUIDELINES

- 2020-2025 Dietary Guidelines for Americans
- Recommend that adults of legal drinking age:
  - choose not to drink or
  - drink in moderation
- Screen for binge drinking
  - 5 or more drinks on an occasion for men or
  - 4 or more drinks on an occasion for women



# DIETARY GUIDELINES



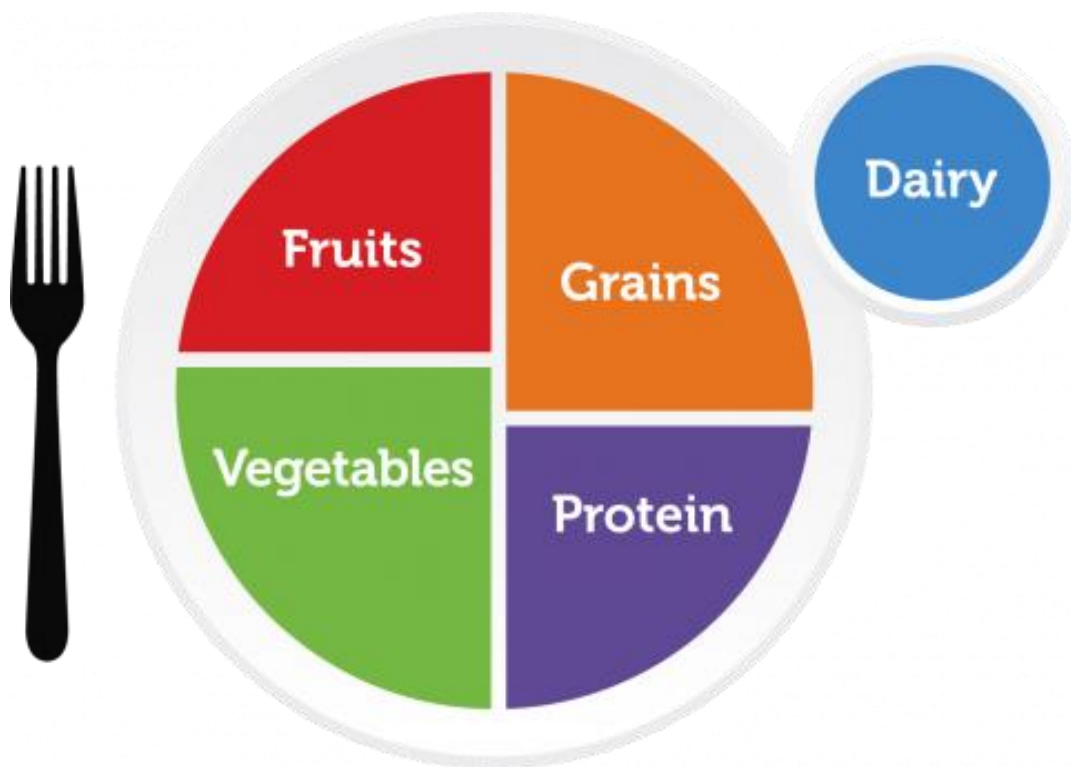
# GUIDELINES OVERVIEW

- Various associations weigh in
- Similar takeaways
- Many amazing resources on their websites
- Aware of influence of industry & politics



# USDA MYPLATE

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## MyPlate

The benefits of healthy eating add up over time, bite by bite. Small changes matter. Start *Simple with MyPlate.*



## Fruits

Make half your plate fruits and vegetables: focus on whole fruits.

[Learn more](#)



## Vegetables

Make half your plate fruits and vegetables: vary your veggies.

[Learn more](#)



## Grains

Make half your grains whole grains.

[Learn more](#)



## Protein Foods

Vary your protein routine.

[Learn more](#)



## Dairy

Move to low-fat or fat-free dairy milk or yogurt (or lactose-free dairy or fortified soy versions).

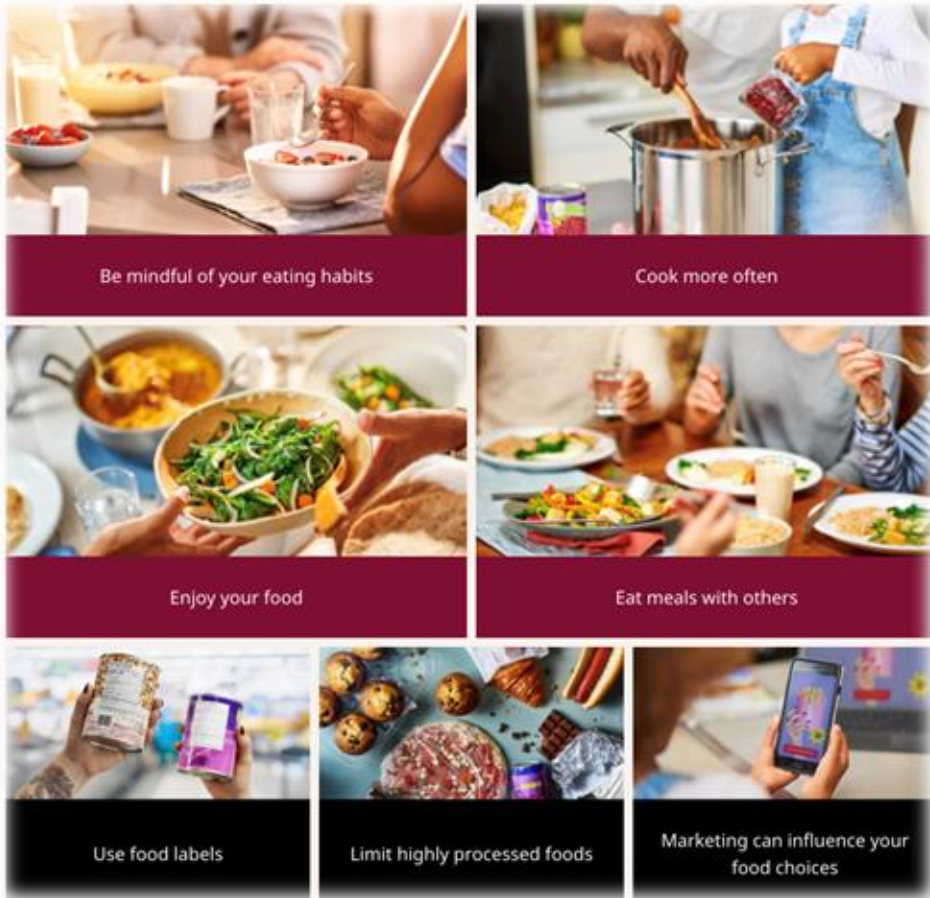
[Learn more](#)

# 2020–2025 US DIETARY GUIDELINES REPORT OVERVIEW

- Eat more: veggies, fruits, legumes, whole grains, low- or nonfat dairy, lean meat & poultry, seafood, nuts, & unsaturated vegetable oils
- Eat less: red & processed meats, sugar-sweetened foods/beverages, refined grains, saturated fat
- Focuses on staying within daily calorie needs
- Includes guidelines for different stages of life



# CANADIAN FOOD GUIDELINES



Have plenty of  
vegetables and fruits

Eat protein foods


Make water  
your drink  
of choice



Choose  
whole grain  
foods




# AMERICAN HEART ASSOCIATION




- Wide variety of fruits and vegetables
- Whole grains and products made mostly of whole grains
- Healthy sources of protein
  - mostly plants such as legumes and nuts; fish and seafood; low-fat or nonfat dairy; and, if eating meat and poultry, ensuring it is lean and unprocessed
- Liquid non-tropical vegetable oils
- Minimally processed foods
- Minimized intake of added sugars
- Foods prepared with little or no salt
- Limited or preferably no alcohol intake

 **Healthy For Good™**

## THE EASY WAY TO EAT HEALTHY

A healthy eating pattern is about smart choices.  
The American Heart Association suggests these daily amounts.\*

VEGETABLES	FRUITS	WHOLE GRAINS
 CANNED, DRIED, FRESH & FROZEN	 CANNED, DRIED, FRESH & FROZEN	 BARLEY, BROWN RICE, MILLET, OATMEAL, POPCORN AND WHOLE WHEAT BREAD, CRACKERS & PASTA
5 SERVINGS or 2.5 CUPS	4 SERVINGS or 2 CUPS	3-6 SERVINGS or 3-6 OUNCES

DAIRY	PROTEINS	OILS
 LOW FAT (1%) AND FAT-FREE	 EGGS, NON-FRIED FISH, LEAN MEAT, LEGUMES, NUTS, SKINLESS POULTRY & SEEDS	 POLYUNSATURATED AND MONOUNSATURATED CANOLA, OLIVE, PEANUT, SAFFLOWER & SESAME OIL
3 SERVINGS or 3 CUPS	1-2 SERVINGS or 5.5 OUNCES	3 TBSP

Food should give you energy – not weigh you down!  
With a few simple changes, you can make eating healthy your easiest habit.


LIMIT	AVOID	REPLACE
SUGARY DRINKS, SWEETS, FATTY MEATS, AND SALTY OR HIGHLY PROCESSED FOODS	PARTIALLY HYDROGENATED OILS, TROPICAL OILS, AND EXCESSIVE CALORIES	HIGHLY PROCESSED FOODS WITH HOMEMADE OR LESS-PROCESSED OPTIONS

ENJOY	KEEP
A VARIETY OF NUTRITIOUS FOODS FROM ALL OF THE FOOD GROUPS, ESPECIALLY FRUITS & VEGGIES	HEALTHY HABITS EVEN WHEN YOU EAT AWAY FROM HOME

\*Servings are based on AHA's Healthy US-Style Eating Pattern for 2,000 calories/day. Your calorie needs may be different. Servings equivalent may depend on form of food. More info on serving sizes is at [heart.org/servings](http://heart.org/servings).

**EAT SMART   ADD COLOR   MOVE MORE   BE WELL**

LEARN MORE AT [HEART.ORG/HEALTHYFORGOOD](http://HEART.ORG/HEALTHYFORGOOD)





# AHA / ACC 2019 HEALTHY DIET STATEMENT

## 2019 AHA/ACC Primary Prevention Recommendations

“All adults should consume a healthy diet that emphasizes the intake of vegetables, fruits, nuts, whole grains, lean vegetable or animal protein, and fish and minimizes the intake of trans fats, red meat and processed red meats, refined carbohydrates, and sweetened beverages.”

American Heart Association & American College of Cardiology

# AMERICAN DIABETES ASSOCIATION

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## Nutrition for Life: **Diabetes Plate Method**

The Diabetes Plate Method is a helpful tool for anyone who wants to eat better and learn about variety and portion sizes, including people with prediabetes. Each section (based on a nine-inch plate) is for the following three food groups: vegetables, carbohydrates, and protein. These three food groups are the foundation for healthy eating.

### **Fill 1/2 of the plate with non-starchy vegetables**

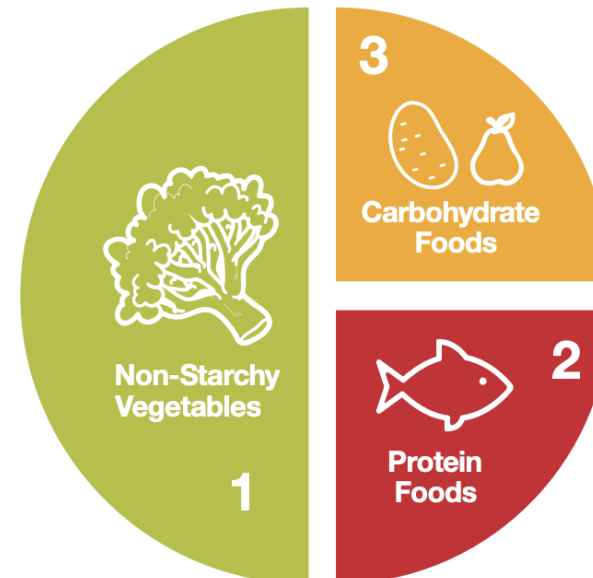
Non-starchy vegetables are low in carbohydrates. One serving amounts to one cup raw veggies, such as a salad greens, or ½ cup cooked, such as broccoli. You can have as many non-starchy vegetables as you like, but make sure at least half of your plate is filled with things like green salad, broccoli, or asparagus.

### **Fill 1/4 of the plate with carbohydrates**

Choose whole grains such as brown rice or quinoa which are rich in vitamins, minerals, and fiber. Beans and lentils contain both starch and protein with good amounts of fiber. Low-fat or fat-free dairy and fruits are also included in this section.

### **Fill 1/4 of the plate with protein**

This section includes lean animal and plant-based protein sources, such as eggs, fish, and tofu. Look for lean cuts of meat or reduced-fat cheeses. 1/4 of the plate is equivalent to a three-ounce cooked portion (about the size of a deck of cards or the palm of your hand).



# DIETARY SPECTRUM



## THE AMERICAN COLLEGE OF LIFESTYLE MEDICINE DIETARY POSITION STATEMENT

ACLM recommends an eating plan based predominantly on a variety of minimally processed vegetables, fruits, whole grains, legumes, nuts and seeds.

## WHOLE FOOD PLANT-BASED EATING PLAN

### WHAT AMERICA EATS



\*Food items are not to scale

- Increased risk for Obesity, T2Diabetes, Heart Disease, and some Cancers
- Poor nutrition is the leading cause of death globally.

Increase whole plant foods, fruits, vegetables, whole grains, beans, legumes, nuts, seeds, water

Decrease sweets and snacks, fast food, fried foods, refined grains, refined sugar, meat, dairy, eggs, poultry, high sodium foods



\*Food items are not to scale

ADD HERBS & SPICES

- Decreased risk for Obesity, T2Diabetes, Heart Disease, and some Cancers
- Chronic disease treatment and potential reversal



### TIPS FOR IMPROVED NUTRITION AND HEALTH

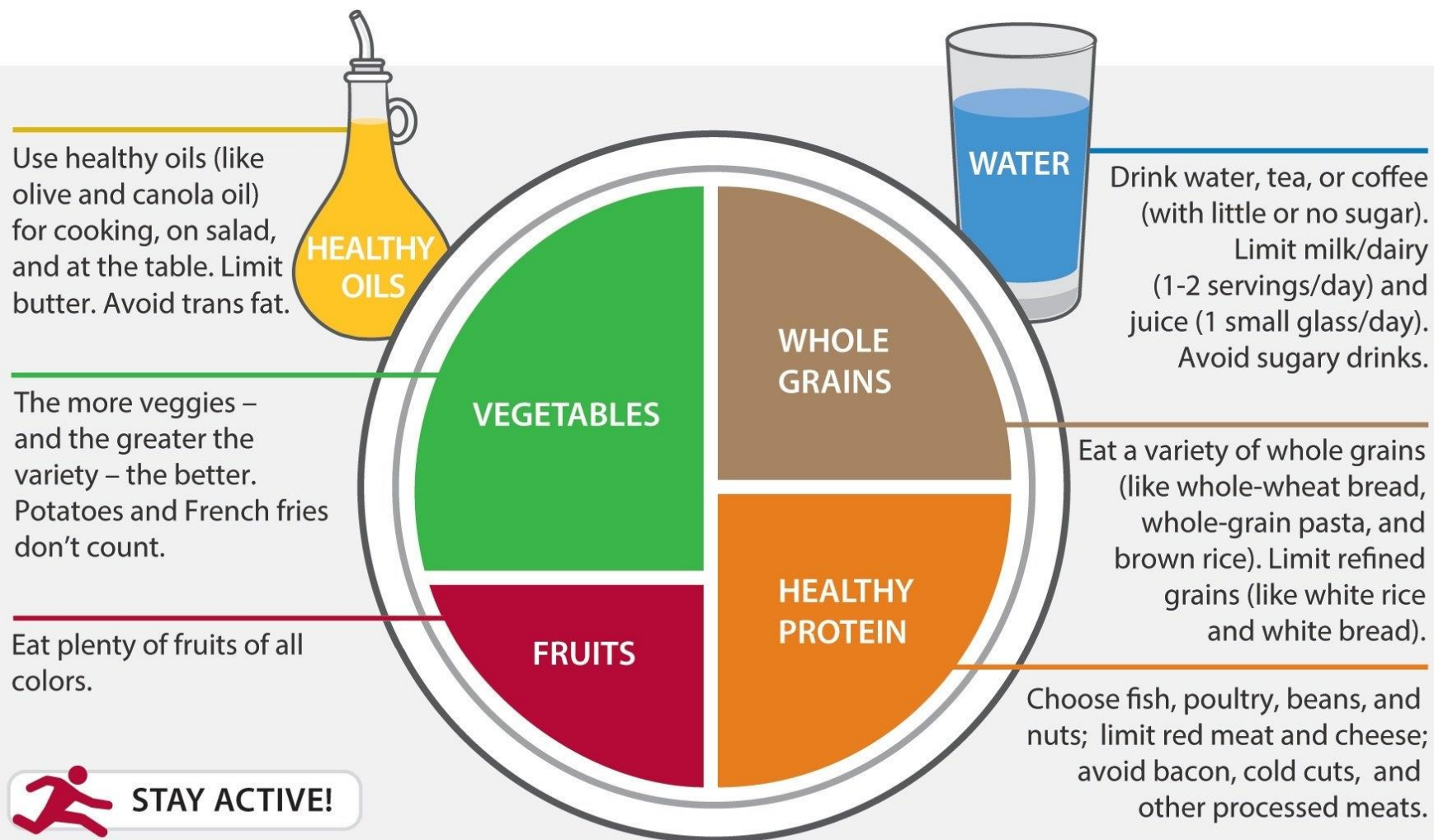
- Any movement toward WFPB eating is positive
- More movement toward a WFPB eating plan increases impact
- Tailored and sustainable approaches are recommended

What We Eat in America (WWEIA) Food Category analyses for the 2015 Dietary Guidelines Advisory Committee. Estimates based on day 1 dietary recalls from WWEIA, NHANES 2009-2010.

Tuso PJ, Ismail MH, Ha BP, Bartolotto C. Nutritional update for physicians: plant-based diets. Perm J. 2013;17(2):61-66.

Food Planet Health. Eatforum.org. Published 2020. Accessed June 4, 2020

# HEALTHY EATING PLATE



**STAY ACTIVE!**

© Harvard University



Harvard T.H. Chan School of Public Health  
The Nutrition Source  
[www.hsph.harvard.edu/nutritionsource](http://www.hsph.harvard.edu/nutritionsource)

Harvard Medical School  
Harvard Health Publications  
[www.health.harvard.edu](http://www.health.harvard.edu)



# PROCESSED MEATS

- World Health Organization & the International Agency for Research on Cancer announced in 2015:
  - consumption of processed meat is “carcinogenic to humans (Group I )
  - consumption of red meat is “probably carcinogenic to humans (Group 2A)
- WHO is not recommending complete avoidance of red meat
- Reduce consumption of processed meat and red meat





**COUNSELING**

# COUNSELING

Current routine

SMART goals

Celebrate all progress

Sustainable small changes

# NUTRITION IS INTEGRAL TO HEALTH

- **Normalize discussion in primary care for all patients of all ages**
- Not limited to visits discussing weight management
- Food is fuel, opportunity to promote health
- Repeated brief discussions emphasizes the importance of nutrition
- Can schedule dedicated follow-up appointments
- [Guide for starting the conversation](#)

# CURRENT ROUTINE

## 24 Hour Recall

“Can you walk me through your nutrition yesterday?”

“What was the first thing you ate?  
Did you drink anything with that?”

“What was the next snack or meal?”

“Was this a typical day for you?”

## My Food and Beverage Diary Date: \_\_\_\_\_

Monday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Tuesday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Wednesday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Thursday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Friday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Saturday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Sunday	
Breakfast	
Snack	
Lunch	
Snack	
Dinner	
Snack	

Notes:

# SMART GOALS

## Set Healthy Goals

### Lifestyle Medicine Action Plan

Using SMART as a guide for goal setting can help you incrementally improve your health. Making sustainable lifestyle change is more likely to occur if you can stage your progress in steps that lead to attainable results.

An example of a SMART goal related to substance use is: "I will swap my morning cigarette with chewing gum at least 5 days this week for the next four weeks. I will ask my partner to help keep me on track and use a texting service for more support." Another example of a nutrition goal is: "I will add 1 cup of berries to breakfast and a small apple or orange as an afternoon snack at least five days this week."

Try using the SMART acronym to guide your goal setting today.



[lifestylemedicine.org](https://lifestylemedicine.org)

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All rights reserved.

**Specific:** Goals need to be clear and specific.

**Measurable:** Goals need to be able to be measured and tracked so you can see your progress.

**Achievable:** Can you take action toward your goals? You should be able to take steps toward your goal to achieve them?

**Realistic:** What can you actually do? (improvement over perfection)

**Time-Bound:** How frequent? How long will you commit?

#### How I Eat

---

---

#### How I Sleep

---

---

#### How I Move

---

---

#### How I Stay Calm

---

---

#### How I Connect

---

---



# READING LABELS

## EAT SMART

### WITH FOOD NUTRITION LABELS

The Nutrition Facts label can help you make healthier choices.

**Use it!** Here's what to look for:

#### Nutrition Facts

8 servings per container  
**Serving size** 2/3 cup (55g)

**Amount per serving**  
**Calories** 230

	% Daily Value*
<b>Total Fat</b> 8g	<b>10%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 160mg	<b>7%</b>
<b>Total Carbohydrate</b> 37g	<b>13%</b>
Dietary Fiber 4g	<b>14%</b>
Total Sugars 12g	
Includes 10g Added Sugars	<b>20%</b>
<b>Protein</b> 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

\* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

#### Start with serving information.

This will tell you the size of a single serving and how many servings are in the package.

#### Check total calories.

Do the math to know how many calories you're really getting if you eat the whole package.

#### Limit certain nutrients.

Compare labels when possible and choose options with lower amounts of added sugars, sodium and saturated fat and no trans fat.

#### Get enough of beneficial nutrients.

Eat foods with nutrients your body needs, like calcium, dietary fiber, iron, potassium and Vitamin D.

#### Understand % Daily Value.

- The % Daily Value (DV) tells you the percentage of each nutrient in a single serving in terms of the daily recommended amount.
- To consume less of a nutrient (such as saturated fat or sodium), choose foods with a lower % DV (5% or less).
- To consume more of a nutrient (such as fiber or potassium), choose foods with a higher % DV (20% or more).

For more tips and tricks on eating smart, visit [heart.org/HealthyForGood](https://heart.org/HealthyForGood)



# HYPERLIPIDEMIA

- Increase fiber
- Decrease saturated fat
- [AHA Patient Guide](#)

# SOME OF THE MANY POPULAR DIETS

- DASH
- Mediterranean
- Intermittent Fasting
- Keto
- Low-carb
- Vegetarian
- Vegan
- Gluten free
- Flexitarian
- Pescatarian
- Ovo-vegetarian
- Lacto-vegetarian
- Paleo
- Carnivore
- Detox
- Many more exist

# EATING HEALTHY ON A BUDGET

- Frozen or canned
- Dried beans, lentils
- Focus on actual whole foods vs. processed “health foods”
- Plan recipes and shop with a list
- Freeze leftovers for easy future meals
- Consider meatless meals
- Cut cost with coupons
- Buy generic or store brands
- Consider purchasing non-perishable in bulk
- Careful to only buy amount of perishable used in a week
- Allow flexibility in shopping list



# FOOD INSECURITY

- U.S. Department of Agriculture (USDA) defines food-insecure household as one in which “access to adequate food is limited by a lack of money or other resources.”
- Two question screening tool, answers are yes or no
- *“Within the past 12 months, we worried whether our food would run out before we got money to buy more.”*
- *“Within the past 12 months, the food we bought just didn’t last and we didn’t have money to get more.”*



# RESOURCES FOR FOOD-INSECURE HOUSEHOLDS

- Supplemental Nutrition Assistance Program (SNAP)
- Special Supplemental Nutrition Program for Women, Infants and Children (WIC)
- Senior Meal Programs (ex. Meals on Wheels)
- Food banks & pantries
- Additional food assistance programs (ex. National School Lunch Program, School Breakfast Program, Summer Food Service Program, Child & Adult Care Food Program)

# FAMILY FRIENDLY RESOURCES

- [Kid-friendly kitchen tasks for age](#)
- [Behavioral milestones related to eating 2-5yo](#)
- [Phrases that help & hinder](#)
- Many more links in notes below, all stages of life

**USDA Food and Nutrition Service**  
U.S. DEPARTMENT OF AGRICULTURE

**Start simple with MyPlate**

**Healthy Eating for Kids**

Healthy eating is important at every age. Offer kids a variety of fruits, vegetables, grains, protein foods, and dairy or fortified soy alternatives. When deciding on foods and beverages, choose options that are full of nutrients and limited in added sugars, saturated fat, and sodium. Start with these tips:

- Offer variety**  
Include choices from each food group—fruits, vegetables, grains, protein foods, and dairy or fortified soy alternatives—in meals and snacks during each day.
- Connect at mealtime**  
Eat meals together whenever possible. Turn off the TV and put away phones and tablets, so you can “unplug” and focus on healthy foods and each other.
- Make good nutrition easy**  
Designate a shelf or a drawer in your fridge for your kids. Stock it with cut-up fruits and vegetables, yogurt, nut butters, and whole-wheat mini bagels and crackers.
- Think about their drinks**  
Make water and low-fat or fat-free dairy milk or fortified soy alternatives easy options to grab in your home. Have ready-to-go containers filled and in the fridge to take on outings.
- Get kids involved**  
Depending on their age, kids can peel fruits, assemble salads, measure, scoop, and slice. Let them create and name their own side dish.
- Have a shopping buddy**  
Let kids participate in grocery shopping online or in the store. Reward them by letting them choose their favorite fruit or maybe a new one.

**DGA** | Division of Nutrition Assistance  
Go to [MyPlate.gov](#) for more information.  
USDA is an equal opportunity provider, employer, and lender.

**The benefits of healthy eating add up over time, bite by bite.**

FNS-905-17  
March 2022

**USDA**  
United States Department of Agriculture

**KIDS FOOD CRITIC ACTIVITY**

Let kids select a new fruit, vegetable, or recipe to sample. Have them taste the food and rate it based on visual appeal, smell, taste, and texture using a scale of 1 to 5 where 5 is the best.

**DRAW FOOD HERE!**

	Visual Appeal	Smell	Taste	Texture
1	○	○	○	○
2	○	○	○	○
3	○	○	○	○
4	○	○	○	○
5	○	○	○	○

**TOTAL:** \_\_\_\_\_

**TOTAL SCORE**

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

**Serve it again?**  
YES NO

**FOR EXTRA FUN:**

- Have kids choose and prepare foods and have friends, siblings, or parents sample and rate them.
- Present 3 new recipes to sample and compare them.

August 2016

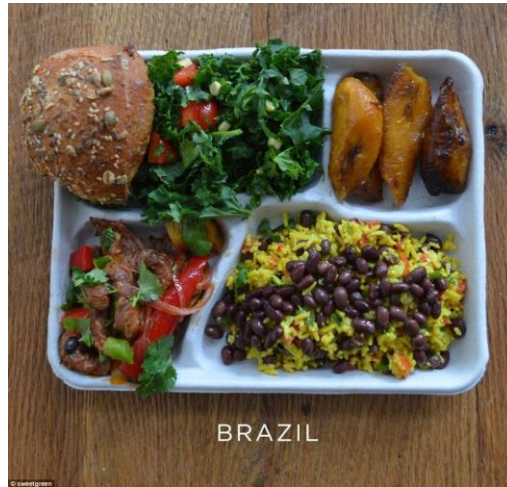
USDA is an equal opportunity provider and employer.

MyPlate.gov

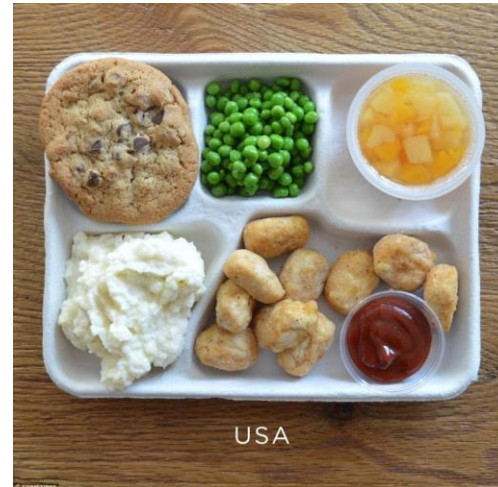
TEAM



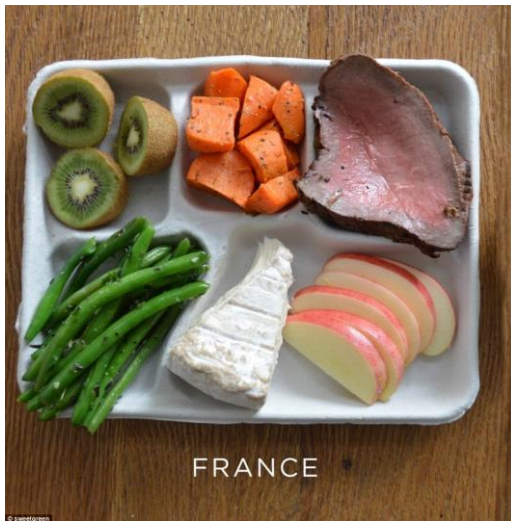
FINLAND



BRAZIL



USA



FRANCE



SOUTH KOREA



ITALY

# School Lunches Around the World

[Advocate for nutrition education and healthy school lunch programs](#)



# EPIC RESOURCE

The screenshot shows the Epic Patient Lists interface. The top navigation bar includes links for Patient Lookup, Remind Me, Personalize, Pre-Visit Planning, Snapboard, UpToDate, Launch Dragon, Dragon Logout, Status Board, and a 'More' dropdown. The 'More' dropdown is open, showing a list of resources. The 'Clinical Resources' section is highlighted, and a sub-menu is open showing various clinical references. The 'Clinical Nutrition Manual (Med Center)' is selected. The main content area shows a table with columns for Bed, Patient Photo, Patient, MRN, MD Notificator, and Admission Dx. The table is currently empty. A blue box with the text 'This list has' is visible in the bottom right corner of the table area.

**More**

- My SmartPhrases
- Clinical Resources
  - Patient Movement Guides
  - Employee Telephone Directory
  - COVID-19 Guidelines and Hub Docume...
  - Webmail
  - Rapid Response Triggers - Med Ctr
  - Job Aid Repository
  - ServiceNow IS Self Service Ticket
  - On-Call Schedules
  - Safety Event Reporting
  - The Hub
  - Policies
  - Nursing Portal
  - Interpreter Services
  - Clinical Applications
  - VAERS
  - e-MOLST Web Portal
  - Decedent Affairs
  - MassPAT/PMP
  - Community HELP
  - AHA/ASA Stroke Guidelines
  - National Comprehensive Cancer Network
  - UMMHC Telehealth Hub
  - Clinical References
  - Other Resources
  - PCP Coverage List
  - Innovation Station
  - Billtool
  - Doximity
- Prep for Case
- OR/Procedural Areas
- SlicerDicer
- Update Prtocols

**Antibiotic Card/Antibiogram**

- Central Line QA Checklist (Marlborough)
- Clinical Practice Guidelines
- UpToDate
- CDC Immunization Schedule
- DSM5 Textbook
- Lexicomp (Med Monographs, Patient E...)
- Library
- Micromedex/NeoFax
- Clinical Nutrition Manual (Med Center)
- Clinical Nutrition Manual (HA-Clinton)
- VisualDx (Dermatology Reference)
- Anatomy Mapper (Dermatology Referen...)
- Elsevier Clinical Key
- Renal Dosing Handbook
- Optilink
- Post Urethral Catheter Removal Algorithm
- Neurocognitive Assessment

**Clinical References**

- Other Resources
- PCP Coverage List
- Innovation Station
- Billtool
- Doximity

**Available Lists**

The screenshot shows the Epic Patient Lists interface with the 'More' dropdown menu open. The 'Clinical Resources' section is highlighted, and a sub-menu is open showing various clinical references. The 'Clinical Nutrition Manual (Med Center)' is selected. The main content area shows a table with columns for Bed, Patient Photo, Patient, MRN, MD Notificator, and Admission Dx. The table is currently empty. A blue box with the text 'This list has' is visible in the bottom right corner of the table area.

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**Clinical References**

- Other Resources
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**Available Lists**



Nutrition Care Manual (current) ▼

Nutrition Care Manual (current)

Pediatric Nutrition Care Manual

Diet Manual

Nutrition Care ▼

Client Ed/Diets

Calculators

Formulary

Resources

Search Site



NCM > Home



**FAQs**  
Find answers



**Subscription**  
Days Left: 51  
Renew Now



**Profile**  
Account details

#### FREQUENT SEARCHES

01 diabetes	05 gastroparesis
02 diverticulitis	06 potassium
03 gout	07 cirrhosis
04 esophageal soft	08 crohns

#### INFORMATION PANEL



About the Adult Nutrition  
Care Manual (NCM)



About the Pediatric  
Nutrition Care Manual  
(PNCM)



About the Sports Nutrition  
Care Manual (SNCM)



NCM Approval Form

#### ▶ QUICK LINKS | ▶ FACILITIES



LDL Cholesterol-Lowering Nutrition  
Therapy (2022)



Using Nutrition Labels:  
Carbohydrate (2018)



Foods Immunocompromised  
Patients Should Not Eat



General, Healthful Nutrition Therapy



Consistent Carbohydrate Diet



New Quick Link



#### NEWS / UPDATES

2023  
NOV

Read our Newsletter!  
[Fall 2023 Inside NCM®: Updates Coming  
Soon and Editorial Process](#)

2023  
AUG

2023 Nutrition Care Manual® Update  
Summary  
[We are pleased to announce the  
Nutrition Care Manual® \(NCM®\)  
nutrition care sections and  
corresponding client education handouts  
will now be updated on a rolling basis  
instead of annually.](#)

2023  
AUG

2023 Pediatric Nutrition Care Manual®  
Update Summary  
[We are pleased to announce the Pediatric  
Nutrition Care Manual® \(PNCM®\)  
nutrition care sections and  
corresponding client education handouts  
will now be updated on a rolling basis  
instead of annually.](#)

2023  
AUG

2023 Sports Nutrition Care Manual®  
Update Summary  
[We are pleased to announce the Sports  
Nutrition Care Manual® \(SNCM®\)  
nutrition care sections and  
corresponding client education handouts](#)



# SUSTAINABLE CHANGES

- Individualize
- Emphasize balance
- Finding a routine that will be sustainable
- Shift towards more nutritious options and decisions
- All foods fit in moderation
- Check in at each appointment



# WEIGHT LOSS COUNSELING

---

- High fiber foods to increase satiety
- Hydration
- Decrease liquid calories
- Try smaller plate
- Share calorie density map
- Focus on what is being added
- Personalize to individual's routine
- Calorie counting may work for some but not for all
- Emotions, triggers, bigger picture

# OBESITY MEDICINE

---

- Significant chronic medical condition
- Associated with many other comorbidities
- Ask to discuss, normalize this topic
- Include in problem list with appropriate classification
- Optimize nutrition, movement, sleep, stress
- Challenge of the body's "set point"
- Team can help: physician, dietician, psychologist



# OBESITY IN PEDIATRICS

- Approximately 1 in 6 youth in the US have obesity
- 1 in 23 adolescents meet criteria for bariatric surgery
- In past three decades, childhood obesity more than tripled in adolescents and more than doubled in children in the US
- Obesity-related conditions
  - high blood pressure, hyperlipidemia, type 2 diabetes, obesity related kidney disease, breathing problems (asthma and sleep apnea), and joint problems
- Prevalence inversely related to income & level of education of household

# BMI CATEGORIES

## ADULTS

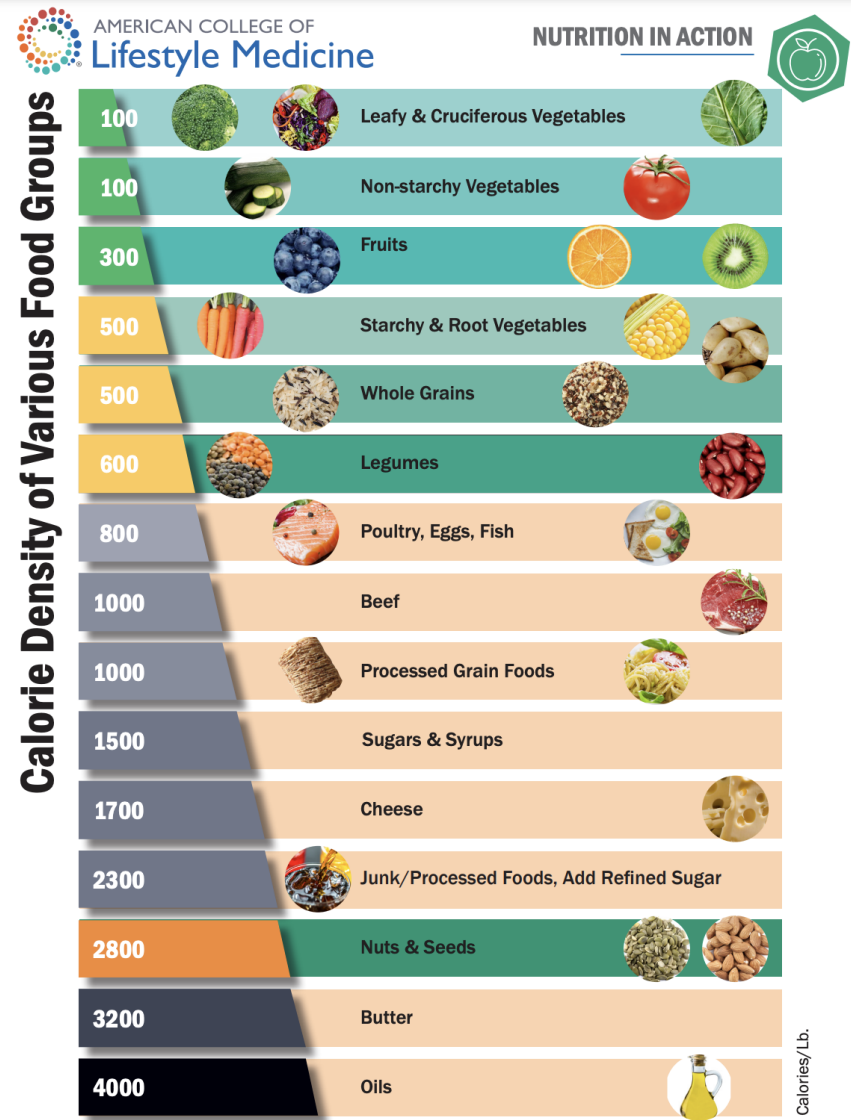
- Underweight <18.5
- Healthy weight 18.5 to <25
- Overweight 25 to <30
- Obesity 30 or higher
  - Class 1: 30 to <35
  - Class 2: 35 to <40
  - Class 3: 40 or higher

## CHILDREN

- Underweight <5<sup>th</sup> percentile
- Healthy weight 5<sup>th</sup> to 85<sup>th</sup> percentile
- Overweight 85<sup>th</sup> to <95<sup>th</sup> percentile
- Obesity 95<sup>th</sup> or greater percentile
- Severe obesity
  - 120% of the 95<sup>th</sup> percentile or greater OR
  - 35 kg/m<sup>2</sup> or greater



# CALORIE DENSITY MAP



# ADJUNCT WEIGHT LOSS MEDICATIONS

---

- Helpful free in-depth [reference article](#) “EndoText”
- [CurbSiders](#) podcast #405 “Obesity Medicine, GLP1 agonists, Weight Loss Management Tools and Tips”
- Many have GI side effects and must be continued for life to maintain weight loss
- All have their own risks and benefits, important to gain understanding before prescribing

# SOME OF THE ADJUNCT WEIGHT LOSS MEDICATIONS

- GLP1 agonists (semaglutide, liraglutide)
- Bupropion/naltrexone
- Phentermine monotherapy
- Phentermine/topiramate
- Orlistat
- Hydrogel (FDA approved “device”)

# COUNSELING FOR PATIENTS USING GLP-1

---

Continued for life for sustained benefits

---

Agreement to focus on fueling body with the most nutritious options

---

Cut portion in half, more if still hungry

---

FIBER!

---

Incorporate resistance training to maintain muscle mass



# ROLE OF PEDIATRICIAN

- Discuss nutrition at every well child check if not more often
- Demonstrate the importance of nutrition for health
- Emphasize the importance of the role of the parent/guardian
- Develop a goal together to check in at next visit



# ROLE OF THE PARENT / GUARDIAN



- Creating a supportive eating environment
  - Offer a variety of nutritious, developmentally appropriate foods
  - Defining the structure and timing of meals
  - Creating a mealtime environment that facilitates eating and social exchange
  - Recognizing and responding to the child's signals of hunger and fullness
  - Engaging child in food selection & preparation
- Modeling healthy eating behavior including well balanced nutrition, good hydration, fiber intake, minimal added sugar, portions



# NUTRITION PEARLS ACROSS A LIFESPAN

Incorporate discussion into annual physicals

Increase fiber & whole grains

Shift from saturated to unsaturated fats

Emphasize lean meats, fish, and plant-based proteins

Hydration with water

Awareness of portions and caloric balance

Eat the rainbow

Small sustainable changes

Multidisciplinary approach

# REFERENCES

- References have been embedded in notes below each slide
- Additional resources that have greatly influenced this presentation:
  - ACLM course “Lifestyle Medicine & Food as Medicine Essentials Course”
  - <https://www.myplate.gov/eat-healthy/more-key-topics>
  - <https://www.cdc.gov/nutrition/index.html>
  - <https://www.eatright.org/>

Feel free to reach out to me with any questions  
brielle.tishler@umassmed.edu

THANK  
YOU!

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