

# *Diets in 2020-21*

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December 2, 2020

# Why this talk?

- Everybody eats everyday
- Most patients know what they eat can affect their health
- As a result, they will ask the physician questions about food and diets, etc.
- Thus, we want to help you be better versed in counseling your patients about the some of the popular diets in 2020-2021

# Prevalence of Obesity and Overweight in U.S.

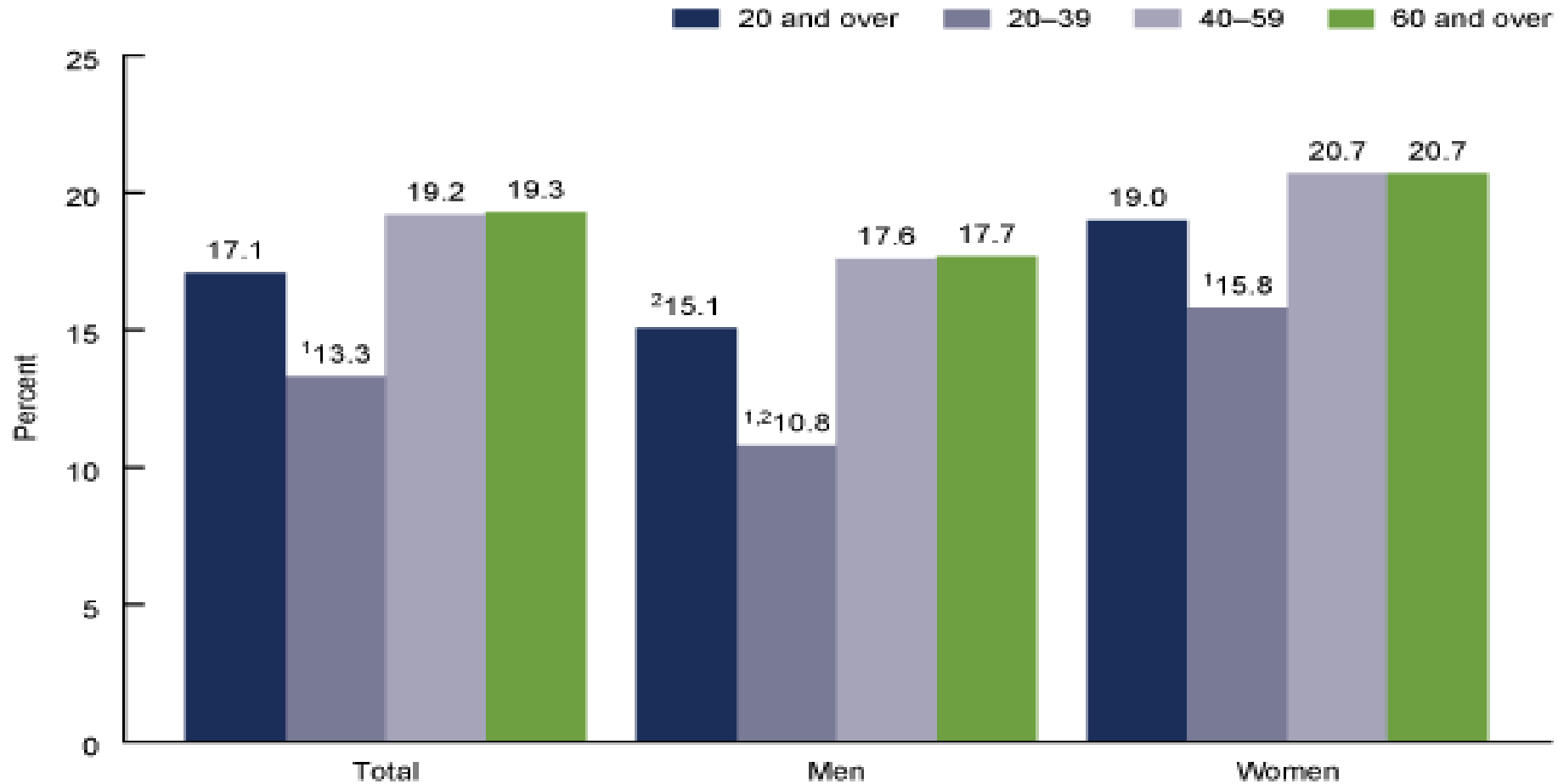
## Adults

- 42% are obese (30.5% in 1999-2000)
- 60% are overweight

## Youth

- 18.5% are obese

# Percentage of adults aged 20 and over on any special diet on a given day, by sex and age: United States, 2015–2018



<sup>1</sup>Significantly different from ages 40–59 and 60 and over.

<sup>2</sup>Significantly different from women of the same age group

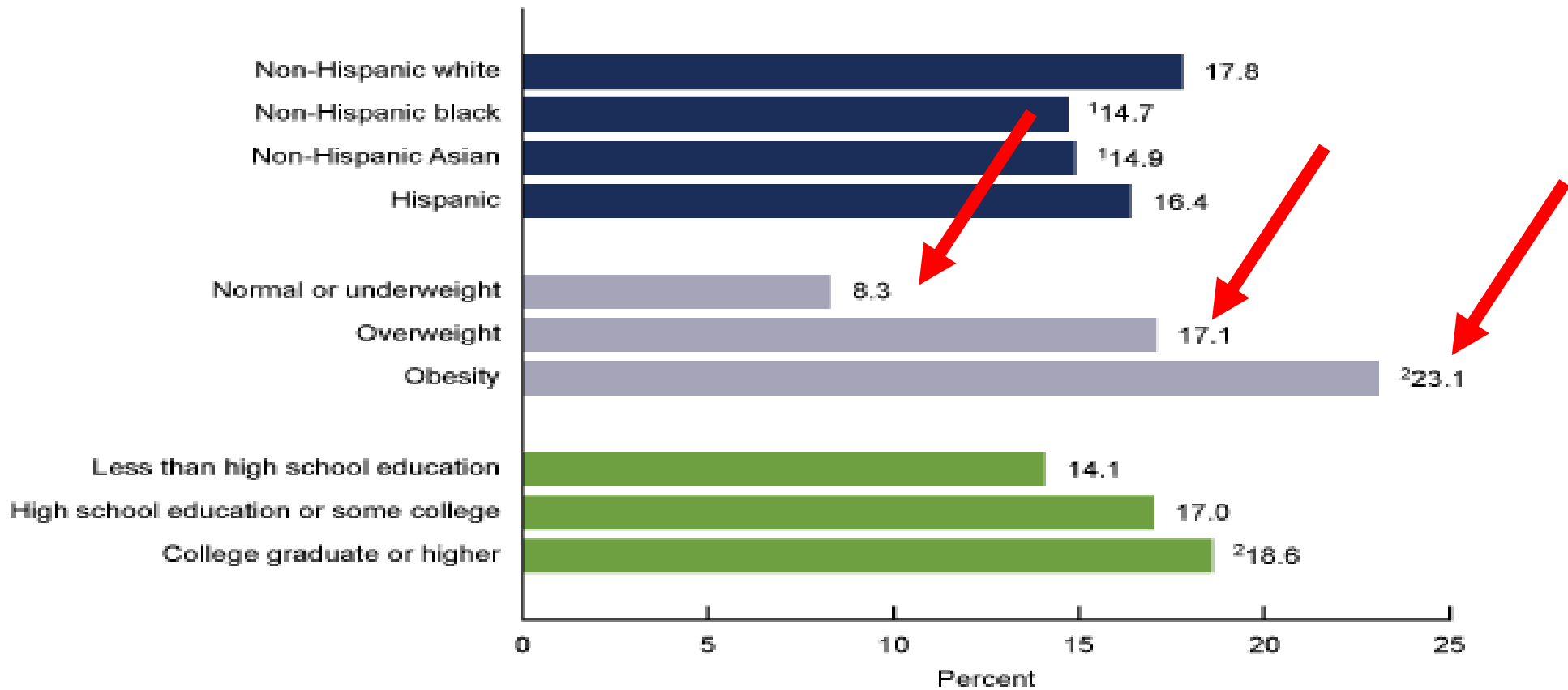
National Center for Health Statistics, National Health and Nutrition Examination Survey, 2015–2018.

# Percentage of adult Americans on diets increased from 10 years ago

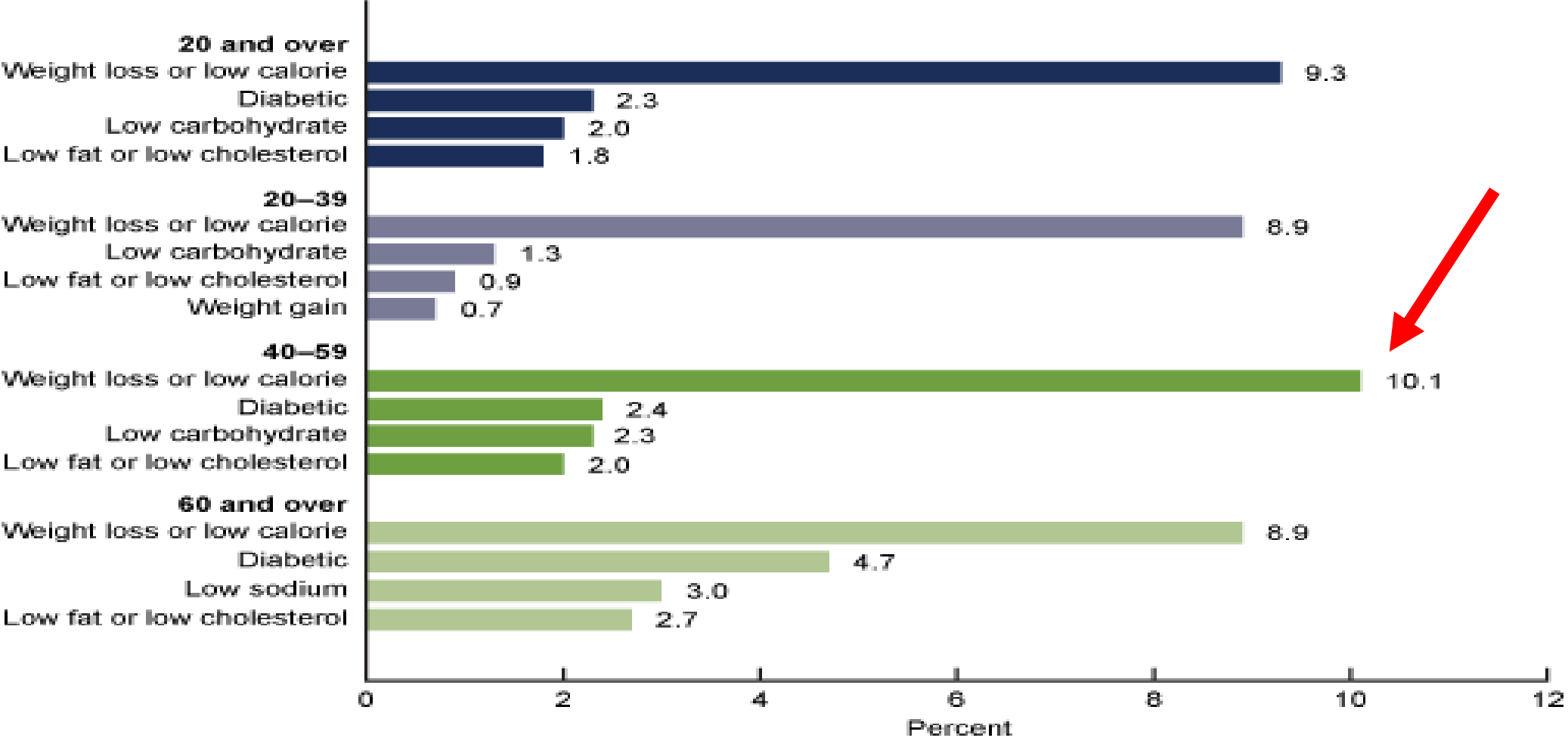
## **CDC National Center for Health Statistics report,**

- 14% → 17.1% on special diets (for weight loss or other health reasons) during 2015-2018.
- More women (19%) than men (15%) on special diets.
- More older adults 40–59 yo and >60 (19%) compared to younger adults, 20-30 yo (13%)
- Most common type was a weight loss or low-calorie diet
- Trends (2007–2008 → 2017–2018)
  - ↑ use of weight loss or low-calorie diets, and low carbohydrate diets
  - ↓ use of low-fat or low-cholesterol diets.

# Percentage of adults aged 20 and over on any special diet on a given day, by race and Hispanic origin, weight status, and educational attainment: United States, 2015–2018

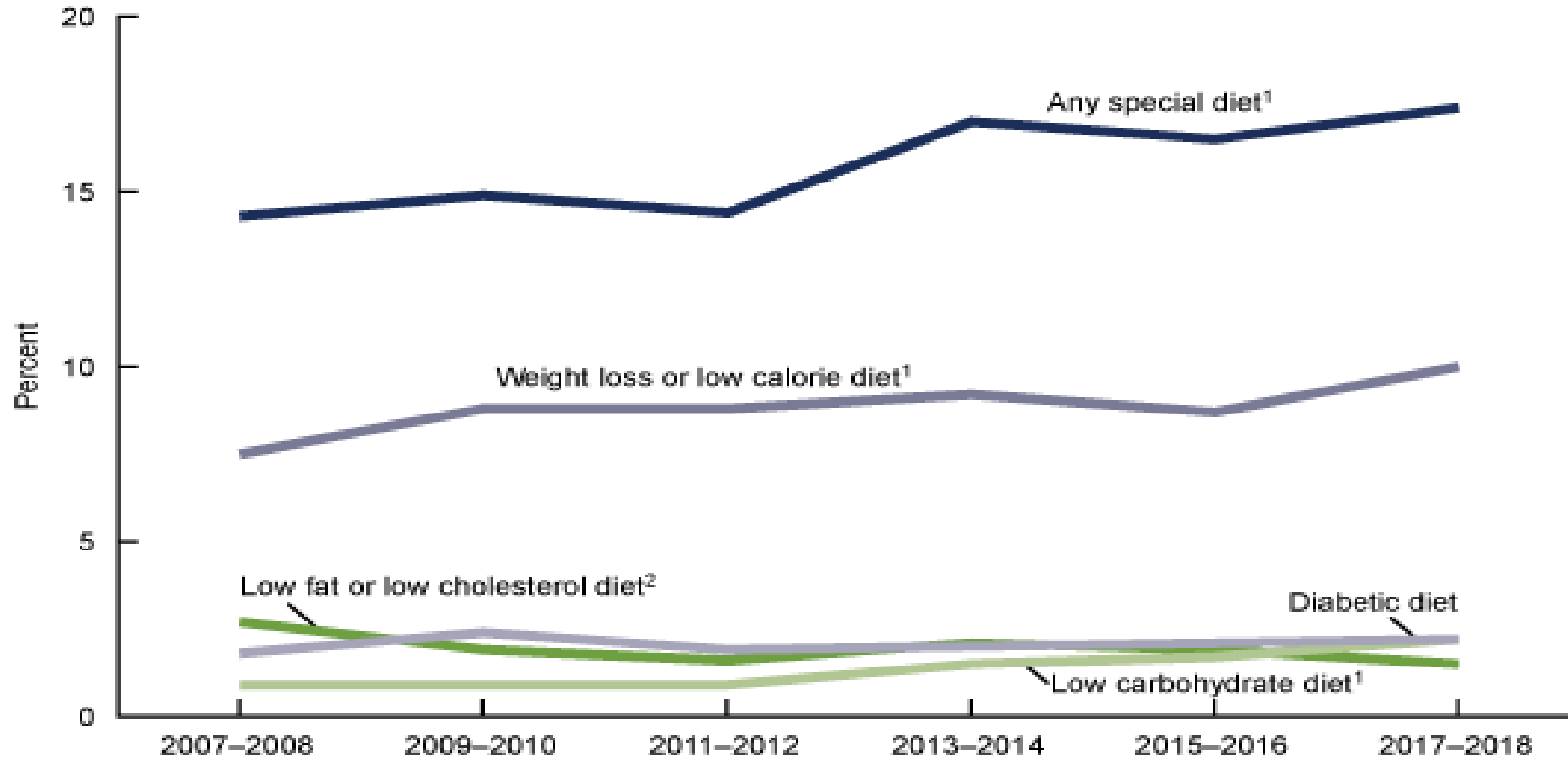


# Percentage of adults aged 20 and over on most common special diets on a given day, by age: United States, 2015–2018



National Center for Health Statistics, National Health and Nutrition Examination Survey, 2015–2018.

# Trends in age-adjusted percentage of adults aged 20 and over on any special diet and most common special diets on a given day: United States, 2007–2008 through 2017–2018



1. Significant linear increasing trend.
2. Significant linear decreasing trend.





# U.S. News Best Diets Overall 2020

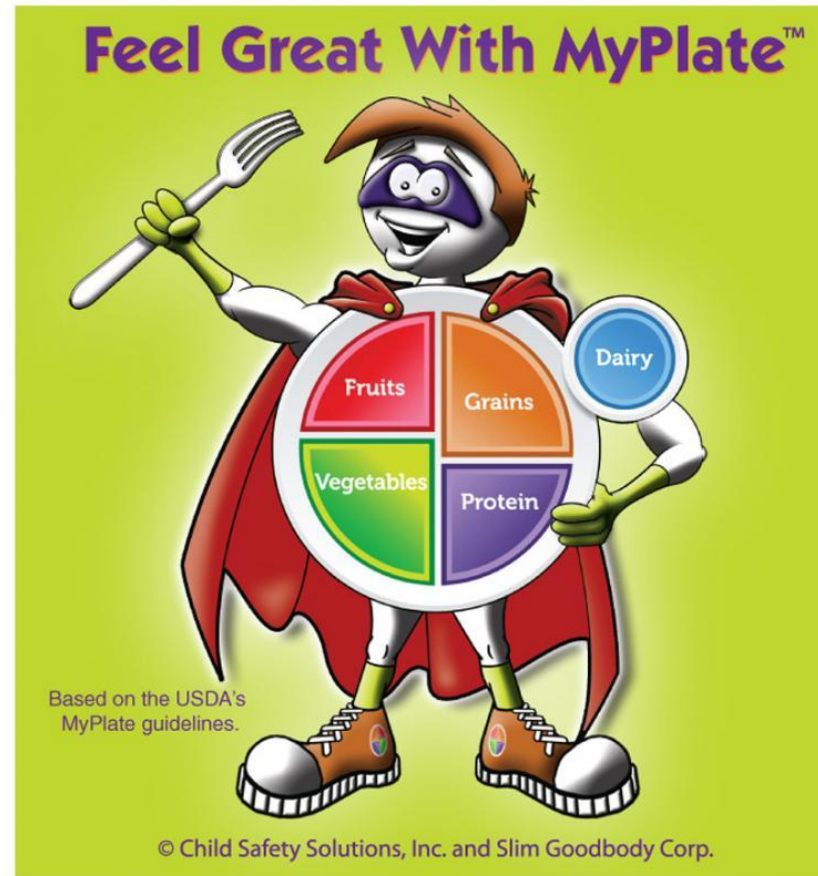
1. Mediterranean Diet
2. DASH Diet
3. The Flexitarian Diet
4. Weight Watchers Diet
5. Mayo Clinic Diet
6. MIND Diet
7. Volumetrics Diet
8. TLC Diet
9. Nordic Diet
10. Ornish Diet
11. Vegetarian Diet
12. The Fertility Diet
13. Jenny Craig Diet
14. Asian Diet
15. Dr. Weil's Anti-Inflammatory Diet
16. Nutritarian Diet
17. Vegan Diet
18. The Engine 2 Diet
19. South Beach Diet
20. Biggest Loser Diet
21. Glycemic-Index Diet
22. Nutrisystem Diet
23. Zone Diet
24. Macrobiotic Diet
25. SlimFast Diet

# Which diets are better for weight loss?

Typical study duration--6-12 months--No Differences in weight loss

- **Modifying macronutrient compositions** (protein, carbohydrate versus fat)
- **Low carb and high protein diets** compared continuous daily caloric restriction
- **Intermittent fasting** compared to continuous daily caloric restriction

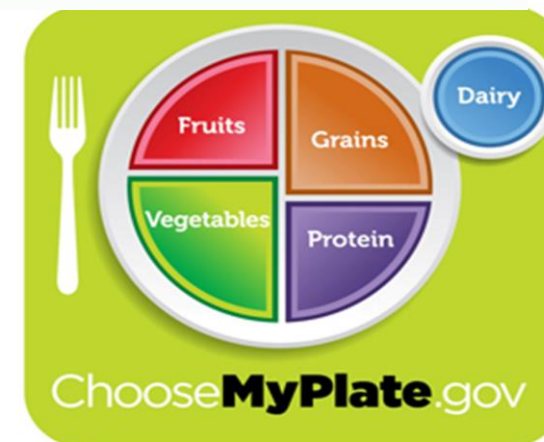
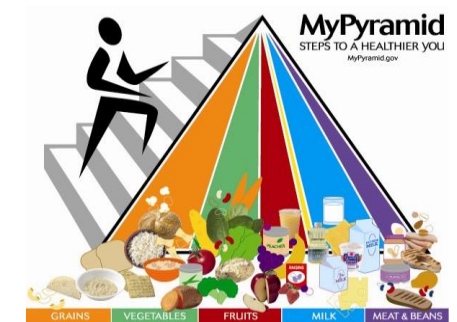
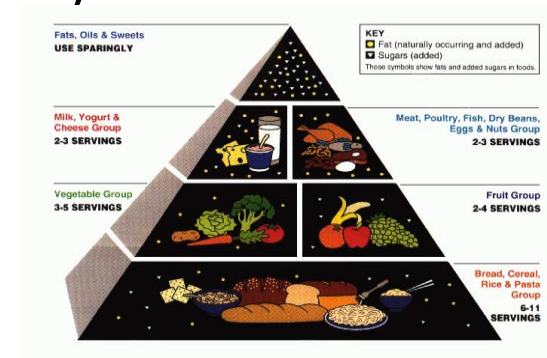
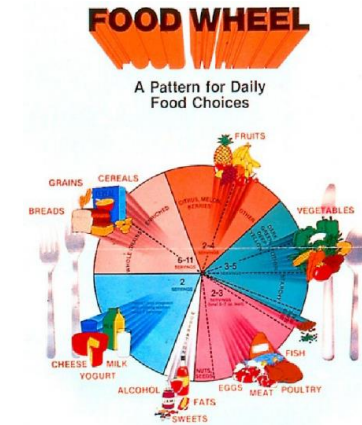
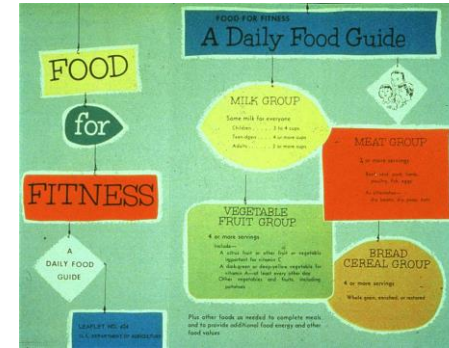
# USDA MyPlate



# A “Healthy” diet-- U.S. Dietary Guidelines USDA Food Guides since 1916

- Food for Fitness, A Daily food Guide (Basic Four) 1956-1970
- Hassle-free Daily Food Guide, 1979
- Food Wheel 1984
- Food Guide Pyramid, 1992
- MyPyramid Guidance System, 2005
- Myplate, 2011- present

Myplate app



# USDA 2015-2020 Dietary Guidelines

## Evidence-based tool

- **Translates science into succinct, food-based guidance**
- **To help individuals**
  1. **Consume a healthy and enjoyable diet**
  2. **Improve and maintain overall health**
  3. **Reduce the risk of chronic disease—its focus is disease prevention**
- **Informs federal food, nutrition, and health policies and programs:**
  - WIC--Special Supplemental Nutrition Program for Women, Infants and Children
  - USDA National School Lunch Program and School Breakfast Program
  - Older Americans Act Nutrition Services program
  - Department of Defense and Department of Veterans Affairs programs.



# HEALTHY EATING PLATE

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

**WATER**  
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.

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

**WHOLE GRAINS**  
Eat a variety of whole grains (like whole-wheat bread, whole-grain pasta, and brown rice). Limit refined grains (like white rice and white bread).

**FRUITS**  
Eat plenty of fruits of all colors.

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

**STAY ACTIVE!**

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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)

# MyPlate for Older Adults

## Fruits & Vegetables

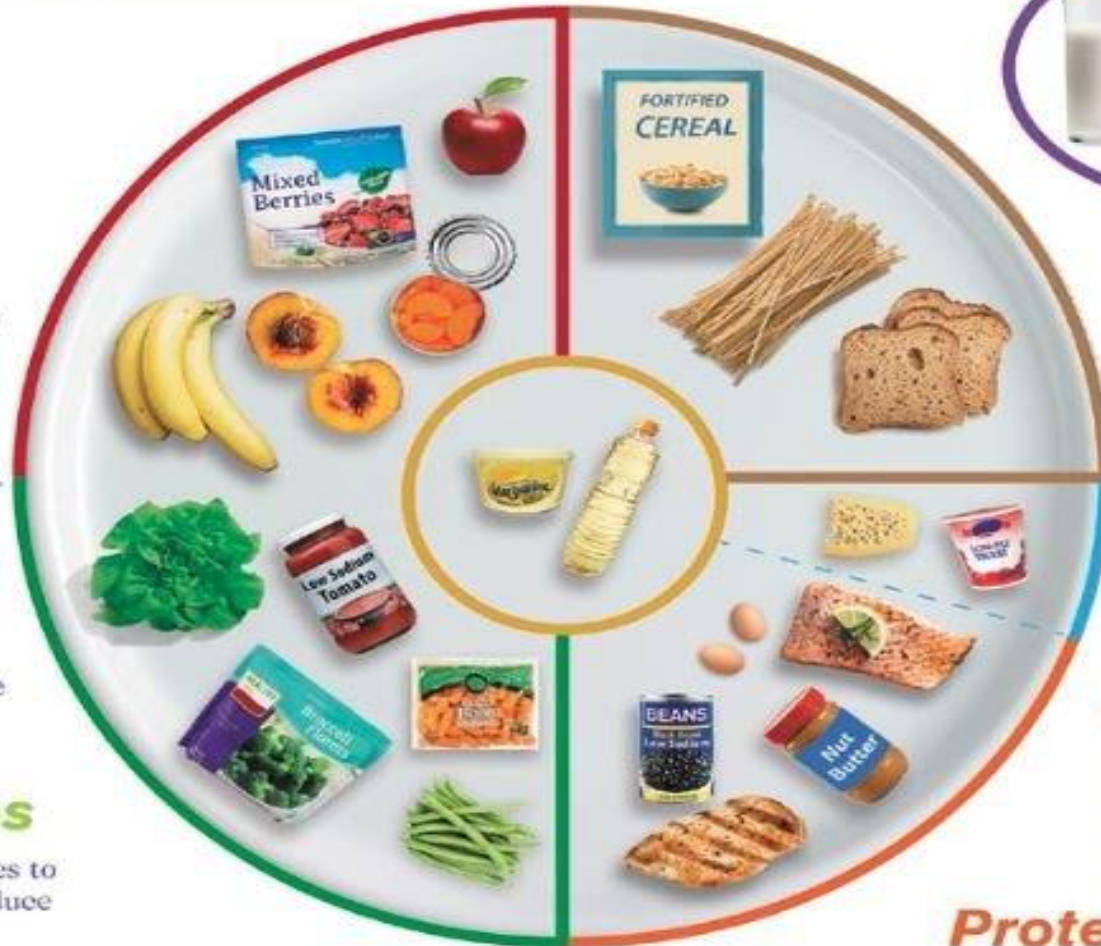
Whole fruits and vegetables are rich in important nutrients and fiber. Choose fruits and vegetables with deeply colored flesh. Choose canned varieties that are packed in their own juices or low-sodium.

## Healthy Oils

Liquid vegetable oils and soft margarines provide important fatty acids and some fat-soluble vitamins.

## Herbs & Spices

Use a variety of herbs and spices to enhance flavor of foods and reduce the need to add salt.



## Fluids

Drink plenty of fluids. Fluids can come from water, tea, coffee, soups, and fruits and vegetables.

## Grains

Whole grain and fortified foods are good sources of fiber and B vitamins.

## Dairy

Fat-free and low-fat milk, cheeses and yogurts provide protein, calcium and other important nutrients.

## Protein

Protein rich foods provide many important nutrients. Choose a variety including nuts, beans, fish, lean meat and poultry.



Remember to Stay Active!

# USDA 2015-2020 Dietary Guidelines

## Key Recommendations for [Healthy Eating](#)

- **Vegetables**—dark green, red and orange, legumes (beans and peas), starchy, and other
- **Fruits**, especially whole fruits
- **Grains**, at least half of which are whole grains
- **Dairy foods**—fat-free or low-fat milk, yogurt, cheese, and/or fortified soy beverages
- **Protein**—seafood, lean meats and poultry, eggs, legumes, and nuts, seeds, and soy products
- **Oils**—preferably plant-based



# USDA 2015-2020 Dietary Guidelines

## Key Recommendations for **Healthy Eating**

- **Vegetables**—orange, leafy green, and starchy, and beans
- **Fruits**, especially whole fruits
- **Grains**, and whole grains
- **Dairy** foods—yogurt, cheese, and/or fortified soy beverages
- **Protein**—seafood, lean meats and poultry, eggs, legumes, and nuts, seeds, and soy products
- **Oils**—preferably plant-based

### IOM Acceptable Macronutrient Distribution Range (myPlate)

- Fat 25-30%
- Carbohydrate 45-55%
- Protein 15-20%

- Limits saturated fats and trans fats, added sugars, and sodium
- <10 percent of calories per day from added sugars (Ex. 50 g sugar = 12 teaspoons sugar in a 2000 cal. diet)
- <10 percent of calories per day from saturated fats.
- <2,300 milligrams (mg) per day of sodium.
- **Alcohol**—for adults
  - Women—1 drink/day
  - Men—1-2 drinks/day.

# DASH Diet



- Dietary Approaches to Stop Hypertension
- 2<sup>nd</sup> best Overall diet rated by US News

# DASH Diet

- For BP control, not designed for weight reduction
- DASH diet studies:
  1. **Original DASH diet study**—controlled for weight, exercise and sodium, so diet composition was responsible for ↓BP
  2. **Low Sodium diets (2300 mg and 1500 mg/day) + DASH diet study** further ↓BP.

# Impact of Lifestyle Changes to Reduce BP

Changes	Average SBP ↓
Lower sodium diet	2-8 mmHg
<b>DASH Diet</b>	<b>8-14 mmHg</b>
↓ Weight, <i>Aim towards BMI 19-24</i>	5-20 mmHg/~20 lb.
Limit alcohol intake <i>Men ≤ 2 drinks; Women ≤ 1/day</i>	2-4 mmHg
↑ Aerobic Exercise, <i>30 min. most days per week</i>	4-9 mmHg

# DASH Diet

## (Dietary Approaches to Stop Hypertension)

### 2100 calories daily

- 6-8 Grains
- 4-5 Fruits
- 4-5 Vegetables
- 2-3 NF/LF Dairy
- 6 ounces or less of Lean Protein
- 2-3 servings Fats and oils
- 4-5 servings nuts, seeds, legumes/week
- 5 or fewer servings of sweets/week

<https://www.nhlbi.nih.gov/health-topics/dash-eating-plan>

### Compared to typical American Diet:

- 2-3x more calcium, magnesium and potassium
- higher in fiber
- lower in sodium and saturated fat
  - Fat 27% of total calories
  - Saturated fat 6%
  - Carbohydrate 55%
  - Protein 18%
  - 2300 mg sodium
  - 1250 mg calcium
  - 500 mg magnesium
  - 4700 mg potassium
  - 30 g fiber
  - 150 mg cholesterol

# DASH Diet

## (Dietary Approaches to Stop Hypertension)

**2100 calories daily**

- 6-8 Grains
- 4-5 Fruits
- 4-5 Vegetables
- 2-3 NF/LF Dairy
- 6 ounces or less (of sodium) per day
- 2-3 servings Fats and oils
- 4-5 servings nuts, seeds, legumes/week
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# Mediterranean Diet



# Countries Bordering the Mediterranean Sea

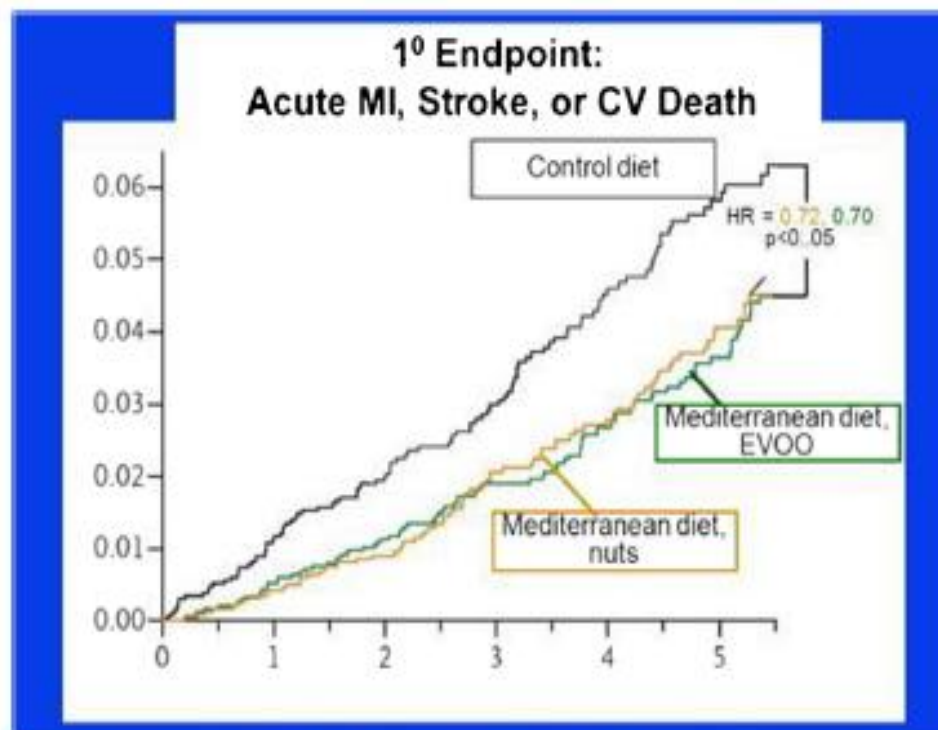
(Wikipedia Accessed 017-Aug-30)

- Akrotiri & Dhekelia
- Albania
- Algeria
- Bosnia & Herzegovina
- Croatia
- Cyprus
- Egypt
- France
- Gibraltar
- Greece
- Israel
- Italy
- Lebanon
- Libya
- Malta
- Monaco
- Montenegro
- Morocco
- Slovenia
- Spain
- Syria
- Tunisia
- Turkey



INVITED COMMENTARY

## The Mediterranean Diet: Lost in Translation



**Fig. 2** Two versions of the Mediterranean diet explored in this trial. Adapted from Estruch et al. [6]

### Mediterranean Diet: Definition?

**“Although there is no uniform definition....”**

Unrestricted Fat	Cereals (Bread, Pasta, Rice)
Abundant Vegetables	Moderate wine with meals
Legumes	Aromatic Herbs & Spices
Fresh Fruits	Frequent Fish
Tree Nuts	Low meat/animal products
Low simple sugars	Low milk/milk products

<http://www.acc.org/latest-in-cardiology/articles/2014/07/16/18/28/primary-prevention-of-cvd-with-a-mediterranean-diet>

**Fig. 3** Components of the Mediterranean diet

## Mediterranean Diet Pyramid

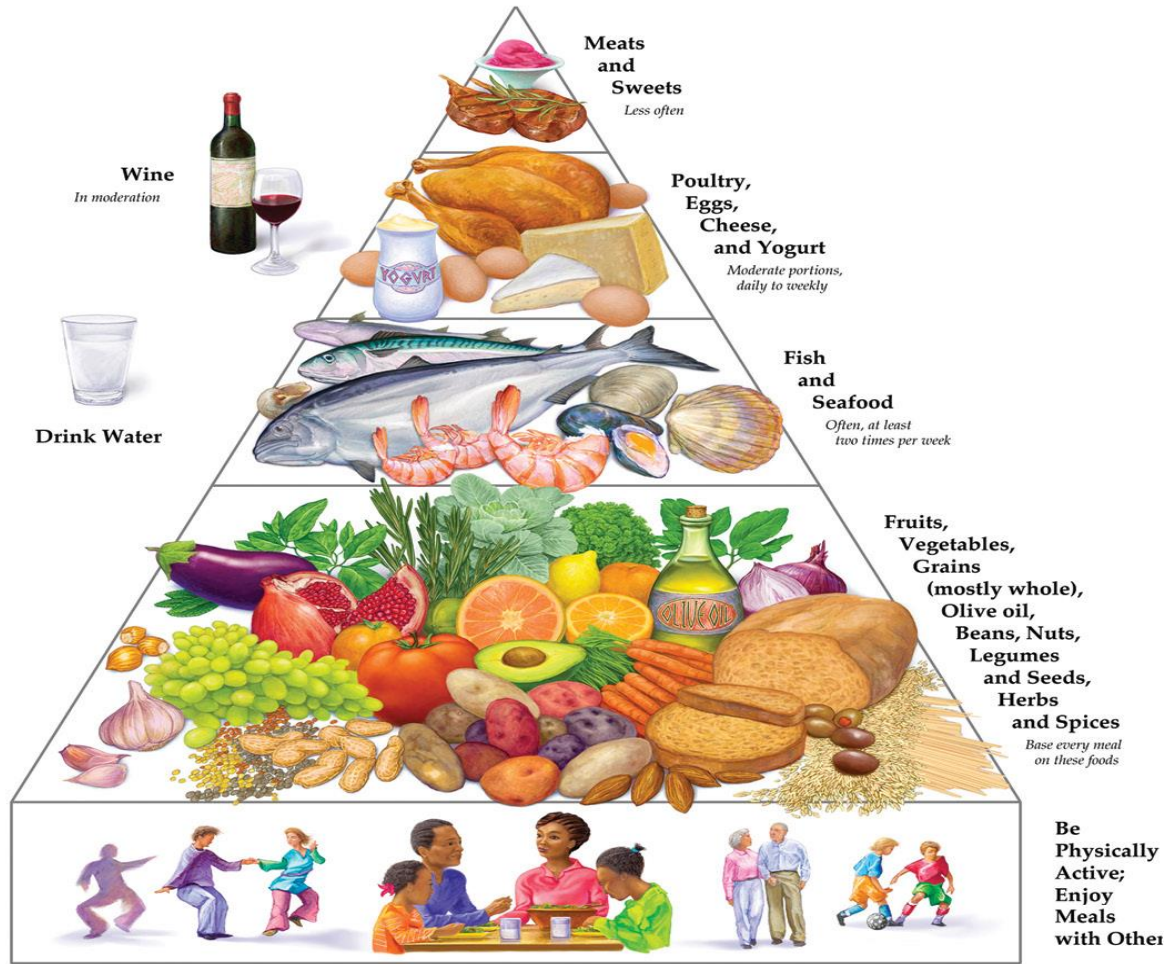


Illustration by George Middleton

© 2009 Oldways Preservation and Exchange Trust

[www.oldwayspt.org](http://www.oldwayspt.org)

# Mediterranean diet

- **No standard definition**
- Generally reflects dietary patterns of Crete, Greece and southern Italy in the 1960s.
- Plant-focused—fruits, vegetables, grains, nuts, seeds.
- Moderate to low fish and poultry
- Minimal red meat
- Moderate to low dairy
- Limited processed foods
- Olive oil is main fat
- **IF weight reduction is goal, need to apply caloric restriction component.**

# How does it compare to USDA myPlate?

- More fruit
- More seafood
- Less dairy

## Appendix 4.

USDA Food Patterns:  
Healthy Mediterranean-Style Eating Pattern

## The Mediterranean Diet

Based on how people eat and drink in the 16 countries that border the Mediterranean Sea, this healthy eating plan can reduce your risk of developing heart disease, cancer, high blood pressure, type 2 diabetes, Parkinson's disease, and Alzheimer's disease.

### The Mediterranean Diet is:

- **Natural:** Focus on minimally processed foods — less than 5 ingredients in any packaged item.
- **Flexible:** Plan for variety — eat different foods each week to make this diet work for you AND your family.
- **Lower Cost:** Save money at the grocery store by buying less red meat, refined grains, desserts, and fast food each month.
- **A Healthy Lifestyle:** Be fit and energetic; reduce your risk of disease, and have fun!

.....  
*Once or Twice a Month,  
Small Portions ONLY*



.....  
*Throughout the Week, In Moderation*



.....  
*Every Day, No Restrictions*



Olive Oil, Herbs, & Spices



**Be Active:**  
Exercise at least 150 minutes a week (walking, swimming, bicycling).



**Socialize:**  
Take time to enjoy meals with your friends and family.



**Drink Smart:**  
Choose water over soda. Limit wine and drink only with a meal. See *Alcohol: Rethink Your Drink* for servings.

# Gluten-Free Diet



# Gluten-free (GF) diet for medical conditions

- What is gluten? A [protein](#) found in wheat, barley, rye, and contaminated oats.
- Gluten in flour provides structure and elasticity in dough to produce the unique texture of baked goods.
- GF diet treats:
  - Celiac disease – diagnosed in 1-2% of Americans
  - Dermatitis herpetiformis
  - Wheat allergy to 1 or more wheat proteins—albumin, gluten, gliadin, globulin
  - Non-celiac gluten sensitivity (gluten sensitive enteropathy (GSE) or gluten intolerance)
- Malabsorption in undiagnosed individuals with Celiac disease → unintentional weight loss and malnutrition.
- GF diet improves nutrient absorption, decreases stomach discomfort, and increases appetite → weight regain.

# What foods contain gluten?

Contains Gluten	Naturally gluten-free
<ul style="list-style-type: none"><li>• <b>Wheat</b></li><li>• <b>Barley</b></li><li>• <b>Oats</b> (contaminated in farming)</li><li>• <b>Rye</b></li></ul>	<ul style="list-style-type: none"><li>• <b>Corn</b></li><li>• <b>“Gluten-free” oats</b></li><li>• <b>Potato</b></li><li>• <b>Quinoa</b></li><li>• <b>Rice</b></li><li>• <b>Wild rice</b></li></ul>

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# Gluten-free (GF) when you don't need to be

- **No evidence or indications for weight reduction.**
- **No GI benefit in individuals who do not have Celiac disease**
- 92% of people buying GF products do not have Celiac disease
- “Health halo” based on perceived but false benefits promoted in social media and celebrities.
  - “Healthier”
  - “Good for digestion”
  - “To reduce carbs.”
- Fructans (fermentable carbohydrates) in wheat products may be responsible for gastrointestinal symptoms when Celiac disease is ruled out.

# Gluten-free (GF) diet Pitfalls

- For people without Celiac disease, ↓ weight and improved sense of well-being can occur by replacing processed, snack foods, refined bread, pasta, cereals with naturally GF whole foods rich in fiber and nutrients such as fruit, vegetables, brown rice, quinoa, etc.
- ↑ Weight might occur with overconsumption of processed GF products such as GF corn chips, cookies, crackers, etc.
  - ↑ risk of deficiencies of fiber, thiamin, riboflavin, niacin, and folate, iron, magnesium
  - ↓ source of prebiotics for gut microbiota if consuming processed GF products instead of gluten-free whole grains.

# Intermittent Fasting Diet



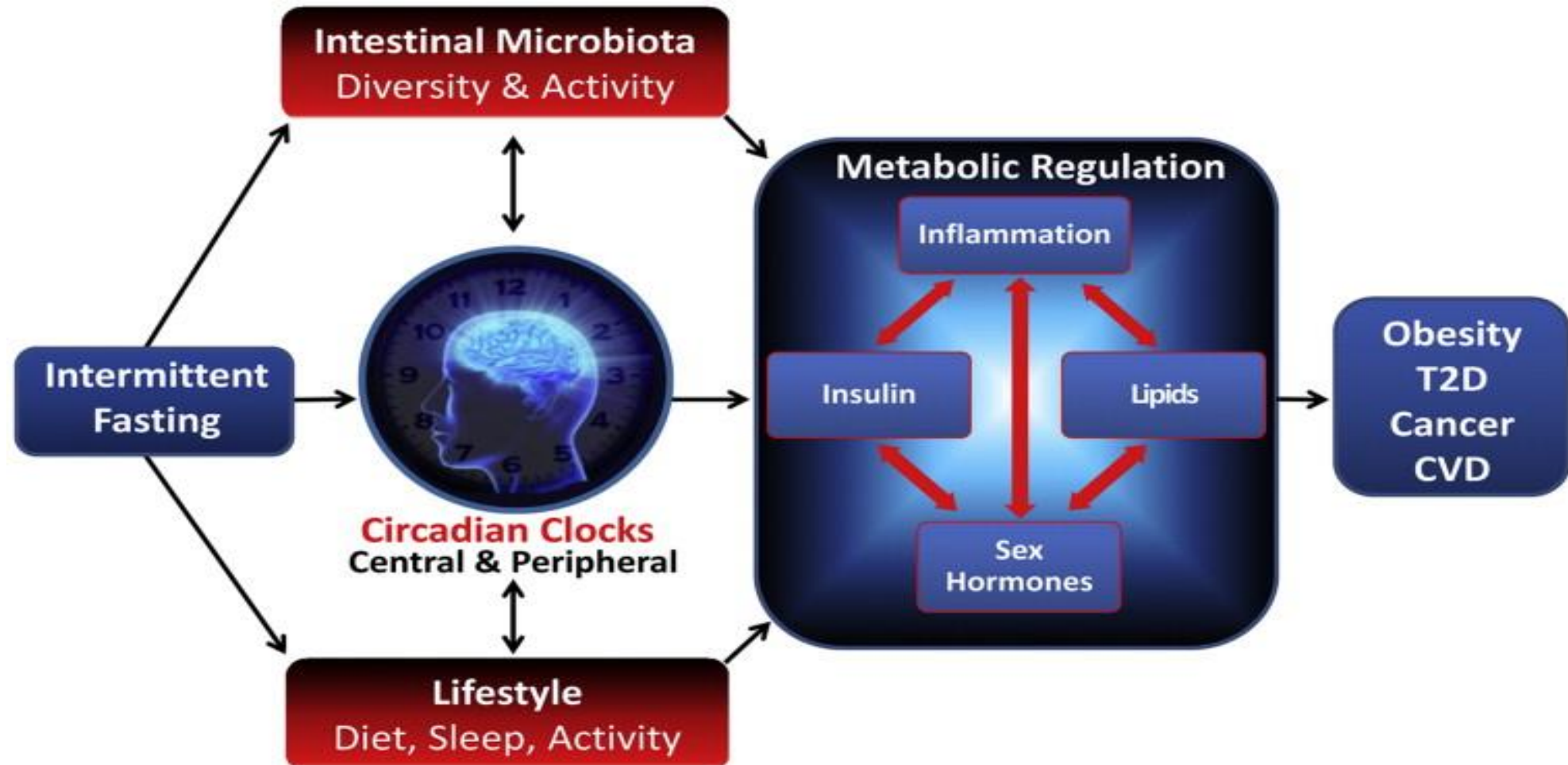
# Fasting

- For fasting blood work, 8-12 hours overnight
- Religious and spiritual (short-term)
  - Ramadan fasting—most common time-restricted fasting
  - Sunnah fasting
  - Church of the Latter-day Saints (Mormon)
  - Seventh-Day Adventists

# Intermittent Fasting

- Some **animal IF studies** show
  - Delays aging
  - Reduces oxidative stress
  - Improves cognition
  - Anti-inflammatory effects
  - Promotes autophagy
  - Benefits the gut microbiome

# Association of intermittent fasting with lifestyle factors hypothesized to influence metabolic regulation of disease



# Intermittent Fasting

- **Time-restricted**

- 8/6/4 hours feeding, 16/18/20 hours fasting
- Feeding starting midday to 8 pm
- Feeding with circadian rhythm—sun-up to sundown.

- **5:2 diet**

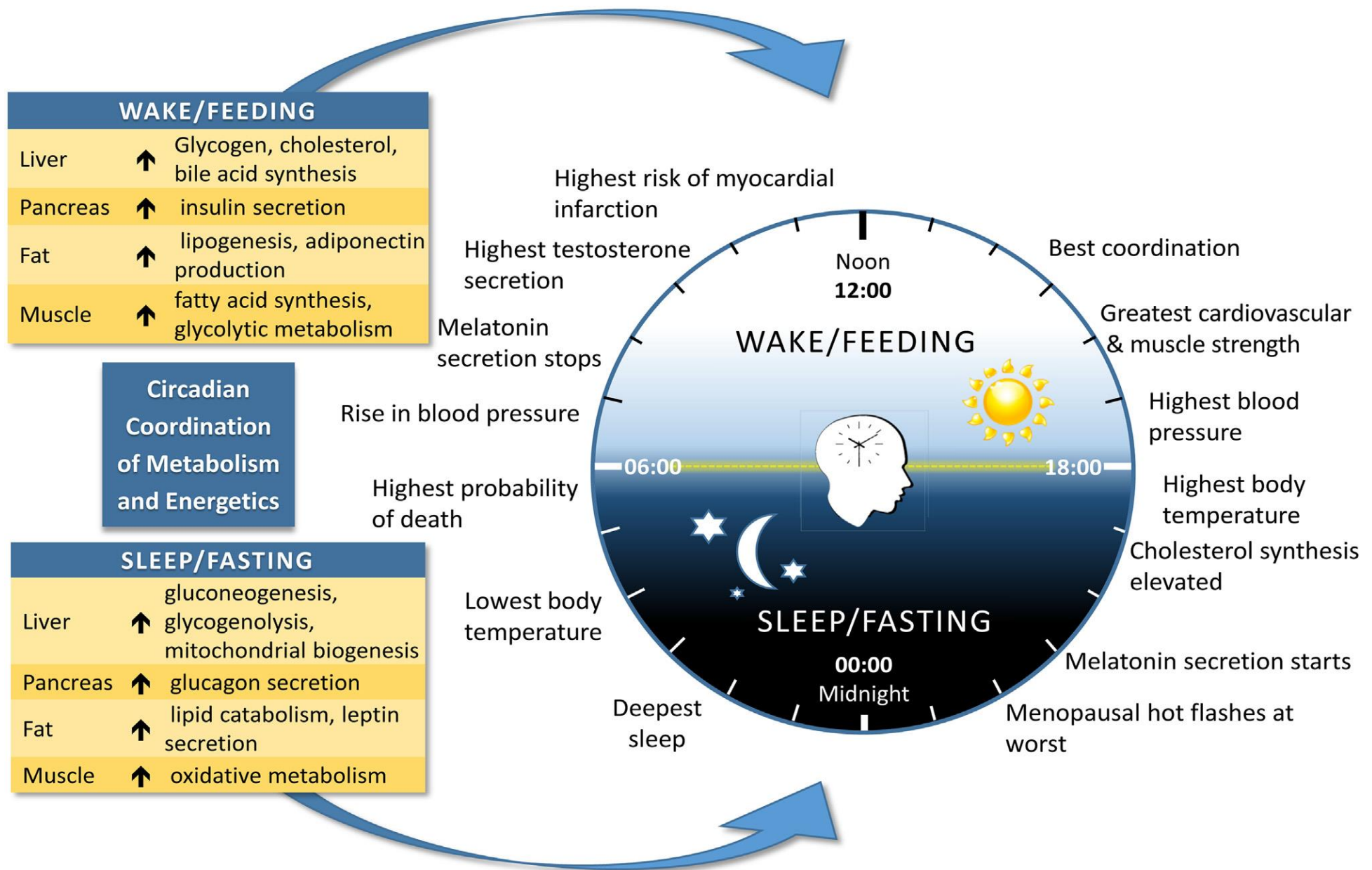
- 20-25% of energy needs on fast days → switching fuel from glucose to ketone bodies.

Example: 500 cal on fast days compared to usual 2000 cal.

- Ad libitum feeding the other 5 days.

- **Alternate Day**

- Typically 500 calories on fast days alternating with “feast” days





# Intermittent Fasting

## Outcomes in human clinical trials

**Most <1 year duration (most 12-26 weeks)** with moderate sample size

- **Similar weight loss compared to caloric restriction.** Any weight loss due to eating fewer calories.
  - Time-restricted eating is equivalent to eating throughout the day.
  - Alternate-day fasting is equivalent to continuous caloric restriction.
- **Marginal improvements in metabolic biomarkers** such as insulin sensitivity, independent of weight loss and similar to caloric restriction regimens.

Obesity 2020; 28; S29-S37

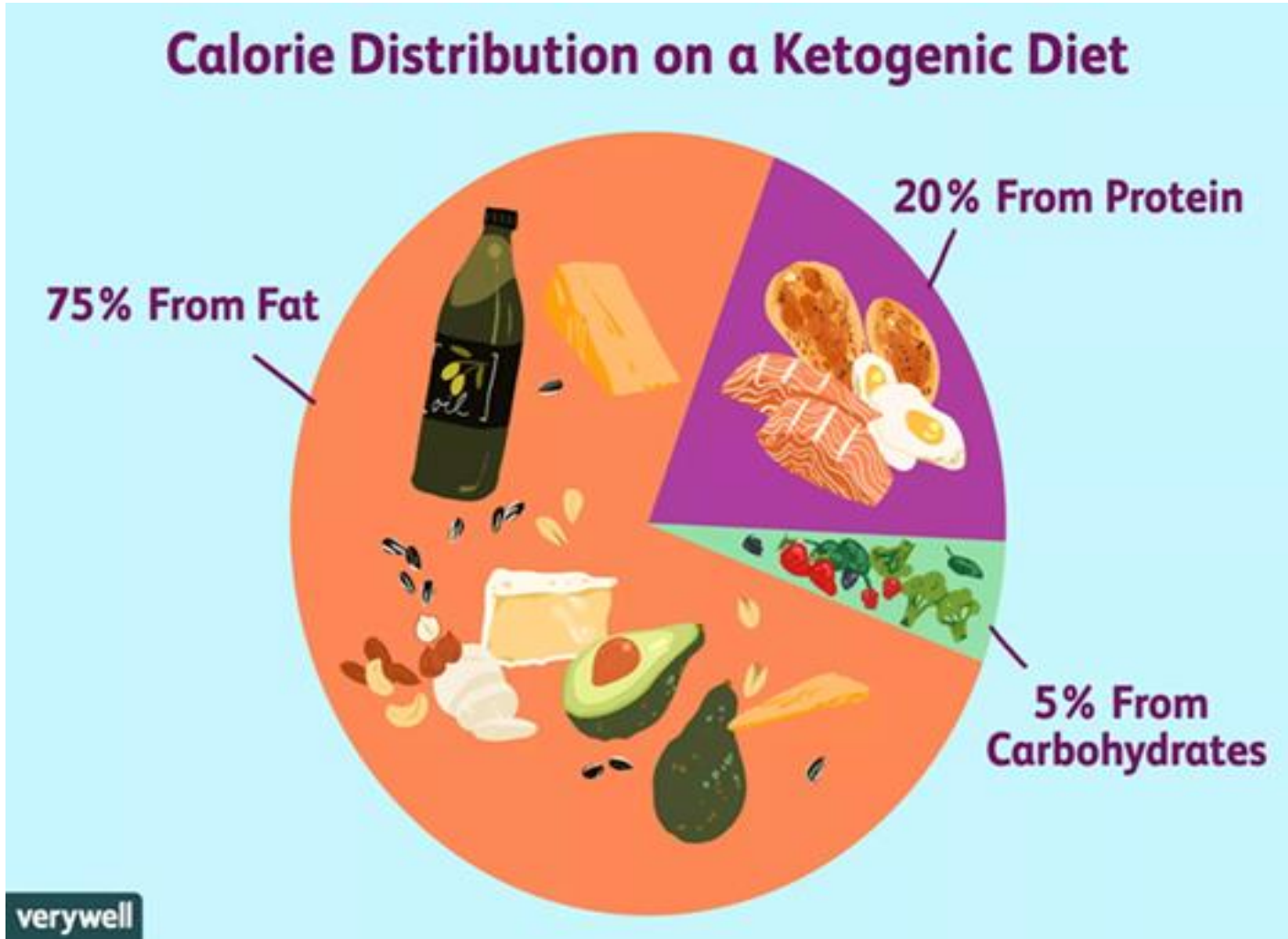
Current Obes Rep 2019 June;7 (2):172-185

N Engl J Med 2019;381:2541-51.

# Intermittent Fasting Pitfalls

- **No long term studies** on sustainability of any weight loss.
- **Nutritional composition and adequacy** of meals or feedings not addressed in studies, unknown nutritional effects
- Some time-restricted studies → 65% of weight lost was muscle.
- Difficulty adhering to reduced calorie or fasting days.
- Risk of **overeating** after conclusion of long fasting periods
  - Some studies suggest that IF may have implications on depression and Binge eating disorder (BED) which is prevalent among individuals with obesity and those seeking weight loss.

# Ketogenic (Keto) Diet



# Ketogenic (Keto) Diet



## • Applications

- 1920s--refractory pediatric epilepsy, not responsive to anticonvulsant medication. Unknown mechanism of action.
- Metabolic diseases—diabetes, hyperlipidemia, HTN
- Adjunct to cancer treatment
- Neurodegenerative diseases
  - Autism spectrum disorder
  - Alzheimer's disease
  - Glucose transporter 1 deficiency syndrome
  - Multiple sclerosis
- Weight reduction

# Ketogenic Diet

- High fat, low carbohydrate, moderate protein  
**NOT high protein (e.g., Atkins)**
- **Composition**
  - **Fat, majority of intake (70-80%)**
  - **Carbohydrate, very low** (5% to 10% of total calories) or below 50 g per day, as low as 20 g typically foods low glycemic index (<50 GI)
  - **Protein, moderate** (15-20%) same as IOM acceptable macronutrient distribution range

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**IOM Acceptable  
Macronutrient  
Distribution Range  
(myPlate)**

- Fat 25-30%
- Carbohydrate 45-55%
- Protein 15-20%

# Ketogenic Diet

## Fat and Protein foods

### Protein

- Marbled steaks, bone-in chops, ground meat
- Deli meats, hot dogs, sausages, bacon, cured meats
- Eggs

### Saturated fat choices

- butter, ghee (clarified butter), lard
- heavy cream
- bacon fat, pork rinds
- tropical fats—coconut, palm, and palm kernel oil

### Lower saturated fat Proteins

- Chicken and turkey breast
- Bone-less loin cuts of beef, pork and lamb
- Fish and shellfish

### Non-tropical fats

- olive oil, canola, other vegetable oils
- nuts, nut butters, seeds
- avocado

# Ketogenic Diet

Carbohydrate <50 to 20 g daily

## LIMITED

- Vegetables
- Fruit

## NOT ALLOWED

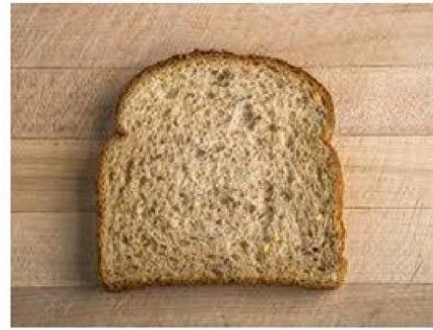
- Grains

Atherosclerosis 2020; 292; 119-126

## Carbohydrate Content of Common Foods



1 cup = 12g



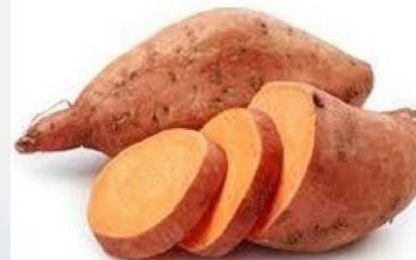
1 slice = 15-20g



1 cup = 25-35g



1 cup = 18g



1 medium = 25g



1 medium = 22g



1 can (5%) = 13g



# Sample Ketogenic 1400 calories menu for a child

## 4:1 ratio (fat to carbohydrate + protein)

### **Breakfast**

Scrambled eggs made with:

- heavy cream, 2.7 tbsp
- egg—1 large
- butter, 1.9 tbsp

Strawberry, 2 medium

### **Lunch**

Quesadilla with creamy avocado dip made with:

- heavy cream, 1.4 tbsp
- mayonnaise, 2.3 tsp
- olive oil, 1 tsp
- avocado, 1/6 of one
- butter, 0.7 tbsp
- 1 egg white
- almond flour, 2 tsp.
- grated cheddar cheese, 0.5 oz.

### **Dinner**

Chicken salad served on an iceberg lettuce leaf made with:

- heavy cream, 2.9 tbsp
- cooked chicken breast, 0.7 oz.
- mayonnaise, 2 tbsp
- cucumbers and tomatoes. 1.2 oz.

### **Snack**

Macadamia nuts, 1 oz.  
Orange, 1/10 of one

# Ketogenic Diet

## Side Effects

### “Keto flu” initial 10 days

- Fatigue
- Headache
- Muscle cramps
- Constipation
- Bad breath
- Brain fog

### More severe

- Kidney stones
- Low serum potassium
- Pancreatitis
- Gallstones
- Vitamin deficiencies

# Ketogenic Diet

## Outcomes—Short-term studies

### Weight Loss

- RCTs compared to low-fat diets
- Greater at weight loss 3-6 months
- No difference at 12 months, both <1 kg

### Metabolic

- ↓ A1C, Trig
- ↑ HDL
- ↑ LDL (mixed data, large buoyant instead of small dense particles)

# Ketogenic Diet

- **Short-term Pluses**

- Initial weight loss and metabolic improvements
- All or none approach instead of lifestyle changes

# Ketogenic Diet

- **Potential risks and unknowns**

- **Unknown long-term outcomes** since studies < 1 year
- **Unknown impact on specific conditions**-- kidney disease, liver disease and cardiovascular health long-term
- **Nutritional risks**
  - ↑ saturated fat, processed meats → ? long-term ↑ risk of CAD and cancer
  - ↓ vegetables, fruits, dairy foods, and whole grains
  - → deficiencies of fiber, vitamins C, A, potassium, calcium, vitamin D, B-vitamins—thiamin, riboflavin, niacin and folate, phytochemicals, antioxidants
  - → Detrimental for gut microbiota??
  - → ↓ bone density, ↑ risk of osteoporosis??
- Does not address root causes of obesity
- Poor lifestyle, social and cultural adaptability and sustainability

# Do these help you lose weight?

- **Eating breakfast?**

- No difference eating versus skipping breakfast.
- Pluses are for children—eating breakfast consistently improves concentration and attentiveness levels and seems to be associated with higher daily micronutrients intake than breakfast skippers

- **Eating frequency?**

- Inconsistent results on long-term change in BMI. No better appetite control nor increase in the thermic effect of food.

# Are we complicit promoting diet culture, quick-fixes?

- Do you support?
  - Diets that are non-sustainable?
  - Diets that are nutritionally inadequate, i.e., eliminating food groups?
  - Restrictive eating plans for individuals with an eating disorder-- Anorexia or Bulimia?

# Non-diet versus Diet culture

- **Intuitive Eating**

- **Intuitive Eating—A Revolutionary Anti-Diet Approach, 4<sup>th</sup> edition, 2020,** by Evelyn Tribole, MS, RDN, CEDRD-S and Elyse Resch, MS, RDN, CEDRD-S, FAND
- 10 principles of intuitive eating
  1. Replace the Dieting Mentality
  2. Honor Your Hunger
  3. Make Peace with Food
  4. Challenging the Food Police
  5. Discover the Satisfaction Factor
  6. Feel the Fullness
  7. Cope with Your Emotions with Kindness
  8. Respect Your Body
  9. Movement—Feel the Difference
  10. Honor Your Hunger—Gentle Nutrition

- **HAES—The Health at Every Size Approach**

- Healthier lifestyle



Questions?