

Nature's Booster Shot: Eating Smart to Maintain Optimal Health

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Objectives

- Discuss the emerging body of science and new research supporting the association of healthy eating and food synergy to promote optimal systemic health
- Explain the role nutritional status has on supporting a healthy immune system
- Delineate ways to incorporate nutrient dense foods into your daily dietary routine, in order to get the nutrients needed to strengthen your immune function

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Nutritional Epidemiology

- Ancient Greeks' knowledge about food and health
- "If every individual could have the right amount of nourishment and exercise, not too little and not too much, we should have found the safest way to health."

Hippocrates (460-377 BC) *Int J Epidemiol* 2003

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WHO Director-General

- "During this difficult time, it's important to continue looking after your physical and mental health. This will not only help you in the long-term, it will also help you fight COVID-19 if you get it." Tedros Adhanom Ghebreyesus
- **Eat healthy to strengthen your immune system**
- Limit alcohol and sugary drinks
- Exercise
- Avoid smoking



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Lifestyle Habits Impact Immunity

- "...No scientifically proven direct links between lifestyle and enhanced immune function....**healthy-living strategies are a good way to start giving your immune system the upper hand.**" harvard.health.edu



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Mindfulness

"The practice of being aware of your body, mind, feelings in the present moment...feeling of calm."
Cambridge Dictionary



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Priorities Changed Due to Pandemic

- Greater focus and overall interest:
 - Health and wellness
 - Mental and physical health
 - Foods and beverages that support digestive and immune health
 - Prevention of diet-related diseases-diabetes and obesity

FMCgurus 2020 Covid-19 Report

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Who are Nutrition Experts?



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Follow the Science!

- Plethora of nutrition and health information
 - Weight loss apps, internet searches, social media, influencers, television marketing, celebrities
 - Family, friends, neighbor, fitness coach
 - Physician, registered dietitian, pharmacist
- **“Good nutrition is essential to a strong immune system, which may offer protection from seasonal illness... No one food or supplement can prevent illness...”** Eatright.org

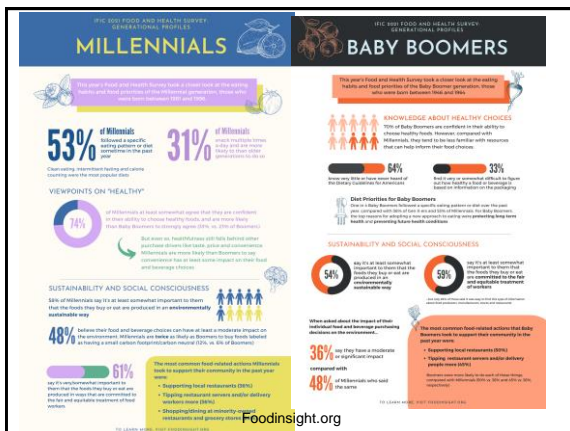
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First Poll Question

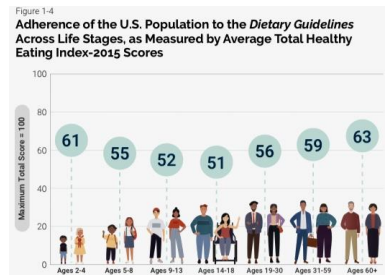
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Are We Eating Healthy?



https://www.dietaryguidelines.gov/sites/default/files/2020/12/Dietary_Guidelines_for_Americans_2020-2025.pdf

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Healthy Eating Guidelines

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2020-2025 Dietary Guidelines



https://www.dietaryguidelines.gov/sites/default/files/202012/Dietary_Guidelines_for_Americans_2020-2025.pdf

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DGA Major Recommendations

- Follow healthy dietary pattern
- Customize and enjoy nutrient-dense food and beverage choices
- Meet nutrient needs with nutrient-dense foods within each food group
- Limit foods and beverages high in sugar, saturated fat, sodium, alcohol

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Poll Question

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“Make Nutrient-dense Choices...”

- **Nutrient dense:** Nutrient-dense foods and beverages provide vitamins, minerals, and other health-promoting components and have little added sugars, saturated fat, and sodium. Vegetables, fruits, whole grains, seafood, eggs, beans, peas, and lentils, unsalted nuts and seeds, fat-free and low-fat dairy products, and lean meats and poultry—when prepared with no or little added sugars, saturated fat, and sodium—are nutrient-dense foods.

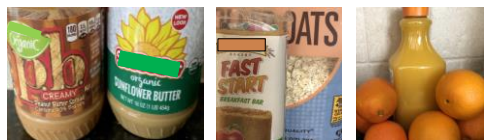


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Healthy “Swaps”

Nutrient-dense	Ultra-processed
Sunflower butter	Peanut butter spread
Oats	Breakfast bar
Orange	Orange fruit punch



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DGA 2020-2025

Figure 1-2

Making Nutrient-Dense Choices: One Food or Beverage At a Time

Every food and beverage choice is an opportunity to move toward a healthy dietary pattern. Small changes in single choices add up and can make a big difference. These are a few examples of realistic, small changes to nutrient-dense choices that can help people adopt healthy dietary patterns.



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Added Sugar in the Diet...

- Curbs immune system cells that attack harmful bacteria

Am J Clin Nutr 1973, Am J Clin Nutr 2005

- Increases risk for caries, heart disease, high blood pressure, diabetes, fatty liver disease



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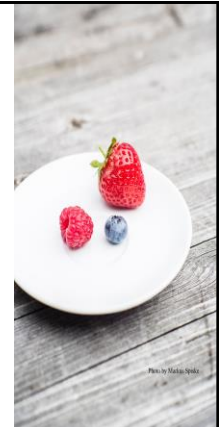
Poll Question

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Intrinsic Natural Sugars

- Physically located in cellular structure and naturally present
 - Whole grains
 - Fruits and vegetables
 - Milk and dairy
- Do not contribute to caries
 - Fiber and water content
 - Protective factors (polyphenols and calcium)
 - Mechanical stimulation of salivary flow



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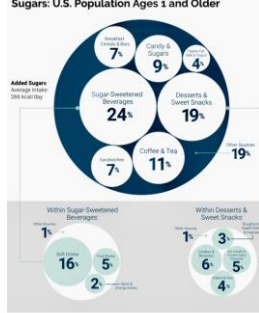
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Added Sugars in Diet

- Brown sugar, table sugar, corn syrup, beet sugar, maple syrup, turbinado sugar, coconut sugar, agave nectar, molasses, honey, date sugar...
- Recent cross-sectional study > 14,000 people, ages 2-74 "independent association b/w SSB consumption and caries...encompassing childhood to old age." JADA 2020

Figure 1-10

Top Sources and Average Intakes of Added Sugars: U.S. Population Ages 1 and Older



Source: American Heart Association, 2019. Adapted from: American Heart Association, 2019. Adapted from: American Heart Association, 2019.

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Old Label

New Label



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Obesity

- Risk factor for hospitalization due to COVID-19
- Risk factor for death due to COVID-19
- Weakens cellular immune function and ability to fight off infection

Top Stories



NBC NEWS

Study identifies most common underlying conditions in sickest COVID-19 patients

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Glucose Control and COVID-19

- 7,337 COVID-19 hospitalized patients, Hubei Province, China
 - Diabetes increased mortality risk
 - Well-controlled serum glucose correlated with better outcomes
- 1,122 COVID-19 hospitalized patients, 88 U.S. hospitals
 - Diabetes and/or uncontrolled hyperglycemia increased mortality risk
 - Uncontrolled hyperglycemia resulted in higher mortality rates

Rode et al. Glycemic Characteristics and Clinical Outcomes of COVID-19 Patients Hospitalized in the United States, J Diabetes Sci Technol (2020), <https://jdy.sagepub.com/https://doi.org/10.1177/1937967820951820>. Accessed 5/18/2020.

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Dietary Components Support Immune Health

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Phytochemicals in Citrus

- Act in synergy to support health
 - Synergy with vitamin C and flavones
 - Oranges (lutein and zeaxanthin)
 - Grapefruits (lycopene)
 - Lemon (hesperidin)
- May reduce gingival inflammation

J Periodontol 2020



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Polyphenols

- Specifically flavonoids, positively affect gut microbiome
 - Bright colored fruits, veggies
 - Grains
 - Tea
 - Coffee
 - Wine
 - Herbs and spices
 - Walnuts



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Photo by Gaber Lourenço
Euphob

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Time to Spice Up Your Life

- Anti-inflammatory properties
 - Turmeric
 - Curcumin
 - Ginger
 - Sesquiterpenes
 - Cayenne pepper
 - Capsaicin, beta carotene
 - Cinnamon
 - Polyphenols
 - Cocoa
 - Anthocyanins, minerals



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Omega-3 Fatty Acids

- α -Linolenic acid (ALA)
- Eicosapentaenoic acid (EPA)
- Docosahexaenoic acid (DHA)
 - Food sources include oily fish, fortified eggs, algae oil
- Anti-inflammatory
- Important for function of immune cells Proc Nutr Soc 2013



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Vitamin D

- Several food sources, sunlight
- Regulates immunity
- Reduced risk for respiratory infections when vitamin D levels are adequate
- Associated with reduced severity of COVID-19
 - "Association of Vitamin D status and other clinical characteristics with COVID-19 Test Results" –cohort study of 489 patients. 1.77 times higher risk of testing positive for COVID-19 if patient has Vitamin D deficiency.

Meltzer, DO. JAMA Netw Open. 2020

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Gut Health Supports Immune Health

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Dietary Fiber

- Research tells us that we need 25-34 gm/day DGA
 - Slowly increase fiber intake, to avoid gas and bloating
- Diet diversity is key
 - Aim for 30 different plant foods/week for a healthy gut microbiome
- Food for beneficial microbes in gut
- Increase production of short-chain fatty acids

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Poll Question

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My Dietary Fiber Intake = 28.6 grams

- 1 small apple (3 grams fiber)
- 2 stalks celery (0.2 grams)
- 1 c chickpeas (14 grams)
- 1 medium banana (3.1 grams)
- 1 c broccoli (2 grams)
- 1 orange (2.3 grams)
- 1 bowl oatmeal (4 grams)



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Are You Eating Enough Dietary Fiber?

- Most Americans are only eating 10 grams of fiber per day
 - 1 medium pear = 5.5 grams
 - 1c strawberries = 3 grams
 - 1 medium apple = 4 grams
 - ½ c lentils = 6.5 grams
 - ½ c beans = 6 grams
 - ½ c chickpeas = 7 grams
 - 1 c brussels sprouts = 3 grams
 - 1 c raw carrots = 3.6 grams
 - 1 medium banana = 3 grams

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Last Poll Question

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Feed your “Good” Gut Bacteria

- An apple a day...
- Prebiotics
 - Form of soluble dietary fiber
 - Naturally present in plant foods
 - Support the gut microbiome by serving as food source for healthy gut bacteria

Br J Nutr 2002



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Dietary Sources of Prebiotics

- Tomato
- Artichoke
- Banana
- Asparagus
- Berries
- Garlic
- Onions
- Leeks
- Cocoa
- Chicory
- Green vegetables
- Legumes
- Oats
- Barley
- Wheat
- Flaxseeds
- Jicama
- Seaweed
- Apple



Nutrients 2017

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Probiotics

- “Live microorganisms which, when administered in adequate amounts confer a health benefit on the host”^{FAO/WHO}
- Fermented foods support gut and immune health
 - Aged cheeses
 - Yogurt with live-active cultures
 - Kefir
 - Miso
 - Tempeh
 - Sauerkraut
 - Kimchi
 - Kombucha



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Dietary Patterns Support Immune Health

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Healthy Eating Pattern



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Food Synergy

- “In recent years researchers, public health experts and RDs have acknowledged that nutrients and foods are not consumed in isolation. Rather, people consume them in various combinations over time—a dietary pattern—and these foods and beverages act synergistically to affect health.” DGA

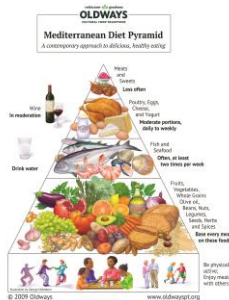


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Food Synergy in Diet Patterns

- “Combination of foods and beverages that constitute an individual’s complete dietary intake over time” DGA
- “Choose the right anti-inflammatory foods, and you may be able to reduce your risk of illness” health.harvard.edu
- May be effective for weight control



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Exercise Impacts Immunity

- <50% of Americans are as active as recommended
- “Adults should move more and sit less...Adults who are physically active are healthier, feel better, and are less likely to develop many chronic diseases...”



https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf

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Summary

- Mindfulness
- Sense of humor
- Sleep
- Reduce stress
- Exercise
- Healthy diet
- Get vaccinated!



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Questions



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