Eating for Whole Health
Day 1 Afternoon

• Functional Nutrition, Elimination Diets, and the 5R’s
• Eating in Context: External Factors That Affect Nutrition
• PHI and Skill Application

5. Functional Nutrition and Elimination Diets

At the end of this lecture, participants should be empowered to:
– Compare & contrast Whole Health and Integrative/Functional approaches to nutrition
– Explain the components of the 5Rs protocol for gut restoration
– Discuss the different types of adverse food reactions
– Define elimination diets and identify when to use them
– Describe the 4-step process of following an elimination diet
Whole Health Nutrition
- Personalized, proactive, patient-driven care
- Holistic
- Use VAs Whole Health model and tools
  - Circle of Health
  - PHI
  - PHP

Integrative/Functional Nutrition
- Personalized, proactive, patient-driven care
- Holistic
- Looks for root causes of disease
- Seeks to restore balance
- Specialized nutrition care

Functional Nutrition

The advanced practice of personalized nutrition assessment, diagnosis, intervention, and monitoring with the goal of promoting optimal health and preventing diet and lifestyle-related disease.

-Institute for Functional Medicine
Eating for Whole Health
Day 1 Afternoon

**Total Load & Two Questions**

1. What is harming you that needs to be removed?
2. What is lacking or what does your body need to promote healing?

Dr. Frank Lipman. 2 Questions to ask that are More Important than a Diagnosis.

---

**Medical Symptoms Questionnaire**

---

---
5 R’s of GI Healing

- Remove
- Replace
- Reinoculate
- Repair
- Rebalance

Remove

- Eliminate
  - Pathogens
  - Problematic foods
  - Environmental stressors/toxins
  - Stress
- Tools
  - Elimination diets
  - Botanical supplements
  - Antibiotics/antifungals

Replace

- Determine need for digestive support
  - Digestive enzymes
  - Bitters
  - HCL
  - Bile acids
  - Fiber
  - Phytonutrients
Reinoculate

- Reintroduce beneficial microflora
  - Probiotics - *Bifidobacteria* and *Lactobacillus* strains
  - *Saccharomyces boulardii*
  - Prebiotics

Repair

- Gut healing nutrients
  - Vitamin C
  - L-Glutamine
  - Zinc carnosine
  - Turmeric
  - Aloe vera
  - Ginger
  - Licorice root
  - Quercetin
  - Marshmallow root
  - Slippery elm

Rebalance

- Attitude
- Diet
- Lifestyle
- Stress/Relaxation
Eating for Whole Health
Day 1 Afternoon

Elimination Diets

Conditions Affected by Food

- Irritable bowel syndrome
- Inflammatory bowel disease
- Celiac disease
- ADHD
- Fibromyalgia
- Rheumatoid arthritis
- Migraine headache
- Eosinophilic Esophagitis
- Sinusitis
- GERD
- Psoriasis
- Eczema
- Hashimoto’s thyroiditis
- Asthma
- Autism
- Depression
- Anxiety
- Seizures
- Multiple Sclerosis
- Insomnia

Adverse Food Reactions (AFRs)

- **Allergies**
  - IgE antibody-mediated: immediate-type hypersensitivity

- **Intolerances**
  - Enzyme or pathway necessary to metabolize a nutrient is absent

- **Sensitivities**
  - AFRs not otherwise specified (e.g. FODMAPs, histamine, tyramine, food dyes, etc.)
**Eating for Whole Health**

**Day 1 Afternoon**

---

**Adverse Food Reactions**

- **IgE Mediated** (e.g., acute urticaria and anaphylaxis syndrome)
- **Mixed IgE and non-IgE** (e.g., delayed dermatitis, EGID)
- **Non-IgE Mediated** (e.g., food protein-induced enterocolitis, FPIE, eosinophilic gastroenteritis)
- **Cell Mediated** (e.g., allergic contact dermatitis)
- **Metabolic** (e.g., Lactose, fructose, phenylketonuria, tyrosinemia)

---

**Food Allergy**

- **IgE antibody-mediated:** immediate-type hypersensitivity
- **IgG, IgA, IgM antibody-mediated:** delayed hypersensitivity, hours to days

---

**Testing for Food Allergy**

- **Food allergy testing**
  - Tests for antibodies to foods, mold, inhalant etc
  - Sensitivity vs specificity
  - Some availability in VA
  - Results show high, moderate, low and very low levels of activity
  - Gold standard is an Allergy-Elimination diet
Food Intolerance

- Occurs when the enzyme or pathway necessary to metabolize a nutrient is absent
- Example: lactose intolerance (lactase deficiency)
- Testing is empirical:
  - Elimination and reintroduction
  - Addition of missing enzyme

Food Sensitivity

- Can take many forms but generally not immune-mediated
  - FODMAPs – poorly absorbed, short-chain carbohydrates
  - Histamine, tyramine
  - Artificial sweeteners
  - Artificial colors/food dyes
  - Monosodium glutamate
  - Yeasts & molds

Prevalence of Adverse Food Reactions (AFRs)

- IgE food allergies 4-5% adults/5-8% children
- Non-IgE immune-mediated reactions (e.g. eosinophilic esophagitis) about 2%
- Celiac disease 1%
- Food intolerance & sensitivity 15-35%
  - 50-80% of IBS & other functional bowel disorders
Eating for Whole Health
Day 1 Afternoon

The Usual Suspects

• Dairy
• Eggs
• Wheat/Gluten
• Nuts
• Peanuts
• Soy
• Fish
• Shellfish
• Citrus

• Beef
• Corn
• Lactose
• Refined sugars
• Food additives
  — Aspartame
  — MSG
  — Food colors
  — Nitrates/nitrites
  — Preservatives
  — Thickeners/stabilizers

Identifying AFRs

• IgE food allergies – trigger immediate symptoms
• IgG, IgA, IgM & other food sensitivities – delayed hypersensitivity; symptoms can present 48-72 hours after exposure
  — May not occur after each exposure
  — Dose-dependent
  — Common, regularly consumed foods
  — Difficult to identify cause-effect
  — Available testing not validated/reliable

Development of “hidden food allergy”

Gaby A. Food Allergy and Intolerance. In: Rakel D. Integrative Medicine.
What is an elimination diet?

- Removal/avoidance of food(s)/group(s) of foods and food additives that may be causing immune or non-immune mediated adverse reactions
- Component of 5Rs approach
- Gold standard
- Many variations
- Systematic approach
- Not an exact science

When to use

- Multiple symptoms but no clear diagnosis
- Diagnosis for which foods have been found to exacerbate symptoms
- Symptoms unresponsive to conventional Tx
- Pts who believe they have AFR
- Childhood Hx of colic, recurrent ear infections, asthma, eczema, sensitive stomach, being sickly
- When you don’t know where to start!

Physical Exam Signs of AFRs

- General pallor
- Pallor of nasal mucosa
- “Allergic shiners”
- Dennie’s lines
- Ecchymosis
  (bleeding under the skin not caused by injury/trauma)
Contraindications

- Hx of anaphylaxis
- Eating disorders
- Pregnancy/Lactation?

Types of Elimination Diets...

- Level 1: Food Specific
  - Dairy free
  - Gluten free
  - No artificial sweeteners
- Level 2: Multiple Food Groups
  - Six-food Elimination Diet (SFED)
  - Low FODMAPs
  - Gluten-free, Dairy-free
  - Comprehensive Elimination Diet
- Level 3: Few Foods/Oligoantigenic Diet
  - Caveman diet: lamb, rice, pear, sweet potato

4-Step Process (PACE)

Plan | Avoid | Challenge | Evaluate

Plan

- Thorough clinical assessment
  - Include MSQ or similar tool & diet Hx
- Which diet to prescribe/foods to avoid
- Timing
- Menu planning & meal prep
- Grocery shopping & label reading
- Work/school/social situations
- Emotions and barriers
- Caffeine weaning (if applicable)
- Enlist support
- Address constipation

Avoid

- Usually ≥ 3 weeks
- Avoid restricted foods in whole form and as ingredients
  - Read ALL food labels
- Focus on what patient can eat
- Best to avoid eating out
- Do not go hungry!
- Drink lots of filtered water
- May feel worse before feeling better

STOP & Reassess Symptoms

1. Plan
2. Avoid
3. Challenge
4. Evaluate
Eating for Whole Health
Day 1 Afternoon

**Challenge/Reintroduce**
- Systematic approach is VITAL!
- One food at a time
  - "Pure" form
- Add new food every 3-4 days
- Keep food/symptom log
- If symptoms recur, remove food & wait before adding next food
- Reactions may be more pronounced than before
- Do NOT challenge foods that pt has had severe allergic response to in the past

**Reintroducing Foods**

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>7:30a, 12:15p, 6p</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td>Wheat (water, 1 serving)</td>
<td>Corn</td>
<td>Remove food, wait until symptoms abate</td>
</tr>
<tr>
<td>Digestive/Bowel Function</td>
<td></td>
<td>Loose BM once</td>
<td>Test new food</td>
</tr>
<tr>
<td>Joint/Muscle Aches/Pain</td>
<td>Knee aching</td>
<td>Knee aching (not today)</td>
<td>Knee stiff in am, but better later</td>
</tr>
<tr>
<td>Headache</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasal or Chest Congestion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney/Bladder Function</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy Level</td>
<td>Tired as usual</td>
<td>Exhausted</td>
<td>Getting better</td>
</tr>
<tr>
<td>Sleep</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive/Focus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Symptoms</td>
<td>Throat clearing/mucous after eating</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Confirming an AFR

- If food seems to have caused symptoms on 1st reintroduction, try challenging again on 2 separate occasions
  - If reaction occurs within 3 days consistently on all 3 reintroductions, AFR is likely
- Eliminate 3-6 months and try again

Evaluate

- What did you learn?
- Formulate long-term plan
  - What is pt willing to do?
  - Is there dose-response relationship? Can reactive foods be tolerated in small amounts and/or infrequently?

Moving Forward

- Continue 5R protocol to heal gut
- Re-test reactive foods 3-6 months
- Encourage continued body awareness/self-observation
Eating for Whole Health
Day 1 Afternoon

Comprehensive Elimination Diet

AVOID
• Dairy
• Gluten
• Eggs
• Shellfish
• Soy
• Peanuts
• Corn
• Sugar
• Beef
• Pork
• Processed Meats
• Alcohol
• Coffee, black tea, soda
• Chocolate
• Citrus
• Nightshade veggies

EAT
• Vegetables
• Fruit
• Gluten-free whole grains
• Legumes (except soy, peanuts)
• Nuts
• Fish
• Poultry
• Game meats
• Seeds
• Healthy oils
• Dairy substitutes, unsweetened (e.g. nut milks, coconut milk, hemp milk)

Source: Institute for Functional Medicine
Eating for Whole Health
Day 1 Afternoon

PACE

• Plan
  – Timeline/scheduling
  – Unstock pantry/fridge
  – Slow wean off of caffeine
  – Menu planning & prep – meals and snacks
  – Enlist support (family, friends, co-workers)
  – Anticipate barriers
  – Address constipation, if applicable

PACE

• Avoid
  – Strict avoidance of foods on eliminate list
  – Drink lots of filtered water
  – May feel worse before feeling better

PACE

• Challenge
  – Order of reintroduction negotiable
  – Systematic approach is VITAL!
  – Navigating uncertainty
  – Testing sub-categories

• Evaluate
  – Review what was learned
  – Work together to make a long-term plan
**Low FODMAP Diet**

Elimination/reduction of poorly absorbed short-chain carbohydrates:
- Fermentable
- Oligosaccharides (e.g. fructans & galacto-oligosaccharides)
- Disaccharides (e.g. lactose)
- Monosaccharides (e.g. fructose)
- And
- Polyols (sugar alcohols)

---

**What do FODMAPs do?**

**DIET**
- Fructans
- Fructans
- Lactose
- GOS
- Polyols

**PHYSIOLOGICAL EFFECTS**
- Constitutively active
- Rapidly fermented
- Water delivery
- Gas production

**SYMPTOM INDUCTION**
- Diarrhea
- Bloating
- Pain/Discomfort
- Gas

---

**When to Use**

- IBS/SIBO – Gas, bloating, diarrhea, constipation
- When sensitivity to wheat/gluten is suspected, but gluten-free diet doesn’t provide as much relief as expected
Eating for Whole Health
Day 1 Afternoon

**PACE**

- **Plan**
  - Unstock pantry/fridge
  - Menu planning & prep – meals and snacks
  - Enlist support (family, friends, co-workers)
  - Anticipate barriers
- **Avoid**
  - 6-8 weeks
  - Low FODMAP, not no FODMAP
  - Monash University app helpful

**PACE**

- **Challenge**
  - Reintroduce foods one group at a time over ~5 weeks
  - Carefully monitor symptoms
- **Evaluate**
  - Review what was learned
  - Work together to make a long-term plan
  - Low FODMAP + tolerated foods
  - 5Rs protocol to heal gut
  - Increased tolerance
Tips for Practice

- Do the diet yourself!
- Be sure patient knows what to expect – the good/bad/ugly
- Provide links to elimination diet-compliant recipes
- Keep labels/packages of compliant foods on hand
- Consider elimination diet groups
- Apps can be helpful

Resources

- Handouts in manual; WH website
- VA Integrative & Functional Nutrition workgroup: Elimination Diet Toolkit

Case Study: Mary

- 53 y.o. VA social worker
- 5’6”, 168#, BMI 27.1
- Waist = 32.75”; Waist:Hip = 0.79
- Interested in wt loss (25#)
- BP, BS, and lipids all wnl
- Diet Hx:
  - Cooks most meals, no fast food.
  - Oatmeal or eggs & toast for b/fast; yogurt/canned soup/HB egg/string cheese for lunch; fish or chix w/veggies for dinner; nuts, granola, fruit, hummus/carrots for snack.
• Diet cont’d:
  – 2 svgs fruit/day
  – 1-2 svgs veg/day
  – Dairy qd
  – Olive, canola & coconut oil; nuts 2x/wk; avocado 1x/wk
  – Occasional sweets
  – Water, hot tea, SF ice tea, 1-2 glasses wine/wk
What would you recommend?

Mary

- Diarrhea, insomnia, allergies/chronic sinusitis, rosacea, fatigue, muscle/joint pain, hot flashes, anxiety → MSQ 72
- Work up for autoimmune dz → ANA positive, scleroderma marker positive
- Appointment with neurologist for muscle spasms r/o ALS
- Last time she felt great: 20 yrs ago before birth of child
- Lots of stressors, esp regarding health problems

Now, what would you do?
Eating for Whole Health
Day 1 Afternoon

Mary

- Initial interventions: food log, sleep log, earlier bedtime, increase veg/fruits, start incorporating more gluten-free foods, meditation → minimal improvements
- Elimination diet → gluten sensitivity (celiac?)
  - Muscle twitching/neuro issues resolved
  - Sinusitis resolved
  - Diarrhea, muscle/joint pain, energy improved
  - Lost 15#, 1.25” waist, 2” hips

---

Summing it up

- WH nutrition & IFN both patient-centered, holistic approaches
- Gut health is important focus of IFN and is addressed using 5Rs protocol
- Many symptoms can be related to adverse food reactions
- Elimination diets are gold standard for identifying AFRs
- Elimination diets follow 4-step process (PACE)
Recipe – Chia Pudding

- 2 T. chia seeds
- ½ C. unsweetened vanilla almond (or cashew, coconut, hemp…) milk
- ½ - 1 C. frozen blueberries
- Optional sweetener: 1 t. pure maple syrup, raw honey or a few drops of stevia

Mix all ingredients in a mason jar or container with a lid and refrigerate overnight.

Practical Exercise

Choose a partner and designate one member of your pair to be the patient and one member to be the provider.

Instructions for the provider: Imagine that the patient presents to your clinic with eosinophilic esophagitis and you recognize that an elimination diet may be worth considering for their health plan. Your patients states that they would be interested in seeing a dietitian for this, but she would like to know a little more about how an elimination diet works. Please take a moment to explain to your partner what an elimination diet might look like (how to prepare for this, how many days it will typically last, what symptoms they may experience, how they will measure the effectiveness of the therapy, etc.).

Instructions for the patient: Pretend this is the first time you have heard about elimination diets. Did your provider’s explanation help you better understand the process you will eventually undergo? Are there any important gaps in your understanding after his/her/their explanation?

6. Eating in Context:
External Factors That Affect Nutrition
Eating for Whole Health
Day 1 Afternoon

Eating In Context: Objectives

- At the end of this lecture, participants should be empowered to:
  - Recognize and address food disparities
  - Consider minimizing exposure to food toxins
  - Identify at least three ways that our environment affects our food decisions

Common Misconceptions About Food

1. The family dinner is the center of Americans’ food universe; if we adjust this environment, we can change eating habits
   Similar version: The mom cooks for the household, so educating mom will trickle down to the rest of the family
2. Food is abundant and accessible in America; the problem is that we just eat too much of it
3. All Americans eat similar foods
4. Calorie counting is the most important aspect of weight loss

Myth #1: The family dinner is the center of Americans’ food universe.
A Date With Your Family: A 1950s Instructional Video
https://www.youtube.com/watch?v=Gd7RqwgDUDq

#1: The Truth About Family Dinners

Photojournalism: “Weeknight Dinners” by Lois Bielefeld
- Captured 78 US households
- Different socioeconomic and cultural groups
- People frequently don’t eat together, consume the same food, or make dinner table conversation the focus of their dinner
- No two households were alike

Glynis, Liam, Jorin, and Mona. 2013, Muskego, WI
Myth #2: Food is abundant and accessible in America.

#2: The Economics of Food and Food Deserts

- Does a person have food in the first place?
  - 1/3 of Iraq and Afghanistan Veterans reported food insecurity in past year
  - 12% reported very low security
  - 23.5 million Americans live in food deserts
  - Grocery stores not accessible
  - And that is counts local stores with packaged food
- 2.3 million Americans in rural areas >10 miles from store
  - Limited Transportation

Prevalence of Food Insecurity, Average 2015-17

In 2016, the national average of food insecurity was 12.3%

31.6% of low-income households were food insecure

Prevalence of Obesity (CDC, 2018)

Practitioners Need to Be Aware of Health Impacts of Hunger

Effects of Food Insecurity

- Lower scores in physical and mental health (SF-12).
- Poorer control of diabetes (OR 1.48) & greater difficulty affording healthy diabetic diet.
- Associated with a range of chronic illnesses such as hypertension, hyperlipidemia, and various CV risk factors.
Eating for Whole Health  
Day 1 Afternoon

**Effects of Food Insecurity**

Seniors with food insecurity are....
- 60% more likely to experience depression
- 53% more likely to report a heart attack
- 52% more likely to develop asthma
- 40% more likely to report an experience of heart failure

[https://www.roots-for-life.org](https://www.roots-for-life.org)

---

**Supplemental Nutrition Assistance Program (S.N.A.P)**

- Largest food safety net in America
- 2012: 15% of Americans, or 1 in 7
- SNAP Users are diverse: 35% White, 23% Black, 15% Hispanic, (21% Other)
- Only 72% of all eligible people are using SNAP

[https://www.roots-for-life.org](https://www.roots-for-life.org)

---

**How Do You Help Veterans with Limited Food Resources?**
Home cooks

- Consume less fat, carbs.
- Even if they are not trying to lose weight.
- Rely less on frozen foods.
- Less likely to eat junk when they go out.

Individuals who work > 35 hrs outside the home cook less.

Teach vets to cook at home: save money

Teach vets to cook at home: save calories
Eating for Whole Health
Day 1 Afternoon

Opt for plant based foods

Meal for three people on a food stamp budget

S.N.A.P Challenge
Supplemental Nutrition Assistance Program

Food Deserts / An Abundance Of Food

• Globally, we throw out 1.3 billion tons of food every year (1/3rd of what we grow)
• In the US:
  — 40% of all food goes uneaten
  — That’s 218 billion pounds of food uneaten (1 football stadium / day)
  • 52 billion from restaurants and manufacturers
  — 16 billion in super markets
  — 14 billion in restaurants
  • 20 billion from farms
  • 54 billion from households
  — We waste 165 billion dollars in food EVERY YEAR
  — Diners leave 17% of their meals uneaten
  — At home, we throw out 14-25% of our meals (costs us $1365-$2275 annually)
Eating for Whole Health
Day 1 Afternoon

Innovation: One part of the solution

- App: Streetwyze
  - Ground-level documentation of food deserts from local citizens
  - Recommendations on where to find healthy foods in food deserts
  - Informs policy changes
- Website: Imperfect produce
  - 30% lower cost than grocery stores
  - Food directly from farms
  - Can choose organic
  - "imperfect" usually means excess
- App: Baltimarket
  - Virtual marketplace and in-person recommendations for food deserts
  - Free pickup from community sites (ie: local library)
- Business: Daily Table (nonprofit in Boston)
  - Grab and go meals AND produce
  - Received "excess" donations from tons of farms and sells at bottom line cost
  - Free cooking classes
  - Focus on maintaining customer dignity

Innovation: How to reduce food waste?

App: Streetwyze
- Ground-level documentation of food deserts from local citizens
- Recommendations on where to find healthy foods in food deserts
- Informs policy changes
Website: Imperfect Produce
- 30% lower cost than grocery stores
- Food directly from farms
- Delivers to your door
- Can choose organic
- "imperfect" usually means excess

EAT-Lancet Commission on sustainable diets

- Headed by Walter Willet (Harvard public health)
  - 37 scientists (human health, agriculture, political science, environmental sustainability)
- Assumption: global population will be 10 billion by 2050
- We could feed everyone if we:
  - Increase plant-based diets (vegetables, fruits, whole grains, legumes, nuts, unsaturated oils), some seafood and poultry by 100% by 2050
  - Decrease red meat, processed meat, sugar, refined grains by 50% by 2050
- >820 million people worldwide have insufficient food
  - Prediction: 10.8-11.6 million deaths will be avoided each year
Strong evidence indicates that food production is among the largest drivers of global environmental change by contributing to climate change, biodiversity loss, freshwater use, interference with the global nitrogen and phosphorus cycles, and land-system change (and chemical pollution, which is not assessed in this Commission).
Different Cultures Utilize Different Foods

Oldways Diet Pyramids: Our “American” Diet Reflects Diets From Around The World

Oldways Diet Pyramids: Vegetarian / Vegan Diets
Myth #4: Weight loss and healthy eating can be reduced to a basic equation, and a calorie deficit is the best fix

Truth: Food Preparation Has A Significant Impact On Our Health (Including Our Risk of Obesity)

Food Safety
Eating for Whole Health
Day 1 Afternoon

Food Safety: The History of Food Preservation & Additives

- Paleolithic period: sun-cured meat ("smoked")
- Mesopotamia: smoked meat, dried apples, preserved fruit in honey
- Early Indian civilization: cucumber pickles
- Ancient China: pickling eggs and meats with vinegar brines
- Egyptians and Babylonians: pickled fish
- Dutch (1700s) preserved beef in hot fat placed inside a sealed can
- England (1700s) used calcium carbonate (marble, chalk, shells) to reduce acidity
- Napoleon's Prize: Canned Foods (Heating, Boiling, and Sealing in Jars)

Food Safety: The History of Food Preservation & Additives

- Industrial Revolution: Copper salts to green pickles, Red lead to color cheese in UK
- 1840s: sodium nitrite was used to preserve butter
- 1856: Mauvine was discovered (the first synthetic food dye and cosmetic dye)
- 1902: Poison Squad table trials began
  - 1906: Meat Inspection Act and Pure Food and Drug Act passed
- 1957: High Fructose Corn Syrup Invented
  - Low-cost, local alternative to sucrose (sugar cane), not granular
  - 1970s: HFCS production became scalable

The History of Food Preservation & Additives
The Original Poison Squad (1902)

Photo Credit: FDA
• 1902: Poison Squad table trials began
  – 12 healthy male UNPAID volunteers committed to one year of ingesting poisons
  – Borax (made animal proteins look fresh) and copper sulfate (colors greens)
  – Sample dinner menu:
Eating for Whole Health
Day 1 Afternoon

Center for Science in the Public Interest: Food Dyes

- Food dyes often come from coal tar and petroleum
- CSPI claims they have safety issues (see “Summary” at link above)
- And other sources...

Video

“Cochineal Bugs” University of NC Museum of Natural History

https://youtu.be/9YzM1Edbdmo

What am I?
What am I?

Chili, sugar, salt, garlic, distilled vinegar, potassium sorbate, sodium bisulfite and xanthan gum.

What am I?

Ingredients: Turkey Breast, Water, Modified Cornstarch, Contains Less Than 2% Of Sodium Lactate, Salt, Sugar, Sodium Phosphates, Carrageenan, Natural Flavor, Sodium Diacetate, Potassium Chloride, Sodium Ascorbate, Sodium Nitrite, Caramel Color.

What am I?

Ingredients
Whole Grain Rolled Oats, Sugar, Dehydrated Apples (Treated With Sodium Sulfite To Promote Color Retention), Natural And Artificial Flavor, Salt, Cinnamon, Calcium Carbonate, Citric Acid, Guar Gum, Malic Acid, Niacinamide*, Reduced Iron, Vitamin A Palmitate, Pyridoxine Hydrochloride *, Riboflavin *, Thiamin Mononitrate*, Folic Acid*, Caramel Color
Preservatives / Ingredients In A Glazed Donut

- Enriched bleached wheat flour
- Dextrose
- Vegetable shortening (partially hydrogenated soybean and/or cottonseed oil)
- Water, sugar, soy flour, egg yolks
- Vital wheat gluten
- Nonfat milk, whey
- Yeast and yeast nutrients (calcium sulfate, ammonium sulfate)
- Dough conditioners (e.g., calcium dioxide, monocalcium and dicalcium phosphate)
- Starch
- Ascorbic acid
- Salt
- Mono- and diglycerides, ethoxylated mono- and diglycerides
- Lecithin
- Calcium propionate (to retain freshness)
- Cellulose gum
- Natural and artificial flavors
- Fungal alpha amylase, amylose, maltogenic amylase
- Pentosanase
- Protease
- Sodium caseinate
- Corn maltodextrin
- Corn syrup solids
- BHT (to help protect flavor)
- Glaze also may contain: Calcium carbonate, agar, locust bean gum, disodium phosphate, and sorbitan monostearate.

Center for Science in the Public Interest: Chemical Cuisine

https://cspinet.org/eating-healthy/chemical-

BUTYLATED HYDROXYTOLUENE (BHT)

Antioxidant: Conuts, chewing gums, potato chips, oils, etc.

BHT reduces sensitivity in cells. It either increased or decreased the risk of cancer in various animal studies. Besides of BHT occur in human Sr., BHT is unnecessary or is easily replaced by safe substances (see discussion of BHA). Avoid it when possible.

Food Safety: Endocrine Disrupting Chemicals (EDCs)

Mechanism of action: EDCs mimic hormones and bind hormone receptors

This alters the function of the original hormone, either by enhancing its effect, blunting its effect, or creating a totally different effect.
Food Safety: Endocrine Disrupting Chemicals (EDCs)

EDCs are often stored in fat cells
Effects include:
• Changes in sex hormone function
• Cardiovascular disease
• Obesity
• Reduced immunity
• Reduced bone strength
• Sensory impairment
• Altered mental status

Examples Of Endocrine Disrupting Chemicals in Food

- Organochloride Pesticides
  - Can disrupt thyroid function and reduce androgen hormone levels
  - Workers in food industry
  - Fatty foods (dairy, fish)
  - Fruits and vegetables
  - Can transfer through breast milk
  - Polychlorinated biphenyls (PCBs) and Dioxins
    - Can lower IQ
    - May increase prostate and testicular cancer rates
    - Livestock, fish (fat in liver)
    - Less common (plants, soil)
- Styrene
  - In food packaging (cinnamon, beef), vehicle exhaust, cigarettes
  - Can affect thyroid, may affect testosterone and estrogen levels
- Bisphenol A (BPA)
  - Protective lining in metal cans
  - Plastics, food packaging, toys, cash register receipts
  - Can affect neurobehavior and development of reproductive system during early childhood development
  - Can increase aggression and hyperactivity, increase diabetes risk, and reduce semen quality
- Phthalates
  - In clothing, cosmetics, perfumes, food packaging, medical devices
  - Can affect thyroid, reduce obesity and insulin resistance, lower IQ, reduce concentration

EDCs Are all Around Us
Population study, prospective cohort of 69,000 French adults followed over 7 yrs
Assessed frequency of organic food consumption and monitored for incidence of cancer
  – Breast Cancer, Prostate Cancer, Skin Cancer, Colorectal Cancer, Lymphoma
Organic food consumption was associated with a reduction in the overall risk of cancer (p<0.001)

Environmental Working Group: Dirty Dozen, Clean Fifteen

The Dirty Dozen

1. Strawberries
2. Spinach
3. Kale
4. Bell peppers
5. Asparagus
6. Cherries
7. Cherries
8. Potatoes
9. Tomatoes
10. Celery
11. Red Peppers
12. Citrus
13. Kale
14. Onion
15. Broccoli
16. Brussels
17. Potatoes
18. Paprika
19. Celery
20. Cabbage

The Clean 15

1. Avocados
2. Mangoes
3. Pineapples
4. Green Leafy Vegetables
5. Sweet Peppers
6. Tomatoes
7. Sweet Corn
8. Sweet Potatoes
9. Onions
10. Celery
11. Mushrooms
12. Leafy Greens
13. Berries
14. Fruits
15. Nuts and Seeds
16. Gherkins

Environmental Working Group announces these yearly
• Uses USDA testing data
• Tested after washing
• Note that things you peel are often the best bet
• Berries often make the ‘dirty’ list

https://www.ewg.org/foodnews/list.php
Food Safety Recommendations

- Consider going organic
- Learn about safe fish sources
- Don’t microwave plastics 3,6,7
- Avoid food dyes

What is a “Whole Food”?

- Can I imagine it growing?
- How many ingredients does it have?
- What’s been done to the food since it was harvested?
- Is this product “part” of a food or the “whole” entity? Are all of the original edible parts present?
- How long has this food been known to nourish humans?

Food and Our Environment: A Little Quiz!
Question 1

True or False: A pound of fat contains 3500 calories

Answer: False!

• 1911: A scientist named Bozenrad measured one pound of human adipose tissue ONCE and noted that it was 87% fat, 13% non-fat and water solids
• 1958: Wishnofsky measured energy density of fat through bomb calorimetry: 9.5 kcal / gram (these days, we round this to 9 calories in a gram of fat)
• There are 454 grams in a pound, and if 87% of human adipose tissue is pure fat, then 0.87 x 454g = 395g
• so 9 kcal/g x 395g = 3555 calories in a pound of fat, right?
• And if that’s the case, we can’t just assume that losing that many calories results in a positive energy balance!

Question 2

Name 3 examples of creating “pause points while eating.”
Question 2 Answers (Pause Points)

1. Repackage snacks in smaller packages so that you pause before getting seconds (e.g., cookies)
2. Put your utensils down between bites
3. Keep food an arm’s length away so that you have to put effort into getting seconds
4. Consider stopping midway through the meal to say thanks

Question 2 Answers (Pause Points Continued)

• In a 2006 study, Wansink “…took canisters of Pringles potato crisps and dyed every 7th chip red, took other canisters and dyed every 14th chip red, and left other canisters plain, with no red chips…”
• No red chips…. 23 chips average
• Every 14th red…. 15 chips
• Every 7th red… 10 chips

Question 3

How many times does the average person chew each bite during a meal?
Question 3
Answer: 6 times

• Most of us don’t chew our food enough times
• Try to chew each bite 15-20 times before swallowing
• Chewing MORE times per bite will:
  – Increases food exposure to taste buds, which enhances taste
  – Alkalize food, which reduces gas
  – Aid in digestion (especially carbohydrates) by increasing contact with saliva
  – Increase satiation during a meal and reduce overall calorie consumption

Did you know that...

• Just by looking at a food we imagine will taste good, our body produces more salivary amylase, which leads to insulin secretion. The extra insulin that is produced then increases our perception of hunger and increases conversion of energy to central adipose tissue
• Unhealthier foods like donuts produce a greater effect than healthier foods like apples

Question 4

Name two ways to “increase the volume of your food.”
Question 4
Answers

• We usually eat the same volume
• Eating foods with a larger volume (water, air, low calorie fillers) helps us eat less calories
  – Add ingredients with high water content to meals (like tomatoes and lettuce in a burger)
  – Drink 2 glasses of water BEFORE meals
  – Blend a smoothie a little longer to add more air to the smoothie

Question 5
Deprivation diets: By what percentage can we reduce our calories without “missing” them?

Answer: 20–30%
Simplify this by recommending patients leave a quarter of the plate empty
Question 6

Which one of these lines appears bigger: horizontal or vertical?

Answer: Both lines are the same size. For most people, the vertical line appears bigger. This is an optical illusion.

As a result, we consume more liquids in shorter, wider glasses and drink less out of taller, thinner glasses.

Question 7

True or False: “Eating with more people leads to eating less calories overall”
Question 7
Answer

Answer: False. As we increase the number of people we eat with, we tend to consume more on average.

Question 8

Which plate will result in less calories consumed (1 or 2)?

Answer: The first plate is “healthier.”

We tend to eat fewer calories when our food and plate are contrasting colors. Remember, “we eat with our eyes.”
Eating for Whole Health
Day 1 Afternoon

Question 9

When you put more than ___ items on your plate at the same time, you consume more calories.

Answer: When you put more than TWO items on your plate at the same time, you consume more calories.

Use this to your advantage by loading your plate with more fruits and vegetables. Otherwise, put only one or two items on your plate at the same time.

Question 10

We eat twice the calories when we eat out.
How can we reduce calorie consumption?

Shutterstock ID: 29274637

We eat twice the calories when we eat out. How can we reduce calorie consumption?
Question 10
Answer:
• Put half of your meal in a box as soon as you receive it and keep the box out of sight
• Skip the bread basket and chips at the beginning of the meal
• Always order a salad if possible. Alternate water with drinks
• Be the slowest eater and the last to start eating. Minimize desserts

Question 11
Answer:
Which black circle is bigger?

Answer: Both black circles are the same size. Most people believe the right circle appears larger.

Larger plates make us perceive our meal is smaller. As a result, we end up eating more.
Question 12

Do people eating near you affect how slowly or quickly you eat?

Answer:
We eat faster when our neighbors eat faster (and slower when they eat slower). Sit by the slowest eater to consume less calories.
Question 12
Answer Continued

Also, always leave a little on your plate when eating with someone else. That way, if your company eats slower than you, you won’t go back for seconds.

Speaking of eating fast...

Public health review
Effects of changes in eating speed on obesity in patients with diabetes: a secondary analysis of longitudinal health check-up data

Hurst et. al 2017 (BMJ)
59,717 Japanese men/women w/ DMII
3 categories:
• slow eaters
• normal eaters
• fast eaters

Slower eaters had lower odds ratio of being obese
Changing from faster to slower eater lowered BMI

Summing it Up

• When counseling on nutrition, consider the role that the patient’s culture and environment plays in his/her food choices
  – Recognize and address barriers to healthy food choices such as food deserts and low income status
  – Be aware of external factors such as food processing, food dyes, and EDCs, and avoid them when possible
  – Consider including a food psychology approach in your nutrition plan

—VETERAN HANDOUT: Healthy Tips On Eating Out And Grocery Shopping
Practical Exercise

Find a partner (ideally from your site) and discuss if you are currently screening for food insecurity among veterans at your site.

How might you go about screening for low access to food? Once you identify patients with low access to food, what are three resources that you could offer these Veterans?

The Personal Health Inventory & Skill Application

"... Our job in medicine..."

"We've been wrong about what our job is in medicine. We think our job is to ensure health and survival. But really it is larger than that.

It is to enable well-being. And well-being is about the reasons one wishes to be alive. Those reasons matter not just at the end of life, or when disability comes, but all along the way."

-Atul Gawande, MD

Being Mortal
Eating for Whole Health
Day 1 Afternoon

**Personalized, Proactive, Patient-Driven**

PERSONALIZED
A dynamic adaptation or customization of recommended education, prevention and treatment that is specifically tailored to each individual user’s history.

PROACTIVE
Acting in advance of a situation to make things happen, rather than adjusting to a situation that is about to happen. Taking initiative to make things happen, such as setting goals for personal health or healing.

PATIENT-DRIVEN
An engagement between an individual and the care system where the patient is the source of control that their health care is based on their needs, values, and how the patient wants to live. This requires changing the conversation and start from a different place.

**Key Elements of Personal Health Plan**

- Education, Skill Building, Resources and Support
- Goal Setting (shared and SMART Goals)
- Self Reflection/Exploration (MAP)
- Personal Health Plan (Veteran Owned)
- Whole Health Assessment

**The Big Questions, Mission/Aspiration and Purpose**

- Education, Skill Building, Resources and Support
- Goal Setting (shared and SMART Goals)
- Self Reflection/Exploration (MAP)
- Personal Health Plan (Veteran Owned)
- Whole Health Assessment
Podcast: Why establishing the back story matters

Episode: “An Actor Walks Into A Doctor’s Office” (7/24/19)

The Components of Health and Well-Being (Tool 1)

The Personal Health Inventory (PHI) – Full Version (Tool 2)
Eating for Whole Health
Day 1 Afternoon

PHI – Brief Version

The Big Questions

• What REALLY matters to you in your life?
• What brings you a sense of joy and happiness?
• Vitality signs: On a scale of 1 to 5 with 1 being miserable and 5 being great where do you feel you are on the scale for:
  – Physical Well-Being?
  – Mental/Emotional Well-being?
  – Life: How is it to live your day to day life?

Assessing Areas of Self-Care

| Working the Body: Energy and Flexibility |
| Movement and physical activities like walking, dancing, gardening, sports, thing weights, yoga, cycling, swimming, and working out in gym. |
| Where you are now? |
| Rate yourself on a scale of 1 (low) to 5 (high) |
| 1 | 2 | 3 | 4 | 5 |
| Where you would like to be? |
| Rate yourself on a scale of 1 (low) to 5 (high) |
| 1 | 2 | 3 | 4 | 5 |
| What does the number you choose mean? |
| What changes could you make to help you get there?

The PHI has space to comment about your choice of numbers.
Eating for Whole Health
Day 1 Afternoon

Reviewing a PHI

• A springboard into the conversation
• Steps:
  1) "The Big Questions"
  2) Vitality signs
  3) "Where You Are Now and Where You Would Like to Be”
     – What numbers stand out?
     – Which ones are lowest and highest?
     – What areas have the biggest gaps between the numbers?
  4) Look at the reflection questions – a start to the plan

FOCUS ON NUTRITION FOR THIS COURSE!

Reflect and Assess

Look at the completed PHI:

• Where are you now from 1 to 5? Why?
  • Why not a lower number?
  • Where would you like to be from 1 to 5? Why?
  • What changes could you make?

What matters to you?

Complete the short version of the PHI for yourself and identify an area of the circle of health where you might want to set a goal or learn more about, that is something you are willing to share.

Connect with a partner at your table and exchange your PHI. Determine which of you will act first as a provider, reviewing the other person’s PHI and having a conversation about the big questions, the vitality ratings and the self care rankings. Take 5 minutes each practicing as the provider. I will give you a one minute warning before it is time to switch roles.
Implementation
Exercise #1:
Whole Health
Speed Dating

VA Speed Dating Instructions

• You will be assigned a number (ONE or TWO). The ONES will form an outer circle and then the TWOs will form an inner circle.
• Everyone should have a partner as we start
• The OUTER CIRCLE will rotate to the right every 2-3 minutes (we will let you know when it's time to move).
• With your “date”: take turns discussing the prompts we provide.
• Feel free to write down ideas / suggestions from your partner.
Prompt #1

- Discuss an innovative approach to whole health/nutrition that you or your site has already implemented
- Total time: 2-3 minutes

Prompt #2

- What is something you learned today that you can put into practice tomorrow?
- Are there any barriers to putting this into practice?
- Total time: 2-3 minutes

Prompt #3

- How do you see the future of whole health / nutrition at your site?
- Total time: 2-3 minutes
Prompt #4

• What are some nutrition resources that you might use after day 1 to continue to expand your knowledge of integrative nutrition?
• Total time: 2-3 minutes

Prompt #5

• What personal changes can you make to enhance your own well-being?
• What changes in your practice will help support your patients’ health and well-being?
• Consider staying in touch with your fifth speed date so that you can hold each other accountable for these personal and professional goals
• Total time: 4-5 minutes

Closing Remarks And Pulse Check: Day 1 Evaluations

THANK YOU!

Eating for Whole Health