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4

Consumers think of food as a **MEANS OF HEALTH** and part of their **PERSONAL IDENTITY**

66% believe that the foods they eat make a statement about their **personal values**



StrategicCris, Who Are What We Eat: Personal Values and Social Responsibility, 2010

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TRIBES

- **Anthropology**
 - Roman origin: *tribus*
 - Notional form of human social organization, way to describe cultures
 - Community having common ideology and defined by traditions of descent, language and culture
- **Food tribe**
 - Communities of people that share preferences regarding the types of food they eat or don't eat.
 - Reasons vary: personal health, ecological impact, concern for animal welfare or weight management.
 - Typically they extend into other areas – lifestyle identity anchored in food but includes other health tenets and aspirations



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FOOD 'TRIBES' IMPACT OUR DAILY ROUTINES

Close-knit communities bound by not only **nutritional** and **health** needs, but also **personal values, beliefs and behaviors**. (NEXT Media, 2015)

...communities of people coming together **online or in person** around **shared values** and needs to collectively express **what they want out of food**. (Food Navigator, 2018)

- E.g., also food restrictions, food allergies, avoidance or inclusion of certain ingredients

Broad impact on the way people eat → manufacturers, retailers, and food service operators forced to respond." (Mintel)

- **44% of adults** say food restrictions, food allergies, or avoidance of certain ingredients dictate what they eat. (2014 Packaged Facts Report; IFT Label Insight 2017)
- **Personalized nutrition** is big business – estimated at **11.5B** by **2025**. **GF**: from virtually non-existent in 2000 to >4.7B in 2017 (Global Wellness Summit, 2019)



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FOOD TRIBES



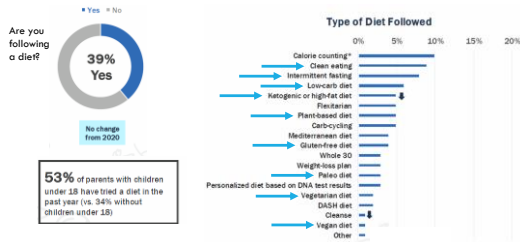
33% of households say they have at least one member following at least one **non-medically prescribed** dietary approach

FMI Grocery Shopper's Trends, 2019

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DIET TYPES



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FOOD 'TRIBE' FACTORS

- Food: inclusions, restrictions
- Health: varies from physical to mental/emotional to other markers of well-being
- Exercise: style, intensity, competitive/non-competitive
- Beliefs
- Values
- Behaviors
- Personalized



10

GLUTEN-FREE

CELIAC, NCGS, TREND



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GLUTEN-FREE

Estimated 17.59B industry in 2018; anticipated 9.1% growth rate from 2019-2025 (Grandview Research)

Both medicinal and "recreational" –

- 1 in 133 people suffer from celiac disease (Archives of Internal Medicine)
- 25% adopt the diet to lose weight (NBJ)



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GLUTEN-FREE

- Impact of popular media on perception
- Impact of popularity on reality (NCGS)
- Challenges and risks:**
 - Cost
 - Convenience
 - Pleasure / Emotional
 - Nutrition
 - Diagnosis – for NCGS

Díez-Sampedro et al., Journal Nutrition & Metabolism, 2019
Niland, B., & Cook, B. D. 2018.



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GLUTEN-FREE (NON-CELIAC DISEASE PATIENTS)

| Conditions With Potential Benefits From a GFD | Potential Harms of a GFD |
|---|--|
| Gluten-sensitive irritable bowel syndrome | Deficiencies of micronutrients and fiber |
| Nonceliac gluten sensitivity | Increases in fat content of foods |
| Schizophrenia or other mental health conditions | Hyperlipidemia |
| Atopy | Hyperglycemia |
| Fibromyalgia | Coronary artery disease |
| Endometriosis | Increased financial costs |
| Obesity | Social impairment or restrictions |
| Athletic performance | |

Niland, B., & Cook, B. D. 2018.

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GLUTEN-FREE

Potential nutrition issues in following GF diet by individuals and athletes

- Perception (healthy/balanced) vs. reality (inadequacies/imbalance)
- Without counseling, potential increased expense, as much as 242% higher (Goessec JADA, 2012)
- Potential nutrient inadequacies: B vitamins, fiber and iron
- Reduced healthy bacteria in gut
- Attributed largely to GF food choices than a GF diet itself

Very limited and mixed results research on gluten-free diet for non-medical reasons like exercise: e.g. performance, decreasing GI symptoms, well-being, cytokines, intestinal tissue, inflammation. Rosenkranz, MSSE, 2015.

Díez-Sampedro, et al. 2019
Rosenkranz, MSSE, 2015
Niland et al. 2018

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GLUTEN-FREE NUTRITIONAL CONCERNS


| Nutrient at Risk | Food Sources and/or to Supplement |
|----------------------|---|
| Fiber | Whole grains, fruits, vegetables, nuts, seeds |
| Vitamin D | Fatty fish (salmon, tuna, mackerel), liver, cheese, egg yolks, mushrooms, ready-to-eat cereals, fortified orange juice, yogurt |
| Calcium | Dairy, Chinese cabbage, kale, broccoli, tofu |
| Magnesium | Green leafy vegetables, nuts, seeds, whole grains |
| Iron | Lean meats, seafood, dark leafy greens, nuts, beans, vegetables, fortified grains |
| Folate | Liver, spinach, asparagus, Brussels sprouts, lettuce, legumes, enriched grains |
| Vitamin B12 | Animal products, fortified cereals |
| Fat-soluble Vitamins | D, A (leafy greens, orange and yellow veggies, tart cherries); E (nuts, seeds, veg oils); K (dark leafy greens, veg oils, pomegranate, blueberries) |

Many GF products are not enriched and may be deficient in fiber, folate, iron, niacin, riboflavin and thiamine which may impact nutrition cumulatively

Díez-Sampedro, et al. 2019
Niland et al. 2018

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PALEO & KETO

LOW CARB, HIGH PROTEIN (NO DAIRY, GRAINS)
VERY LOW CARB, HIGH FAT, MODERATE PROTEIN

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PALEO AND KETO, LOW-CARB

Paleo potential to reach \$4B by 2020 (IRI Worldwide)

- Rose 8% in first half of 2018 alone
- 364% growth rate from 2015-2020 (IBIS)
- 7% of those following a specific eating pattern (IFIC, 2018)

In general:

- Eats meats (wild and free range), fish, vegetables, fruits, eggs, nuts and some seeds, healthful oils.
- Avoids:** Dairy, grains (cereals), legumes, sugar, highly processed foods/modern industrial foods



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PALEO AND KETO, LOW-CARB

Keto

- Nearly \$10M diet market 2018, 5.5% growth estimate 2019-2027 (PR Newswire, 2019)
- Among highest high-growth search phrases: up 300% over 2016, while Paleo have declined steadily (Google, 2018; IFT, 2018)

In general:


- Focus is on the carbs being very low to induce ketosis
- Very low carbs (e.g. 25-50 g/day), high fat and protein (percentages vary)



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PALEO AND HEALTH



Impact on GI health and CVD risk (Genoni, EJN, 2019)

- SP, PP or control
- Resistant starch lower in SP, PP
- Total fiber lower in PP (not SP)
- Veg intake in SP HIGHER than control; met daily reco
- Fat intake higher SP, PP; sat fat >10% total calories in SP, PP
- Significantly higher TMAO in SP
- Negative changes to gut microbiome (lower relative abundance and variety; increased bacteria that increases TMAO)

Systematic review and metaanalysis (Manheimer, AJCN, 2015)

- Modest restriction of CHO, lack of high GI packaged products; low n-6:n3 balance, reduced salt of Paleo → some observed metabolic benefit
- Less clear whether avoiding whole grains and dairy has impact in this diet on metabolic benefit

Systematic review and metaanalysis (Ghaedi, ASN, 2019)

- Some evidence supporting benefits to CVD risk factors: SBP, DBP, TGs, LAD, TC, CRP
- "Food processing" relationship to increased availability and consumption of salt, oils, né fats, risk factors for chronic diseases; increased CHO, fat, ultra-processed foods on inflammation
- Significant reduction in BMI and fat (weight benefit)
- Effective approach to weight management

Genoni et al., Euro J Nutr 2019
 Manheimer et al., Am J Clin Nutr 2015
 Ghaedi et al., ASN 2019

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KETO AND PALEO (LOW-CHO) AND HEALTH

- **Systematic review of RCTs** (Churruarink, Obesity Treatment, 2018)
 - OW and Obesity
 - LCD diets: Atkins, Paleo, Zone, Sugar Busters, Harcombe, Keto
 - Defining LCD challenge
 - Mixed findings: 3 studies 3-4 months, significant weight loss; 2 studies 1-2 years, NS weight loss
- **Prospective Intervention (Keto)** (Lafountain, Military Medicine, 2019)
 - N=29 – self-selected keto or mixed diet control, 12-week exercise program
 - Measured metabolic and performance responses (BMI, body comp, visceral and liver fat, insulin sensitivity, resting metabolism)
 - Keto group lost 7.7 kg body mass, 5.1% body fat, 43.7% visceral fat and 48% improvement in insulin sensitivity vs no change in mixed diet group
 - Concluded: credible strategy for military service member readiness, weight loss, body comp

Churruarink et al., Obesity 19, 2018
Lafountain et al., Military Medicine, 2019

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KETO AND ADULTS VS. CHILDREN

- Medical intervention (seizure disorders, brain cancer) **versus** dietary preference
- Monitored diets (treatment and care plan) **versus** general food offered and available at home
- Potential risks to: Growth and development, energy and performance, focus and cognitive and mental health
- Safety: Adults versus children

Luat et al., Pediatr Ann, 2016.
Duchowny, Epilepsy Currents, 2005.
Nadler et al., J Am Coll Nutr, 1995.
Wilder et al., Aging (2018).
Wolff et al., Front Mol Neuro, 2016.
D'Andrea et al., Front in Neuro, 2019.
Zhang, Current Neuropharm, 2018.

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REASONS WHY A CHILD SHOULD NOT GO KETO UNLESS A PEDIATRICIAN SAYS SO....

- Potential side effects:
 - dehydration
 - electrolyte imbalance
 - digestive issues, such as nausea, vomiting, diarrhea, and constipation
 - impaired growth
 - vitamin and mineral deficiencies
 - elevated blood cholesterol levels
 - low blood sugar
- Without medical monitoring, potential adverse effects cannot be prevented, minimized or corrected. (and use for seizure disorders or cancer has more risk than benefit if not carefully administered and monitored.)
- Safety and adequacy: Potential for long-term impact on growth and development due to restrictive nature.
- Should NOT be used as a weight-loss diet. Keto is different than limiting or selecting quality carbohydrates in diet or monitoring portions and nutrient quality.
- Potential cultural and peer impact: perception of 'dieting', difficulty fitting in, diet mindset, potential toward eating disordered thinking or behaviors in adolescence, etc.

The ketogenic diet is a medical diet for refractory epilepsy. Nadler, Ann, Luat et al. (2016) 45(23).
Food for thought: the ketogenic diet and adverse effects in children. Duchowny, 2005. Epilepsy currents, 5(4), 152-164.

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PALEO NUTRITIONAL CONCERNS

| Nutrient at Risk | Food Sources and/ or to Supplement |
|--|---|
| Calcium | Dairy, Chinese cabbage, kale, broccoli, tofu |
| Vitamin D | Fatty fish (salmon, tuna, mackerel), liver, cheese, egg yolks, mushrooms, ready-to-eat cereals, fortified orange juice, yogurt |
| B-vitamins | Whole grains, cereals, enriched grains, potatoes, non-citrus fruits, chickpeas, green leafy vegetables |
| Excess saturated fats (ratio to PUFAs) | PUFAs: fatty fish, nuts, seeds, vegetable oils |
| Fiber* | Whole grains, fruits, vegetables, nuts, seeds |
| Resistant Starch | Oats, cooked and cooled rice, potatoes – cooked and cooled, other grains and starchy carbs cooked and cooled, legumes, less ripe bananas (toward green) |

- Typically high intake of meat linked to increased risk of CVD, DM and mortality.
- May lead to high intake of saturated fats (ratio), decreased intake of PUFAs.

Carnot et al., Euro J Nutr 2019
Harvard School of Public Health, 2019

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KETO NUTRITIONAL CONCERNS

| Nutrient at Risk | Food Sources and/or to Supplement |
|---|--|
| Calcium | Dairy, Chinese cabbage, kale, broccoli, tofu |
| B-vitamins | Whole grains, cereals, enriched grains, potatoes, non-citrus fruits, chickpeas, green leafy vegetables |
| Excess long chain saturated fats (ratio to PUFAs) | PUFAs: fatty fish, nuts, seeds, vegetable oils |
| Fiber | Whole grains, fruits, vegetables, nuts, seeds |
| Zinc | Oysters, red meat, poultry, crab, lobster, beans, nuts, whole grains, fortified cereals |
| Magnesium | Green leafy vegetables, nuts, seeds, whole grains |
| Iron | Lean meats, seafood, dark leafy greens, nuts, beans, vegetables, fortified grains |
| Folate | Liver, spinach, asparagus, Brussels sprouts, lettuce, legumes, enriched grains |
| Vitamin E | Nuts (almonds), seeds, vegetable oils (soybean, canola, corn) |

- Typically high intakes of saturated fats and meat/animal protein linked to increased risk of CVD, DM and mortality.
- May lead to high intake of saturated fats (ratio), decreased intake of PUFAs.

Chunwang et al., Obesity 1x 2018
Harvard School of Public Health, 2019

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PLANT-BASED EATING

EATING LESS MEAT,
MORE PLANTS

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PLANT-BASED EATING

- \$4.5B industry; 11%+ annual growth last couple years (Plant Based Foods Assoc; Good Food Institute, 2019)
- 31% growth since 2018
- 39% are trying to incorporate more plant-based foods in their diet (Nielsen, 2017)
- 6% describe themselves as vegetarian; 3% as vegan (Nielsen, 2017)
- 1 in 5 are eating more meatless meals (FMI, 2018)



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1

WHAT DO YOU THINK OF WHEN YOU HEAR
'PLANT-BASED DIET'?

*How would you define it to a client?
Does it include dairy and eggs?*

WHAT ARE YOUR THOUGHTS?



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ONE KEY TREND: EATING LESS MEAT HAS BEEN MOVING MAINSTREAM



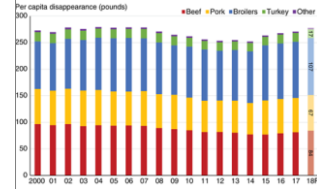
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ONE KEY TREND: EATING LESS MEAT HAS BEEN MOVING MAINSTREAM,

HOWEVER IT'S IMPORTANT TO ALSO NOTE:

Per Capita Disappearance of Meat Protein is Still High



USDA ERS, Dec 2019

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PLANT-BASED DIET

- More vegetables and fruits
- Less meat
- Meatless Mondays
- Vegan til 6 pm
- Weekend Omnivore
- Pescatarian
- Flexitarian
- Lacto-ovo vegetarian
- Minimally processed
- Vegan

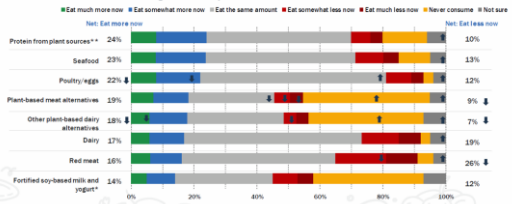
2019 WHO Food & Health Survey



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1 IN 4 REPORT MORE PLANT PROTEIN THAN 1 YEAR AGO

Change in Consumption of Protein Sources in the Past 12 Months



IFIC, Food and Health Survey 2021

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MANY MEAT-REDUCERS DO CONSUME AND BENEFIT FROM DAIRY IN PLANT-BASED DIETS

Milk's nutrients

| | Calcium | Protein | Na ⁺ | Potassium | Phosphorus | Starch | Vitamin A | Vitamin B12 | Vitamin D |
|-------------------|---------|---------|-----------------|-----------|------------|--------|-----------|-------------|-----------|
| Milk | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Soy (fortified) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Juice (fortified) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Enhanced Water | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Fruit Snack | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Granola Snack | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Notes: values are from Supplemental Table 1

| | Calcium | Protein | Na ⁺ | Potassium | Phosphorus | Starch | Vitamin A | Vitamin B12 | Vitamin D |
|--------------------------|---------|---------|-----------------|-----------|------------|--------|-----------|-------------|-----------|
| Children and Adolescents | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Adults | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Elderly Adults | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

...addressing many Nutrients of Concern in America

Dietary Guidelines for Americans, 2020-2025

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PLANT-BASED AND HEALTH

Health benefits:

- **Heart disease and BP** (Matumoto, AHS-2, J Nutr Science, 2019)
- **T2DM** (Qian, 2019; Toumpanakis, 2018); **Glycemic Control** (Vigilant, Clinical Nutr, 2019)
- **OW and obesity** (Turner-McGrievy, J Geriatr Cardiol, 2017; Vigiliant, Clinical Nutr, 2019)
- **Certain cancers** (Hastert et al, Cancer Epidemiol Biomarkers Prev, 2013)
- **CHD Mortality** (Glenn, Frontiers in Nutr, 2019)
- **Systematic review and metaanalysis**, (Qian, JAMA, 2019)
- Vegan and vegetarian and T2DM
- Significant inverse association between PBD and T2DM; RR 0.77
- **Systematic review**, (Toumpanakis, BMJ, 2018)
- Interventions with adults with T2DM
- Improvements: Depression, pain, neuropathy, HbA1c
- Physical, psychological and QOL improvements



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PLANT-BASED NUTRITIONAL CONCERNS

| Nutrient at Risk | Food Sources and/or to Supplement |
|---------------------------|--|
| Protein* | Meat, fish, poultry, pulses, nuts, seeds, grains |
| LCFAs (omega-3s, etc.)* | Fatty fish, nuts, seeds, vegetable oils |
| Calcium ^Δ | Dairy, Chinese cabbage, kale, broccoli, tofu |
| Vitamin D ^Δ | Fatty fish (salmon, tuna, mackerel), liver, cheese, egg yolks, mushrooms, ready-to-eat cereals, fortified orange juice, yogurt |
| Vitamin B12* ^Δ | Animal products, fortified cereals |
| Zinc ^Δ | Oyster, red meat, poultry, crab, lobster, beans, nuts, whole grains, fortified cereals |
| Iodine ^Δ | Seaweed and iodized salt |

Palmieri, Today's Dietitian, supplement, 2014
Vegetarian Resource Group
Adelphi Health Studies, Loma Linda University

* Well-planned plant-based diets can be replete in all nutrients; shift from one way of eating toward plant-based and perceptions can make these potential nutrients of concern.

^Δ More of a risk/concern to ensure in lacto-ovo or vegan diet.

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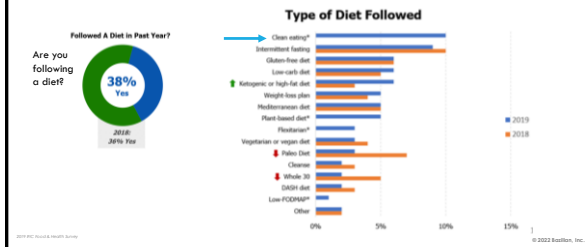
CLEAN EATING

REAL FOODS,
MINIMALLY PROCESSED



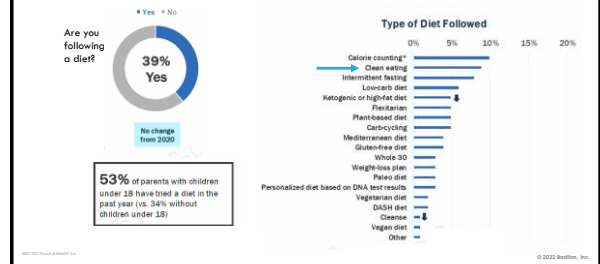
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CLEAN EATING – MOST WIDELY CITED DIET IN 2019



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CLEAN EATING 2ND MOST CITED 2021



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CLEAN EATING: WHAT IT IS

- Improving quality.
- Whole foods and ingredients first.
 - No added sugar, salt, fat.
 - No synthetic preservatives or chemicals.
- Minimally processed foods made with whole and familiar ingredients.
- Where possible, avoid:
 - ultraprocessed foods
 - foods with added synthetic chemicals, pesticides and preservatives
 - artificial sweeteners, flavors and colors.
- Culture that promotes **cooking at home**.
- Commitment to longer journey of **good health** through smart choices.



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CLEAN EATING: WHAT IT ISN'T

- A hard science.
- Exclusive and judgmental.
- Only about avoiding processed foods or chemicals.
- Inflexible.
- A weight-loss diet.
- Versus "dirty".



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CLEAN EATING (MINIMALLY PROCESSED/HIGH QUALITY) AND HEALTH

- **Dietary adequacy, restraint and opinions, (Allen, Nutrients, 2018)**
 - 25% of survey respondents adhered to clean eating advice from web/social sites
 - Women reporting CE has significantly higher consumption of fruit, meats and meat alternatives
 - Higher consumption of all core groups except grains in clean eating respondents vs control group
 - Significantly higher restrained eating
- **Ultra-processed foods, RCT, (Hall, Cell Metabolism, 2019)**
 - Crossover, 2 weeks/2 weeks – matched for high salt, sugar and fat
 - Subjects eating ultra-processed diet consumed 508 calories more (from carbs and fats, not protein) than unprocessed diet, gained 2 pounds; unprocessed diet lost 2 pounds
 - Subjects ate faster during ultra-processed phase vs unprocessed phase
- **Editorial Review, Ultra-processed foods, (Lawrence & Baker, BMJ, 2019)**
 - Ultra-processed foods – poor diet quality
 - Link with CV risk factors (lipids, HTN), metabolic syndrome, obesity
 - Association with CVD and all-cause mortality (Sour et al., BMJ, 2019 & Rico-Campa et al., BMJ, 2019)
 - Cancer link (editorial; Fiolet et al., BMJ, 2018 & Monge and Lajous, BMJ, 2018.)

Allen, Nutrients, 2018
Hall, Cell Metabolism, 2019
Lawrence and Baker, BMJ, 2019

Plus >6 published reviews and growing in and since 2020

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CLEAN EATING AND CHILDREN

Potential plusses:

- Less processed foods = good overall, if there is nutritional variety and balance.
- Can meet all nutritional needs.
- Avoiding stigma around foods, while paying attention to nutrition and ingredient quality.



Risks:

- Orthorexia, especially in teens.
- Using this style of eating or trend to overly restrict.
- Establishing unhealthy relationship with food if using CE as a form of judgement.

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CLEAN EATING (MINIMALLY PROCESSED/HIGH QUALITY) NUTRITIONAL CONCERNS

| Nutrient at Risk | Why? |
|---|---|
| Varied (Interpretation) | Different definitions – some interpretations are nutritious, wide, varied; some are restrictive and puritanistic; some are proxy for low carb or other restrictive preferences |
| Grains / carbs: Potentially fiber, | Allen et al., Nutrients, 2018 found that women who self-reported they adhered to 'clean eating' advice included adequate amounts of all core foods except for grains compare to the control group surveyed |
| Enrichment vitamins: B vitamins: thiamin, riboflavin, niacin; iron; folate | If a person is extreme on avoiding any 'processed' foods in packages or only choose whole grains, there is a chance of decreased nutrients that enrichment of cereals and grain products offers as a public health approach |
| Certain micronutrients | If someone is using clean eating as a label for overly restrictive eating behaviors |
| <ul style="list-style-type: none"> • Positive: Decreased consumption of ultra-processed food overall (and increased diet quality) has recently shown to have health benefits. • Cautions: Orthorexia / OFSED – unhealthy obsession with wellness or otherwise healthy eating and eating practices, potentially distorted body image and (generally) restrictive behaviors • Concept or label clean eating may be used as a justification for following any extreme diet from the person doing it. <ul style="list-style-type: none"> • Potential low health and nutrition literacy • Important for health professionals to be aware of information and part of conversation not avoid it. | |

Allen, Nutrients, 2018

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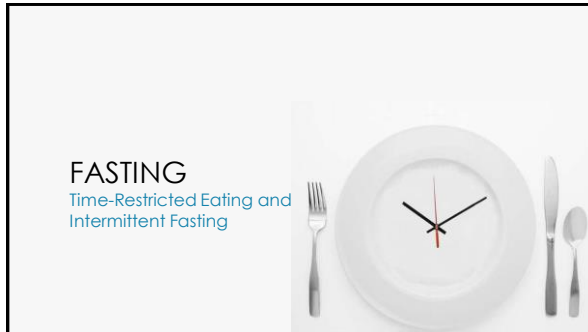


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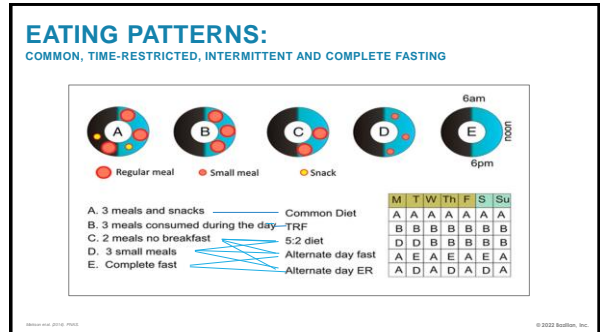
What's the biggest (or most common) misperceptions you find people you work with have about healthy eating today?

WHAT ARE YOUR THOUGHTS?

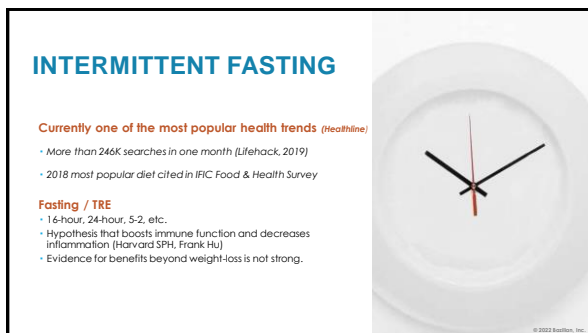
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INTERMITTENT FASTING AND HEALTH

- **WEIGHT / BODY COMP**
Review, Patterson and Read, Ann Nutr Rev, 2017
 - Not harmful in healthy, nl, OW, obese adults
 - Almost any style results in some weight loss, 11/16 intervention trials reviewed, statistically signif. weight loss (impractically)
 - Alternate-day weight loss and decreased glucose and insulin, but intense hunger symptom
 - NS: If compared to other calorie restricted regimens for weight loss
 - Data lacking/limited for other health behaviors on sleep, physical activity; limited on DM, CVD, cancer, XO
 - Lack of large-scale RCTs for >1 year
- **GLYCEMIC CONTROL / METABOLIC CONTROL**
RCT, 12-weeks, Corley, Diabetic Medicine, 2018
 - Risk of hypoglycemia – IF in T2DM
 - 2 arms: 500-cal on 2 consecutive days or on 2 non-consecutive days
 - Rate of hypoglycemia also QOL, weight, lipid, glucose, HbA1c, liver function
 - Both arms increased hypoglycemic episodes, both IF arms experienced improvements in weight, HbA1c, fasting glucose and QOL (NS between groups)
 - Rate of hypoglycemia event was 2x greater during fasting than non-fasting days (no difference between fasting arms)
 - No severe hypoglycemic episodes, most participants had no episodes
 - Lower than expected and clinically acceptable risk of hypoglycemia when combined with weekly supervision, hypoglycemia education and medication reduction of insulin
- **NEUROPROTECTION BENEFITS?**
 - Reduced oxidative stress, increase brain hormone BDNF (animal model research), Jeong, Exp Ther Med, 2014
- **INFLAMMATION / OXIDATIVE STRESS / LONGEVITY**

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INTERMITTENT FASTING NUTRITIONAL CONCERNS

| Nutrient at Risk | Why? How to achieve? |
|---|--|
| Varied (interpretation) | <ul style="list-style-type: none"> Various styles and regimens Existing health conditions; metabolic disorders Modifications – food, meal/bouton related Consistent adherence Uninformed / experiential adherence Duration – short-term, long-term |
| Phytochemicals Micronutrients | Obtain from high quality meals on non fasting times/days: <ul style="list-style-type: none"> Fruits, Vegetables Supplement(s) |
| Health risks: <ul style="list-style-type: none"> Dehydration Headache Hypoglycemia Heartburn |  |

Allen, Neri/et al, 2018

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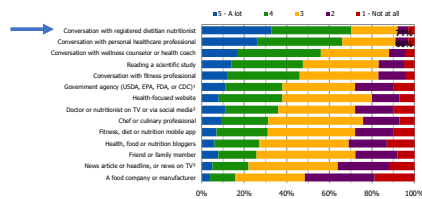
TRANSLATING TO THE TABLE



50

CONSUMERS PUT TRUST IN HEALTH PROFESSIONALS

Trusted Sources About Which Foods to Eat/Avoid

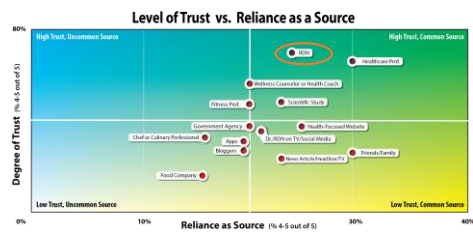


2019 IFIC Food & Health Survey

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RELATIONSHIP BETWEEN TRUST AND RELIANCE TO GUIDE FOOD AND HEALTH DECISIONS



2019 IFIC Food & Health Survey

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TARGET: OCCASIONS AND BITES

THE DGA's 2020-2025
DGAC REPORT 2020

Align with:

- frequency, timing
- Individual health (e.g. allergies/intolerances)
- environmental, situational, energy needs, eating pattern preferences and personal taste

Every eating occasion is a chance to make nutrient-dense food choices.







Make Every Bite Count

DGAs 2020-2025
DGAC report 2020

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FOCUS ON FOODS TO GET NUTRIENTS


Meals, Foods, Nutrients:

| | | |
|--|---|--|
|  Fiber |  Potassium |  Protein |
|  Vitamin D |  Iron |  Calcium |

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ENCOURAGE THOSE VEGETABLES AND FRUITS



Only 1 in 10 Americans meet the daily recommendation for fruits and vegetables. (CDC)

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USE THE BEVERAGES IN THE DIET TO YOUR CLIENT'S ADVANTAGE

Why Beverages Matter to Diet Quality

SSBs

#1 source of added sugars for young children (Bailey et al, 2018; Kay et al., 2018) and in fact, **ALL** ages. (DGAC Report 2020)

- Soda
- Fruit drinks
- Energy drinks
- Sweetened coffee drinks
- Sweetened unfortified plant 'milks'
- Sports drinks
- Cocktail mixers

Beverages with Nutrients

Nutrients Obtained from Beverages

- Vitamin C and D from milk and 100% juice
- 40-50% daily needs in children
- Recommendations:
 - Limits on 100% juice in children: combination whole fruit and 100% juice within energy needs for adults
 - 2-3 cups milk/dairy equivalents or fortified soy milk

Milk & 100% Juice

>1/3

daily intake of shortfall nutrients: vit. C, vit. D, Ca2+

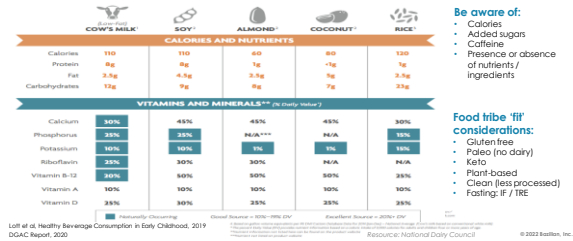
Kennedy et al., AJPH, 2015
DGAC Report 2020
ICM, Dietary Reference Intakes for Water, Potassium, Sodium, Chloride & Sulfate, 2020

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USE THE BEVERAGES IN THE DIET TO YOUR CLIENT'S ADVANTAGE

Why Beverages Matter to Diet Quality



Be aware of:

- Calories
- Added sugars
- Caffeine
- Presence or absence of nutrients / ingredients

Food tribe 'fit' considerations:

- Gluten-free
- Paleo (no dairy)
- Keto
- Plant-based
- Clean (less processed)
- Fasting: IF / TRE



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If you were asked to provide a primary care physician a 'one liner' that they can use with their patients about the importance of consulting with an RDN for their nutrition goals, what would it be?

WHAT ARE YOUR THOUGHTS?

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FOOD TRIBES IN YOUR PRACTICE

- Listen to the 'why' to level set.
 - There can be a difference between a family that has always followed a nutrient-rich plant-based or vegetarian diet compared with a family or patient trying it for the first time.
 - Whether it's a medically advised diet (medical reason from another health professional) or self-prescribed.
 - Learning curve and motivations can vary.
- Be particularly aware of teen (and 'tween') client communication around popular diets.
- Always emphasize nutrient-rich foods, variety, balance
- Ensuring key nutrients and levels being met
 - Macros – lean protein, whole grains, healthy fats
 - Micros – esp. nutrients of concern: calcium, potassium, vitamin D, fiber...zinc
 - Phyto...
 - Less: added sugars (SBR), balancing sat fats, excess salt, ultraprocessed foods

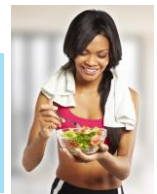


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HEALTHY EATING FOR YOUR PATIENTS and Planning with Tribes in Mind

Considerations

- Understand individual preferences, tolerances
- Assess nutritional status
- In general, customize to fit the health status, activity, and other factors
- Pay attention to areas of concern and highlight positives of dietary and lifestyle approach
- Provide tips and techniques to maximize flavor and nutrition
- Use evidence-based recommendations



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NDC

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Thank you

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Food Tribes and How They're Steering Health and Wellness Today

IAND
Indiana Academy of Nutrition & Dietetics

Thanks a Brazilian

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Gluten-Free

| Occasion | Ideas |
|-----------|--|
| Breakfast | Banana, mango, greens smoothie with Greek yogurt or veggie omelet with gluten free toast |
| Lunch | Tuna salad made with yogurt or mayo, celery, mustard, veggies with baked corn tortilla chips or quinoa |
| Dinner | Baked chicken, sweet potato, asparagus or GF pasta, turkey meatballs, marinara with green salad |
| Snack | Hardboiled egg and apple, Nut and dried fruit protein bar |
| Snack | Walnuts and dried cherries |

Considerations:

- GF grains
- Fiber, B-complex, calcium, vit D, fat sol vits, enrichment vits, iron if advised



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Paleo (Semi Low-Carb/Keto)


| Occasion | Ideas |
|-----------|---|
| Breakfast | Two eggs scrambled in extra-virgin olive oil, topped with avocado |
| Lunch | Grilled Chicken, sweet potato, broccoli drizzled with avocado oil, and an apple |
| Dinner | Poached wild salmon, spinach and ginger, mixed green salad with sliced almonds and oranges, vinaigrette of extra virgin olive oil and lemon juice |
| Snack | Raisins and walnuts trail mix; Baked apple with cinnamon |
| Snack | Smoothie: banana, mango, egg white protein powder |

Considerations:

- Fiber
- Sources of calcium, vitamin D, B vitamins, sat fats, possible supplementation

Paleo Carbs:

- Banana / plantains
- Sweet potatoes / yams
- White potatoes
- Acorn, butternut and winter sq
- Parsnips



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Plant-based Vegan / Vegetarian

| Occasion | Ideas |
|-----------|--|
| Breakfast | Steel cut oats with milk or unsweetened non-dairy 'milk', sliced banana or berries cinnamon and 2 Tbsp chia seeds, honey or stevia |
| Lunch | Curried Chickpea salad on sprouted grain wrap with veggies OR raw almond butter and banana sandwich on sprouted grain bread |
| Dinner | Quinoa bowl with black beans, salsa, sweet potatoes, avocado, grated carrots and spinach |
| Snack | Banana with cashew butter |
| Snack | Smoothie-Green smoothie with spinach, pineapple, banana, raw almond butter, plant protein and ginger |

Considerations:

- Plant proteins
- Sources of LCFAs, iron, zinc, B12, possible supplementation



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Intermittent Fasting – 5:2

| Occasion | Ideas |
|-----------|--|
| Breakfast | 4 egg white scramble with spinach and mushrooms and once slice whole grain toast |
| Lunch | 3 ounces tuna, 1/4 avocado, grated carrots, lettuce wrap |
| Dinner | 3 ounces lean grilled chicken, 1 cup lettuce, 1/2 baked sweet potato |

~500 calories

Considerations:

- Quality of calories consumed
- Hydration
- Micronutrients



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SUMMARY

- Food tribes are part of our health identity
- Though research is limited, more on some than others:
 - Seek evidence-based guidelines when adopting certain diets for non-medical reasons to support individualized and optimal health
 - Get to know the features of the tribe
 - Identify inclusions and exclusions
- Know nutrients of concern so you can address those with foods first and selective supplementation as appropriate
- Meal plan around B, I, D, snacks for optimal health



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