“Let food be thy medicine and medicine be thy food”

Hippocrates
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https://www.facebook.com/keyescompounding&specialtydrug
Disclosures

Suzanne Keyes “declare(s) no conflicts of interest, real or apparent, and no financial interests in any company, product, or service mentioned in this program, including grants, employment, gifts, stock holdings, and honoraria.”

The American College of Apothecaries is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education.
Objectives

Upon completion of the session, the participant shall be able to:

- State the difference between a diet and a lifestyle modification
- Recognize the origins of chronic disease
- Recognize the top food plans and recommend plans appropriate for specific conditions
The Standard American Diet → Excessive VISCERAL Fat → Inflammation → Intestinal Permeability → CHRONIC DISEASE
“Many studies have investigated the health benefits of various functional food ingredients, omega-3 fatty acids, polyphenol, fiber and plant sterols...

...Thus, public health benefits should result from promotion of the positive components of Paleolithic diets as functional foods.”
The word DIET was originally defined as “a way and manner of living” stemming from the Greek word “DIAITA”

“When we change a food behavior for the SOLE purpose of weight loss – it becomes easy to throw it out the window when the expected outcome doesn’t occur. I call THIS a DIET…

“…When we change a food behavior based on the statistical data and clinical outcomes – it becomes impossible to revert to our old dietary ways. I call THIS a LIFESTYLE MODIFICATION.”

Suzanne Keyes, PharmD, FACA
The Standard American Diet → Excessive VISCERAL Fat

WILDLY OBVIOUS, yes?

1960

+24 lbs.

2014
The Standard American Diet

1970
2077 Calories

1990
2343 Calories

2010
2590 Calories

United States Department of Agriculture,
Economic Research Service
Food Availability (Per Capita) Data System,
Loss-adjusted food availability

©Jeff Novick, 2015
WHAT ARE WE EATING?
What the Average American Consumes in a Year

The Average American

Age: 36.6
Height: 5’9” (m)
5’4” (f)
Weight: 190 lbs (m)
164 lbs (f)

Average Caloric Intake: 1,996.3 LBS

Fats & Oils 85.5 lbs
Red Meat 110 lbs
Poultry 73.6 lbs
Fish & Shellfish 161.1 lbs
Eggs 32.7 lbs
Cheese 31.4 lbs
Dairy Products (non-cheese) 600.5 lbs
Beverage Milks 217 lbs
Wheat Flour 151.1 lbs
Flour & Cereal Products 152.3 lbs
Caloric Sweeteners 141.6 lbs
Coffee, Cocoa & Nuts 24 lbs
Vegetables 415.4 lbs

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That Includes:

- 29 lbs of French Fries
- 23 lbs of Pizza
- 24 lbs of Ice Cream
- 24 lbs of Artificial Sweetener
- 2.7 lbs of Sodium
- 0.2 lbs of Caffeine
- 50 gallons of Soda

...every year

Averaging out to a total of 2,700 calories EVERYDAY
Old ("old, OLD") Food Pyramid

- Fats, Oils, & Sweets
  Use Sparingly

- Milk, Yogurt & Cheese Group
  2–3 Servings

- Vegetable Group
  3–5 Servings

- Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group
  2–3 Servings

- Fruit Group
  2–4 Servings

- Bread, Cereal, Rice, & Pasta Group
  6–11 Servings
U.S. FOOD CONSUMPTION AS A % OF CALORIES

PLANT FOOD:
Vegetables, Fruits, Legumes, Nuts & Seeds, Whole Grains
Fiber is only found in plant foods.

NOTE: Up to half of this category may be processed, for example almonds in candy bars, apples in apple pies or spinach in frozen spinach soufflé, and of course these would not be healthy choices. The focus should be on whole unprocessed vegetables, fruits, legumes, nuts and seeds and whole grains.

ANIMAL FOOD:
Meat, Dairy, Eggs, Fish, Seafood
Cholesterol is only found in animal foods. Animal foods are the PRIMARY source of saturated fat.

GUIDE TO HEALTHY EATING:
Much easier to understand than the USDA Food Pyramid, with no food industry influence.

Eat LESS from the animal and processed food groups and MORE whole foods from the plant food group.

In general, food from the animal and processed food group contribute to disease, while WHOLE foods from the plant group contribute to good health.

PROCESSED FOOD:
Added Fats & Oils, Sugars, Refined Grains

New York Coalition for Healthy School Food: www.healthyschoolfood.org
Special thanks to Joel Fuhrman, MD, author of Disease-Proof Your Child: Feeding Kids Right * Graphics by MichelleBoeck.com
© 2009, New York Coalition for Healthy School Food

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The “Westernized” Standard American Diet (S.A.D.)

High in saturated and trans fatty acids

Low in fiber/high refined grains

High sodium/low fruit and vegetables

High in refined sugars

“Super Sized” – high quantity/poor quality
Supports imbalances in Macronutrient Composition and Micronutrient density - Franzo E, US Dept. of Agri 1999
Fast Facts

- More than $\frac{2}{3}$rd of adults AND about $\frac{1}{3}$rd of children & adolescents (ages 6 to 19) are considered to be OVERWEIGHT.

- More than $\frac{1}{3}$rd of adults AND than $\frac{1}{6}$ in 6 children & adolescents (ages 6 to 19) are considered to be OBESE.

- More than $\frac{1}{20}$ in 20 adults are considered morbidly OBESE
Inflammation

Low Histamine, Paleo, Low FODMaPs, GAPs, SCD

ADVANCED TESTING

CRP or hs-CRP, ESR, Ferritin, HDL, CBC w/ differential
Adipose tissue is now considered to be an ACTIVE ENDOCRINE ORGAN that secretes various humoral factors (adipokines), and its shift to production of PROINFLAMMATORY CYTOKINES in obesity likely contributes to low-level SYSTEMIC INFLAMMATION that is seen in...chronic pathologies...
SAD (the Standard American Diet) Causes INFLAMMATION

---

**Abstract**
Reducing the incidence of coronary heart disease with diet is possible. The main dietary strategies include adequate omega-3 fatty acids intake, reduction of saturated and trans-fats, and consumption of a diet high in fruits, vegetables, nuts, and whole grains and low in refined grains. Each of these strategies may be associated with lower generation of inflammation. This review examines the epidemiologic and clinical evidence concerning diet and inflammation. Dietary patterns high in refined starches, sugar, and saturated and trans-fatty acids, poor in natural antioxidants and fiber from fruits, vegetables, and whole grains, and poor in omega-3 fatty acids may cause an activation of the innate immune system, most likely by an excessive production of proinflammatory cytokines associated with a reduced diet approach seems particularly promising to reduce the inflammation associated with the carbohydrate, fat, and protein, associated with regular physical activity and avoidance of smoking disease. Western dietary patterns warm up inflammation, while prudent dietary patterns can...
Pro-Inflammatory Foods

**Refined Sugar:** The American Journal of Clinical Nutrition warns that processed sugars trigger the release of inflammatory messengers called cytokines.

**Saturated Fats:** Referring to LONG CHAIN FATTY ACIDS found mostly in fatty animal proteins

**Trans Fats:** TFA intake predicts risks of coronary artery disease and diabetes.

**Alcohol:** SIGNIFICANTLY increases the translocation of lipopolysaccharides from the gut

**Gluten & Casein:** Proteins - casein, gliadin and glutenin – can trigger intestinal changes, local, and systemic inflammation. Only recently have we begun to understand how and why. In the case of gluten, zonulin-mediated permeability, affords gut contents, including bacterial toxins, access to the bloodstream, where they can play a significant role in driving inflammation.

**Omega 6 Fatty Acids:** Omega 6 fatty acids are an essential fatty acid that the body needs for normal growth and development. The body needs a healthy balance of omega-6 and omega-3 fatty acids. Excess consumption of omega-6s can trigger the body to produce pro-inflammatory cytokines.

**Refined Carbs:** These high-glycemic index foods fuel the production of advanced glycation end (AGE) products that stimulate inflammation.

**MSG:** Triggers two important pathways of chronic inflammation, and affect liver health.

**Aspartame:** This artificial sweetener, found in more than 4,000 products worldwide, is a neurotoxin and elicits an immune response.
The Standard American Diet → Excessive VISCERAL Fat → Inflammation

We all KNOW this!

CHRONIC DISEASE

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So, What Are We Dealing With?...

50 million Americans are HYPERTENSIVE

11 million have Type 2 DIABETES

50 million have HYPERLIPIDEMIA

And 1/3rd of all CANCER DEATHS are due to NUTRITIONAL factors
Inflammation

- Pulmonary diseases
- Cancer
- Cardiovascular diseases
- Neurological diseases
- Alzheimer
- Autoimmune diseases
- Diabetes II
- Arthritis
"...INFLAMMATION is now recognized as an overwhelming burden to the healthcare status of our population...

Abstract

Inflammation is now recognized as an overwhelming number of diseases. The elderly generally bear the burden of this inflammation, resulting from decades of lifestyle choices. Lower can be prevented or treated with aggressive vitamin E, curcumin, or omega-3s inflammation. Chronic inflammation underlies conditions such as syndrome, hypertension, diabetes, and hyperlipidemia. It is no longer appropriate to allow our bodies to be filled with fat, although there is much more to understand. We have the information to affect the inflammatory process and potentially live longer, healthier lives, with fewer burdens to an overburdened and failing medical system."
Chronic Disease

According to the National Center for Chronic Disease Prevention, Chronic Disease is defined as “illnesses that are prolonged, do not resolve spontaneously and are rarely cured completely.”

Mosby’s defines Chronic Disease as “a disease or disorder developing slowly and persisting for a long period of time, often for the remainder of the lifetime of the individual.”
How Widespread Are The Effects?

- More than 50% of the world lives with chronic disease.
- By 2020, a projected 81 million Americans will have multiple chronic conditions.
- 99% of disease management is in the hands of individuals and their families.

Learn More »
Chronic diseases are responsible for 7 OF 10 DEATHS each year, and treating people with chronic diseases accounts for 86% OF OUR NATION’S HEALTH CARE COSTS.

According To The CDC:

COSTS OF CHRONIC DISEASE

CHRONIC DISEASES ACCOUNT FOR $3 OF EVERY $4 SPENT ON HEALTHCARE OR $7,900 FOR EVERY AMERICAN WITH A CHRONIC DISEASE.

SINCE THEY ARE FREQUENTLY LONGSTANDING, PEOPLE WITH CHRONIC CONDITIONS ARE ALSO AT HIGH RISK FOR DEPRESSION, ANXIETY, MENTAL AND FAMILY DISORDER AND FINANCIAL BURDEN.

ABOUT 25% OF PEOPLE WITH A CHRONIC DISEASE HAVE SOME TYPE OF ACTIVITY RESTRICTION, E.g., MOBILITY, PERSONAL CARE, WORK OR SCHOOLING.

EVEN WITH HEALTH INSURANCE, CHRONIC CONDITIONS CAN POSE A SIGNIFICANT FINANCIAL BURDEN, PARTICULARLY WHEN WORK IS AFFECTED.

PEOPLE WITH CHRONIC DISEASES ARE AT HIGHEST RISK OF MEDICAL ERRORS AND DUPLICATE OR UNNEEDED SERVICES.

MOST DISABILITY AND PREMATURE DEATHS IN U.S. ARE CAUSED BY CHRONIC DISEASES SUCH AS DIABETES, CANCER, AND HEART DISEASE.

Health care costs for a person with one or more chronic conditions ARE FIVE TIMES HIGHER COMPARED TO INDIVIDUALS WITHOUT A CHRONIC DISEASE.

1 in 3 children born today will develop diabetes in their lifetime (1 in 2 Latino children).

MEDICAL EXPENSES ARE THE #1 CAUSE OF BANKRUPTCIES IN THE U.S.

1994

OBESITY IN ADULTS HAS DOUBLED IN THE LAST 20 YEARS, TRIPPLED IN CHILDREN AGES 2-11, AND MORE THAN TRIPPLED IN CHILDREN AGES 12-19.

OVERWEIGHT AND OBESITY ARE THE BIGGEST PUBLIC HEALTH THREATS OF THIS CENTURY, CAUSING UNPRECEDENTED INCREASES IN THE RATES OF DIABETES, HEART DISEASE, OSTEOARTHRITIS, AND OTHERS.

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A strategy to reduce cardiovascular disease by more than 80%.

Wald NJ, Law MR.

Abstract

OBJECTIVES: To determine the combination of drugs and vitamins, and their doses, for use in a single daily pill for preventing cardiovascular disease with minimal adverse effects. The strategy was to simultaneously reduce low density lipoprotein cholesterol, blood pressure, serum homocysteine, and platelet function) regardless of patient risk.

DESIGN: We quantified the efficacy and adverse effects of the proposed formulation from published meta-analyses and studies and a meta-analysis of 15 trials of low dose (50-125 mg/day) aspirin.

OUTCOME MEASURES: Proportional reduction in ischaemic heart disease (IHD) events and strokes; life effects.

RESULTS: The formulation which met our objectives was: a statin (for example, atorvastatin (daily dose 10 mg) or simvastatin (40 mg)); three blood pressure lowering drugs (for example, a thiazide, a beta blocker, and an angiotensin converting enzyme inhibitor), each at half standard dose; folic acid (0.8 mg); and aspirin (75 mg). We estimate that the combination (which we call the Polypill) reduces IHD events by 88% (95% confidence interval 84% to 91%) and stroke by 80% (71% to 87%). One third of people taking this pill from age 55 would benefit, gaining on average about 11 years of life free from an IHD event or stroke. Summing the adverse effects of the components observed in randomised trials shows that the Polypill would cause symptoms in 8-15% of people (depending on the precise formulation).

CONCLUSION: The Polypill strategy could largely prevent heart attacks and stroke if taken by everyone aged 55 and older and everyone with existing cardiovascular disease. It would be acceptably safe and with widespread use would have a greater impact on the prevention of disease in the Western world than any other single intervention.
Or Poly MEAL?

The Limits Of Medicine

The Polymeal: a more natural, safer, and probably tastier (than the Polypill) strategy to reduce cardiovascular disease by more than 75%

Abstract

Objective Although the Polypill concept (proposed cardiovascular risk management, the potential cost of this study was to identify a safer and more effective strategy).

Methods Data on the ingredients of the Polymeal were taken from the literature. The evidence-based recipe included wine, fish, dark chocolate, fruits, vegetables, garlic, and almonds. Data from the Framingham heart study and the Framingham offspring study were used to build life tables to model the benefits of the Polymeal in the general population from age 50, assuming multiplicative correlations.

Results Combining the ingredients of the Polymeal would reduce cardiovascular disease events by 76%. For men, taking the Polymeal daily represented an increase in total life expectancy of 6.6 years, an increase in life expectancy free from cardiovascular disease of 9.0 years, and a decrease in life expectancy with cardiovascular disease of 2.4 years. The corresponding differences for women were 4.8, 8.1, and 3.3 years.

Conclusion The Polymeal promises to be an effective, non-pharmacological, safe, cheap, and tasty alternative to reduce cardiovascular morbidity and increase life expectancy in the general population.
Other than making us *FAT*, why focus on *FOOD*?
Because someone once said...

“ALL DISEASE BEGINS IN THE GUT!”

-Hippocrates
The doctor of the future will give no medicine, but will instruct his patient in the care of the human frame, in diet and in the cause and prevention of disease.

(Thomas Edison)
Don’t forget...

The **ENTERIC NERVOUS SYSTEM**, that contains as **MANY NEURONS AS THE SPINAL CORD**, is located in the gut.

**75%** of the body’s **NEUROTRANSMITTER PRODUCTION** occurs in the gut.

Almost **70%** of the entire **IMMUNE SYSTEM** is located in the gut.
Remember *THIS* Slide?

- **KNOW the PATIENT**
- **KNOW the TRIGGERS**
- **KNOW the LABS**
- **KNOW the DRUGS**
- **KNOW the DIAGNOSIS**
Now... We Need to

KNOW the FOODS

KNOW the DISEASE

KNOW the DRUGS

KNOW the LABS

KNOW the PATIENT

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Let’s DIG-IN
and Review The *Functional* Roles of The Gut

\[
\begin{align*}
D &= \text{digestion / absorption} \\
I &= \text{intestinal permeability} \\
G &= \text{gut microbiota} \\
I &= \text{immune regulation} \\
N &= \text{nervous system}
\end{align*}
\]
Start With ELIMINATING
The TERRIBLE TRIO

- GLUTEN
- SUGAR
- DAIRY
BUT...

Before you can recommend a food plan – you must first **KNOW** the foods that precipitate **OR** trigger their condition!

In order to **KNOW** the foods that precipitate or trigger the patient’s condition – you must first **KNOW** the condition
The Standard American Diet → Excessive VISCERAL Fat → Inflammation → My guts are LEAKING???

CHRONIC DISEASE → Intestinal Permeability
Intestinal Permeability
Whole foods, Anti-Inflammatory, SCD

ADVANCED TESTING
IP Assessment Urine Test
(using Lactulose & Mannitol)
Pathophysiological mechanisms of stress-induced intestinal damage.

Gareau MG¹, Silva MA, Perdue MH.

Abstract

Stress has been shown to have both central and peripheral effects, promoting physiological changes that can contribute to inflammation and increased intestinal permeability. All because of chronic stress! Stress in humans can exacerbate symptoms of irritable bowel syndrome (IBS) and inflammatory bowel disease (IBD), lowering visceral pain thresholds and decreasing mucosal barrier function. Studies in rodents have revealed that both acute and chronic exposure to stressors can lead to pathophysiology of the small and large intestine, including altered ion secretion and increased epithelial permeability (by both transcellular and paracellular pathways). Prolonged exposure to stress can induce low-grade inflammation, cause ultrastructural epithelial abnormalities, and alter bacterial-host interactions allowing greater microbial translocation. In this review, we discuss the stress response and the effects of both acute and chronic stress to induce pathophysiological damage to the gut. We present the potential pathways involved, and the proposed mechanisms of action mediating the effects. Furthermore, we explore the impact of early life stress on colonic physiology in neonatal rodents and the implications for gut dysfunction in adulthood.
Intestinal Permeability: What Is It?

- The protein, *zonulin*, controls the size of the openings between the endothelial cells in gut lining and the bloodstream. Small openings are needed between the two to transport nutrients back and forth, but *abnormally high levels of zonulin* can cause these openings to become too large.

- Chronic damage extends to the microvilli where nutrients *would have normally been absorbed*.

- When the intestinal *barrier becomes permeable*, large *molecules* (particles of undigested food, *LPS*) *escape* into the bloodstream. Since these proteins don’t belong outside of the gut, the body mounts an *immune response* and attacks them.
Intruder! DESTROY!

wh-what?!

But I'm one of you!!

Don't listen to her lies.

Autoimmune disorders in a nutshell.

• Beatrice the Biologist
What Causes ZONULIN Levels to Rise?

- Gluten
- Gliadin
- Parasites
- Candida
- Harmful bacteria
Intestinal Permeability: What Causes It?

- Elevated zonulin
- Hormonal imbalances
- Antibiotics, steroids, birth control, NSAIDs, etc.
- Diets high in refined carbohydrates, sugar and processed foods
- Diets low in fermentable fibers
- Dietary toxins like casein, gluten & gliadin, as well as, industrial seed oils
- Chronic stress (due to cortisol’s ability to elevate blood sugars)
- Chronic infections (due to the inflammatory response AND an overgrowth of Candida breaks down intestinal walls)
In fact, researchers have found that they can induce type 1 diabetes almost immediately in animals by exposing them to zonulin. They develop a leaky gut, and begin producing antibodies to islet cells – which are responsible for making insulin.
Intestinal Permeability Is Linked to *Chronic Disease*
Intestinal permeability – a new target for disease prevention and therapy

Stephan C Bischoff, Giovanni Barbara, Wim Buurman, Theo Ockhuizen, Jörg-Dieter Schulze, Matteo Sorino, Herbert Tilg, Alastair Watson and Jerry M Wells

BMC Gastroenterology 2014 14:189 | DOI: 10.1186/s12876-014-0189-7
© Bischoff et al; licensee BioMed Central Ltd. 2014
Received: 27 December 2013 | Accepted: 17 October 2014 | Published:

Abstract

Data are accumulating that emphasize the important role of intestinal permeability for health and disease. However, the assessment is a matter of debate, and their clinical significance is not yet fully understood. In the present review, current knowledge on mucosal barrier function and therapy is summarized. First, the relevant terms ‘intestinal permeability’ are defined. Secondly, the key element of the intestinal barrier is described. This barrier represents a hub of interdependent members of the human microbiota and is the largest immune system of our body. On the one hand, this barrier protects the human organism against invasion of harmful agents and on the other hand, this border must be open to absorb nutrients.

“…Apart from IBD, IBS, metabolic diseases and intestinal failure in critically ill patients, OTHER DISEASES MIGHT BE RELATED TO THE GUT MICROBIOTA AND THE INTESTINAL BARRIER such as celiac disease [175,176], colon carcinoma [257] or inflammatory joint diseases [258]. Therefore, ALTERATION OF THE GUT BARRIER SEEMS TO HAVE MULTIPLE CONSEQUENCES FACILITATING THE ONSET OF A VARIETY OF DISEASES depending on other hits and on genetic or epigenetic constellations, respectively…”
Mechanisms of Disease: the role of intestinal barrier function in the pathogenesis of gastrointestinal autoimmune diseases

Alessio Fasano* and Terez Shea-Donohue

SUMMARY

The primary functions of the gastrointestinal tract have traditionally been perceived to be limited to the digestion and absorption of nutrients and electrolytes, and to water homeostasis. A more permissive analysis of the anatomic and functional arrangement of the gastrointestinal tract, however, suggests that another extremely important function of this organ is its ability to regulate the trafficking of macromolecules between the environment and the host through a barrier mechanism. Together with the gut-associated lymphoid tissue and the neuroendocrine network, the intestinal epithelial barrier, with its intercellular tight junctions, controls the equilibrium between tolerance and immunity to non-self-antigens. When the finely tuned trafficking of macromolecules is dysregulated in genetically susceptible individuals, both intestinal and extraintestinal autoimmune disorders can occur. This new paradigm subverts traditional theories underlying the development of autoimmunity, which

INTRODUCTION

Autoimmune diseases affect 5–8% of the population (14–22 million people), which means that they are the third most common category of diseases in the US after cancer and heart disease. They can affect virtually every site in the body, including the gastrointestinal tract. At least 15 diseases are known to be the direct result of an autoimmune response, and circumstantial evidence links more than 80% of conditions to autoimmunity.

CLASSICAL THEORIES OF THE PATHOGENESIS OF AUTOIMMUNE DISEASES

In recent years much has been discovered about the structure, function, and regulation of intercellular tight junctions (TJ). However, the precise mechanism(s) by which they operate is still incompletely understood. The discovery of zonula occludens-1 (ZO-1), an antigenially related to ZO-2, that effects the TJ formation has shed light on the intricate mechanisms involved in the modulation of the intestinal permeability pathway. Our recent functional analysis demonstrated that the ODFL-1 (N-CAM) protein, located by Villi to intestine that affects the TJ permeability has shed light on the intricate mechanisms involved in the modulation of the intestinal permeability pathway. ODFL-1 (N-CAM) protein, located by Villi to intestine that affects the TJ permeability has shed light on the intricate mechanisms involved in the modulation of the intestinal permeability pathway.
Many MORE...

Leaky Gut Affects the Whole Body

Brain
Depression
Anxiety
ADHD

Skin
Acne
Rosacea
Eczema
Psoriasis

Thyroid
Hashimotos
Hypothyroidism
Graves

Dr. Axe
FOOD IS MEDICINE

Sinus and Mouth
Frequent Colds
Food Sensitivities

Joints
Rheumatoid Arthritis
Fibromyalgia
Headaches

Adrenals
Fatigue

Colon
Constipation
Diarrhea
IBD
Functional Medicine Uses

The 5 R’s

- **Remove:** gluten-containing foods, yeast, unwanted bacteria
- **Replace:** stomach acid, enzymes
- **Repair:** prebiotics (*FOS, inulin, lactulose, guar*), vitamins & minerals (*A, B’s, C, D, zinc*), amino acids (*glutamine, arginine*), bone broth
- **Re-Inoculate:** probiotics (*multi-strains, minimum 50 billion CFUs*)
- **Re-Balance:** scheduled relaxation, practice deep breathing & mindfulness, maintain boundaries
Intestinal Permeability: Foods To INCLUDE

- **Most vegetables** (except tomato, potatoes, mushrooms): asparagus, spinach, lettuce, broccoli, beets, cauliflower, carrots, celery, artichokes, garlic, onions, zucchini, squash, rhubarb, cucumbers, turnips, and watercress, among others.

- **Fermented foods**: sauerkraut, kimchi, pickled ginger, fermented cucumbers, coconut yogurt, kombucha, water kefir, etc. These ferments **do not produce histamines** that some people react to (including rashes, digestive upset, inflammation) in aerobic, or open, ferments typically using mason jars.

- **Meats**: fish, chicken, beef, lamb, organ meats, etc. Best choices are grass-fed and pastured meats from a local farm. Second best is organic. **Avoid factory-farmed meats that contain antibiotics and hormones.**

- **Low-glycemic fruits**: apricots, plums, apple, peach, pear, cherries and berries, to name a few.

- **Coconut**: coconut oil, coconut butter, coconut milk, coconut cream

- **Herbal teas**

- **Olives and olive oil**

- **Bone broths**
WHOLE Foods

125 Whole Foods

Butterhead lettuce
Butternut Squash
Jicama
Bok Choy
Yucca
Green Onions
Rhubarb
Parsnip
Brussel Sprout
Sweet Potatoes
Collard Greens
Brussel Sprouts

Cacao
Aloe Vera
Spinach
Kale
Broccoli
Cauliflower
Eggplant
Zucchini
Mushrooms
Potatoes
Asparagus
Swiss Chard
Tomato

Avocado
Onion
Lemon
Lime
Peas
Carrots
Radish
Beet
Red pepper
Yellow pepper
Green pepper
Snap peas
Sprouts
Watercress
Romaine
lettuce
Cabbage
Celery
Green beans
Garlic
Fennel
Apple
Banana
Orange
Peach

Pear
Plum
Kiwi
Pineapple
Star fruit
Watermelon
Cantaloupe
Honeydew
Plantains
Mango
Grapes
Apricot
Papaya
Raisins
Cranberries
Blueberries
Blackberries
Raspberries
Strawberries
Cherries
Grapefruit
Dates
Pomegranate
Chickpeas
Black Beans

Kidney Beans
Miso
Lentils
Brown rice
Quinoa
Oats
Millet
Barley
Farro
Corn
Almonds
Cashews
Peanuts
Chia seeds
Flax seeds
Hemp seeds
Pumpkin seeds
Sesame seeds
Macadamia nuts
Pistachios
Edamame
Soy beans
Walnuts
Salmon
Cod

Mackerel
Shrimp
Crab
Trout
Tuna
Tilapia
Chicken
Grass fed beef
Eggs
Turkey
Lamb
Bison
Cinnamon
Oregano
Ginger
Turmeric
Basil
Acorn squash
Pumpkin
Cucumber
Artichoke
Turnip
Olivas
Leeks
Arugula

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Intestinal Permeability: Foods To AVOID

- **ALL sugars and sweeteners**, even honey or agave
- **High-glycemic fruits**: watermelon, mango, pineapple, raisins, grapes, canned fruits, dried fruits, etc.
- **Grains**: wheat, oats, rice, barley, buckwheat, corn, quinoa, etc.
- **Dairy**: milk, cream, cheese, butter, whey, etc.
- **Eggs**: or foods that contain eggs (such as mayonnaise)
- **Soy**: soy milk, soy sauce, tofu, tempeh, soy protein, etc.
- **Alcohol**
- **Lectins**—a major promoter of leaky gut—found in nuts, beans, soy, potatoes, tomato, eggplant, peppers, peanut oil, peanut butter and soy oil, among others
- **Instant coffee & non-dairy creamers**: Many brands of instant coffee appear to be contaminated with gluten.
- **Processed & canned** foods
## Foods that FIGHT Inflammation

<table>
<thead>
<tr>
<th>Broccoli</th>
<th>Cranberries</th>
<th>Oregano</th>
<th>Mulberries</th>
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<tbody>
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<td>Parsley</td>
<td>Cocoa</td>
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<td>Cantaloupe</td>
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<td>Flaxseed Oil</td>
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<td>Cocoa</td>
<td>Ground Flaxseed</td>
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<td>Brussels-Sprouts</td>
<td>Legumes</td>
<td>Hemp Seeds</td>
<td>Oysters</td>
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<tr>
<td>Sprouts</td>
<td>Soybeans</td>
<td>Coconut Oil</td>
<td>Tuna</td>
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<tr>
<td>Olives</td>
<td>Lentils</td>
<td>EV Olive Oil</td>
<td>Red Beets</td>
</tr>
<tr>
<td>Papaya</td>
<td>Chicken</td>
<td>Sesame Seeds</td>
<td>Radish</td>
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<tr>
<td>Blueberries</td>
<td>Eggs</td>
<td>Almond Butter</td>
<td>Buckwheat</td>
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<tr>
<td>Acai</td>
<td>Bok Choy</td>
<td>Macadamia</td>
<td>Cayenne-Pepper</td>
</tr>
<tr>
<td>Avocados</td>
<td>Chard</td>
<td>Tea (White,</td>
<td>Pepper</td>
</tr>
<tr>
<td>Apples</td>
<td>Collards</td>
<td>Green, Oolong)</td>
<td>Red Peppers</td>
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<tr>
<td>Guavas</td>
<td>Leeks</td>
<td>Black Currants</td>
<td>Chives</td>
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<td>Bell Peppers</td>
<td>Guavas</td>
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<td>Fennel Bulb</td>
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<td>Pumpkin</td>
<td>Zucchini</td>
<td>Limes</td>
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<tr>
<td>Plums</td>
<td>Jicama</td>
<td>Sprouted Seeds</td>
<td>Horseradish</td>
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<tr>
<td>Figs</td>
<td>Yam</td>
<td>Peas (fresh)</td>
<td>Squash</td>
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<tr>
<td>Lettuce</td>
<td>Wild Game</td>
<td>Cucumber</td>
<td>Seaweed</td>
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<tr>
<td>Red Cabbage</td>
<td>Rutabaga</td>
<td>Cumin Seeds</td>
<td>Quail</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Quinoa</td>
</tr>
</tbody>
</table>

*Foods should be GMO-free, fresh, organic or locally grown. Meats should be pastured, organic and not factory farmed.*

Facebook.com/OasisAdvancedWellness
Anti-Inflammatory Food Pyramid
Andrew Weil, MD, created an Anti-Inflammatory Food Pyramid to help people make optimal food choices every day.

- **RED WINE** (optional)
  - No more than 1-2 glasses a day

- **SUPPLEMENTS**
  - Daily

- **TEA** (white, green, oolong)
  - 2-4 cups a day

- **HEALTHY HERBS & SPICES** (such as garlic, ginger, turmeric, cinnamon)
  - Unlimited amounts

- **OTHER SOURCES OF PROTEIN**
  - High quality natural cheeses and yogurt, omega-3 enriched eggs, skinless poultry, lean meats
  - 1-2 a week

- **COOKED ASIAN MUSHROOMS**
  - Unlimited amounts

- **FISH & SEAFOOD** (wild Alaskan salmon, Alaskan black cod, sardines)
  - 2-6 a week

- **HEALTHY FATS**
  - Extra virgin olive oil, expeller-pressed canola oil, nuts - especially walnuts, avocados, seeds - including hemp seeds and freshly ground flaxseeds
  - 5-7 a day

- **WHOLE & CRACKED GRAINS**
  - 3-5 a day

- **PASTA**
  - (al dente)
  - 2-3 a day

- **BEANS & LEGUMES**
  - 1-2 a day

- **VEGETABLES** (both raw and cooked, from all parts of the color spectrum, organic when possible)
  - 4-5 a day minimum

- **FRUITS** (fresh in season or frozen, organic when possible)
  - 3-4 a day

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Intestinal Permeability: Key Points To Remember

- In my opinion, it is not a matter of IF your patient has intestinal permeability, it’s a matter of how severe is it and what else is it disrupting?

- *Intestinal Permeability Assessment* measures the ability of two sugar molecules to permeate the gut lining (lactulose or mannitol) or assessment may be made by testing zonulin serum levels.

- Several CRITCALLY-required nutrients will be depleted (iron, B12, zinc, magnesium, etc.). Most are required for optimal function of SEVERAL other systems.
Celiac Disease & Non-Celiac Gluten Sensitivity

Paleo, Low FODMaPs

ADVANCED TESTING

HLA-DQ2, HLA-DQ8, Specific IgA & IgG Antibodies
Celiac Disease

(Classic case of the genes loading the gun and the environment pulling the trigger)

- In 2003, Dr. Alessio Fasano, published a study in the Annals of Medicine that established the prevalence rate of celiac disease at one in 133 people in the U.S – a rate nearly 100 times greater than the previous estimate.

I Don’t Have to Be GLUTEN-FREE, I Don’t HAVE Celiac Disease!

In a separate study published in the Scandinavian Journal of Gastroenterology in 2006 it was clearly shown that gliadin can affect (increase) zonulin EVEN IN PEOPLE WITHOUT THE GENE FOR CELIAC.
Non-Celiac Gluten Sensitivity (NCGS)

- New research suggests that gluten alone may not be responsible for the symptoms produced by the condition currently called gluten sensitivity.

- Instead, it is showing that perhaps FODMaPs, a group of poorly digested carbohydrates, may be the cause of the symptoms.

  - (It is also important to note that wheat, barley and rye — gluten-containing grains — are all high in FODMaPs)
Irritable Bowel Syndrome

Low Histamine, GAPs, Low FODMaPs, SCD
Irritable Bowel Syndrome: What Is It?

- IBS is often referred to as a "DIAGNOSIS of EXCLUSION"

- Once other structural conditions of the bowel are ruled out – a diagnosis of IBS is assigned to the patient

Irritable Bowel Syndrome: What Causes It?

- SIBO/SIFO
- Dysbiosis
- Gut Infections
- Intestinal Permeability
- Non-Celiac Gluten Sensitivity
Irritable Bowel Syndrome: What Triggers It?

- Wheat, gluten & gliadin (gliadin is one of the major proteins found in gluten ie., gliadins & glutenins)
- Insoluble fiber (wheat bran, high fiber breakfast cereals, whole wheat pasta, etc.)
- Milk & dairy products
- Sweeteners
- Fatty foods & red meat
- Carbonated & caffeinated drinks
- Alcohol
- High FODMaPs fruit (apples, pears, apricots, peaches, plums, prunes, cherries, and nectarines)
- Whole grains (bulgur, quinoa, millet, amaranth)
Irritable Bowel Syndrome: What Triggers It?

- **High fiber**
- **80% Cacao** (*dark chocolate is high in magnesium*)
- **Beans & lentils** (*rich source of magnesium, potassium, fiber*)
- **Garlic & onions** (*the Allium family: to aid in phase II liver detoxification*)
- **Cruciferous vegetables** (*encourages a healthy metabolism of estrogens*)
- **Whole nuts & seeds** (*rich source of magnesium, potassium, fiber*)

**NOTE:** These foods are highly recommended in several other conditions, however, you can see these are TRIGGERS for the IBS patient and would need to be avoided.
Low Histaminic Foods

Low histamine level foods:

- **Fresh** meat (cooled, frozen or fresh)
- **Freshly** caught fish
- Chicken (skinned and **fresh**)
- Egg yolk
- **Fresh** fruits – with the exception of strawberries, most fresh fruits are considered to have a low histamine level (also see histamine liberators below)
- **Fresh** vegetables – with the exception of tomatoes
- Grains – rice noodles, yeast free rye bread, rice crisp bread, oats, puffed rice crackers, millet flour, pasta (spelt and corn based)
- **Fresh** pasteurised milk and milk products
- Milk substitutes – coconut milk, rice milk
- Cream cheese, butter (without the histamine generating rancidity)
- Most cooking oils – check suitability before use
- Most leafy herbs – check suitability before use
- Most non-citric fruit juices
- Herbal teas – with the exception of those listed below
These Foods Cause A Histamine Release

High Histaminic Foods

High histamine level foods:

- Alcohol
- Pickled or canned foods – sauerkrauts
- Matured cheeses
- Smoked meat products – salami, ham, sausages...
- Shellfish
- Beans and pulses – chickpeas, soy beans, peanuts
- Nuts – walnuts, cashew nuts
- Chocolates and other cocoa based products
- Vinegar
- Ready meals
- Salty snacks, sweets with preservatives and artificial colourings

Histamine liberators:

- Most citric fruits – kiwi, lemon, lime, pineapple, plums...
- Cocoa and chocolate
- Nuts
- Papaya
- Beans and pulses
- Tomatoes
- Wheat germ
- Additives – benzoate, sulphites, nitrites, glutamate, food dyes
If...

**VAT (Visceral Adipose Tissue) Secretes PRO-INFLAMMATORY Cytokines**

"Adipose tissue is now considered to be an **ACTIVE ENDOCRINE ORGAN** that secretes various humoral factors (adipokines), and its shift to production of **PROINFLAMMATORY CYTOKINES** in obesity likely contributes to low-level **SYSTEMIC INFLAMMATION** that is seen in...chronic pathologies..."
Inflammation Decreases TRYPTOPHAN Availability
(by activating the kynurenic acid pathway)

And If...

...causing TRYPTOPHAN to be less available for conversion into SEROTONIN...
And if... Serotonin is known to regulate intestinal motor & secretory functions in the gut.

Role of serotonin in the pathophysiology of the irritable bowel syndrome

Michael D. Crowell

Abstract

The irritable bowel syndrome (IBS) is a complex disorder that is associated with altered gastrointestinal motility, secretion, and sensation. Serotonin (5-HT) is an important neurotransmitter and signalling molecule in the gastrointestinal tract. 5-HT release from enteric neurons, peristaltic, secretory, vasodilatory, vagal and nociceptive reflexes. The enteric nervous system comprises a semiautonomous effector system that is connected to the central nervous system. Parasympathetic and sympathetic nerves modulate the ENS via afferent and efferent pathways.

"...Altered 5HT signaling may lead to both intestinal and extraintestinal symptoms in IBS..."
Then...

Simply by changing the SAD of an IBS patient to a more ANTI-Inflammatory Food Plan would improve symptomology
SIBO
(small intestinal bacterial overgrowth)
Low FODMaPs, SCD

ADVANCED TESTING

Hydrogen Breath Test
(can be used for H. pylori, carbohydrate malabsorption as well as SIBO)
SIBO: What Is It?

- Studies show that over 50% of patients diagnosed with IBS actually have an underlying SIBO infection.

- The majority of gut bacteria should be in the colon – in SIBO, there are abnormally large numbers of bacteria (at least 100,000 bacteria per ml of fluid) present in the small intestine.

- When the bacteria migrate backwards into the small bowel or when there is low stomach acid or poor pancreatic enzyme production, bacteria in the small bowel can overgrow and cause symptoms.
SIBO: What Causes It?

- **BACKWARD MIGRATION:** *Elevated blood sugars*, seen in chronic stress, carbohydrate intolerance, insulin resistance and diabetes, damages the neurological or muscular actions of the intestines that would normally prevent backward migration.

- **LOW STOMACH ACID:** *(hypochlorhydria)*
  - Diets that are low in protein
  - Nutrient deficiencies
  - Medications such as acid-blocking agents
  - Gastric resection or surgical removal of part of the stomach
  - H. pylori infection
  - Genetic factors such as pro-inflammatory IL-1 polymorphisms
Signs Associated With SIBO

- Constipation *worsens* with fiber
- IBS symptoms seem to *improve* when taking antibiotics
- *Increased* gas & bloating with probiotics that contain prebiotics (like FOS)
- Less than 100% resolution of symptoms on a *gluten-free diet*
- Chronic symptoms of gas, bloating, constipation or diarrhea *after taking pain medications*, like opiates
- CBC shows chronically *low iron or ferritin* with no known cause
Symptoms Associated With SIBO

- Malnutrition, reduced bile acids, steatorrhoea, weight loss, food allergies, brain fog, systemic inflammation, chronic fatigue, restless leg syndrome
  
  - Abdominal bloating, pain, discomfort or distension
    
    - Excessive belching or gas
    
    - Acid reflux or heartburn
    
    - Constipation
    
    - Diarrhea
IBS Improves With Eradication of SIBO


Eradication of small intestinal bacterial overgrowth reduces symptoms of irritable bowel syndrome.

Pimentel M¹, Chow EJ, Lin HC.

Abstract

OBJECTIVES: Irritable bowel syndrome is the most common gastrointestinal diagnosis. The symptoms of irritable bowel syndrome are similar to those of small intestinal bacterial overgrowth. The purpose of this study was to test whether overgrowth is associated with irritable bowel syndrome and whether treatment of overgrowth reduces their intestinal complaints.

METHODS: Two hundred two subjects in a prospective database of patients referred from one community undergoing a lactulose hydrogen breath test for assessment of overgrowth were Rome I criteria for irritable bowel syndrome. They were treated with open label antibiotics after positive breath test. Subjects returning for follow up breath test to confirm eradication of overgrowth were also assessed. Subjects with inflammatory bowel disease, abdominal surgery for weight loss demonstrating rapid transit were excluded. Baseline and after treatment symptoms were rated on visual analog scales for bloating, diarrhea, abdominal pain, defecation relief, mucous, sensation of incomplete evacuation, straining, and urgency. Subjects were blinded to their breath test results until completion of the questionnaire.

RESULTS: Of 202 irritable bowel syndrome patients, 157 (78%) had overgrowth. Of these, 47 had follow-up testing. Twenty-five of 47 follow-up subjects had eradication of small intestinal bacterial overgrowth. Comparison of those that eradicated to those that failed to eradicate revealed an improvement in irritable bowel syndrome symptoms with diarrhea and abdominal pain being statistically significant after Bonferroni correction (p < 0.05). Furthermore, 48% of eradicated subjects no longer met Rome criteria (chi² = 12.0, p < 0.001). No difference was seen if eradication was not successful.

CONCLUSIONS: Small intestinal bacterial overgrowth is associated with irritable bowel syndrome. Eradication of the overgrowth eliminates irritable bowel syndrome by study criteria in 48% of subjects.
The Low FODMaPs Plan

- **FERMENTABLE** – broken down by bacteria in the large bowel
- **OLIGOSACCHARIDES** – made up of individual sugars joined together in a chain (*fructans & galacto-oligosaccharides*)
- **DISACCHARIDES** – double sugar molecule (*lactose*)
- **MONOSACCHARIDES** – single-sugar molecule (*fructose*)
- **POLYOLS** – sugar alcohols (*sorbitol, mannitol, maltitol, xylitol*)
The Low FODMaPs Plan

- Reducing FODMaPs assists in managing the symptoms of IBS
- A diet low in FODMaPs is scientifically proven, and now used internationally, as the most effective dietary therapy for Irritable Bowel Syndrome (IBS) and symptoms of an irritable bowel
- A Low FODMAP Diet has also been proven, with solid scientific research, to reduce symptoms of fatigue, lethargy and poor concentration
- A study performed in the UK found the Low FODMaPs Plan was proven to be much more effective in relieving symptoms, 76% of participants achieved IBS symptom control than the diet formed by the UK’s National Institute for Health and Clinical Excellence (NICE) (where 54% of participants achieved IBS symptom control)
The FODMAPs Plan: 2 PHASES

- Initially, an 8-week diet *trial reducing the intake of foods high in FODMaPs* in people with *IBS-type symptoms* is undertaken. Help the patient focus on what **CAN be eaten**, to prevent the feeling of being deprived.

- **After 8 weeks** on the first phase of FODMAP dietary restriction, it is recommended to assess how well symptoms have improved in this phase. If all is going well, the patient should begin to reintroduce previously restricted foods—ie. *work out the type and amount of fodmaps that can be tolerated before experiencing symptoms*. The goal is to ensure that the person obtains maximum variety in their diet and minimize associated symptoms.
# SIBO
( utilizing low FODMaPs & SCD )

## SIBO Specific Diet: Food Guide

### Vegetables

<table>
<thead>
<tr>
<th>SCD “LEGAL” LOW FODMAP</th>
<th>SCD “LEGAL” MODERATE FODMAP</th>
<th>SCD “LEGAL” HIGH FODMAP</th>
<th>SCD “ILLEGAL”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artichoke Hearts* 1/8 c</td>
<td>Asparagus 1 spear</td>
<td>Asparagus 4 spears</td>
<td>Bean Sprouts</td>
</tr>
<tr>
<td>Arugula</td>
<td>Artichoke Hearts* ¼ c</td>
<td>Artichoke</td>
<td>Corn</td>
</tr>
<tr>
<td>Bamboo Shoots</td>
<td>Butternut Squash ½ c/60g</td>
<td>Avocado</td>
<td>Okra</td>
</tr>
<tr>
<td>Beet 2 slices</td>
<td>Cabbage &gt;1 c/98g</td>
<td>Beet 4 slices</td>
<td>Potato: white/all colors</td>
</tr>
<tr>
<td>Bok Choy 1 c/85g</td>
<td>Cabbage: Savoy 3/4 c</td>
<td>Bok Choy 1½ c/127g</td>
<td>Potato: sweet</td>
</tr>
<tr>
<td>Broccoli ½ c/1.6oz</td>
<td></td>
<td>Broccoli 1 c</td>
<td>Starch powder: all</td>
</tr>
</tbody>
</table>

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Process of Elimination
To determine if certain foods are triggering symptoms of irritable bowel syndrome, some specialists recommend a low-Fodmaps diet, which stands for Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols. After six to eight weeks, the foods are gradually reintroduced at low levels to see what patients can tolerate.

SOME FOODS CONTAINING FODMAPS TO ELIMINATE:

FRUIT
- Apples
- Apricots
- Cherries
- Pears
- Watermelon
- Dried Fruit

VEGETABLES
- Asparagus
- Broccoli
- Cabbage
- Eggplant
- Garlic
- Mushrooms
- Onions

CEREALS / GRAINS
- Wheat, rye in large quantities
- Pasta
- Bread
- Cookies

MILK PRODUCTS
- Cow’s milk
- Custard
- Ice cream
- Yogurt
- Soya cheese

OTHER
- Sweeteners: sorbitol, mannitol, isomalt, fructose, corn syrup, honey

SOME SUITABLE FOODS ON A LOW-FODMAP DIET:

FRUIT
- Bananas
- Blueberries
- Grapefruit
- Lemons
- Raspberries

VEGETABLES
- Carrots
- Celery
- Green beans
- Potatoes
- Pumpkin
- Zucchini

GRAINS
- Gluten-free bread or cereal
- Rice
- Oats
- Polenta
- Tapioca

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The Specific Carbohydrate Diet™ (SCD)

- Intended mainly for patients with *Crohn's Disease, Ulcerative Colitis, Celiac Disease, Diverticulitis, Cystic Fibrosis* and chronic diarrhea

- Complex carbohydrates that are not easily digested feed harmful bacteria in our intestines causing them to overgrow producing byproducts and inflaming the intestine wall. *The diet works by starving out these bacteria and restoring the balance of bacteria in our gut*

- In the 100 years the increase in complex sugars and chemical additives in the diet has led to a huge increase in health problems ranging from *severe bowel disorders to obesity and brain function disorders*
The Specific Carbohydrate Diet™ (SCD)

- Designed to *temporarily remove foods* that are difficult to digest through an elimination & reintroduction process.
- *Gluten-free, lactose-free* and in some cases *casein-free*
- Utilizes *probiotics* and certain foods to restore the gut microbiome
- The Specific Carbohydrate Diet™ (SCD) was clinically tested for over 50 years by Dr. Haas and biochemist Elaine Gottschall with convincing results. From feedback from the various lists and other information at least 75% of those who adhere rigidly to the diet gain significant improvement
THE INTRO DIET

We are providing information on the introductory diet, so that those who have ordered Breaking the Vicious Cycle™, and are awaiting delivery, can begin sooner, should they so choose. However, we strongly advise you not to undertake anything beyond the introductory diet without first having read the book and feeling comfortable with the information it contains. The diet requires 100% commitment and adherence, and so without the book, it is not possible to successfully practice the Specific Carbohydrate Diet™.

At the beginning of the program, when symptoms such as diarrhea and cramping are severe, the following basic diet should be followed for about five days. In other cases, one or two days on this basic diet is sufficient. The amounts of the specified foods to be eaten depend upon the appetite of the individual; there is no restriction as to quantities eaten.

You may find that stool colour changes during the course of the introductory diet. This is most likely an initial die-off of bacterial overgrowth, which is one of the reasons the
Health Through Diet

Specific Carbohydrate Diet (SCD) Allowable Foods

Additives
Baking soda
Gelatin (unflavored)
Potassium Sorbate
Sulphates
Vanillin

Alcoholic Beverages
Ethanol

Natural cheeses
Parmesan cheese
Peanut Butter
Port du Salut cheese
Provolone cheese
Romano cheese
Roquefort cheese
Stilton cheese
Swiss cheese
Yakult (bacterial)

Tangerines
Watermelon

Grains & Flours
Bean flour* (Avoid using ready-made flours made from beans or lentils as they probably weren't soaked prior to grinding)

(Handouts in your folder)
The GAPS™ Plan

- The GAPS protocol was designed for patients suffering from learning disabilities, psychiatric and psychological disorders, immune system problems and digestive problems.

- Gut and Psychology Syndrome (GAP syndrome or GAPs) is a condition, which establishes a connection between the functions of the digestive system and the brain.

- Derived from the Specific Carbohydrate Diet (SCD) created by Dr. Sidney Valentine Haas to naturally treat chronic inflammatory conditions in the digestive tract as a result of a damaged gut lining.
The GAPS™ Plan

- Focuses on removing foods that are difficult to digest and damaging to gut flora and replacing them with nutrient-dense foods to give the intestinal lining a chance to heal and seal.

- For patients suffering from yeast overgrowth, temporarily eliminating fruit, honey, and nuts may be beneficial.

- For best results patients need to adhere to this plan for a MINIMUM OF 18-24 months.
GAPS INTRO QUICK GUIDE

**STAGE 1**
- Meat stock
- Well-cooked soups (25-35 mins)
- Boiled meat
  1) Teaspoon of fermented veggie juice or (if dairy tolerated) homemade 24 hour yogurt or kefir per day
  2) Ginger tea with honey (optional)

**STAGE 2**
- 1) Raw pastured eggs you’ve added to soups
- 2) Soft-boiled eggs in soup
- 3) Stews and casseroles
- 4) Increase fermented veggie juice and/or dairy
- 5) Fermented fish
- 6) Homemade ghee

**STAGE 3**
- 1) Mashed, ripe avocado in soup
- 2) Nut butter pancakes/crepes (optional)
- 3) Scrambled eggs with cooked veggies and avocado
- 4) Well-cooked onions (20-30 mins)
- 5) Homemade fermented veggies

**STAGE 4**
- 1) Roasted, baked, and grilled meats
- 2) Olive oil
- 3) Fresh-made veggie juice
- 4) GAPS bread (optional)

**STAGE 5**
- 1) Cooked applesauce (20-30 mins)
- 2) Raw veggies, introduced slowly
- 3) Add small amounts of fresh fruit juice to veggie juices

**STAGE 6**
- 1) Cooked applesauce
- 2) Increased amounts of honey
- 3) GAPS-legal baked goods (optional)

---

**Notes**

Each stage should last 1-7 days (adjust as needed)

Start each day with a cup of warm or room temperature filtered water with a slice of lemon and a commercial-grade probiotic and then wait 30 minutes to eat (may be started once initial wave of die off/detox fades and you start to feel a bit better)

Detox baths should be taken 1-3 times a day

Do not feel the need to add foods that cause reactions; many of us have done the diet without dairy, eggs, nuts, and other foods

Remove dairy for 6 week trial period before slowly reintroducing
Hashimoto’s Thyroiditis & Hypothyroidism

The Autoimmune Protocol, Autoimmune Paleo

Advanced Testing
free T3, total T3, reverse T3, TSH, free T4, Thyroid binding globulin (TBg), antithyroglobulin (Tg Ab), Thyroid peroxidase (TPO Ab), nutrient evaluation, IgG, IgA
Hashimoto’s Prevalence & Facts

- It’s estimated to be 7 times more common in women than men.
- Women having thyroid problems in pregnancy will have a 20% chance of Hashimoto’s later in life.
- Hashi’s can occur at any age but predominately shows up in middle age.
- Hashi’s is the most common autoimmune condition in the U.S. affecting about 7-8% of the population.
- The standard of care for a Hashimoto’s patient is to simply wait until the immune system has destroyed enough thyroid tissue to classify them as hypothyroid, and then give them thyroid hormone replacement.
Hashimoto’s: What Triggers It?

- Food sensitivities
- Gluten
- Iodine deficiency
- Soy
- Intestinal permeability
- Exotoxins & an impaired ability to handle clear them
- And in some cases, chronic (often hidden) infections like Candida overgrowth (SIFO)
- Previous exposure to Epstein Barr is highly associated with the onset of Hashi’s later in life
Good news! Your lab results look great. Everything is normal; you are the picture of health.
more than 9 out of 10
diagnosed with hypothyroidism have Hashimoto's...
Hashimoto’s: Key Points To Remember

❖ Remember that patients may be asymptomatic for years before antibodies are detectable (until insurance companies start refusing to pay, I test for antibodies as a baseline even if there is not a history of autoimmunity)

❖ Remember, Hashi’s is a problem primarily with the IMMUNE SYSTEM and NOT the THYROID GLAND

❖ The most common thyroid lab ordered is a TSH. Often, this will remain WNL. Therefore – treat the patient not the lab
Foods To INCLUDE

The Autoimmune Protocol

### Foods to Include:

<table>
<thead>
<tr>
<th>Vegetables</th>
<th>Roots</th>
<th>Meats</th>
<th>Fruit</th>
<th>Herbs</th>
<th>Pantry Items</th>
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<td>cantaloupe</td>
<td>pomegranate</td>
<td>lavender</td>
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<td>thyme</td>
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<td>kiwi</td>
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<td>lime</td>
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<td>spinach</td>
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<td>mango</td>
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<td>squash</td>
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<td>marionberry</td>
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<td>nectarine</td>
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</tr>
</tbody>
</table>

### Fats

animal fat  bone broth  liver
avocado oil  dairy  kidney
coconut oil  egg yolk  heart
duck fat  liver broth  kidney
lard  liver  heart
olive oil  liver  kidney
palm oil  liver  heart
tallow  liver  kidney

### Offal

### Spices

cinnamon
dill
garlic
ginger
saffron
sea salt
shallots
turmeric

### Ferments

sauerkraut
fermented vegetables (carrot, beet, etc.)
kombucha
water kefir

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# Foods To AVOID

## The Autoimmune Protocol

### Foods to Avoid:

<table>
<thead>
<tr>
<th>Grains</th>
<th>Beans + Legumes</th>
<th>Eggs</th>
<th>Nightshades</th>
<th>Seeds</th>
<th>Nuts</th>
<th>Dairy</th>
<th>Alcohol</th>
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<tbody>
<tr>
<td>amaranth</td>
<td>adzuki beans</td>
<td>chicken</td>
<td>cayenne</td>
<td>anise</td>
<td>almond</td>
<td>butter</td>
<td>NSAIDs</td>
</tr>
<tr>
<td>barley</td>
<td>black beans</td>
<td>duck</td>
<td>chili pepper</td>
<td>canola</td>
<td>brazil</td>
<td>cheese</td>
<td>aspirin</td>
</tr>
<tr>
<td>buckwheat</td>
<td>black-eyed peas</td>
<td>goose</td>
<td>eggplant</td>
<td>caraway</td>
<td>coffee</td>
<td>cream</td>
<td>ibuprofen</td>
</tr>
<tr>
<td>bulgur</td>
<td>chickpeas</td>
<td></td>
<td>goji berry</td>
<td>chia</td>
<td>cocoa</td>
<td>cream cheese</td>
<td>naproxen</td>
</tr>
<tr>
<td>com</td>
<td>fava beans</td>
<td></td>
<td>ground cherry</td>
<td>coriander</td>
<td>hazelnut</td>
<td>ghee</td>
<td></td>
</tr>
<tr>
<td>farro</td>
<td>lentils</td>
<td></td>
<td>habanero</td>
<td>cumin</td>
<td>pecan</td>
<td>milk</td>
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<td>kamut</td>
<td>lima beans</td>
<td></td>
<td>jalepeno</td>
<td>fennel seed</td>
<td>macadamia</td>
<td>yogurt</td>
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<tr>
<td>millet</td>
<td>peanuts</td>
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<td>paprika</td>
<td>fennugreek</td>
<td>walnut</td>
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<td></td>
</tr>
<tr>
<td>oats</td>
<td>kidney beans</td>
<td></td>
<td>poblano</td>
<td>mustard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quinoa</td>
<td>soybeans</td>
<td></td>
<td>potato</td>
<td>nutmeg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rice</td>
<td></td>
<td></td>
<td>sweet pepper</td>
<td>poppy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rye</td>
<td></td>
<td></td>
<td>tobacco</td>
<td>pumpkin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>sorghum</td>
<td></td>
<td></td>
<td>tomato</td>
<td>sesame</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>spelt</td>
<td></td>
<td></td>
<td>tomatillo</td>
<td>sunflower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>teff</td>
<td></td>
<td></td>
<td>wolf berries</td>
<td>hemp</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wheat</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Optional Restrictions:

- fruit
- starchy vegetables
- gluten cross-reactive foods
- FODMAPs

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Hypothyroidism
Hypothyroidism Prevalence

- It’s estimated that 20 million people have some degree of thyroid imbalance
- 60% of these people are completely unaware of their condition
- One in 8 women will develop hypothyroidism

What Causes It?

- GLUTEN
- Food Sensitivities
- Inflammation
- Hashimoto’s
- Chronic stress
- Medication *(amiodarone, lithium)*
- Prolonged high blood sugars
- Cigarette smoking
- Estrogen dominance
The Paleo Diet

- The diet consists of **foods that can be hunted and fished** – such as meat and seafood – and foods that can be gathered – such as eggs, nuts, seeds, fruits, vegetables, herbs and spices.

- It's a regime based on the supposed eating habits of our hunter-gatherer ancestors during the Paleolithic era, before the development of agriculture around 10,000 years ago. That means **cereal grains including wheat, dairy, refined sugar, potatoes and salt** – as well as anything processed – **ARE STRICTLY OFF THE MENU**.

- The majority of the caveman's diet consisted of **lean meats, fish, eggs, fruits, vegetables, berries and nuts**, creating a low glycemic load and thus little glucose intolerance. The diet did not include dairy, grains or legumes, which can contribute to spikes in glucose levels.
Paleolithic Humans Consumed

more fiber,
more protein,
more unsaturated fat,
more omega-3 fatty acids,
more vitamins and minerals,
much less saturated fat and sodium.

AND three times more produce than the typical American
Insulin Resistance

Low Glycemic, Paleo, South Beach, Ketogenic Diet

Advanced Testing

Fasting Insulin, A1c, Fasting lipids, Sex Hormones, Ferritin
Insulin Resistance: What Is It?
If It’s *THAT* Simple, Why is Everyone *SO* Confused?
Because... The National Institute of Diabetes and Digestive and Kidney Disease Says:

How much carbohydrate do I need each day?

The daily amount of carbohydrate, protein, and fat for people with diabetes has not been defined—what is best for one person may not be best for another. Everyone needs to get enough carbohydrate to meet the body’s needs for energy, vitamins and minerals, and fiber.

Experts suggest that carbohydrate intake for most people should be between 45 and 65 percent of total calories. People on low-calorie diets and people who are physically inactive may want to aim for the lower end of that range.

One gram of carbohydrate provides about 4 calories, so you’ll have to divide the number of calories you want to get from carbohydrates by 4 to get the number of grams. For example, if you want to eat 1,800 total calories per day and get 45 percent of your calories from carbohydrates, you would aim for about 200 grams of carbohydrate daily. You would calculate that amount as follows:

- $\frac{0.45 \times 1,800 \text{ calories}}{4} = 810 \text{ calories}$
- $810 \div 4 = 202.5 \text{ grams of carbohydrate}$
Can I eat sweets and other foods and drinks with added sugars?

Yes, you can eat sweets and other foods and drinks with added sugars. However, you should limit your intake of these high-carbohydrate foods and drinks because they are often high in calories and low in vitamins, minerals, and fiber. Fiber-rich whole grains, fruits, vegetables, and beans are wiser choices.

Instead of eating sweets every day, try eating them in small amounts once in a while so you don’t fill up on foods that are low in nutrition. Ask a dietitian or diabetes educator about including sweets in your eating plan.

What are added sugars?

Added sugars are various forms of sugars in foods or drinks during processing or preparation. Naturally occurring sugars such as those in milk and fruits are not added sugars but are carbohydrates. The most common sources of added sugars for Americans are:

- sugar-sweetened soft drinks, fruit drinks, sports drinks, and energy drinks
- grain-based desserts, such as cakes, cookies, and doughnuts
- milk-based desserts and products, such as ice cream, sweetened yogurt, and sweetened milk
- candy
Low Glycemic Food Chart

The low glycemic food charts presented below consist ONLY of foods that - when eaten in the indicated portion sizes - are "low glycemic" in that they each deliver a low glycemic load (about 10 or less).

Chart 1. Low Glycemic Grains & Grain Products

<table>
<thead>
<tr>
<th>Food</th>
<th>Gly. Index</th>
<th>Carbs</th>
<th>Gly. Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barley, pearl *</td>
<td>22</td>
<td>19 g</td>
<td>4</td>
</tr>
<tr>
<td>Soba Noodles</td>
<td>35</td>
<td>17 g</td>
<td>7</td>
</tr>
<tr>
<td>Pasta*</td>
<td>41</td>
<td>17 g</td>
<td>7</td>
</tr>
<tr>
<td>Rice Noodles</td>
<td>40</td>
<td>20 g</td>
<td>8</td>
</tr>
<tr>
<td>Mung Noodles</td>
<td>39</td>
<td>21 g</td>
<td>8</td>
</tr>
<tr>
<td>Ezekiel Bread (2 slices) *</td>
<td>35</td>
<td>26 g</td>
<td>9</td>
</tr>
<tr>
<td>Rolled Oats (oatmeal)</td>
<td>45</td>
<td>20 g</td>
<td>9</td>
</tr>
<tr>
<td>Sweet Corn</td>
<td>47</td>
<td>20 g</td>
<td>9</td>
</tr>
<tr>
<td>Rice, Uncle Ben's Original Converted</td>
<td>38</td>
<td>25 g</td>
<td>9.5</td>
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</table>

Chart 4. Low Glycemic Fresh Fruits

<table>
<thead>
<tr>
<th>Food</th>
<th>Gly. Index</th>
<th>Carbs</th>
<th>Gly. Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berries* (1/2 cup)</td>
<td>47</td>
<td>7 g</td>
<td>3</td>
</tr>
<tr>
<td>Plums (2 whole)</td>
<td>24</td>
<td>14 g</td>
<td>3</td>
</tr>
<tr>
<td>Peaches (1 lg.)</td>
<td>28</td>
<td>14 g</td>
<td>4</td>
</tr>
<tr>
<td>Cantaloupe (1 slice of lg melon)</td>
<td>70</td>
<td>5 g</td>
<td>4</td>
</tr>
<tr>
<td>Nectarines (1 medium)</td>
<td>43</td>
<td>13 g</td>
<td>5</td>
</tr>
<tr>
<td>Apricots (5 who e)</td>
<td>34</td>
<td>15 g</td>
<td>5</td>
</tr>
<tr>
<td>Oranges (1 med.)</td>
<td>40</td>
<td>13 g</td>
<td>5</td>
</tr>
<tr>
<td>Grapefruit (1 avg.)</td>
<td>25</td>
<td>22 g</td>
<td>5</td>
</tr>
<tr>
<td>Pears (1 small)</td>
<td>37</td>
<td>18 g</td>
<td>7</td>
</tr>
<tr>
<td>Papaya (1 cup chunks)</td>
<td>55</td>
<td>13 g</td>
<td>7</td>
</tr>
<tr>
<td>Apples (1 med.)</td>
<td>37</td>
<td>21 g</td>
<td>8</td>
</tr>
<tr>
<td>Mango (1/3 lg fruit)</td>
<td>51</td>
<td>15 g</td>
<td>8</td>
</tr>
<tr>
<td>Watermelon (1' wedge/240g)</td>
<td>72</td>
<td>12 g</td>
<td>8</td>
</tr>
<tr>
<td>Pineapple (3/4 cup chunks)</td>
<td>65</td>
<td>14 g</td>
<td>9</td>
</tr>
<tr>
<td>Cherries (1 cup)</td>
<td>63</td>
<td>15 g</td>
<td>9</td>
</tr>
</tbody>
</table>
• Healthy oils are: Monounsaturated oils (olive, canola, nuts). Polysaturated oils that are high in omega-3 oils (canola, flax, fish oils, walnuts).

• Limit animal sources of saturated fats as found in dairy products (cheese, butter, etc.) and most commercial red meats.

• Freely add healthy oils to salads, sauces for vegetables and when cooking lean meats. Natural palm and coconut oil are easy to refrigerate and do not heat and add only after cooking.

• No hydrogenated oils and limit fried foods. Some low-heat frying with natural palm and coconut oil is okay.

MISC.
• Drink lots of pure water.
• Organic is always best when available.
• Cut down on salt but feel free to use other spices liberally.
• Except for non-starchy vegetables, the other carbohydrates should be limited to protein meals.
• It is usually safe to assume that most processed foods will interfere with this diet, even if low-carb.
• Finally, it must be emphasized that exercise is an important component of success.

VEGETABLES

<table>
<thead>
<tr>
<th>Highly recommended vegetables</th>
<th>Vegetables to use in moderation</th>
<th>Veg</th>
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<tbody>
<tr>
<td>Artichoke</td>
<td>Beets</td>
<td>Pot</td>
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<tr>
<td>Asparagus</td>
<td>Carrots</td>
<td>Par</td>
</tr>
<tr>
<td>Avocado</td>
<td>Green beans</td>
<td>Pu</td>
</tr>
<tr>
<td>Beet greens</td>
<td>Eggplant</td>
<td>Pur</td>
</tr>
<tr>
<td>Bok Choy</td>
<td>Lentils</td>
<td>Pu</td>
</tr>
<tr>
<td>Broccoli</td>
<td>Leeks</td>
<td>Ro</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>Green salads</td>
<td>Sw</td>
</tr>
<tr>
<td>Cabbage (green and red)</td>
<td>Squashese</td>
<td>Co</td>
</tr>
<tr>
<td>Cauliflower</td>
<td>créole</td>
<td>Co</td>
</tr>
<tr>
<td>Celery</td>
<td>mushrooms</td>
<td>Co</td>
</tr>
<tr>
<td>Chinese cabbage</td>
<td>Onions</td>
<td>Co</td>
</tr>
<tr>
<td>Chives</td>
<td>Parsley (all kinds)</td>
<td>Co</td>
</tr>
</tbody>
</table>

PROBLEM CARBOHYDRATES (refined and starchy) – The cause of the problem!

• No potatoes or simple sugars/carbohydrates (common table sugar, fructose, sweets, cookies, candy, ice cream, pastries, honey, fruit juice, including artificial sweeteners and Stevia) may raise insulin levels, thus aggravating IR and perpetuating the cravings for sweets. As IR increases, so does the need for deteriorating carbohydrate sources.

• Almost no grain products (breads, pasta, cornbread, corn tortillas, crackers, popcorn, etc.) and no refined grains/carbohydrates (white flour products, etc.) except for canned tomatoes and tomato sauce.

• Whole grains (whole brown rice, wheat, rye, barley and buckwheat) only in very small amounts.

GOOD CARBOHYDRATES (non-refined and non-starchy)

• Small amounts of fruit are OK but eat it with protein meals and not alone. Berries are best. No dried fruit.

• Eat lots and lots of non-starchy vegetables. Raw or lightly cooked is best. These should be the main source of carbohydrates in the diet. Fresh tomatoes except for canned tomatoes and tomato sauce.

• Legumes (beans, peas, peanuts, soybeans, soy products, etc.) have a low glycemic index so are OK.

PROTEINS

• Consume moderate amounts of leaner meats, seafood and fish. The best are wild fish, wild game, free-range chicken & turkey, range-fed beef, lamb, bison, and omega-3 oils. Wild and range-fed means less of these and more omega-3's. The more omega-3's the better. Feeding grain to animals, like cows, that were never intended to eat grain.

• If you do not have a dairy allergy, some dairy is OK. Interestingly, the lower the fat in milk the more it raises the blood sugar, so low fat milk is worse. The calcium in cow's milk is for calves, not people. Other dairy products are okay. Use only unsweetened yogurt. Limit butter and no hydrogenated margarine.

• Eggs are fine unless you have allergies to them, but the best are eggs from free-range chickens and eggs grown to be high in omega-3 oils.

• For most people: moderate amounts of nuts (walnuts, macadamia nuts, almonds, cashews, pecans, etc.) and seeds (sesame, sunflower, pumpkin, flax, sunflower, etc.) are good. All nuts, seeds, and peanut butter are legumes.

FATS

• Consume moderate amounts of healthy oils. A low-fat diet is not healthy, nor is it compatible with this diet.
The Ketogenic Plan

Keto Food Pyramid

- 0% Sugars
- 5% Green-Leafy Fibrous Vegetables
- 30% Proteins
- 65% Fat

The ideal macro-nutrient ketogenic ratio of your calories

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Insulin Resistance: **What Causes It & What Triggers It?**

Anything that raises *cortisol, carbohydrates, interrupted sleep, etc.*

- Infections cause inflammation, which raises our *cortisol* level.
- Ordinary, everyday stress also raises our *cortisol* level.

(healthy) **Fats** are shown to have very little effect on blood glucose.

Insulin resistance

Cortisol reduces the amount of *glucose* (blood sugar) that liver and muscle cells can draw out of our bloodstream.

Since our liver and muscle cells can’t take as much glucose out of the blood as they should, glucose and insulin levels rise. This is **insulin resistance**.

**Metabolic Syndrome**

---

**Food conversion to blood glucose**

- **carbohydrates:** 90-100% turns to glucose, peaks in bloodstream in 1-2 hours
- **proteins:** 50% turns to glucose, peaks in bloodstream in 2-4 hours
- **fats:** 10% turns to glucose, peaks in bloodstream in 8-10 hours
Insulin Resistance: Key Points To Remember

- Carbohydrates can change brain chemistry by increasing serotonin, so when serotonin is low, patients have an incredibly difficult time to exercise will power.

- Carbohydrates can change the microbiota by propagating unhealthy bacteria. These unhealthy bacteria require more carbohydrates to flourish and signal the brain to eat the wrong foods.

- Often, carbohydrate intolerance precedes Insulin Resistance and may appear as: hypoglycemic episodes, bloating after carb-containing meals.
Insulin Resistance: *Key Points To Remember*

- Elevated fasting triglycerides and decreased HDL in addition to clinical signs and symptoms, can indicate IR

- Likewise, elevated androgen levels (saliva) – in women with ovaries – can indicate IR due to the binding of insulin to ovarian receptors stimulating androgen excess production.
Metabolic Syndrome

CardioMetabolic Food Plan, Low Glycemic Index, Paleo, Mediterranean Diet
Metabolic Syndrome: What Is It?

According to the National Cholesterol education Program (NCEP) of the National Institutes of Health, a patient is said to have Metabolic Syndrome if they meet at least three of the following five criteria:

- Resting blood pressure of 130/85 or higher OR currently taking an anti-hypertensive agent(s)

- Waist circumference of greater than 35 inches in women or greater than 40 inches in men. (In high risk groups, the threshold is 33 inches and 37 inches, respectively.)

- HDL < 40mg/dL in men and <50mg/dL in women OR currently taking HDL-raising meds (statins raised HDL 2-12%; fibrates raised HDL 10%. However, evidence shows after 12 weeks of moderate exercise, HDL increased by 25%).

- Fasting triglyceride level of 150mg/dL or higher OR currently taking triglyceride lowering medications. (NOTE The American Heart Association has recently lowered what it considers to be optimal fasting triglycerides to <100mg/dL.)

- Fasting blood glucose of 100 mg/dL or higher.
Metabolic Syndrome: What Causes It?

Insulin resistance

- Cortisol reduces the amount of glucose (blood sugar) that liver and muscle cells can draw out of our bloodstream.
- Since our liver and muscle cells can't take as much glucose out of the blood as they should, glucose and insulin levels rise. This is insulin resistance.

Metabolic Syndrome

- Insulin resistance increases the levels of fatty acids in our blood.
- Some of the extra fatty acids make us more insulin resistant. This starts a vicious cycle that will keep us insulin resistant for months or years after our cortisol levels are corrected. This is metabolic syndrome.

Metabolic syndrome leads to obesity & type 2 diabetes
Metabolic Syndrome

“A traditional Mediterranean dietary pattern... has shown anti-inflammatory effects when compared with the typical north american & Northern European dietary patterns...”
Metabolic Syndrome: *Foods That Heal*

- Eating primarily **PLANT-BASED FOODS** (*fruits and vegetables, whole grains, legumes & nuts*)
- Replacing butter with **HEALTHY FATS** (*olive oil, coconut oil, avocado oil*)
- Using **HERBS AND SPICES** more than **SALT**
- **LIMITING RED MEAT** (*to no more than a few times a month*)
- Eating **FISH AND POULTRY** (*at least twice a week*)
- Drinking **RED WINE** in moderation (*optional*)
**THE METABOLIC SYNDROME DIET**

**Fish & Omega-3 Foods**
Include omega-3s like wild-caught fish, walnuts, flaxseeds, rapeseed, and grass-fed beef in your diet.

**Vegetables**
Eating avocados in particular have been found to be clinically associated with lower metabolic syndrome in U.S. adults.

**Whole Grains**
High-quality, fiber-rich whole grains, like oatmeal and brown rice, not only have proven benefits for diabetes and heart health, but they also help keep your waist line in check.

**Fruits**
You can opt for apples, bananas, oranges, pears or prunes to get your fruit intake.

**Legumes**
Legumes are an excellent daily choice for keeping blood sugar stable and your waistline trim.

**Fake & Processed Foods**
Frozen, bagged and boxed items are typically devoid of nutrients and loaded with unhealthy additives and preservatives.

**Artificial Sweeteners**
They’ve been directly linked with the occurrence of diabetes and metabolic syndrome.

**Diet Sodas**
According to one 2009 study, daily consumption of diet soda was associated with a 33% greater risk of metabolic syndrome and a 67% greater risk of having type 2 diabetes.

**Trans Fats**
Avoid hydrogenated oils and fats, such as margarine, baked goods like cookies, cakes, pies, crackers, frostings and coffee creamers.

**Refined Carbs & Sugars**
Both are major culprits of metabolic syndrome.

**Alcohol**
Men should have no more than 2 drinks containing alcohol a day while women should have no more than 1.
Here are some specific phytonutrients that are in your food plan and how they can help:

**Phytonutrients to assist in blood sugar regulation:** 4-hydroxyisoleucine in fenugreek seeds, charantin from bitter melon, cinnamaldehyde in cinnamon, isoflavones from soybeans, beta-glucan from oats and barley

**Phytonutrients to assist in the reduction of LDL-cholesterol:** from tomatoes and red-pink fruit like grapefruit or extra-virgin olive oil, polyphenols from green tea, i chocolate and pomegranate

**Phytonutrients to assist in the reduction of blood pressure:** from garlic, beta-glucan from whole oats, isoflavonoids, juice, polyphenols from dark chocolate

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**FEATURES OF THE CARDIOMETABOLIC FOOD PLAN**

- Modified Mediterranean Approach
- Low Glycemic Index and Glycemic Load
- Targeted Calories
- Regular Eating Times
- High in Fiber
- Low in Simple Sugars
- Balanced Quality Fats
- Condition-Specific Phytonutrients
- Connection
- Information
- Energy
The Mediterranean Diet Pyramid

Drink water
Wine in moderation

MEAT
SWEETS
EGGS
POULTRY
FISH & SEAFOOD

CHEESE & YOGURT
OLIVE OIL

FRUITS
LEGUMES & NUTS
VEGETABLES

WHOLEGRAIN BREAD, PASTA, RICE, COUSCOUS, POLENTA, QUINOA, OTHER GRAINS & POTATOES

Daily Physical Activity

Monthly
Weekly
Daily
THE FOOD YOU EAT CAN BE EITHER THE SAFEST & MOST POWERFUL FORM OF MEDICINE OR THE SLOWEST FORM OF POISON.

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