



THE DOWN SYNDROME DIET

Changing the “Course” Through Nutrition

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DISCLAIMER

This presentation is intended to be informational and educational.

It is not a substitute for individualized care or nutritional advice.

These are general guidelines and principles that may be considered based upon a review of literature and anecdotal evidence.



COMMON COMORBIDITIES

- Hashimoto Thyroiditis
- Diabetes
- Obesity
- Seizures
- Allergies
- ADHD
- Sleep Problems

- Arthritis
- Celiac Disease
- Autism
- G.I. problems
- Alzheimer's
- Recurrent infections

SHARED NUTRITIONAL DEFICIENCIES

Autism

**Down
Syndrome**

Vitamins A & D
Selenium
B6, B9 & B12
Zinc
Glutathione
Magnesium
Digestive Enzymes
Elevated antibodies to
Milk & Grains
Imbalanced Gut
Bacteria

THE GF/CF APPROACH

- **45% of people**
with Autism Spectrum Disorders have gastrointestinal problems
- **3%-6% prevalence rate**
of Celiac Disease in the Down syndrome population
- **40% of caregivers**
using a GF / CF diet for the past several years report a reduction
in symptomatology and even 'recovering' children from Autism

WHAT IS CELIAC DISEASE?

1

An autoimmune disorder where the ingestion of gluten leads to damage in the small intestine.

2

It is estimated to affect 1 in 100 people worldwide.

3

Rate of Celiac in the general population has quadrupled in the past 50 years

4

Wheat has changed!

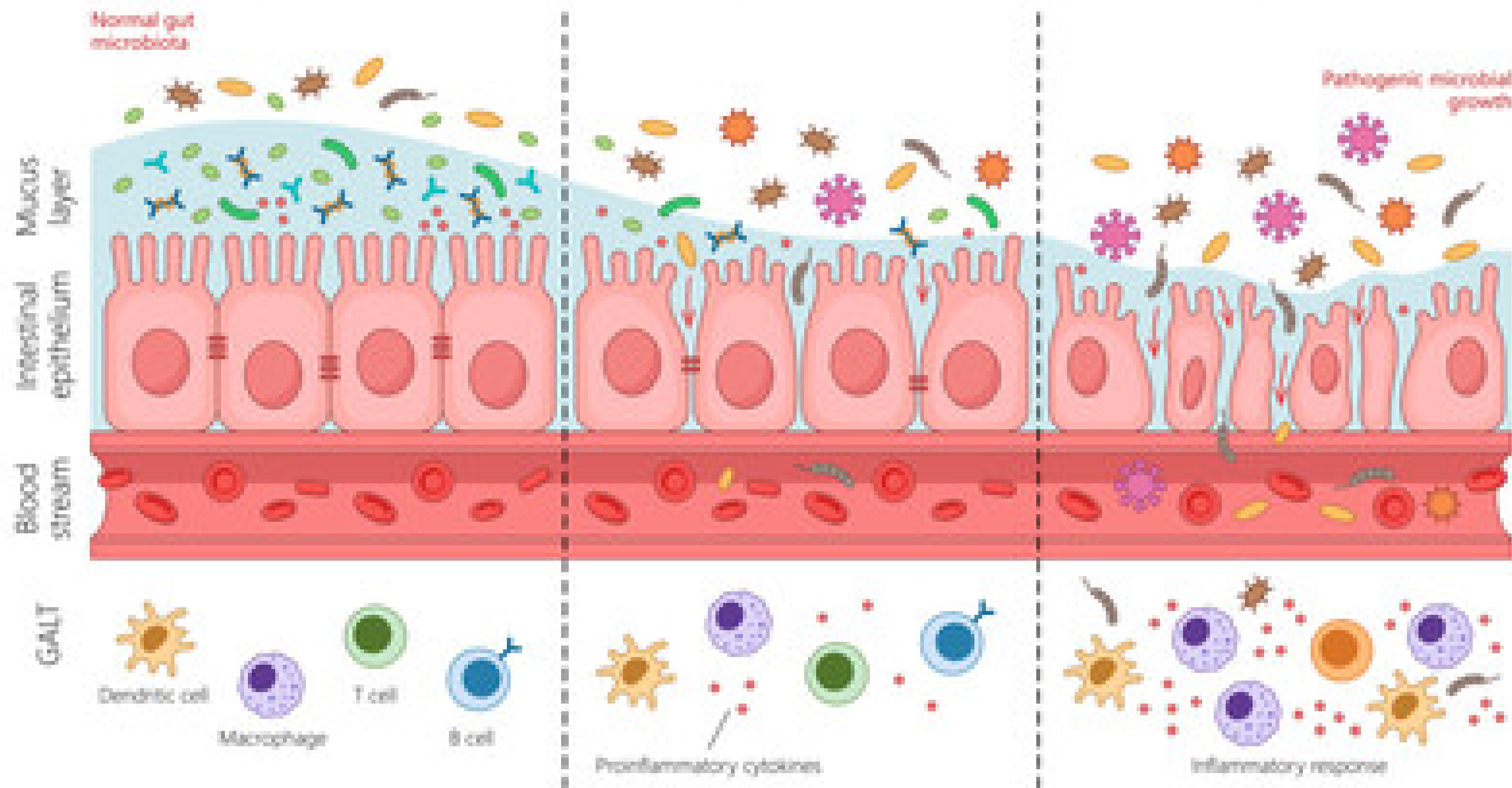
LEAKY GUT / INTESTINAL PERMEABILITY

- Gluten protein (gliadin) triggers Zonulin
- A protein that increases the permeability between cells of the wall of the digestive track
- Leads to inflammation and can cause neurological, autoimmune and mental health problems
- Gluten interferes with the breakdown and absorption of nutrients

Symbiosis

Dysbiosis

Leaky Gut



WHAT ELSE CAN GLUTEN DO?

Link between gluten sensitivity and Hashimoto's Thyroiditis

Depression and **anxiety** are often severe in patients with gluten sensitivity
cytokines block the production of serotonin (essential for mood regulation)

Exacerbates symptoms of allergies and arthritis & disables the immune system

Exacerbates symptoms of Major psychiatric disorders including Schizophrenia
& Bipolar Disorder

Attention Deficit Hyperactivity Disorder

Elevated antibodies to gluten have been found in Alzheimer's Disease,

Vascular Dementia, Multiple Sclerosis, Parkinson's Disease and Autism

Gluten sensitivity can be primarily, and at times, exclusively a neurological disease.

INFLAMMATION

- Can have a positive side effect when it helps your body respond to illness, through a fever and eliminates a virus
- However, chronic, low-grade inflammation is thought to be one of the leading causes of disease, premature aging, and illness
- Inflammation is involved in virtually every chronic disease



RISK FACTORS OF L.G. FOR DS

- Caesarean section
- Early antibiotics
- Chronic antibiotics
- Pharmaceuticals (PPIs, mood regulators, metformin)
- Over the counter medications (NSAIDS)
- Artificial sweeteners
- Stress (chronic raised cortisol levels)
- Poor natural detoxification mechanisms

GLUTEN-FREE CAUTION

- If going gluten-free, be careful of added sugars to help with taste and texture
- Avoid GMOs: 98% of soy, 88% of corn, and 98% of rice are GMO
- Rice allowed in the US has high levels of arsenic
- If using nut-based foods as replacement, ensure a nut allergy has been ruled out



THE TYPICAL DS DIET

●★ Infants

Formula, filler cereals (rice or gluten-based), yogurt

●★ Toddlers

Puffs, cereal, crackers, juice, yogurt, milk, pasta, potatoes, PediaSure

●★ Children


Pizza, pasta, breads, breaded meats, cereal, crackers, cookies, fries

●★ Adults

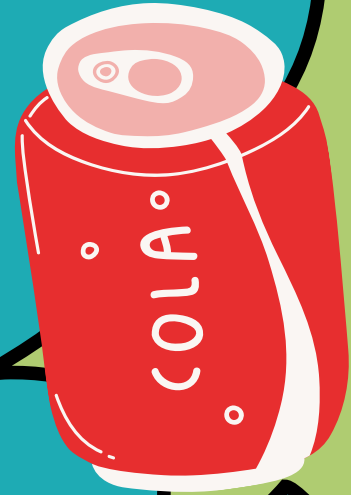
Soda (diet & regular) fruit punch, potatoes, breads, pasta



SUGAR COUNT

- AHA daily limit of sugar for children (based on a 1000-1200 daily calorie intake) is 4 teaspoons (16 grams)
 - HOWEVER, the average child aged 1-3 years consumes approximately 13 tsp of added sugar per day
 - The average child aged 4-8 consumes approximately 21 tsp
 - Teenagers aged 14-18 consume 34.3 tsp
 - The average adult consumes 22.2 tsp
- 

SUGAR COUNT

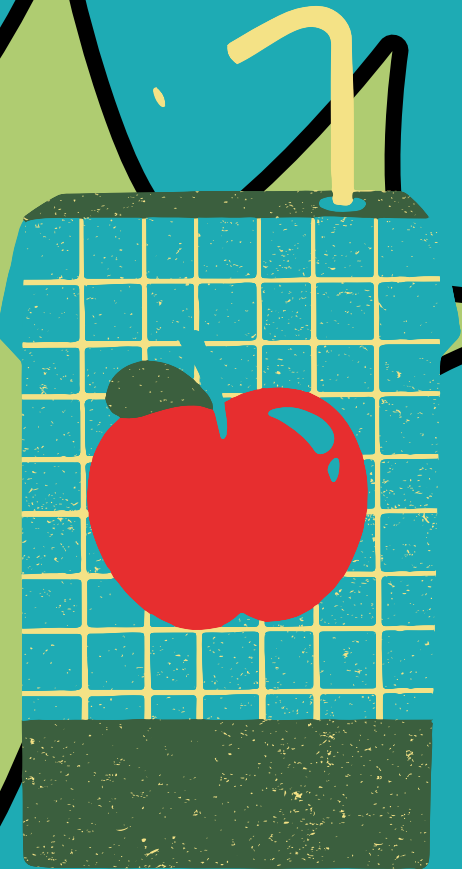


39 GRAMS
12oz of Soda



20 GRAMS
Per Poptart

23 GRAMS
8oz of
apple juice



36 GRAMS
80z applesauce



10 GRAMS
5oz of fruit snacks

18 GRAMS
8oz of PediaSure



SUGAR AND DEMENTIA

- **Doubled Risk**
of developing Alzheimer's if you're diabetic
- **3x More Instances**
of diabetes in the past 40 years
- **Amyloid Plaque overload**
insulin resistance interferes with the body's ability to
break down amyloid plaques
- **Alzheimer's is NOW**
being considered "type 3 Diabetes"

SANDERS-BROWN STUDY

● Dementia ● MCI ● NON-DEM

100

80

60

40

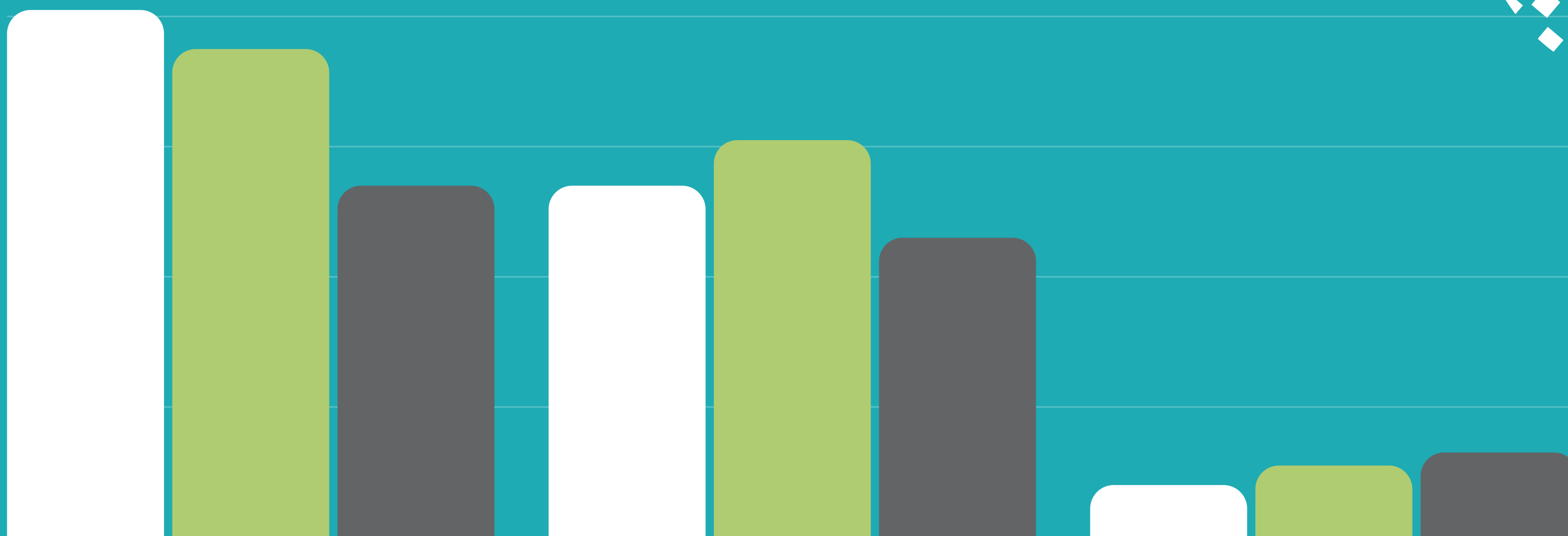
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SWEETS


CARBS

FATS





BAD SUGAR - GOOD FAT

- LDL's ("Bad Cholesterol") are an important protein that brings vital cholesterol to brain cells
 - Problems arise when LDL's become oxidized.
 - When LDL's become glycated (mixed with sugar) there is a dramatic increase in oxidation and a 50x increase in free radicals
 - Then, they cannot present cholesterol to brain cells and brain function suffers
- 

WE NEED BRAIN FAT

- Obesity and its metabolic consequences have almost nothing to do with dietary fat consumption and everything to do with our addiction to carbohydrates
- Eating high-cholesterol foods has no impact on our actual cholesterol levels
- The alleged correlation between high cholesterol and higher cardiac risk is an absolute fallacy

-David Perlmutter, M.D.



FAT BRAIN



- Good fats like Omega-3s and monosaturated fats reduce inflammation
- Modified hydrogenated fats dramatically increase inflammation
- Some vitamins (A,D,E,and K) require fat so they can absorb properly
- These fat-soluble vitamins need dietary fat to transport them through the body
- Omega-3 fats and DHA produce powerful antioxidants & detoxification enzymes
- Consuming more than 2 servings of fish a week was associated with a 59% reduction in the occurrence of Alzheimer's disease.

INCREASE OMEGA-3 FATTY ACIDS

Harvard Medical School Professor George Cahill -

Recent studies have shown that coconut oil:

1

Improves antioxidant
function

2

Increase the number of
mitochondria

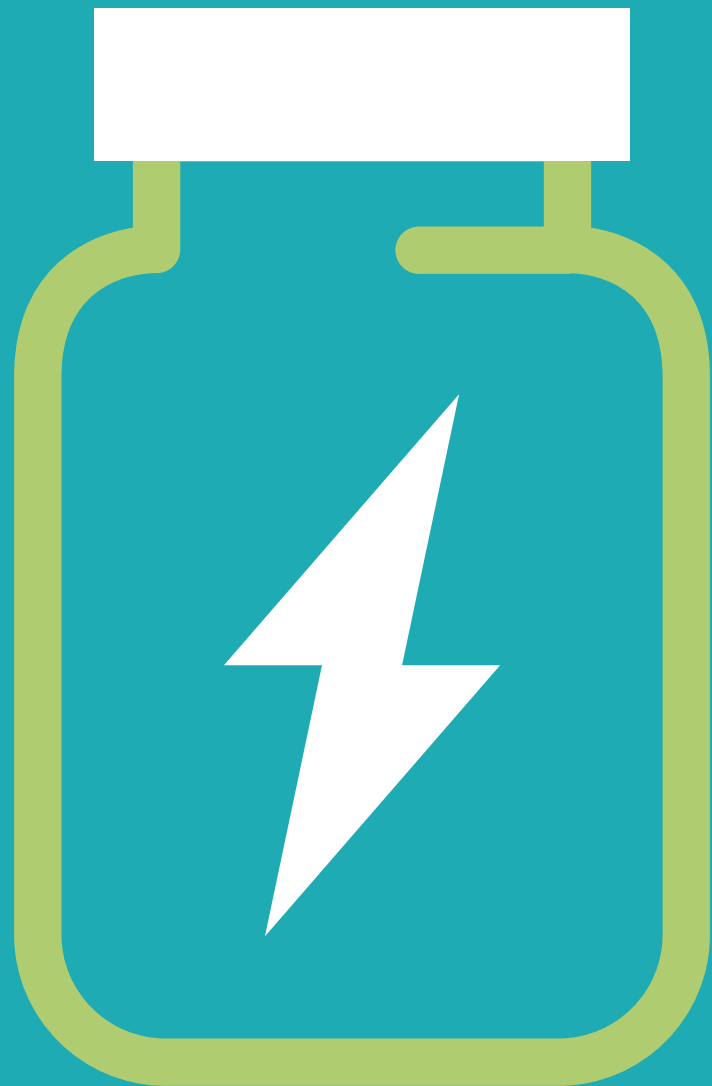
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Stimulates the growth of
new brain cells

4

Helps repair myelin
sheath

ARE ALL OILS CREATED EQUAL?



1

Vegetable oils contain Omega-6 which is pro-inflammatory

2

The recommended ratio of Omega-6 to Omega-3 is anywhere from 1:1 to 4:1

3

The typical American diet average is 20:1

CASEIN

What is it?

Casein is the protein found in mammal milk

Casein Allergy?

Allergy occurs when your body's immune system mistakenly thinks the protein is harmful and inappropriately produces allergic antibodies for protection

Antibodies vs Proteins

The interaction triggers the release of body chemicals such as histamine

REACTIONS COULD INCLUDE



Skin Reactions

hives, rashes, red or itchy skin



Swelling

increase the number of mitochondria



Nasal

congestion, runny nose, coughing, sneezing, wheezing



Less Severe

cramping, flatulence, nausea, diarrhea, or constipation

DAIRY SENSITIVITY

- **Allergy vs Sensitivity**
People can be sensitive to lactose without having a full-blown milk allergy
- **60% of Americans**
and 75% of individuals worldwide have recently been estimated to be lactose sensitive



FOODS CONTAINING CASEIN



MILK COMPAIRISON

	2% Cow	Oat Milk	Unsweet Almond	Coconut	Rice
Calcium	30%	25%	45%	45%	30%
Vitamin A	9%	20%	10%	10%	30%
Vitamin D	26%	20%	25%	25%	25%
Fat	3g	5g	3g	5g	2.5g
Sugar	12g	7g	0g	0g	10g
Calories	122	120	40	50	120

WHAT SHOULD WE BE EATING?

LESS
refined sugars
& simple carbs

MORE
healthy fats

LESS
gluten & dairy

Dr. Mercola's Food Pyramid for Optimal Health



Grains and Sugars

- Minimal to no consumption
- Includes complex carbs such as bread, cereal, pasta, potatoes, corn, rice and grain products

Protein

- Grass-fed, organic meat and poultry
- Organic pastured eggs
- Safe fish such as wild Alaskan salmon
- Raw, organic dairy



Fruits

- Consume fruit in moderation
- Limit fructose to below 25 grams a day, including 15 grams from whole fruit

Healthy Fats & Veggies

- Healthy fats include coconuts, avocados, olive oil, butter, and raw nuts
- Raw, organic vegetables

ANTI-INFLAMMATORY FOODS

- Fermented foods
- Lightly steamed broccoli
- Oils with Omega-3 acid
- Wild fatty fish (salmon, cod, sardines)
- Tart cherries
- Soaked walnuts
- Onions & garlic
- Pineapple
- Spinach
- Turmeric & ginger



CURCUMIN

- Curcumin (turmeric) and its impact on the brain is currently the subject of intense scientific inquiry
- It has been used for thousands of years in traditional Chinese and Indian medicine
- The prevalence of dementia is markedly reduced in communities where turmeric is used in abundance



SWAP CARBS WITH QUALITY FATS

- Cook and eat coconut, avocado, and olive oils.
- Eat olives, hummus, nuts, small fatty wild fish, algae
- Trade simple carbs for more complex carbs w/ fiber
- Very low-carb diet has been shown to reduce amyloids in the brain and increase glutathione



WHAT IS GLUTATHIONE

- One of the most important detoxification agents in the human body
 - made up of 3 amino acids (glutamine, glycine, & cysteine)
- Serves as a major antioxidant - helping to protect the cell from free radical damage and protecting the mitochondria
- Detoxification - renders various toxins less noxious and makes them more water soluble so they can be more easily excreted
- To support Glutathione production, eat sulfur-rich foods, Vitamin C, and Selenium-rich foods

FERMENTED FOODS

- Fermented foods are foods that have been through a process of Lacto-fermentation in which natural bacteria feed on the sugar and starch in the food creating lactic acid
- This process preserves the food and creates beneficial enzymes, B-Vitamins, Omega-3 fatty acids, and various strains of probiotics

Kimchi, Kombucha, sauerkraut, miso & tempeh (soybean caution)

HOW TO START

Start slow

This is a marathon, not a sprint!

One at a time

Replace one thing at a time.
Start with what is eaten most often.

Change Order

1. GF/CF
2. Quality
3. Quantity

TIPS

- You will likely notice that their diet expands as they detox
- If necessary, first replace type of food, then increase the quality (organic, cleaner foods)
- Make same type of foods as siblings or put GF foods in old food boxes

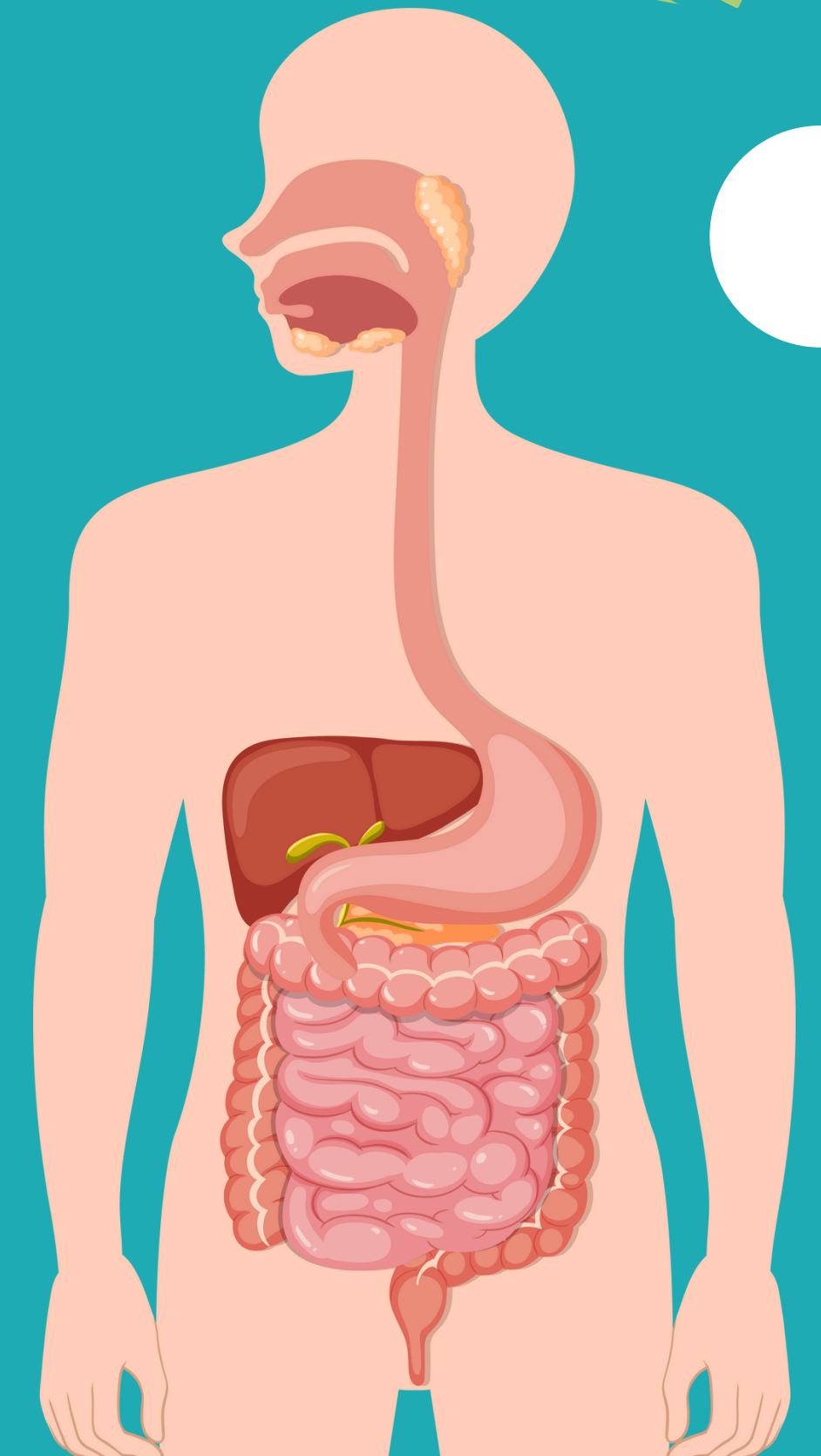
WHEN FOOD ISN'T ENOUGH

- Antioxidants
- Probiotics
- Fish and/or MCT Oil
- Multivitamin
- Glutathione
- Vitamins B, D, C, & E
- Digestive enzymes
- Calcium (if dairy free)



DIGESTION & DETOXIFICATION

- Digestion releases the nutrients in food so the body can absorb them
- Digestion starts in the mouth: Oral-Motor Dysfunction
- Detox via bladder, bowels, breath & sweat



EXERCISE

- Exercise is a potent anti-inflammatory and it improves insulin sensitivity
- Dr Aaron Buchanan (Rush University, Memory & Aging Project) found that the risk of Alzheimer's was nearly tripled in people who exert themselves the least
- Daily 20 minutes of moderately vigorous activity



SLEEP

- Sleep affects the hormone called leptin, a pro-inflammatory molecule. Sleep is negatively influenced by carbs with refined processed sugars, causing an even greater imbalance in leptin levels
- leptin also influences our cravings for carbohydrates
- Healthy levels of leptin prevent most diseases of aging
- No single drug or supplement can balance leptin levels; however, better sleep and better dietary choices can
- Consider the incidence of sleep apnea in a DS population



TAKE AWAY

- Impact of gluten and casein on health and increased sensitivities in DS population
- Importance of processed sugar and healthy fats and the relationship to Alzheimer's disease
- Can we reverse Autism or Minimize the associated symptoms?
- Can we change the course of the “inevitable” Alzheimer's disease for our members?

A vibrant, colorful illustration of various fruits and vegetables scattered across a blue background. The items include apples, bananas, carrots, tomatoes, broccoli, spinach, and more. The style is whimsical and hand-drawn.



QUESTIONS?

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