



ANTI- INFLAMMATION NUTRITION

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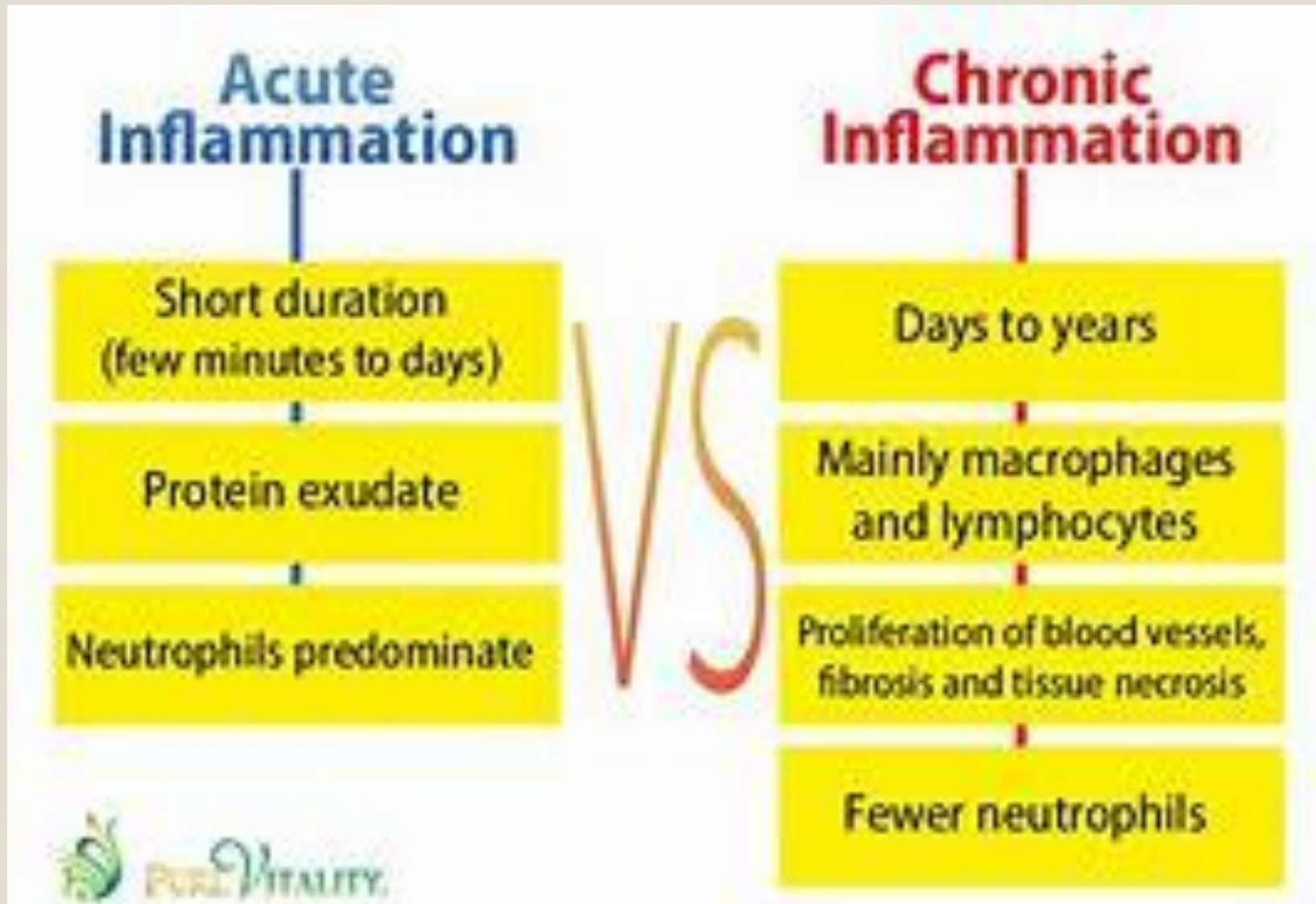
Tonight's Objectives

- Define the acute vs chronic inflammatory response?
- Understand the role of chronic inflammation in disease development?
- Describe the influence of foods and nutrients in both promoting and inhibiting inflammation?
- Discuss intermittent fasting, as it relates to insulin and fat metabolism?

What is Inflammation?

- An indicator of illness and injury- redness, pain, heat, swelling
- In more recent years, inflammation plays a role as a risk factor for chronic illnesses
 - Cardiovascular disease
 - Cancer
 - Diabetes

Two types of Inflammation



Acute Inflammation



- A short live physiologic response to injury, irritation, or infection
- The physiologic response including increased blood flow, greater blood vessel permeability, and accumulation of white bloods cells- leads to redness heat, and pain at the affected site.

Long Term physiologic response that lasts weeks, months, or years

Caused by

- ✓ Exposure to environmental toxins
- ✓ A microbial or viral infection
- ✓ Poor nutrition
- ✓ Stress
- ✓ Processes related to aging

When unchecked- prolonged chronic inflammation generates a series of destructive reactions that damage cells and eventually lead to the clinical symptoms of disease

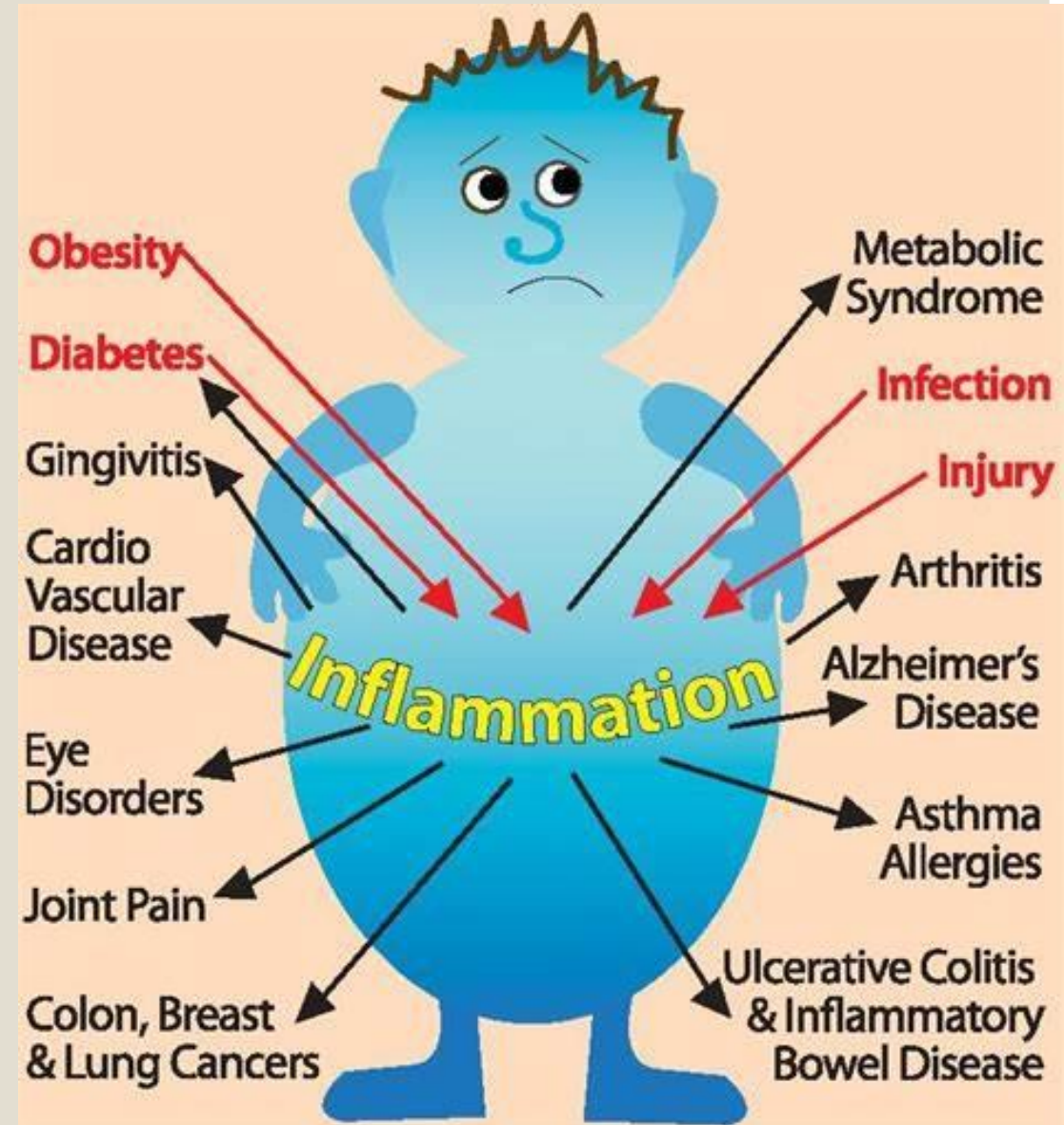


The development of a specific disease depends on the site of the inflammatory response

Examples:

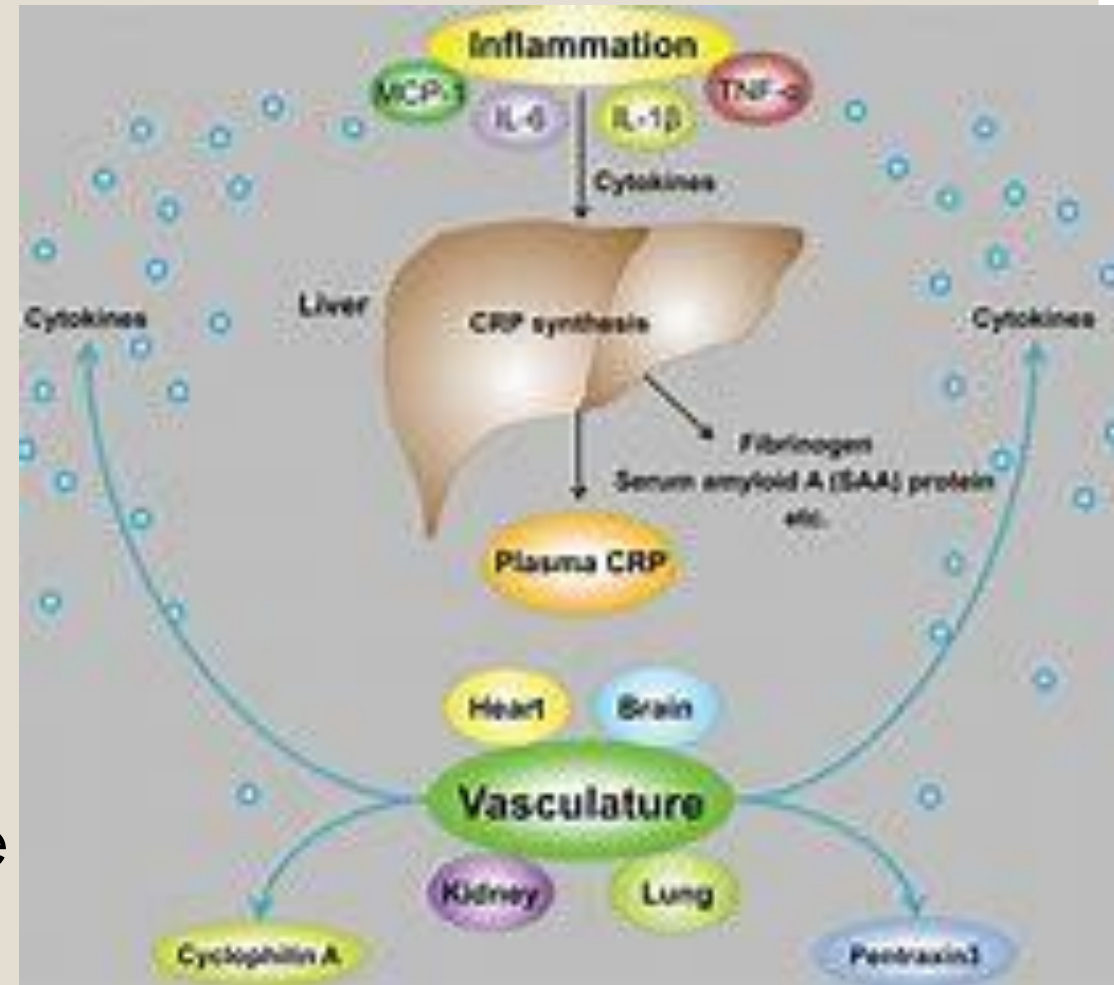
The disruption of the action of the glomerular epithelial cells in the kidney results in kidney disease

The damage to the intestinal enterocytes leads to Inflammatory Bowel Disease



Cytokines

- Small peptides that act as signaling system within the body & affect many biological processes.
- A key factor in fighting infection & maintaining homeostasis
- There are proinflammatory and anti inflammatory cytokines
- Elevated plasma levels of proinflammatory cytokines are biomarkers of inflammation & disease
- Elevated proinflammatory cytokines causes the liver to produce proteins called acute phased reactants (APR)- like CRP and SAA



Inflammatory Markers in Disease

- Excess adipose tissue
- Metabolic syndrome
 - Type 2 diabetes
 - Atherosclerosis
 - Cancer
- Rheumatoid Arthritis

Proinflammatory Nutrients



Excess caloric intake



- Excessive energy intake stimulates adipose cell growth and promotes abdominal obesity
- Data obtained from studies of the calorie restriction society showed eating low calorie diet decreased serum levels of CRP

Dietary carbohydrate excess



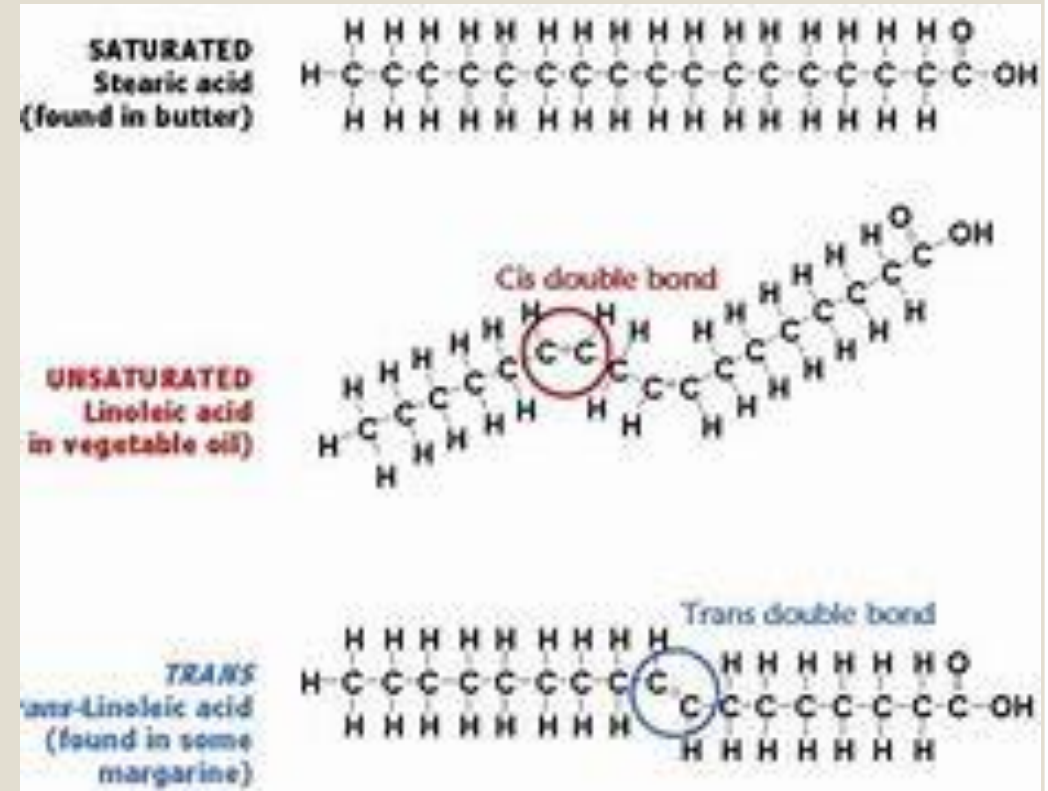
Carbohydrate intake has been linked to chronic disease such as obesity, metabolic syndrome, and type 2 diabetes. Of particular interest are foods low in fiber and rich in sugars and starches, foods high on the glycemic index

- ✓ Cakes, candies, pies, sweets, white bread, white pasta, white rice, crackers, refined grains, snack foods, low fiber cereals

Trans fatty acids

Consuming trans fatty acids is a known risk factor for sudden cardiac death. A possible mechanism suggests that trans fatty acids induce an inflammatory response in cardiac uses through their effect on cell membranes.

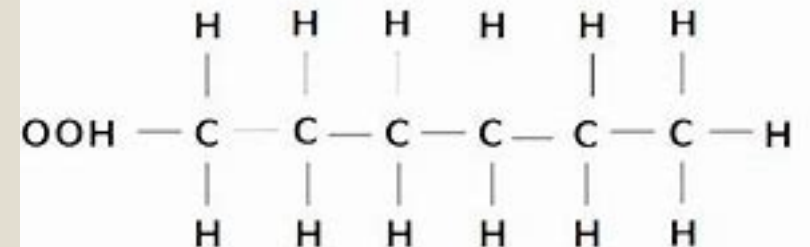
Hydrogenated vegetable oils



Saturated Fatty acids

In vitro studies have shown that saturated fatty acids play a role in the inflammatory process by stimulating macrophage production and the secretion of the proinflammatory cytokines

Animal products like milk, cheese, and meat
Tropical oils, including coconut and palm oil



Omega 6 Polyunsaturated Fatty Acids

During the last several decades , the consumption of oils rich in the omega-6 fatty acid linoleic acid steadily has risen in the United states , resulting in an increased ratio of Omega 6 to Omega 3 fatty acids in the America diet

- ✓ Soybean , corn, safflower, and sunflower oils.
- ✓ Processed snacks, fast foods, cakes, fatty meats, and cured meats.





anti-inflammatory foods



Omega-3 Polyunsaturated fatty acids

Omega 3 Fatty Acids have 3 main dietary types:

-Alpha Linolenic Acids (ALAs)

Found in Plant Foods

-Eicosapentaenoic Acid (EPA)

Found in Fish and Seafood

-Docosahexaenoic Acid (DHA)

Found in Fish and Seafood

Found in: Flaxseeds, chia seeds, fish, walnuts, tofu, shellfish, canola oil, navy beans, brussels sprouts, & avocados



Ascorbic Acid

Vitamin C is a powerful antioxidant and scavenges free radical

Most fruits and vegetables:

Citrus fruits, peppers, berries, broccoli, kiwi, Brussels Sprouts, cabbage, tomatoes, cantaloupe, pineapple



Vitamin E

Vitamin E exists in nature as different chemical structures, the most common ones being Alpha and gamma-tocopherol. Supplements commonly contain alpha-tocopherol. Both work as anti-inflammatory agents

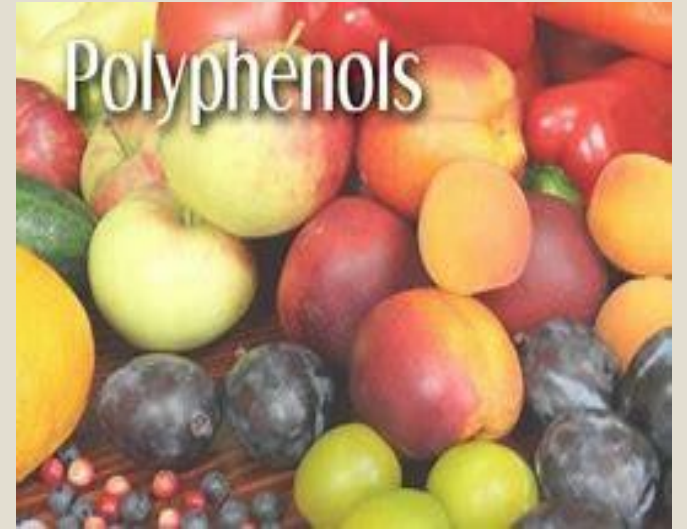
Seeds, Nuts, and Vegetable oils

Wheat germ oil, sunflower seeds, almonds, hazelnuts, salmon, avocado, pine nuts, peanuts, pumpkin seeds



Polyphenols

POWERFUL Aromatic compounds found in fruits, vegetables, grains, chocolate, coffee, olive oil, and tea

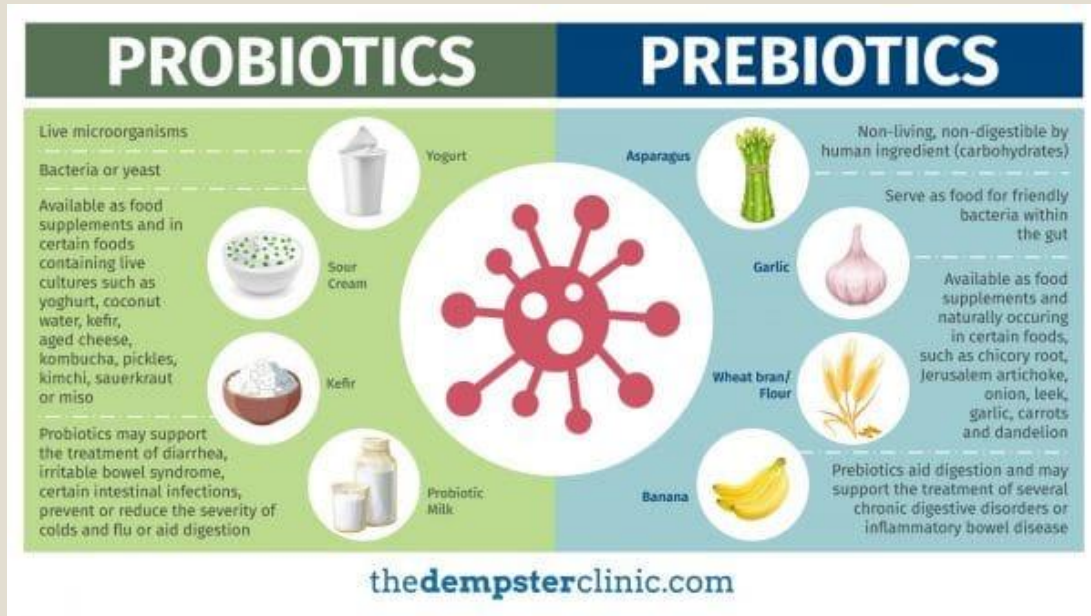


Thousands of polyphenols exist and can be classified into subgroups

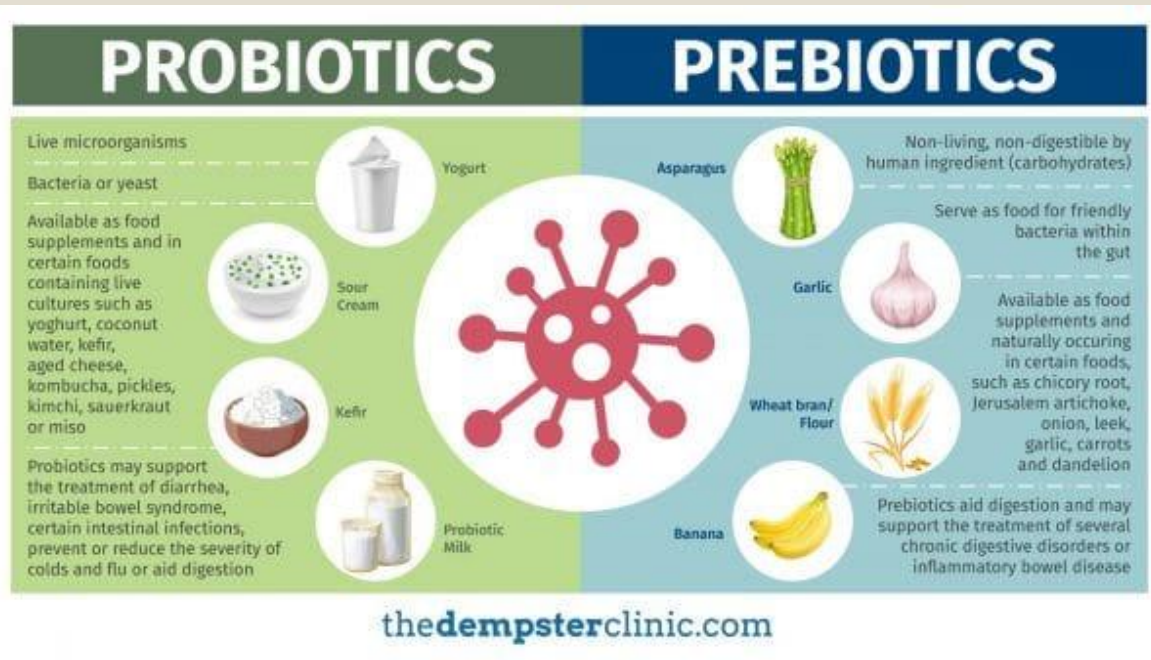
- Flavanoids
- Lignans

Flavonoids: citrus fruit, apples, cocoa, onions, celery, berries, coffee, olive oil, tea, whole grains, peanuts

Lignans: flaxseeds, red wine, berries



Prebiotics are defined as nondigestible, nonabsorbable substances that can be fermented by bacteria in the gut and promote the desirable microflora (oligofructose and inulin). Inulin is a popular fiber added to commercially prepared foods. Inulin can be found in supplement form



Probiotics are Live microorganisms which confer a health benefit to the host. Probiotics make up our gut flora (lactobacillus or bifidobacterial) Cultured dairy foods: yogurt, kefir. Can also be found in supplement form This can be helpful treatment for bowel diseases (IBD, Crohn's Ulcerative colitis, chronic diarrhea in children)

There are many simple dietary strategies that may effectively reduce levels of chronic inflammation and decrease disease risk

Support clients by encouraging the increased intake of fruits, vegetables, whole grains, nuts, olive oil, and fatty fish as a positive message that can accompany advice to reduce their consumption of refined starches, sweets, and foods laden with trans and saturated fats



Intermittent Fasting



Intermittent Fasting



Intermittent fasting (IF) is an eating pattern that cycles between periods of fasting and eating

- The 16/8 method: involves skipping breakfast and restricting your daily eating period to 8 hours, such as 1–9 p.m. Then you fast for 16 hours in between.
- Popular since 2012 is the 5:2 fast: eating normal for 5 days and fasting (<500 kcal) for 2 non consecutive days

It doesn't restrict what kind of food you are eating , just your eating window

Theories about IF

- When the human body goes for more than about eight hours without eating, its glucose stores begin to be used up and the levels of some hormones, such as insulin, go down
- Lower circulating insulin levels allow more fat to be used for energy (rather than stored) and may be beneficial for weight loss or reducing the risk of some diseases

At the moment we have a limited amount of conclusive human scientific evidence to support these claims

Does it work?



When it comes to weight loss, studies support the fact that intermittent fasting does in fact tend to help some people lose weight. By limiting the number of hours spent eating, people tend to eat less overall. It is well known that consistently consuming less energy than you expend over time leads to the utilization of stored fat for energy and weight loss.

Weight loss results seen with intermittent fasting tend to be very similar to those for individuals who follow a moderate caloric restriction, focusing on caloric intake rather than timing

Possible benefits of IF



- Possibility of weight loss with calorie restriction
- The opportunity to focus on when to eat versus what or how much may be a refreshing change for dieters
- Blood pressure, blood lipid levels and circulating insulin levels may also be reduce - the science is inconclusive
- This may work well with someone who doesn't sleep for many hours or who works night shifts.

Drawbacks of Intermittent Fasting

- Social inconvenience of not being able to eat while others are eating
- Potential distractors of irritability, moodiness or difficulty concentrating fasting
- Like most other diets, it might not create sustainable lifestyle changes, so success could be fleeting.



Not recommended for everyone

- Mental health disorders like Bipolar disease
- Binge eating disorder or binge eating tendencies
- Compulsive Eaters
- Clients taking diabetes medication
- Clients with Hypoglycemia
- Pregnant or breast feeding
- Performing endurance sports

