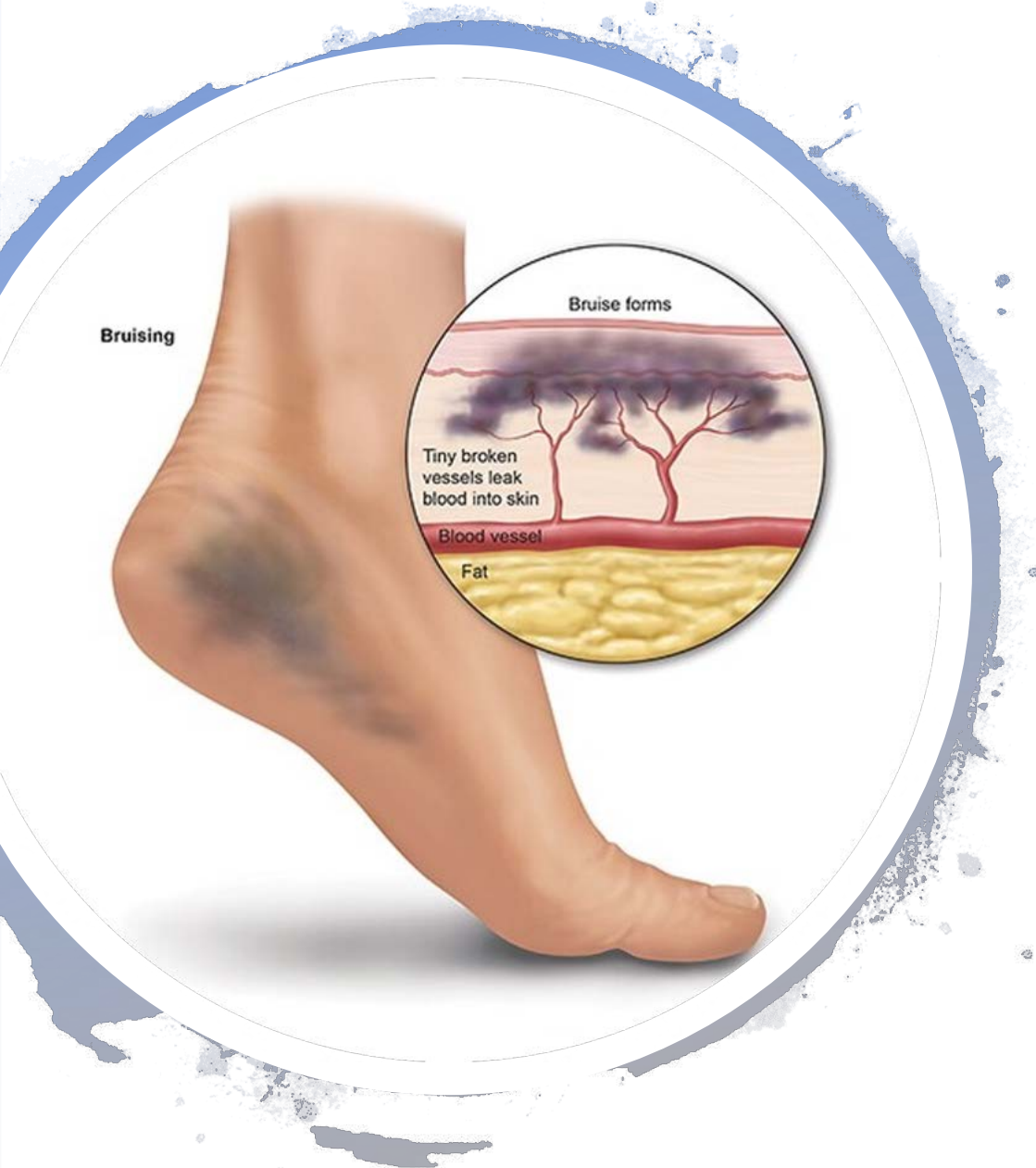




Mindful Nutrition

Inflammation: signs, symptoms,
and how to manage



Acute Inflammation

- The body's process of fighting things that harm it, in an attempt to heal itself – infections, injuries, toxins
- Release of antibodies and proteins, as well as increased blood flow
- Can last a few hours or a few days

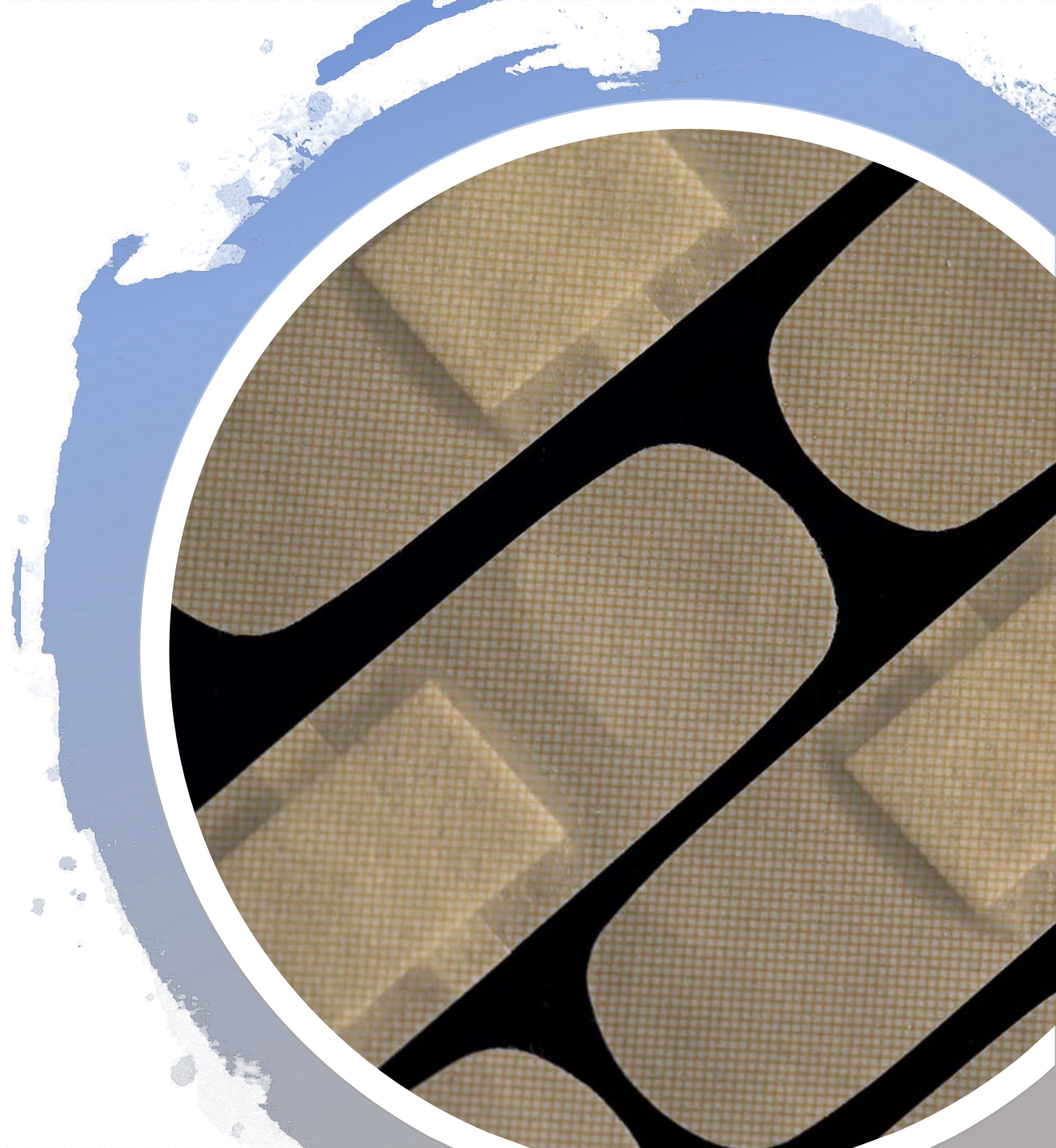
- Inflammation response lingers – body is in constant state of alert
- Causes:
 - Untreated acute inflammation – injuries, infections
 - Autoimmune disorder – immune system mistakenly attacks healthy tissue
 - Long term exposure to toxins/irritants – smoke, pollution, chemicals
 - Chronic stress
 - Obesity
 - Alcohol
 - Poor dietary choices – sugar, trans-fats, refined carbohydrates, processed meats, and others

Chronic Inflammation



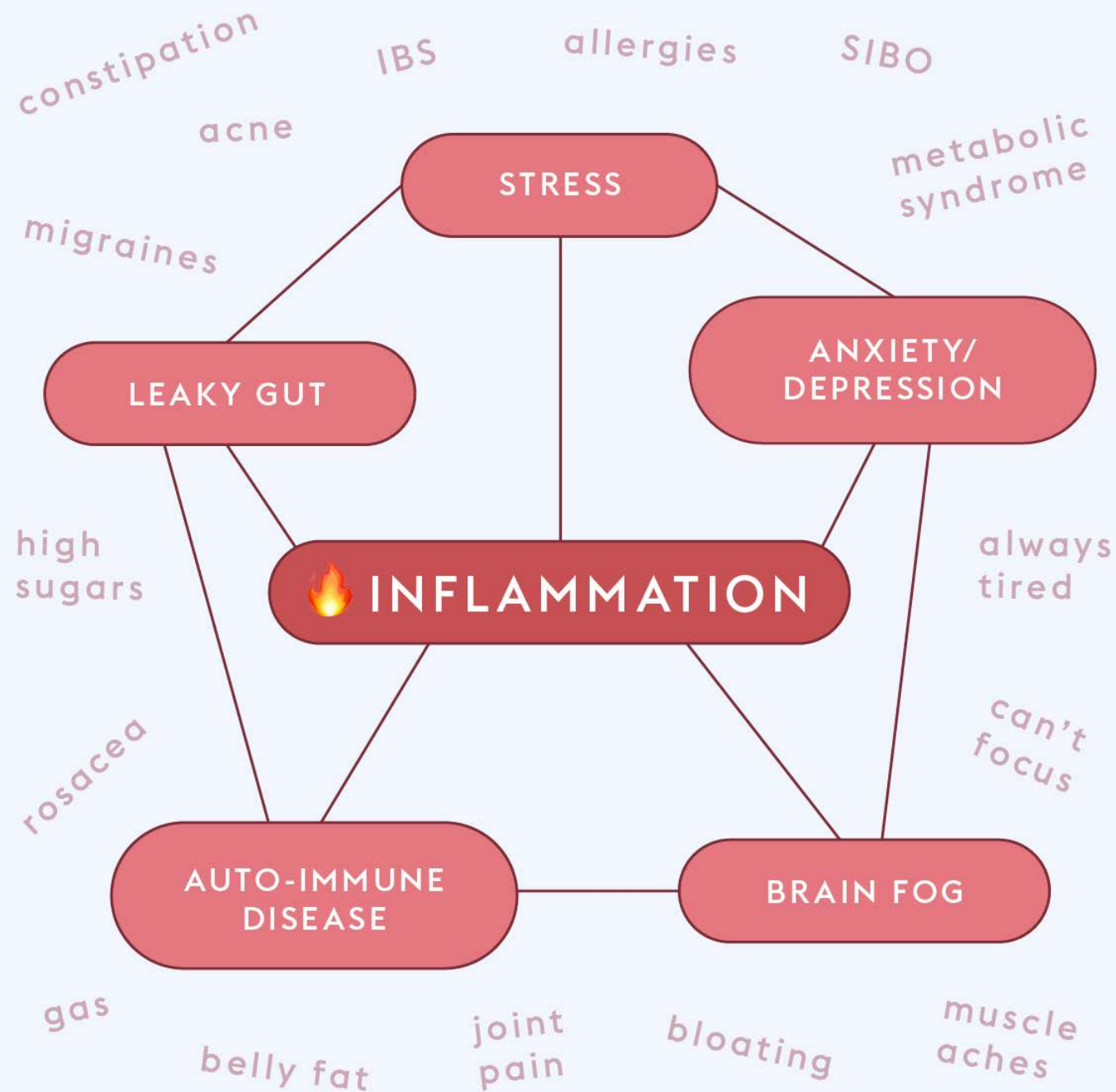
Acute Inflammation Symptoms

- 5 basic signs:
 - Redness
 - Swelling
 - Heat
 - Pain
 - Loss of function




Chronic Inflammation Symptoms – more subtle

- Body pain –muscle aches/joint pain
- Skin rashes – eczema/psoriasis
- Excess mucus production
- Low energy – inflammation increases the requirement of cellular energy
- Poor digestion – bloating, diarrhea, constipation, abdominal pain... leaky gut



- Heart disease
- Type 2 diabetes
- Cancer
- Rheumatoid arthritis
- Obesity
- Asthma
- Alzheimer's disease
- Inflammatory Bowel Disease – Crohn's and Ulcerative Colitis
- Celiac disease



Chronic
Inflammation
leads to Chronic
Disease

A large light gray circle serves as a background for the text. A thick green arc is positioned on the right side of the circle, starting from the bottom and curving upwards. A small dark gray circle is located at the bottom center of the large circle, just to the left of the green arc's starting point.

How can we tell if we have inflammation?



- Blood tests (non-specific):
 - White blood cell count
 - Sedimentation rate (ESR) – measure of how quickly red blood cells settle in sample. Fast rate indicates inflammation.
 - High sensitivity C Reactive Protein (hs-CRP) – measures protein that is produced in inflammation response. 1/3 of US population has elevated CRP. Elevated CRP directly related to higher risk of heart disease.



How to heal chronic inflammation

Remove foods that are known to cause inflammation

- Sugar and high fructose corn syrup
- Artificial trans fats
- Excessive vegetable and seed oils (high omega 6 FA)
- Excessive alcohol
- Dairy and gluten (individual sensitivity)
- Simple refined carbohydrates
- Red meat (non-grass fed)
- Processed meats
- Fried foods





Eat anti-inflammatory foods

- Berries – antioxidants called anthocyanins, shown to reduce inflammation, boost immunity, reduce risk of heart disease
- Fatty fish – omega 3's – anti-inflammatory effects – reduce CRP
- Broccoli, cauliflower, Brussels sprouts, kale – antioxidants called sulforaphane, released when vegetables are cut
- Avocados – antioxidants and compounds to reduce inflammation
- Green tea – antioxidant called EGCG – protects your cells



More anti-inflammatory foods

- Peppers – vitamin C and antioxidant quercetin – reduce oxidative damage
- Mushrooms – raw or lightly cooked for best effect
- Grapes – resveratrol – powerful antioxidant
- Turmeric – curcumin anti-inflammatory nutrient
- Extra virgin olive oil – shown to reduce heart disease, cancer, lowers CRP
- Dark chocolate – flavanols – antioxidants for arteries (70% cocoa)
- Tomatoes – Vit C and lycopene – best absorbed with fat (olive oil)
- Cherries – anthocyanins and catechins fight inflammation



Exercise

- Regular exercise of *moderate* intensity improves immune function and decreases inflammation
- High-intensity exercise may have detrimental effect – know your body and your limits

Minimize stress

- Yoga
- Meditation
- Biofeedback
- Breathing exercises



Supplements – check with your doctor first!

- **Alpha Lipoic Acid** – organic compound with antioxidant properties. Crosses the blood brain barrier.
- **Curcumin**– shown to decrease inflammation in diabetes, heart disease, IBD, cancer, osteoarthritis, rheumatoid arthritis. Reduces CRP. Absorption boosts when taken with black pepper.
- **Fish oil** – EPA and DHA omega 3 fatty acids. High quality is important to avoid mercury. Nordic Naturals is a good brand.
- **Ginger** – shown to reduce CRP, muscle pain and soreness.
- **Resveratrol** – antioxidant found in grapes, blueberries, red wine. Recommended dosage 150 – 500 mg/day vs red wine 13 mg.
- **Spirulina** – blue-green algae – antioxidant. Helps regulate blood sugar and fat metabolism





Medical Conditions that may Improve with an Anti-inflammatory Diet

Research Studies

Alzheimer's disease

- Mediterranean Diet with olive oil and nuts
- Shown to improve cognition and slow age-related cognitive decline
- Supplements: omega 3's and Alpha Lipoic Acid reduced progression of cognitive decline in Alzheimer's patients



Arthritis

- Turmeric found to be as good or better than NSAIDs in controlling symptoms of knee osteoarthritis and rheumatoid arthritis
- Probiotics shown to reduce severity of symptoms and inflammation status in rheumatoid arthritis patients





Hypertension

- Mediterranean Diet shown to reduce blood pressure
- Olive oil rich in polyphenols – extra virgin is best



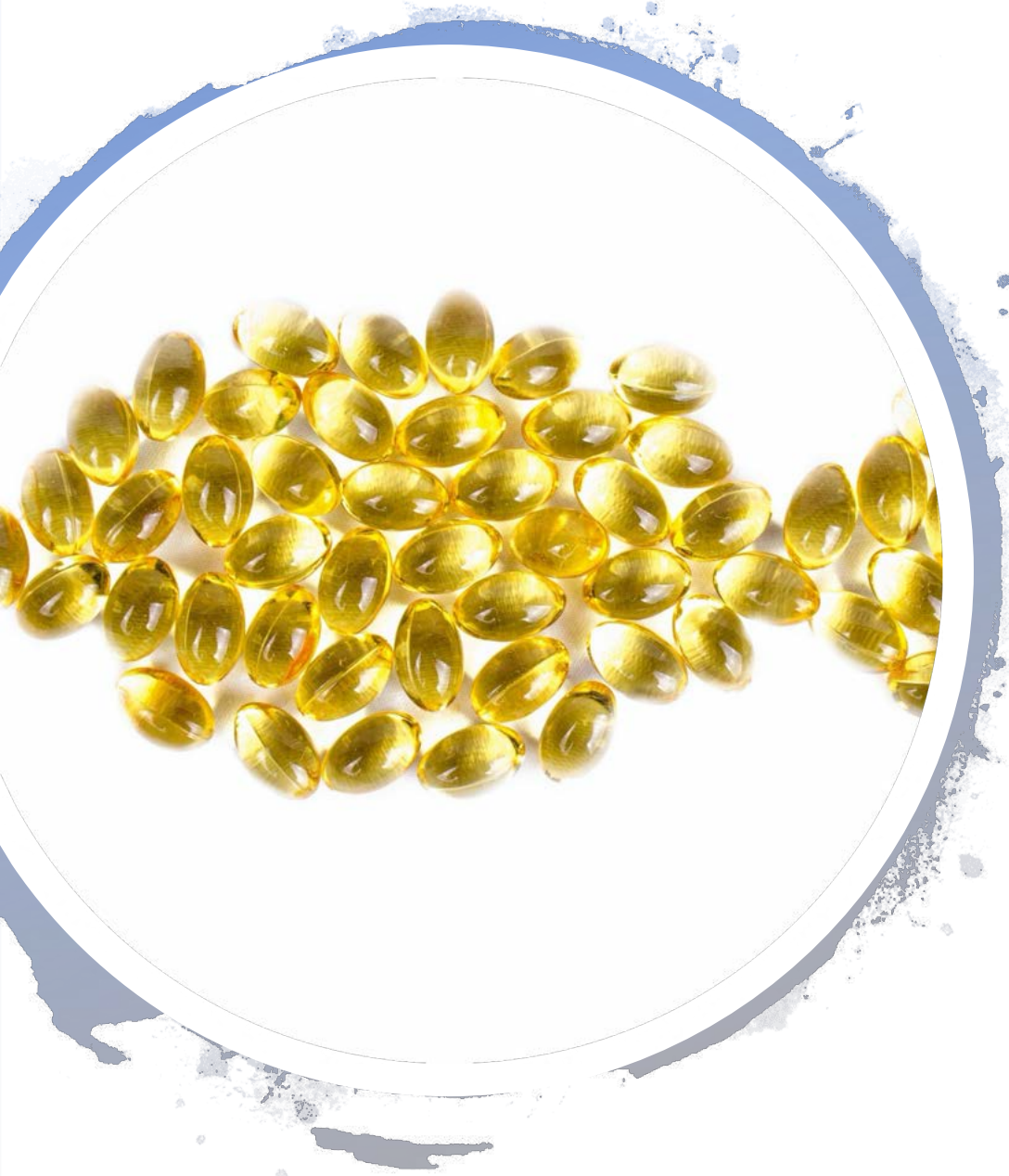
Diabetes

- Mediterranean Diet shown to reduce onset of diabetes
- Resulted in reduction of hbA1c equivalent to that of mono-drug therapy
- Low-carb Mediterranean Diet – reduced need for medications in newly diagnosed diabetes patients

Cancer

- Mediterranean Diet adherence associated with 10% reduction in overall cancer incidence and mortality
- Colorectal cancer 14% reduction





Depression

- Omega 3 Fatty Acid supplementation effective in treating depression
- Omega 3 supplement with selective SSRI resulted in better reduction in symptoms than SSRI alone



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Psoriasis

Omega 3 rich diet significantly reduced symptom severity

Mediterranean Diet Pyramid

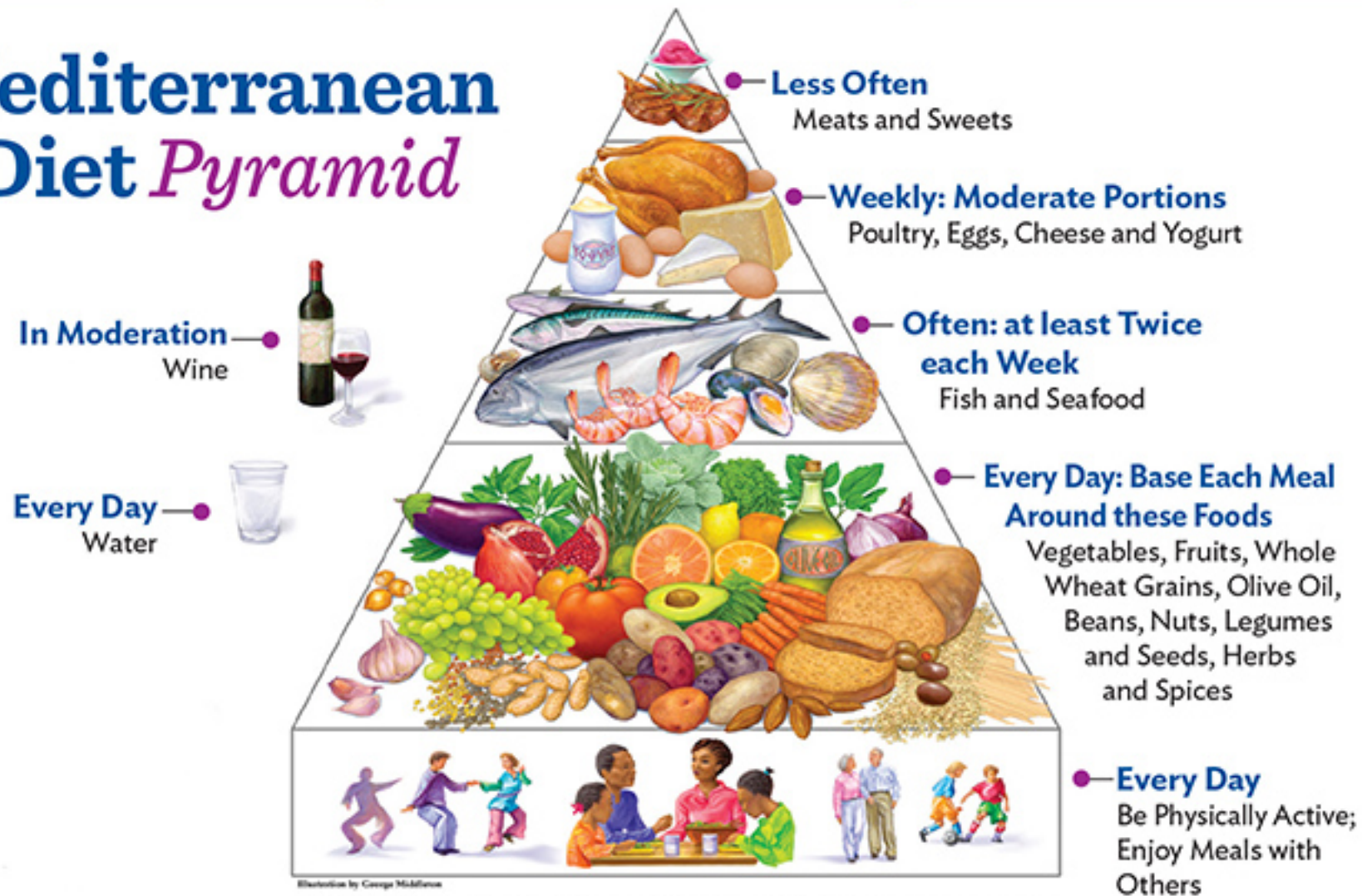


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