

## Fight Inflammation and Support Nerve Health with Nutrition

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### Objectives

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- ▶ Understand “inflammation” and its effect on health
- ▶ Review inflammation’s relationship to neuropathy
- ▶ Identify pro-inflammatory food categories
- ▶ Define characteristics of an anti-inflammatory diet
- ▶ Discuss specific anti-inflammatory dietary patterns
  - ▶ Mediterranean Diet
  - ▶ Dr. Weil’s Anti-Inflammatory Food Pyramid
- ▶ Recognize foods that fight pain and inflammation
- ▶ Identify foods and supplements that support nerve health and may benefit some types of neuropathies



## Inflammation



- ▶ The body's attempt at self-protection
  - ▶ Part of our innate immunity
  - ▶ Helps heal wounds
- ▶ Conditions with "itis" involve inflammation
  - ▶ Arthritis, Tendonitis, Colitis, Appendicitis, etc...
  - ▶ Inflammation ≠ Infection
- ▶ Classic signs
  - ▶ Rubor (redness)
  - ▶ Calor (heat or warmth)
  - ▶ Tumor (swelling)
  - ▶ Dolor (pain)
  - ▶ Functio laesa (lost function)

*All, some, or none of these signs may be observed in certain instances.*



## Acute vs. Chronic Inflammation

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>▶ <b>Acute</b> <ul style="list-style-type: none"> <li>▶ Normal process</li> <li>▶ Rapid onset</li> <li>▶ Signs present for a few days or weeks</li> </ul> </li> <li>▶ <b>Examples</b> <ul style="list-style-type: none"> <li>▶ Skin injury</li> <li>▶ Sore throat</li> <li>▶ Sprained ankle</li> <li>▶ Acute pancreatitis</li> <li>▶ Acute diverticulitis</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>▶ <b>Chronic</b> <ul style="list-style-type: none"> <li>▶ Abnormal</li> <li>▶ Does not benefit body</li> <li>▶ Prolonged period (months or even years)</li> </ul> </li> <li>▶ <b>Can result from</b> <ul style="list-style-type: none"> <li>▶ Infection</li> <li>▶ Environmental antigen</li> <li>▶ Autoimmune reaction</li> <li>▶ Chronic irritant of low intensity that persists</li> </ul> </li> </ul> |
|---|--|

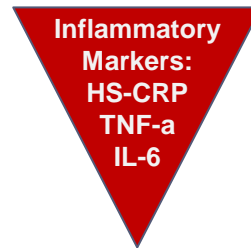
*Chronic inflammation is involved in a number of disease states.*



## Chronic Inflammation's Harm

### ▶ Illnesses linked to chronic inflammation

- ▶ Heart disease
- ▶ Cancer
- ▶ Alzheimer's disease
- ▶ Metabolic syndrome
- ▶ Physical disability
- ▶ Obesity
- ▶ Type II Diabetes
- ▶ Muscle loss with aging



### ▶ Can spread to nerves or damage connective tissues

### ▶ A “Slow Burn” – Walter Willett

- ▶ Nutrition Dept Chair, Harvard School of Public Health



## Inflammation and Neuropathy

### ▶ Vasculitis (often from diabetes)

- ▶ Can cause nerve damage in isolated areas
- ▶ Mononeuropathy multiplex -or- multifocal mononeuropathy

### ▶ Connective tissue disorders & chronic inflammation

- ▶ Can cause direct and indirect nerve damage
- ▶ Inflamed protective tissue, spreads to nerve fibers

### ▶ Inflammation resulting from autoimmune disorders

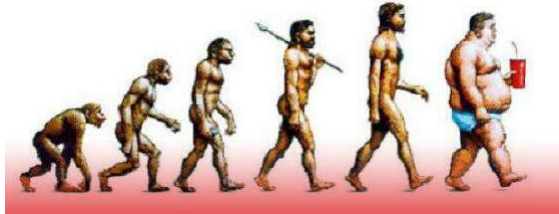
- ▶ Chronic Inflammatory Demyelinating Polyneuropathy (CIDP)
- ▶ Guillain-Barre Syndrome (Acute IDP)
- ▶ Multifocal motor neuropathy

*Destructive effects of abnormal immune system activity  
cause many previously idiopathic neuropathies.*



## SAD Diet is Pro-Inflammatory

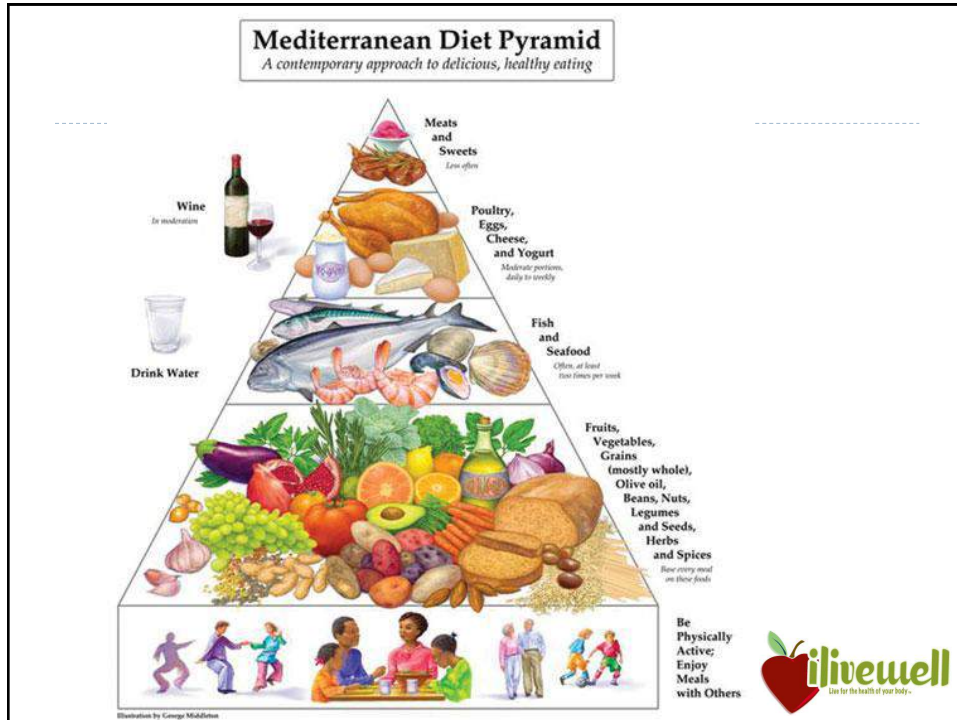
- ▶ Standard American Diet (SAD) is heavy on foods that *promote* inflammation
  - ▶ Highly processed foods
  - ▶ Refined carbohydrates, “enriched” flour
  - ▶ Added sugars
  - ▶ Saturated and *trans* fats, wrong omega-6:omega-3 ratio
  - ▶ Cholesterol
  - ▶ Fast food



## Anti-Inflammatory Dietary Guidelines

- ▶ Lots of fruits and veggies
- ▶ Olive oil, nuts and legumes
- ▶ Minimal saturated and trans fats
- ▶ Include good sources of omega-3 fatty acids
  - ▶ Fatty fish: Salmon, Tuna, Herring, Mackerel, Sardines
  - ▶ Plant sources: Walnuts, Flaxseed, Pumpkin seeds
- ▶ Plenty of whole grains (not refined or “enriched”)
- ▶ Lean protein (less red meat and full-fat dairy)
- ▶ Avoid processed foods and refined carbohydrates
- ▶ High intake of dietary fiber
- ▶ Spice it up!



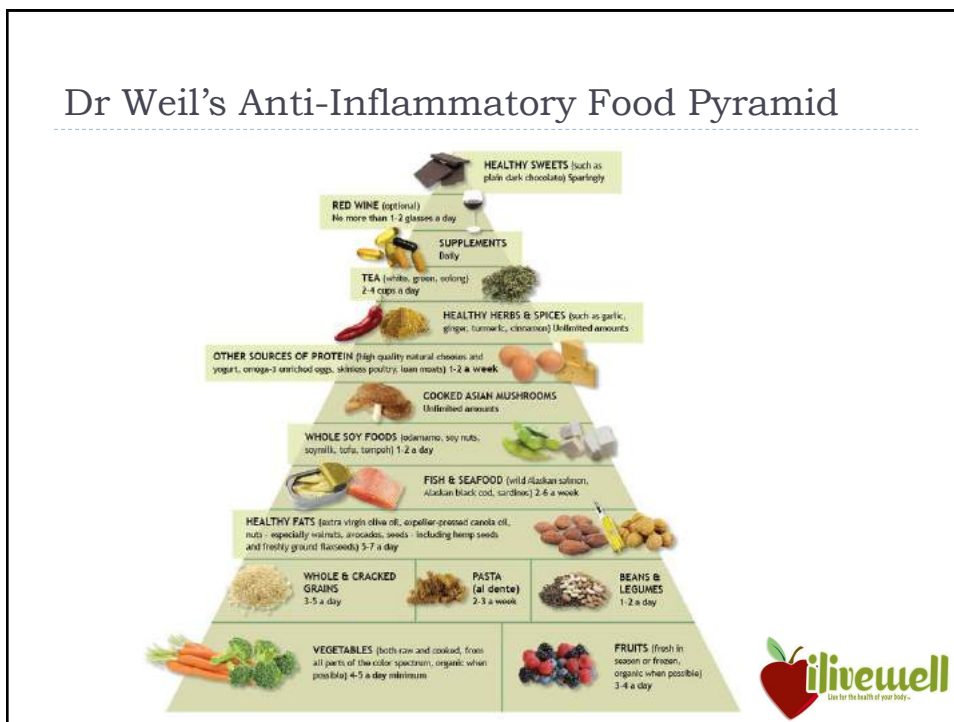


## Mediterranean Diet

- ▶ **High in:**
  - ▶ Fruits and vegetables
  - ▶ Whole grains
  - ▶ Olive oil
  - ▶ Beans, nuts, legumes, and seeds
  - ▶ Seafood (omega-3 FAs)
  - ▶ Herbs and spices
- ▶ **Moderate in:**
  - ▶ Poultry, dairy, eggs, cheese, and yogurt
  - ▶ Red wine (polyphenols, resveratrol)
- ▶ **Low in:**
  - ▶ Red meats
  - ▶ Processed foods
  - ▶ Unhealthy fats
  - ▶ Sweets



## Dr Weil's Anti-Inflammatory Food Pyramid



## Anti-Inflammatory Foods to Fight Pain

- ▶ Cherries
- ▶ Hot Peppers
- ▶ Ginger
- ▶ Edamame (unprocessed, boiled soybeans)
- ▶ Turmeric (Curcumin)
- ▶ Salmon, Herring, Sardines
- ▶ Yogurt
- ▶ Coffee
- ▶ Mint

*See handout for more details regarding target and recommended dose.*



## More Foods that Fight Inflammation

- ▶ Dark leafy greens (good source of Vitamin E)
- ▶ Nuts (particularly almonds and walnuts)
- ▶ Tomatoes
- ▶ Beets
- ▶ Ginger and Turmeric
- ▶ Garlic and Onions
- ▶ Olive oil
- ▶ Berries
- ▶ Tart cherries or tart cherry juice
- ▶ Dark chocolate (sparingly) 70% pure cocoa



## Anti-Inflammatory “Natural Medicines”

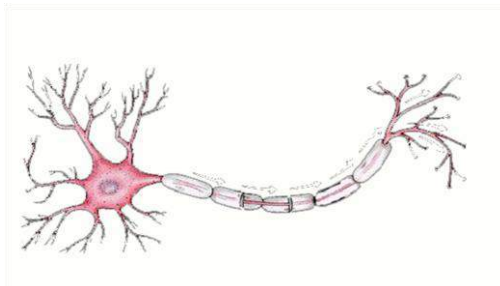
- ▶ Bromelain
- ▶ Cat’ s Claw
- ▶ Devil’ s Claw
- ▶ Ginger
- ▶ Phellodendron (topically)
- ▶ Stinging nettle
- ▶ Turmeric
- ▶ Willow bark

*Check with your doctor before beginning any “natural medicines”, herbal remedies, or supplements.*



## Vitamins Essential to Nerve Health

- ▶ Vitamin E (Alpha-tocopherol)
- ▶ Vitamin B1 (Thiamin)
- ▶ Vitamin B6 (Pyridoxine)
- ▶ Vitamin B12 (Cobalamin)



*Deficiencies in these vitamins may cause neuropathy*



## Supplements for Treating Neuropathic Pain

Name	Effectiveness	Dosing
<b>Acetyl-L-Carnitine</b>	<b>*Possibly Effective</b>	1500-3000 mg/day divided
Adenosine	Insufficient Evidence	Via injections
<b>Alpha Lipoic Acid</b>	<b>*Possibly Effective</b>	<b>600-1200 mg/day</b>
Biotin	Insufficient Evidence	Consult your doctor
Capsicum	Possibly Ineffective	Topical administration
<b>Gamma Linolenic Acid</b>	<b>*Possibly Effective</b>	360-480 mg/day
Inositol	Likely Ineffective	Consult your doctor
<b>Magnesium</b>	<b>*Possibly Effective</b>	UL=350 mg/day
Marijuana (nerve pain)	Insufficient Evidence	Consult your doctor
Vitamin B6 (Pyridoxine)	Insufficient Evidence	Consult your doctor

*\*Reputable scientific references suggest that the product might work for a specific use ... and at least one study (in humans) found that the product might be effective.*





## Supplements for Nerve Health

Supplement Name	Claim	Recommended Dose
Folic Acid	May promote nerve repair	400 mcg/day
Phosphatidyl Choline	Supports healthy nerve function	1000-15000 mg/day
Vitamin B12	Protects nerve cells and encourages normal growth	Consult your doctor

*Check with your doctor before beginning any "natural medicines", herbal remedies, or supplements.*



## Supplements to Consider

- ▶ Acetyl-L-Carnitine
- ▶ Alpha-Lipoic Acid (ALA)
- ▶ Vitamin B12 (get checked)
- ▶ Fish Oil
- ▶ Gamma Linoleic Acid
- ▶ Magnesium
- ▶ Multivitamin-mineral

*Check with your doctor before beginning any "natural medicines", herbal remedies, or supplements.*



## Other Ways to Reduce Inflammatory Markers

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- ▶ Lose excess weight (and maintain it!)
- ▶ Exercise (30 min daily)
  - ▶ Aerobic
  - ▶ Moderate weightlifting
  - ▶ Don't overdo it
- ▶ Get sufficient, good quality sleep
- ▶ Stay calm
  - ▶ Angry, hostile people have higher CRP levels
  - ▶ Stress hormones can trigger an inflammatory cascade



## Questions?

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Thank you!

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