Is Pain Kickin’ Your Butt?

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Pain Is Expensive

• Johns Hopkins University reported the annual cost of chronic pain is approximately $635 billion a year, which is more than the yearly costs for cancer, heart disease and diabetes

Pain Is Prevalent

• Prevalence estimates for pain conditions were 10 percent for moderate pain, 11 percent for severe pain, 33 percent for joint pain, 25 percent for arthritis, and 12 percent for functional disability
Pain Impacts Productivity

• Also, adults with pain reported missing more days from work than people without pain
• Pain negatively impacted three components of productivity: work days missed, number of annual hours worked and hourly wages

Pain Medication On The Rise

• Americans are suffering from more pain than ever
• The use of Vicodin has grown dramatically from 112 million doses prescribed in 2006, to 131 million doses in the U.S. today
• The United States makes up only 4.6 percent of the world’s population, but consumes 80 percent of its opioids—and 99 percent of the world’s hydrocodone

Inflammation

• A natural response to injury
  – When it becomes chronic or systemic the process becomes a disease
• Medications are often prescribed to suppress symptoms
An Anti-Inflammatory Lifestyle
• Is critical if one wants to win the war on inflammation
  – Managing stress, limiting alcohol, smoking cessation, increasing exercise, adequate sleep, minimizing toxins, healthy food choices

The Anti-Inflammatory Diet

Anti-Inflammatory Spices
• Curcumin – the potent compound that gives turmeric its distinctive yellow color
• Thousands of published studies on curcumin extract demonstrate or suggest its broad and significant medical effects, including anti-inflammatory properties
Traditional Ayurvedic Medicine

Has safely used curcumin for over 5,000 years to support a healthy inflammatory response

- Curcumin is obtained from the rhizomes of the yellow curry spice turmeric (Curcuma longa)

Animal Vs. Plant Omegas

<table>
<thead>
<tr>
<th>Food</th>
<th>Serving Size</th>
<th>Type of Omega-3 Fatty Acids</th>
<th>Amount of Omega-3 Fatty Acids</th>
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<tbody>
<tr>
<td>Pacific Herring</td>
<td>3 ounces</td>
<td>DHA and EPA</td>
<td>2 grams</td>
</tr>
<tr>
<td>Chinook Salmon</td>
<td>3 ounces</td>
<td>DHA and EPA</td>
<td>1.5 grams</td>
</tr>
<tr>
<td>Atlantic Salmon</td>
<td>3 ounces</td>
<td>DHA and EPA</td>
<td>1 gram</td>
</tr>
<tr>
<td>Pacific Salmon</td>
<td>3 ounces</td>
<td>DHA and EPA</td>
<td>1 gram</td>
</tr>
<tr>
<td>Pacific Herring</td>
<td>3 ounces</td>
<td>DHA and EPA</td>
<td>1 gram</td>
</tr>
<tr>
<td>Rainbow Trout</td>
<td>4 ounces</td>
<td>DHA and EPA</td>
<td>1 gram</td>
</tr>
<tr>
<td>Canned White Tuna</td>
<td>4 ounces</td>
<td>DHA and EPA</td>
<td>0.85 grams</td>
</tr>
<tr>
<td>Extra Virgin Olive Oil</td>
<td>4 ounces</td>
<td>DHA and EPA</td>
<td>0.85 grams</td>
</tr>
<tr>
<td>Walnuts</td>
<td>1 tablespoon</td>
<td>ALA</td>
<td>0.5 grams</td>
</tr>
<tr>
<td>Flax</td>
<td>1 tablespoon</td>
<td>ALA</td>
<td>0.5 grams</td>
</tr>
<tr>
<td>Canola</td>
<td>1 tablespoon</td>
<td>ALA</td>
<td>0.5 grams</td>
</tr>
<tr>
<td>Olive</td>
<td>1 tablespoon</td>
<td>ALA</td>
<td>0.5 grams</td>
</tr>
<tr>
<td>Sesame</td>
<td>1 tablespoon</td>
<td>ALA</td>
<td>0.5 grams</td>
</tr>
<tr>
<td>Sunflower</td>
<td>1 tablespoon</td>
<td>ALA</td>
<td>0.5 grams</td>
</tr>
</tbody>
</table>

EPA = eicosapentaenoic acid; DHA = docosahexaenoic acid; ALA = alpha-linolenic acid

Super Oils

- EPA and DHA are more powerfully anti-inflammatory than their precursor, ALA (alpha-linolenic acid)
- Flax oil, rich in ALA, is not as effective as fish oil when reducing inflammation in the body
- Extra virgin olive oil is also protective against inflammation, possessing some NSAID-like activity
Let's Look at Different Kinds of Pain

- Headaches
- Osteoporosis
- Rheumatoid Arthritis
- Osteoarthritis
- Back pain
- Fibromyalgia
- Myofascial pain

Headache

- Migraine and Tension
  - 16% women, 6% men suffer from migraines
- Dietary triggers found 8% to 20% of the time
  - Red wine, dark beer, aged cheese, nuts, onions, chocolate, shellfish, caffeine, nitrates/nitrites, aspartame
  - Keep a food journal

- Identify environmental factors
  - Allergens, fluorescent lights, loud noises, fumes, dust, side effects from pharmaceutical medication

- Drink enough water
- Exercise
Headache Busting Nutrients

- **Magnesium** significantly reduced the frequency of migraines, menstrual headaches at 500 mg daily
- **Omega-3 fatty acids** – Anti-inflammatory, vascular relaxation effects, striking reduction in headache frequency at 2 to 6 g daily
- **Feverfew** – 70% reduction in headache frequency was shown in 270 patients with migraines

Rakel, David. **Integrative Medicine, 3rd Edition**. W.B. Saunders Company

Top Food Sources of Magnesium

- ¼ cup pumpkin seeds = 190 mg
- 1 cup cooked spinach = 156 mg
- 3 oz. halibut = 125 mg
- 1 oz. cashews = 70 mg
- 1 artichoke = 70 mg
- 2 tablespoons peanut butter = 50 mg
- ½ cup cooked pinto beans = 50 mg.

Are you getting 500 mg of Magnesium every day?

Top Sources of Omegas

- 2 Tbs. flax seeds = 3 grams
- ¼ cup walnuts = 2 grams
- 4 oz. salmon = 1.5 grams
- 3 oz. sardines = 1 gram
- 1 cup cooked soybeans = 1 gram

Are you getting 2 - 6 grams of Omegas every day?
Feverfew

- Feverfew has been used for centuries to treat arthritis
- Ancient Greek physicians used it to reduce inflammation and treat menstrual cramps
- It is now used to prevent migraine headaches, and several scientific studies suggest that it works well for that purpose

http://umm.edu/health/medical/altmed/herb/feverfew

Osteoporosis

- Reaches peak at 30 years of age, 15% of bone mass turns over each year
- 10 million in the US: Women 75% of all cases
  - Women 50+ years: 7% osteoporosis, 40% osteopenia
- Cost to US health care system $16 billion year

Osteoporosis

- Women lose an average of 35% of the cortical bone, 50% of their trabecular bone
  - .5% - .9% per year in peri-menopause
  - 1% - 3% per year during menopause
  - then 1% per year into old age
Osteoporosis

- Avoid high alcohol intake, excessive caffeine consumption
  - Acid-forming diets increased calcium excretion by 75% when compared with alkaline diets
- Check for malabsorption
  - Calcium excretion increases as animal protein and sodium intake rise

Osteoporosis Nutrients

- **Vitamin D3** – bone pain, muscle pain, impaired muscle strength
- **Omega-3** – reduces bone loss associated with estrogen withdrawal, enhances calcium absorption, reduces calcium excretion, improves bone matrix and strength

Osteoporosis Nutrients

- **Calcium** – 29 trials involving 63,000+ patients proved calcium with vitamin D prevented osteoporosis in men and women 50+ yrs old
- **Magnesium** – studies link high intakes with increased BMD – required for conversion of a usable form of Vitamin D in the body
- **Vitamin C** – required for collagen; along with calcium supports increase in BMD
Top Food Sources of Vitamin D

- 3 oz. Swordfish = 566 IU
- 3 oz. Salmon = 447 IU
- 3 oz. canned Tuna = 137 IU
- 1 cup calcium fortified orange juice = 115 IU

Are you getting enough Vitamin D every day?

Top Food Sources of Calcium

- 1 cup low fat, plain yogurt = 450 mg
- 3 oz. canned sardines with bones = 410 mg
- 4 oz. tofu = 400 mg
- 1 ½ oz. cheddar cheese = 300 mg
- 1 cup 2% milk = 300 mg
- 1 cup cooked collard greens = 260 mg
- ½ cup tofu = 125 mg

Are you getting enough Calcium every day?

Remember Your Omega 3 and Magnesium Foods
Top Sources of Vitamin C Foods

<table>
<thead>
<tr>
<th>Food</th>
<th>mg per serving</th>
<th>% DV*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red pepper, sweet, raw, 1/2 cup</td>
<td>55</td>
<td>68%</td>
</tr>
<tr>
<td>Orange, sweet, 1 cup</td>
<td>60</td>
<td>91%</td>
</tr>
<tr>
<td>Tomato, 1 medium</td>
<td>13</td>
<td>22%</td>
</tr>
<tr>
<td>Green pepper, sweet, raw, 1/2 cup</td>
<td>31</td>
<td>6%</td>
</tr>
<tr>
<td>Broccoli, cooked, 1/2 cup</td>
<td>53</td>
<td>6%</td>
</tr>
<tr>
<td>Broccoli, raw, 1 cup</td>
<td>35</td>
<td>12%</td>
</tr>
<tr>
<td>Green beans, cooked, 1/2 cup</td>
<td>46</td>
<td>3%</td>
</tr>
</tbody>
</table>

Rheumatoid Arthritis

- Causes: genetic, environmental insult, viral or bacterial infection
- Anti-inflammatory diet – vegetarian, if possible
  - Vegetarian diets decreased pain by 1/3
- Offending foods that exacerbate condition:
  - Coffee, dairy products, wheat, citrus, nuts, sugar
  - Tobacco and alcohol, too

Rheumatoid Arthritis Nutrients

- Foods to Include:
  - walnuts, flaxseeds, flaxseed oil, fatty fish, olive oil

- **CLA** – studies show a reduction in morning stiffness
Osteoarthritis

- Degenerative joint disease that affects 27 million people in the US
- By 2030, more than 67 million (25% of population) will have OA
- End point is total loss of joint cartilage
- Overweight persons are at a higher risk
  - 10% reduction in weight led to a 28% improvement in function

Osteoarthritis

- **SAM-e** – studies conclude may be as effective as Rx at reducing symptoms
  - The Arthritis Foundation’s Guide to Alternative Therapies note that SAM-e is a promising treatment at 400 to 1600 mg daily

Osteoarthritis

- Anti-inflammatory diet, rich in omega-3
  - Fish oil led to an increase in weight bearing tolerance and reduction in need for pain Rx
- **MSM** – sulfur is necessary for connective tissue formation at 1000 – 3000 mg, 3x daily
- Exercise!
Top Sources of Sulfur Foods

- Processed fatty foods eliminate sulfur from the body
- Onions, garlic, cruciferous vegetables, meat, horseradish

Chronic Low Back Pain

- Annual direct costs associated with this condition are >$50 billion in the US
  - 5th most common visit to physicians
  - Between 60% - 85% adults suffer

http://www.fammed.wisc.edu/integrative/resources/modules/low-back-pain/

Fibromyalgia

- Condition resulting in pain, fatigue, sleep disturbances, memory and cognitive problems
- Occurs twice as often in women vs. men
- Being overweight increases risk 21% - 28%
- Obesity increases risk 32% - 50%
Fibromyalgia

• Anti-inflammatory diet
• Avoid trans fats, alcohol, caffeine, sugar
• Exercise – consider Tai Chi, Yoga, Qi Gong, warm water exercises

Fibromyalgia Nutrients

• **Omega 3** – pain modulating effect at 2-4 gr daily
• **Vitamin D** – low levels are associated with widespread pain
• **Magnesium** – muscle relaxing properties

Myofascial Pain

• Considered the leading cause of musculoskeletal pain
  – Affects up to 85% of the population at some point in their lives
  – Between 30 and 60 years of age, prevalent in 37% of males and 65% of females
  – Older than 65 years, rate is 80%
Myofascial Pain

- Increase awareness of stress and environmental triggers
  - Poor posture, repetitive stress
- Nutrients: Vitamin D, Magnesium, Omega-3s

Anti-Inflammatory Diet

- Fats are the top component of the Anti-Inflammatory Diet
- High doses of EPA/DHA are needed to treat inflammatory conditions
  - Up to 4 or 5 grams daily
- Best sources of Omega 3 EPA/DHA in coldwater fish – “SMASH”
  - Salmon, Mackerel, Anchovies, Sardines, Herring

More Anti-Inflammatory Diet

- Whole grain carbohydrates with a low glycemic load, 25 grams of fiber daily
- Rainbow colored fruits and vegetables
- Plant based proteins – legumes, nuts, seeds
- Spice it up – garlic, turmeric, rosemary, ginger, oregano, cumin, cayenne
Maintain Your Weight

- "Hari hachi bu" – stop eating when 8/10 full

Legal Break

Include These Nutrients Daily

- Super Omega-3
- Vitamins D and C
- Calcium, Magnesium
CurcuminBP

- Antioxidant rich turmeric extract promotes a healthy inflammatory response while supporting the body's immune, circulatory, structural and glandular systems

Bioperene

A black pepper fruit extract that enhances curcumin's naturally poor bioavailability
- With bioperine, blood levels were detected up to one hour after ingestion
- 2,000% increase in bioavailability

CLA – Conjugated Linoleic Acid

- “CLA supplementation resulted in significant improvement in clinical manifestation among RA patients and may be useful in their treatments”

SAM-e

- S-Adenosyl-L-Methionine
- Has both analgesic and anti-inflammatory effects
- Multiple studies indicate SAMe is superior to placebo and comparable to NSAIDs, such as ibuprofen, in the treatment of OA symptoms
- SAMe has also shown benefit in the treatment of fibromyalgia

Feverfew

- Several human studies have used feverfew to prevent and treat migraines
- Overall, these studies suggest that taking dried leaf capsules of feverfew every day may reduce the number of migraines in people who have chronic migraines

MSM

- Methylsulfonylmethane (MSM) is present in many fresh foods, but is destroyed through cooking, processing and storage
- Sulfur is an important structural component of the connective tissue that joins muscle to bone
Essential Oils – Peppermint

*Fresh and Reviving*
With an invigorating and minty aromatic blast, Peppermint possesses unique cooling and warming qualities when applied topically.

Essential Oils - Recover

An intense, frosty-then-warming blend of bold wintergreen with peppermint, camphor and other efficacious oils that is both penetrating and soothing.

- Effective agent for minor aches and pain
- Apply to muscles after a long workout or athletic event

Ever Flex Pain Cream

- Enhances joint mobility and flexibility through pain reduction
- Relieves muscle and joint pain
- Is easily absorbed through the skin for fast-acting structural support
Tei Fu Lotion

- Supports the structural system by promoting muscle relaxation
- Leaves skin smooth and supple
- Deeply penetrates skin