Supplements & Herbs to Reduce Pain & Inflammation

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Why is it so important to talk about pain management?
Pain is the leading cause of disability in adults above 45 years old.
100 million Americans suffer from chronic pain.
Pain is the leading cause of visits to healthcare providers.
Which pain is most common?

A. Headaches
B. Neck pain
C. Back pain
D. Nerve pain
Back pain is the leading cause of disability in Americans under 45 years old

- Back pain was the most common (27%)
- Severe headache or migraine pain (15%)
- Neck pain (15%)
- Facial ache or pain (4%)
Pain costs society at least $560-$635 billion annually:

$261 to $300 million in health care costs
$297 to $336 billion due to lost productivity (based on days of work missed, hours of work lost, and lower wages)

The amount equal to about $2,000 for everyone living in the U.S.

The U.S. is 5% of the world’s population and consumes 75% of the world’s prescription drugs.

United Nations Office on Drugs and Crime report
106,000 people
die every year from correctly prescribed medications (non-error, adverse effects of)

290 people die every day!
How many American adults are taking supplements?

A. Unknown
B. 25 percent of population
C. 52 percent of population
D. Only seniors, hypochondriacs, and naturopaths take vitamins
52% of US adults report use of supplements in 2011–2012

Triggers of Inflammation
Client 70yo female

- Chronic lower back and hip pain for over 10 years
- Tried treatments: Chiropractic, massages, pain medication, and several anti-inflammatory supplements
- Decrease in memory in last few years ("forgetting simple things every day. Gets worse and worse")
- General sensation of fatigue ("used to be more active")
- Occasional sensation of mild depression
- Chronic allergies and sinus congestion
- Occasional asthma attacks for over 25 years ("wakes up with difficulty to breath some nights")
High levels of mercury might lead to poor memory, cognitive dysfunction, and neuromuscular disorders.
Heavy Metal Accumulation & Inflammation

- Mercury is capable of inducing a wide range of clinical presentations
- Common symptoms: fatigue, anxiety, depression, odd paresthesias, weight loss, memory loss, and difficulty concentrating
- Possibly from years of having dental fillings and high fish consumption

Toxic Accumulation

Although the mechanism of metals’ toxicity is not fully known, studies show that accumulation can generate reactive oxygen species (ROS), which cause damage to lipids, proteins, and DNA.

Studies suggest that mercury exposure can induce complex autoimmune dysfunction, such as RA or multiple sclerosis.

Results of measurement of 172 environmental toxins (GPL-TOX)
Ethylene oxide causes damage to the central nervous system, (decline memory?), liver (reduced toxic elimination?), and hormonal system (reduce thyroid or adrenal function?)
Chronic exposure to 1-bromopropane can lead to decreased cognitive function and impairment of the central nervous system.

Results 172 toxins

### Toxic Compounds

<table>
<thead>
<tr>
<th>Metabolite</th>
<th>Result µg/g creatinine</th>
<th>Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-hydroxyethyl mercaptan (HEMA)</td>
<td>12</td>
<td>95th</td>
</tr>
<tr>
<td>N-acetyl-propylcysteine (NAPPR)</td>
<td>88</td>
<td>95th</td>
</tr>
<tr>
<td>N-acetyl-(2-hydroxypropyl)cysteine (NAHPR)</td>
<td>40</td>
<td>95th</td>
</tr>
</tbody>
</table>

**Parent: Ethylene oxide, Vinyl chloride, Halopropane**

High HEMA may be due to exposure to ethylene oxide, which is used in many different industries including agrochemicals, detergents, pharmaceuticals, and personal care products. Ethylene oxide is also used as a sterilant on rubber, plastics, and electronics. Chronic exposure to ethylene oxides has been determined to be mutagenic to humans. Multiple agencies have reported it as a carcinogen. Studies of people exposed to ethylene oxide show an increased incidence of breast cancer and leukemia. Ethylene oxide may be difficult to detect since it is odorless at toxic levels.

High HEMA may also be due to exposure to vinyl chloride, an intermediate in the synthesis of several major commercial chemicals, including polychloroethylene, and used in the past as an aerosol propellant. Exposure to vinyl chloride has been associated with increased incidence of actinic. High concentrations of vinyl chloride may cause central nervous system depression, nausea, headache, dizziness, liver damage and liver cancer, degenerative bone changes, thymic atrophy, enlargement of the spleen and even death. To reduce exposure to vinyl chloride, eliminate use of plastic containers for cooking, reheating, eating or drinking (especially warm or hot) food or beverages. Replace these containers with glass, paper, or stainless steel whenever possible. Elimination of vinyl chloride can also be accelerated by sauna treatment, the Hubbard detoxification protocol employing niacin supplementation, vitamin B-12 therapy, by glutathione (reduced) supplementation (oral, intravenous, intradermal, or precursors such as N-acetyl cysteine [NAC]).

**Parent: 1-bromopropane**

Found in metal cleaning, foam gluing, and dry cleaning.

**Parent: Propylene oxide**

This chemical is used in the production of plastics and is used as a fungicide. Propylene oxide is used to make polyester resins for textile and construction industries. It is also used in the preparation of oxidants, surfactants, and oil demulsifiers. It has also been used as a fixed additive, an herbicide, a microbicide, an insecticide, a fungicide, and a miticide. Propylene oxide is a probable human carcinogen.
Treatment protocol (detox):

1. Microgreen powder (Superfood by Amazing Grass): Organic fruits and vegetables powder with vitamins (e.g. vit B complex), minerals, fiber, and digestion enzymes to facilitate bowel movement and increase levels of nutrients

2. Replace plastic containers with glass or stainless steel whenever possible

3. Herbs: 2g twice a day of *Curcumin and Dan shen (Salvia Miltiorrhiza)* to support liver function to get rid of toxins

4. Acupuncture to stimulate liver function (LI-11, GB-40)

5. Selenium 200mcg

6. Acetyl L-Cysteine 600 to 1200mg TD (every 12 hours)

7. Vitamin C 500mg TD (every 12 hours)
Results:
After three months, the client reported:
✓ Hip pain and lower back reduced
✓ No asthma attacks (from 3 weeks after treatment started)
✓ Congestion and allergies reduced significantly
✓ Memory improved significantly
✓ Energy improved and she started taking painting classes and working a few hours a week as substitute teacher
✓ No abdominal bloating
✓ Not taking any medication
The good physician treats the disease; The great physician treats the patient who has the disease.”

William Osler, MD.
A physician, educator, author, public speaker, and innovator in medicine

Nutritional Supplements & Herbs to reduce inflammation and pain.
Indole-3-Carbinol (I3C) enzyme, found in Cruciferous vegetables, inhibits expression of proinflammatory cytokines, such as interleukin-6 (IL-6).

Cruciferous vegetables, including broccoli, cauliflower, cabbage, brussels sprouts, rutabaga/swede, turnip, and watercress.

Cruciferous Vegetables & Detoxification

Indole-3-carbinol (I3C) increases phase II enzyme glutathione S-transferase

Iwona B, Monika O, Jolanta C. Effect Of Indole-3-carbino on Detoxification Enzymes and Lipid Metabolism. Medicina Veterinaria 1(2) 2002, 5-11
Cruciferous Vegetables & Cancer

Indole-3-Carbinol (I3C)
I3C shows efficacy for the prevention of breast, endometrial, and cervical cancers.

Curcumin is derived from the rhizomes (underground stems) of the plant Curcuma longa.

Curcumin has powerful antioxidant and anti-inflammatory properties, and is the most active constituent of turmeric.
Curcumin: Clinical Dosage

Meta-analysis of randomized clinical trials (RCTs) provides evidence that supports the efficacy of turmeric extract (about 1000 mg/day of curcumin) in the treatment of arthritis.

367 primary knee osteoarthritis patients with a pain score of 5 or higher were randomized to receive **ibuprofen 1,200 mg/day** or **Curcumin extract 1,500 mg/day** for 4 weeks. The capsules were identical in appearance and the patients were asked to take **only** these pills in three dosages.

After 4 weeks the study concluded that:

**Curcumin extracts are as effective as ibuprofen for the treatment of knee osteoarthritis.**

Number of events of abdominal pain/discomfort was significantly higher in the ibuprofen group.
Curcumin Bioavailability

- Low bioavailability for local GI inflammatory diseases
- Higher bioavailability for systemic inflammation (e.g. joints)
- Adding piperine, the major active component of black pepper, to curcumin has been shown to increase bioavailability by 2000%

Curcumin & Dose Dependent

Several nutritional supplements appear to act as both inducers and inhibitors. The effect might be dose dependent or altered by the isolation of bioactive compounds derived from food.

Curcumin at 0.1% of the diet has been shown, in animals, to induce levels of cytochrome P4501A1 (CYP1A1),\(^1\) while a diet of 1% turmeric was inhibitory.\(^2\)

Boswellia Serrata

A natural and affordable agent that can reduce the inflammatory process
Boswellia Serrata

Boswellic acids

Enzyme 5-lipoxygenase (5-LO)

Promoting free radical damage
Calcium dislocation
Cell adhesion
Migration of inflammation-producing cells to the inflamed body area.

Boswellia Serrata

Curcumin combined with boswellic acid extract led to improvement in physical performance and reduction in joint pain and morning stiffness. The use of Boswellia and curcumin supplements was well tolerated and safe. (1)

Boswellia Serrata

Recommended dosage of Boswellia is 500 to 1,000mg twice a day.

The use of Boswellia and curcumin supplements was well tolerated and safe. (1)

Omega-3 fatty acids are long-chain polyunsaturated essential fatty acids (PUFAs)
If you increase consumption of omega-6 and reduce the consumption of omega-3, you increase the risk of chronic diseases and inflammation.

Omega-3 fatty acids

A randomized, double blind trial, of 12 weeks of treatment with six n-3 PUFA capsules (3.6 g per day)

Significant improvement of morning stiffness and joint tenderness with consumption of omega-3 supplement

Resveratrol is a natural polyphenol that is found in the skin of red grapes, cranberries, peanuts and root extracts of the weed Polygonum Cuspidatum.

Resveratrol showed **antioxidant and immunomodulatory** effects for some autoimmune diseases, such as **rheumatoid arthritis**, **systemic lupus erythematosus**, **psoriasis**, **inflammatory bowel diseases**, and **type 1 diabetes mellitus**.

Resveratrol reduces the inflammatory process by inhibiting proinflammatory cytokines and T-cell differentiation.

Resveratrol Dosage

No standard dosage was found

My recommendation: 
500mg Japanese Knotweed (Polygonum cuspidatum) Root Extract (standardized for 50% Trans-Resveratrol, yielding 250 mg) TD
Considerations in treatment of patients with supplements
Herbs & Supplements: Interaction with Medication

- St. John’s Wort with SSRI, digoxin, Warfarin
- Curcumin (in high dosages) and blood thinners (e.g. Coumadin)
- Fish oil is safe to consume (my experience: 3 to 5g daily)
- Ginkgo no interaction with warfarin or aspirin directly
- Ginkgo demonstrated antiplatelet activity when combined with NSAID drugs, especially aspirin, might cause severe bleeding, including intracranial bleeding
1. Evaluate for ‘triggers’ of chronic inflammation (treat the patient, not just the disease), such as:
   - Heavy metals
   - Environmental toxins
   - Subclinical or chronic infection
   - Food allergies or sensitivities

2. Is the patient interested in clinical use of supplements or herbs?

3. What supplements might be a good fit?
   - Complex patient or on blood thinners: Using Boswellia and/or resveratrol, avoid curcumin
   - General population: Curcumin in high dosages is safe and effective
   - Patient with high consumption of animal protein and/or processed food: Using high amounts of omega 3

4. Adjustment of dosage and duration of use:
   - Effective dosage should be reached slowly (e.g. increase every two weeks)
   - Duration of use is minimum 3 months
   - Reduction in pain should be noticed within 4 to 6 weeks
Supplements & Herbs to Reduce Pain & Inflammation

Thank you!
Tal Cohen, DAOM, Lac.
www.ANewWay.Clinic