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Central Sensitization

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## Accurate Education

### *Complementary and Alternative Medicine (CAM)*

## Cold Weather and Pain

### How the Body Senses Cold

The body has special receptors in skin and nerves that detect temperature changes. In people with chronic pain, these sensors can become overly sensitive, causing two problems:

- **Cold allodynia:** Feeling pain from cool temperatures that shouldn't hurt (like a cool breeze)
- **Cold hyperalgesia:** Feeling much more pain than normal from cold that would only be mildly uncomfortable for others

When one has chronic pain, the nervous system becomes sensitized so uncomfortable sensations become magnified and painful. Cold temperatures can trigger this sensitized system more easily than in people without chronic pain, conditions called peripheral and central sensitization [ in or outside of the central nervous system (spinal cord and brain)] .

### Weather Factors That Affect Pain

- **Temperature** -sensitization can result in either cold or hot temperatures to be excessively, uncomfortable or painful
- **Barometric pressure:** Drops in air pressure (often before storms) can increase joint pain and swelling
- **Humidity:** High humidity combined with cold can worsen symptoms
- **Rapid weather changes:** Sudden shifts in temperature or pressure may trigger pain flares

### Weather conditions associated with increased pain:

- **High precipitation and wind**
- **Low barometric pressure** increases pain in osteoarthritis, fibromyalgia, neuropathic pain, and fatigue in myalgic encephalomyelitis and chronic fatigue syndrome.
- **High relative humidity** increases pain and tender joint count in chronic pain and hand osteoarthritis.
- **Large temperature differences** increase temporomandibular disorder pain.
- **Poor air quality** (high Air Quality Index, high particulate matter) increases pain and fatigue in myalgic encephalomyelitis/chronic fatigue syndrome.
- Multiple medical conditions are associated with weather sensitivity resulting in increased pain.

### Weather conditions associated with reduced pain:

- **High barometric pressure**
- **Low relative humidity**
- **Low precipitation**
- **Low wind speed**
- **Better air quality** (low particulate matter, high carbon monoxide/sulfur dioxide/ozone) reduces pain in myalgic encephalomyelitis/chronic fatigue syndrome.
- Weather conditions associated with decreased pain are less reported by patients, possibly due to confirmation bias.

Everyone responds differently—some people are more sensitive to temperature, others to pressure changes. Don't let cold weather stop you from staying active—exercise indoors.

## ***Treatment Options That May Help***

### **Medications**

Some medications have shown benefit for relieving cold-induced pain: certain antidepressants (Elavil/amitriptyline and doxepin), Cymbalta/duloxetine, gabapentin and Lyrica/pregabalin, opioids, THC and CBD, and topical lidocaine.

### **Nutraceuticals**

*Some supplements have shown promise for helping with temperature-related pain sensitivity:*

1. **PEA** (Palmitoylethanolamide):  
A natural fatty substance that may help calm inflammation and improve cold pain tolerance.  
Typical dose: 600 mg twice daily.
2. **Alpha-lipoic acid (ALA)**  
An antioxidant that may help with nerve-related pain and cold sensitivity.  
Typical dose: 600 mg daily.
3. **Omega-3 fatty acids** (fish oil): May help reduce inflammation and improve nerve function.  
Typical dose: 2-3 grams daily of EPA/DHA.
4. **Vitamin D**: Deficiency is common in chronic pain: monitor blood levels
5. **Beta-caryophyllene (BCP)**: Naturally found in cannabis, black pepper and cloves that may help block cold-sensing pathways, topically or inhaled. Available in copaiba oil products.

### **Topical Treatments**

*Creams and patches applied to the skin can provide targeted relief:*

- **Capsaicin** cream or patches
- **Lidocaine** gels, creams or patches
- **Menthol-based products** (may provide temporary relief)
- **CBD** topicals
- **Copaiba oil** (contains beta-caryophyllene)

**Note:** *Always discuss supplements with your healthcare provider before starting them*



Weather and  
Chronic Pain



PEA  
Central Sensitization



Cold Hyperalgesia