

SINUSITIS

INTRODUCTION

Sinusitis can be classified into the following categories:

- Acute: Symptoms lasting less than six weeks. Usually caused by bacterial infection. If lasting between six and eight weeks, it may be considered subacute.
- Chronic: Symptoms lasting eight weeks or longer and of varying severity. Symptoms are typically similar to acute sinusitis, but often, more fatigue is present.
- Recurrent: Three or more episodes of acute sinusitis occur per year.

Symptoms of sinusitis often include thick nasal drainage, bad-tasting postnasal drip, nasal and head congestion, cough, difficulty breathing, headache, facial swelling, toothache, fatigue, tender cheeks, swollen eyelids, and sometimes fever.[1] While fungal and bacterial infections are likely to play a part, it seems that host response and chronic inflammation also play a significant role in pathophysiology.[2] The following reviews the multiple ways that sinus symptoms and inflammation can be addressed from a Whole Health approach.

MOVING THE BODY

While evidence is lacking that assesses the relationship between regular aerobic movement and sinusitis, it is known that exercise affects immune function. Growing evidence indicates that moderate amounts of regular exercise decrease the risk of developing upper respiratory infections[3] that frequently precede episodes of sinusitis. There is also evidence that exercise has direct anti-inflammatory effects. The mechanism for this has yet to be elucidated but may involve reduced accumulation of inflammatory cells in fat tissue, release of immune molecules that attenuate inflammation, and stimulation of the parasympathetic (“rest and digest”) nervous system. Another possible, and not mutually exclusive, mechanism is that exercise improves the ability of the body to adapt. That is, exercise acts as a stressor to which the body can respond and improve its function.[4] Thirty to forty minutes of aerobic exercise most days of the week at an intensity that allows the individual to talk but not sing can be recommended, assuming there are no contraindications.

SURROUNDINGS

With each breath, the upper respiratory tract and sinus mucosa are exposed to the air around us. The quality of that air can have significant health impacts. Fine particulate air pollution seems to increase population prevalence of chronic sinusitis.[5] More information on fine particulate air pollution and ways to address it can be found at the following web sites:

- [The Environmental Working Group](#)
- [The Environmental Defense Fund](#)

- [The United States Environmental Protection Agency](#)

Second- and firsthand tobacco smoke exposure increases the risk of sinus disease.[6] Tobacco smoke, in particular, seems to induce creation of a biofilm that may make sinusitis much more difficult to treat.[7] Chronic, untreated allergic rhinitis also increases the risk of sinusitis. Addressing environmental allergies, therefore, is an important aspect of preventing sinus disease. Installing HEPA air purifiers and regularly changing heating and cooling system filters are good practices. Use of a humidifier, which adds moisture to the air, may keep the nasal passages open and can be helpful for some.[1]

FOOD & DRINK

Because inappropriate inflammation has a role in the pathophysiology of sinus disease, paying attention to the impact of nutrition on the inflammatory response is likely to be helpful. Indeed, nutrition may be the single most important factor in optimizing immune function and controlling inflammation in the body because it can have either a positive or negative impact, depending on dietary patterns.

The balance between omega-6 and omega-3 polyunsaturated fatty acids (PUFAs) in our diets is of particular importance. The same enzymes in the body metabolize both types of PUFAs, but the omega-6 fats promote inflammation, while omega-3 fats promote wound healing and resolution of inflammation.[8] The ideal ratio of intake of omega-6 and omega-3 fats seems to be around 2:1, but the standard American diet contains a ratio of something like 10:1 to 25:1; the balance is strongly tipped toward inflammation. The level of inhibition of some inflammatory markers by dietary modification can rival that of pharmacologic agents. In general, an anti-inflammatory diet includes the following:[9]

- Cold water fish, flax, and nuts
- A wide variety of fruits and vegetables of various deep colors
- Whole grains
- Anti-inflammatory spices such as turmeric, ginger, rosemary, oregano and cayenne

An anti-inflammatory diet avoids or limits:[9]

- Foods high in trans- and omega-6 fats (processed and red meats; dairy; partially hydrogenated oils; corn, cottonseed, grapeseed, peanut, and soy oils)
- Refined carbohydrates (white breads, instant or white rice, rice and corn cereals, crackers, cookies, cake, etc.)
- Soda and juices

For more information, refer to the "[Choosing a Diet](#)" Whole Health tool.

GUT HEALTH

Gut health deserves attention with regard to immunity as well. The gut is the major interface between the external world and the body's internal environment. It has evolved over time to house an important mix of healthy bacteria. It is this intestinal

microenvironment that is suspected to have a huge regulatory impact on our immune function, not only protecting us from illness-causing microbes but also preventing the over-activity of the immune system seen in autoimmune diseases such as food allergies. What it takes to keep the gut healthy may vary based on the individual. However, there are a few key components that seem to be common to everyone:

1. Avoidance of the excess inflammation which can be caused by foods and medications that irritate the gut, as well as by one's lacking effective mechanisms to deal with life's stresses
2. A healthy mucus layer which lubricates the intestinal lining and feeds the healthy bacteria that reside there
3. An appropriate mix of healthy bacteria

For more information, refer to "[Promoting a Healthy Microbiome with Food and Probiotics](#)" Whole Health tool.

While evidence is lacking, integrative medicine clinicians and providers have found that avoidance of certain foods can be helpful in reducing sinus symptoms. Dairy is a mucogogue—something that promotes mucus production. Gluten seems to have a significant impact on inflammation as well. Use caution when prescribing elimination diets so as to not create a fear of food. It can be quite empowering for the patient to be able to control symptoms through nutrition, but if there is no impact on symptoms with removal of food groups, that group should be returned to the diet.

RECHARGE

Sleep and immune function influence each other. Both sleep deprivation and acute illness (such as a viral infection) increase inflammatory markers that are known to make us more tired. Studies have shown that sleep deprivation leads to decreased immune function, leading to increased frequency of infections (and, as noted above, upper respiratory infections increase risk of sinusitis). Sleep deprivation also leads to decreased response to immunizations, such as the influenza vaccine. In contrast, adequate sleep strengthens the immune response; most immune cells' response to challenges (e.g., viral infections) peak at night.[10] Adequate sleep appears to be 7 to 8 hours nightly.[11]

Conversely, for a number of reasons, those with chronic sinus symptoms tend to have more sleep dysfunction. This may be partly due to the inflammatory disease process and partly due to the mechanical impact of the disease on nighttime breathing.[12] Because the majority of patients with chronic sinus disease have poor sleep, it is important to inquire about this aspect of the lives of those who suffer from chronic sinusitis in an attempt to address their overall health.[13]

POWER OF THE MIND

As with many health concerns, mental health impacts our perception of symptoms. For example, those with PTSD are more likely to report more-severe impact of sinus symptoms

on quality of life, even if they have relatively less-severe objective symptom measurements. This increases their risk of undergoing unnecessary diagnostic and therapeutic treatments.[14] Supporting patients in finding paths to understand the relationship between chronic stress and mental health and physical symptoms is an important and, at times, challenging part of fostering true well-being.

DIETARY SUPPLEMENTS & HERBAL REMEDIES

Note: Please refer to the [Passport to Whole Health](#), Chapter 15 on Dietary Supplements for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.

BROMELAIN

Bromelain has been found to reduce swelling and improve breathing in sinusitis[1] and seems to be safe.[1] The oral dose is typically 500-1,000 mg daily, with up to 2,000 mg daily commonly used.[15]

ELDERBERRY

Elder seems to reduce excessive mucus secretion. Herbal preparations containing elder may reduce swelling of mucus membranes, improve drainage and decrease headache.[1] It is important to use only ripe elderberries and products made from them. Unripe berries and other parts of the plant can contain dangerous compounds which can lead to gastrointestinal upset, dizziness, and confusion.[16] Products that appear to be safe include Sambucol by Nature's Way and an elderberry fruit extract lozenge called ViraBLOC by HerbalScience.[17,18]

PELARGONIUM SIDOIDES

One-hundred-three patients with symptoms of rhinosinusitis for at least 7 days along with imaging studies and clinical assessment consistent with bacterial sinusitis were treated with a preparation from the roots of *Pelargonium sidoides* (a 1:8-10 alcoholic extract), or placebo. The dose given was 60 drops 3 times daily for maximum 22 days. Those in the treatment group showed significant benefit in symptoms and faster recovery than those in the placebo group.[19]

SINUPRET

Sinupret is a combination herbal supplement that appears to have significant benefit for the symptoms of both acute and chronic sinusitis.[20] Each tablet contains the herb common sorrel (*Rumex acetosa*), European elderflower (*Sambucus nigra*), cowslip flower (*primula veris*), European vervain (*Verbena officinalis*) and gentian root (*Gentiana lutea*).[21] The manufacturer's dosing is typically 1 tablet 3 times daily for 7-14 days.

SINFRONTAL

Sinifrontal is a homeopathic remedy for acute maxillary sinusitis that has been shown effective[22] and may lead to significant cost savings compared to treatment with antibacterials.[23]

PROBIOTICS

Probiotics are live organisms that have the potential to confer health benefits to the host. Several strains of probiotics have been studied and found beneficial in those with sinusitis. *Enterococcus faecalis* bacteria may reduce frequency of relapses and the need for antibiotic therapy. Some research has suggested that lactic acid-producing bacteria, such as *Lactobacillus acidophilus*, may reduce the intensity of immune system allergic responses.[24] As mentioned above, treating allergic rhinitis is likely to decrease allergic individuals' risk of developing sinusitis.

COMPLEMENTARY APPROACHES

NASAL IRRIGATION

Nasal irrigation with saline solutions is one of the most effective treatments for chronic rhinosinusitis, and it empowers patients in that they are able to treat themselves without the need for physician input.[25] Here is an instructional handout on [Medicine Nasal Irrigation](#), including a comment on water quality.

While saline is frequently quite sufficient, at times the addition of 1 drop of eucalyptus oil or use of Alkalol (a product found at most major drug store chains) in the saline solution offers a menthol-like intensity that can increase decongestant effects. These both can be quite intense, and patients should be warned about that if either eucalyptus or Alkalol are suggested. Some studies have looked at the use of nasal rinse additions like surfactants, such as dilute baby shampoo, that have mucolytic and antimicrobial effects. Solutions were roughly 1% baby shampoo in isotonic saline. While there is some evidence for possible benefit, caution must be used given potential for nasal irritation and potential toxicity to the cilia of the nasal passages.[26]

ACUPUNCTURE AND CHINESE MEDICINE

Several studies have shown efficacy for acupuncture for the treatment of sinusitis.[27] The Chinese herb *Xanthii fructus* has been shown to have antioxidant, antinociceptive, and anti-inflammatory activities.[28] There is good evidence for its use in sinusitis.[27]

THERAPEUTIC ULTRASOUND

Modalities such as pulsed therapeutic ultrasound (a series of focused ultrasound treatments over the sinuses) and erythromycin phonophoresis (ultrasound treatments using topical erythromycin over the sinuses) have been used to disrupt the pathogenic

biofilm that is implicated in at least some cases of chronic rhinosinusitis. The former has had some success in several small studies, but limited data is available to support recommending them as complementary treatments.[29,30] Access to therapeutic ultrasound is limited as well but side effects are likely to be very low.

RESOURCE LINKS

- [The Environmental Working Group](http://www.ewg.org/): <http://www.ewg.org/>
- [The Environmental Defense Fund](http://www.edf.org/): <http://www.edf.org/>
- [The United States Environmental Protection Agency](http://www.epa.gov/): <http://www.epa.gov/>
- [Choosing a Diet](https://wholehealth.wisc.edu/tools/choosing-a-diet/): <https://wholehealth.wisc.edu/tools/choosing-a-diet/>
- [Promoting a Healthy Microbiome with Food and Probiotics](https://wholehealth.wisc.edu/tools/promoting-healthy-microbiome-with-food-probiotics/): <https://wholehealth.wisc.edu/tools/promoting-healthy-microbiome-with-food-probiotics/>
- [Passport to Whole Health](https://wholehealth.wiscweb.wisc.edu/wp-content/uploads/sites/414/2018/09/Passport-to-Whole-Health-3rd-Edition-2018.pdf): <https://wholehealth.wiscweb.wisc.edu/wp-content/uploads/sites/414/2018/09/Passport-to-Whole-Health-3rd-Edition-2018.pdf>
- [Medicine Nasal Irrigation](https://www.fammed.wisc.edu/files/webfm-uploads/documents/research/nasalirrigationinstructions.pdf): <https://www.fammed.wisc.edu/files/webfm-uploads/documents/research/nasalirrigationinstructions.pdf>

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“Sinusitis” was written by [Greta Kuphal](#), MD (2014, updated 2020).

This Whole Health tool was made possible through a collaborative effort between the University of Wisconsin Integrative Health Program, VA Office of Patient Centered Care and Cultural Transformation, and Pacific Institute for Research and Evaluation.

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