

ASTHMA

BACKGROUND

Asthma is a common chronic respiratory disorder known to involve complex inflammatory processes and a significant genetic predisposition. Symptoms include recurrent episodes of wheezing, cough, chest tightness, and breathlessness. Chronic inflammation leads to airway hyper-responsiveness. Triggers for acute symptoms are variable, as is the severity of disease and the individual's response to treatment. Research shows that in those with asthma, allergens tend to increase the activity of type 2 helper cells, which are highly pro-inflammatory.[1] Proactive self-care approaches, such as movement, nutrition and stress management, not to mention paying attention to environmental influences, can play an important role in controlling asthma. Empowerment of patients in managing their disease, while appropriately using pharmaceuticals as well, is crucial. The following focuses on treating asthma using a Whole Health approach.

MOVING THE BODY

AEROBIC EXERCISE

Although exercise is known to trigger asthma symptoms in many patients, a number of studies have shown improved asthma control in those who exercise regularly.[1] Exercise regimens can be safely undertaken, with improvement in several measures of health and no significant worsening of asthma symptoms.[2,3] There is no evidence that one form of exercise is superior to another.[1] Any exercise regimen to which an individual can commit can be supported, from walking to dancing to fitness classes and from martial arts to training for competitive races.

YOGA

Multiple human studies report benefits of yoga when added to other, more conventional, treatments for mild-to-moderate asthma.[4] Positive outcomes associated with yoga practices include decreased medication use, lower anxiety, reduced airway hyper-responsiveness, improved aspects of quality of life, and significantly improved lung function. In these studies, both groups continued their regular pharmacologic treatments through the duration of the investigation.[1]

SURROUNDINGS

A significant number of factors in the physical environment can exacerbate asthma symptoms and worsen disease control. These can include:

- Allergens such as house dust mites, pets, and pollens
- Colds and viral infections

- Cockroaches
- Medications and foods
- Air pollutants such as tobacco smoke, wood smoke, chemicals, and ozone
- Occupational exposure to allergens, vapors, dust, gases, and fumes
- Strong odors and sprays such as perfumes, household cleaners, cooking fumes, paints, and varnishes[1]

Tips to limit exposure to some of these triggers include the following (to level possible and as determined by the known triggers of the individual):[5]

- Enclose pillows and mattresses in airtight polyurethane covers
- Use fiberfill products instead of down or foam pillows
- Remove carpeting (hardwood or linoleum floors are better) and curtains,
- Wash sheets and stuffed toys (for pediatric patients) frequently in hot water
- Clean bedrooms frequently with a vacuum that has a high-efficiency particulate air (HEPA) filter
- Maintain a high level of cleanliness so as to remove cockroaches and their feces
- Eliminate exposure to tobacco smoke
- Remove pets from the home

If triggers are not known, working with an allergy specialist may result in identifying problematic allergens/triggers. In some cases, immunotherapy may be an option and can result in significantly better asthma control.[6]

A number of common chemicals, such as Perfluorinated compounds (PFCs) and dioxins are nearly omnipresent and have been found to negatively impact immune function. They potentially lead to immune system imbalances, predisposing people to higher levels of autoimmune diseases, including allergies and asthma.[7,8] Becoming more aware of the number of chemicals to which we are exposed and their potential for negative impact on our health can be overwhelming. When working with individuals on this aspect of environmental health, it is prudent to focus on what *can* be controlled—i.e., limiting exposures based on guidance from resources such as the web site of the Environmental Working Group (<http://www.ewg.org>) and supporting the body's detoxification mechanisms by optimizing overall

In addition to physical environments, social environments play a role in asthma disease control. Asthma symptoms are more likely to flare in the face of psychosocial stress, such as low socioeconomic status and urban living. Immune changes with stress-induced flares may actually make an individual less responsive to the corticosteroids used to treat exacerbations.[9]

There has been some evidence that repair of mold-damage in home, work and school environments can improve asthma disease control and decrease other respiratory symptoms.[10] Studies have investigated removal of asthma-inducing triggers in the workplace versus reduction of exposures; the former was more effective for reducing

symptoms and improving lung function, but it was also associated with an increased risk of unemployment.[11]

FOOD AND DRINK

ANTI-INFLAMMATORY DIET

A very large component of the pathophysiology of asthma is inflammation within the airways. Nutrition may be the single most important factor in optimizing immune function and controlling inflammation in the body, because it can have a positive or negative impact depending on dietary patterns. Antioxidant micronutrients, vitamins and minerals which are only required in small amounts, such as selenium, zinc, fatty acids, and vitamins E, A and D help regulate the function of the immune system.[12] Moderation seems to be key. Zinc deficiency, for example, increases the risk for pneumonia, malaria and diarrhea, but *in vitro* studies have shown that high zinc levels can actually suppress the immune system function. Studies have shown that under-consumption of macronutrients (protein, carbohydrate and fats) leads to more frequent chronic infections.[13]

The balance between omega 6 and omega 3 polyunsaturated fatty acids (PUFAs) in our diets is of particular importance in controlling inflammation. The same enzymes in the body metabolize both, but the omega 6 fats promote inflammation while omega 3 fats promote wound healing and resolution of inflammation.[13] 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 closer to 10:1 to 25:1, strongly tipping the balance towards inflammation. In general, an anti-inflammatory diet includes:[14]

- 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:[14]

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

Asthma control may very well benefit from a fish oil supplement of approximately 1000-1500 milligrams daily—the benefit may not be seen for a few months.[1] For more information, refer to [“The Anti-Inflammatory Diet.”](#)

VITAMIN C

Several studies have shown Vitamin C has a role in improving lung function in asthma. Vitamin C-rich fruits, including grapefruit, kiwi, sweet orange, and others should be consumed no less than one to two times per week.[15]

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 auto-immune 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

Foods to consider elimination on a trial basis include dairy (milk, cheese and sour cream), eggs, nuts, shellfish, wheat (gluten), corn, preservatives and food additives (like dyes and fillers). For more information, refer to "[Promoting a Healthy Microbiome with Food and Probiotics.](#)"

CAFFEINE

Caffeine appears to improve airway function for 2-4 hours after consumption in people with asthma.[16] Sources such as coffee, green tea and black tea can be considered, but they should not replace use of short acting beta agonist inhalers unless symptoms are quite mild.

SPIRIT AND SOUL

Each individual's spirituality is as unique as he or she is. Spiritual practices can involve prayer, energy work (such as Reiki, Healing Touch, etc.), time in nature, meditation, journaling, and artistic outlets. There was one small study of "hands-on" healing in adults with asthma that found a reduction in medication use;[1] this offers a glimpse into how our connection with things outside of ourselves can affect our health. Taking a spiritual history to help determine to locus of the individual's sense of meaning and purpose and help us formulate health plans that are more personal to that human being. For more information, refer to "[Spirit and Soul.](#)"

POWER OF THE MIND

Mind-body medicine looks not only at how negative mind-states and stress can be detrimental to health, but also at how to empower individuals to activate their own healing responses. It is thought that working in this realm can improve the inflammatory processes that can be triggered by the autonomic nervous system through emotions. Anxiety and panic seem to be higher during the presence of asthma symptoms, and it is possible that symptoms can be reduced if one can use mind-body techniques to manage one's emotions.

It has also been shown that stress can influence the immune response. Stress may promote higher sympathetic activity, increase the production of IgE immunoglobulins, and cause a shift in T-helper cells towards a more autoimmune profile. Stress also seems to promote airway inflammation without causing overt symptoms.[1] There are a number of mind-body interventions that have been studied in regard to asthma, including psychotherapy, relaxation therapy, hypnotherapy, guided imagery, journaling, and breathing exercises.

PSYCHOTHERAPY

There have been several studies which showed slight improvement in wheezing and thoracic gas volume in children who experienced family psychotherapy.[17]

RELAXATION THERAPY

Significant decreases in asthma symptoms as well as anxiety and depression have been shown with relaxation techniques. There is some evidence that they can improve quality of life and measures of lung function.[18]

HYPNOTHERAPY AND GUIDED IMAGERY

Contrary to popular belief, the purpose of a hypnotic state is not for people to lose control of their actions, but for them to develop heightened concentration or focus on an idea or image. The process may be brief and simple or more complex, depending on the patient, the provider, and the goals of treatment. Hypnotherapy has been shown to be effective in patients whose asthma is mild and whose asthma has an emotional component; in such cases, improvements were seen in terms of symptoms, medication use, and pulmonary function measures.[1]

Guided imagery might be viewed as a form of self-hypnosis. After entering a relaxed state, a person creates an image intended to help reduce asthma symptoms. This method is especially effective in children, who have active imaginations. It can be taught in one relative short session, and patients can do well employing it with asthma symptoms after a few practice sessions.[1]

JOURNALING

Journaling for 20-30 minutes 3-5 times per week has been shown to reduce both symptoms and medication use. This may be especially helpful if the journaling is around stressful events; the purpose is not to catalog events but to allow for therapeutic disclosure.[1]

BREATHING EXERCISES

A 2013 review looked at breathing exercises to improve asthma in 13 studies involving 906 participants. The studies were heterogeneous with various outcomes measured. Overall, they did show a positive impact on aspects such as quality of life and lung function.[19] A specific breathing therapy is the Buteyko breathing technique which consists of breathwork, relaxation exercises and asthma education. The goal is to increase carbon dioxide concentration in the lungs which will result in bronchodilation. Some evidence has shown the technique results in decreased use of rescue inhalers although further research is certainly needed.[20]

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.

INDIAN FRANKINCENSE (BOSWELLIA SERRATA)

There is some evidence that Boswellia can act as a mast cell stabilizer, improving forced expiratory volume and reducing the number of asthma attacks.[21] Typical dosing is 300 milligrams three times per day, and it is generally very well tolerated.[1]

FRENCH MARITIME PINE (PINUS PINASTER SPP. ATLANTICA)

Pycnogenol® is the patented trade name for a water extract of the bark of the French maritime pine. Studies have shown adding pycnogenol at a dose of 1 milligram/pound of body weight to conventional medications may increase peak expiratory flow and decrease need for rescue medications in children aged 6-18 with asthma.[22]

LICORICE (GLYCYRRHIZA GLABRA)

Licorice's effect on asthma seems to come from its anti-inflammatory properties and its enhancement of endogenous steroids. In addition it has expectorant (aids expulsion of mucus) and demulcent (soothing to irritated airways) properties which can be beneficial in asthma.[5] There are several ways to use licorice, including:

- Dried root: 1-5 grams three times daily
- Tincture: 2-5 milliliters three times daily of 1:5 strength
- Standardized extract: 250-300 milligrams three times daily, containing 20% glycyrrhizic acid

There are a few precautions to consider with licorice. Long-term use can cause headache, elevated blood pressure, hypokalemia, dizziness, and edema—apparently through the binding of mineralocorticoids. These effects are unlikely if taken at doses less than 10 milligrams of the glycyrrhizic acid over the short term.[1]

VITAMIN D

In children, lower serum vitamin D levels are associated with airway reactivity, hospitalizations, the use of anti-inflammatory drugs, and recent upper respiratory tract infections. It is reasonable to consider at least taking the daily recommended dose of 400 milligrams daily for children younger than 4 years of age and 600 milligrams daily for adults. There are many complementary medicine providers who would suggest taking very high doses of vitamin D; however, some sources report that excess vitamin D may cause abnormally high levels of calcium in the blood that may damage bones, soft tissues, and kidneys.[1]

CHOLINE

Historically, choline has been considered a B vitamin, but it can be synthesized by the human body. It is readily available in the diet, especially in liver, muscle meats, fish, nuts, beans, peas, eggs, wheat germ, spinach, and other food groups. Choline supplementation has been found to decrease the severity of asthma symptoms and need for rescue medications. While a typical diet provides 200-600 milligrams daily, doses of 3 grams daily seem to be more effective.[23]

COMPLEMENTARY APPROACHES

ACUPRESSURE AND ACUPUNCTURE

Acupressure is a modality that uses pressure, applied to specific points on the body (acupuncture points) to improve health. There is some evidence that acupressure has the potential to improve quality of life in people with asthma. *Acupuncture* has been shown to help prevent exercise-induced asthma and reduce the perceived level of breathlessness associated with asthma. The data that is available is quite limited, and the quality of the studies is questionable.[24,25] However, given its safety and potential other benefits, a trial of acupuncture or acupressure can be considered. For more information, refer to [“Acupuncture and Traditional Chinese Medicine.”](#)

ALEXANDER TECHNIQUE

The Alexander technique centers around an educational program that aims to improve coordination and balance, reduce tension, relieve pain, alleviate fatigue, improve various medical conditions, and promote well-being.[26] It teaches movement patterns and postures. Alexander technique has been used in asthma to try to improve breathing. There is no convincing evidence supporting its efficacy, but a trial in interested patients is of low risk.[27]

OSTEOPATHY AND CHIROPRACTIC

Manual medicine has been used for a variety of acute and chronic symptoms. Osteopathic manipulation has been shown to improve peak flow measurements in the emergency room in children and adolescents with acute asthma symptoms.[1] The theory is that manipulation can increase vital capacity and rib cage mobility, improve diaphragmatic function, enhance clearing of airway secretions, and improve autoimmune function.[1] Chiropractic care has also been used, but studies are limited and results are more subjective than objective. That being said, a trial may be reasonable so long as precautions are observed—i.e., use caution with cervical adjustments as well as when a person has low bone density, unstable spondylolisthesis, acute arthritis, bleeding disorders, or vascular disease including aneurysms and vertebrobasilar insufficiency.[28] For more information, refer to "[Osteopathic Medicine](#)."

MASSAGE

Massage has been studied for a variety of health concerns, including asthma in children. In this population, it can improve airway caliber and asthma control.[1] The impact of therapeutic human touch is likely to have other positive impacts on overall well-being, and massage can be considered a part of Personal Health Plan for many health conditions.

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