

The Big Asthma Lie

*The ultimately simple guide to halting and reversing
your asthma and allergies*

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In cooperation with the doctors at the ICTM

The ICTM

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What is Asthma

This is not a simple book, because asthma is not a simple condition. Asthma is growing amongst the world's population. Making matters worse, most conventional health professionals consider asthma a lifelong sentence controlled only through the constant use of medications. The same dialog also assumes that asthma is inherited. We have little control over its incidence or potential resolution according to many. This means that not only is asthma irreversible, but we have little ability to prevent it.

Is this really true? Are asthmatics simply condemned to genetic anomaly and a sentence of medications? While this book provides the scientific validity in answering these questions, we already know that asthma is reversible. How do we know this? We know this because every year, millions of childhood asthma sufferers 'outgrow' their asthma at some point during adolescence. So how did they 'outgrow' their asthma if asthma is not reversible? Many health professionals would attribute this 'outgrowing' of asthma as accidental: The child was merely one of the lucky ones.

Many health professionals describe this 'outgrowing' of asthma as spontaneous and without reason, at best a genetic predisposition. In other words, nothing about the child's immune system, diet or lifestyle contributed in any way to the 'outgrowing' of the asthma. It was simply an arbitrary or genetic event. This of course begs the fundamental questions: What is asthma? What causes asthma? Is asthma simply an accidental event? A bad roll of the dice? Something to blame mom and dad for?

These are critical questions for anyone who has or whose family members have asthma, or someone who treats asthmatics knowing what causes asthma is absolutely critical to understanding what can be done to avoid it. More importantly, the causes of asthma are the leading elements that deem investigation when considering how to reverse the course or at least the worsening of asthma. They are absolutely necessary for asthma prevention.

Yes, humanity has been dealing with asthma for thousands of years not at these proportions, but nevertheless so. Where were the inhalers and steroids for all those sufferers? There were none. Did children die in epidemic proportions of asthma before these medications were invented? Do we read of fatal asthma pandemics like the black plague or chicken pox among traditional societies that did not have the asthma 'control' medications?

In contrast, the current rate of asthma cases, as we'll show, is at epidemic proportions and growing, especially among industrial societies where 'control' medication use is ubiquitous. In other words, traditional societies had more 'control' over asthma than do our theoretically advanced modern societies. As we will show in this text, many traditional therapies had very successful strategies to manage and even reverse asthma using natural methods.

In recent decades, conventional medicine has categorized these very same natural methods as simply old wives' tales or unsubstantiated "voodoo." They are not proven effective in clinical studies. But is this really true? Certainly this is true that natural therapies for which there is no patent protection do not garner the research focus that patented pharmaceuticals do. Natural therapies have been handicapped in the shadow of pharmaceutical giant research budgets. The incentive provided by the patent has enabled research funding to be tied to profits for the synthetic therapies of modern medicine, even if those chemicals were based on constituents found in plants as many are. So it is an unfair comparison.

As we will show, emerging research from around the world is illustrating increasingly that traditional therapies many thousands of years old can also provide effective asthma ‘control,’ and more. Curiously, some of this research has even come from prestigious U.S. medical schools. Some of these researchers, in fact, are no longer calling traditional treatments “voo-doo.” Some are even applying to the FDA for drug licenses. And all of this still ignores the prime evidence for many of these traditional techniques: Their successful use among thousands and even millions of patients over the centuries.

Modern western medicine, in contrast, has no such respect. Modern western medicine, in fact, has practically ignored the wealth of healing effects that nature can provide. The assumption of modern western medicine is that man can produce a better medicine than nature can. The assumption of modern medicine is that pharmaceuticals are safer than herbal medicines. Is this true?

Let’s consider the evidence: The Journal of the American Medical Association (Lazarou et al. 1998) reported that **2,216,000** Americans were either hospitalized, permanently disabled, or died as a result of pharmaceutical use in 1994 alone. The study, done at the University of Toronto, also calculated that approximately **106,000** people die each year from taking correctly prescribed FDA-approved pharmaceuticals. *This does not include deaths resulting from the illegal use of pharmaceuticals.*

Harvard researcher and associate professor of medicine Dr. David Bates told the Los Angeles Times in 2001, pharmaceutical use “...translate[s] to 36 million adverse drug events per year” (Rappoport 2006). This calculation was based on more research published in the Journal of the American Medical Association in 1995 (Bates et al.). This revealed that over a sixth month period, 12% of a population of adult hospital admissions had either a confirmed adverse pharmaceutical event or a potentially adverse pharmaceutical event.

As a comparison, the 2007 annual report of the American Association of Poison Control Centers reported a grand total of three deaths from natural remedies. This included herbs, homeopathy, essential oils, minerals, vitamins and other supplements. When seen in light of research from the National Institutes of Health National Center for Complementary and Alternative Medicine revealing that 38% of adults and 12% of children in the U.S. use some form of alternative medicine the safety of traditional and alternative strategies is significant when compared with pharmaceutical therapies.

Meanwhile, we find our environment poisoned by the toxins thrown into the streams, rivers, oceans, soils, air and our bodies by pharmaceutical manufacturing facilities that produce these chemicals. The evidence is in: *Nature is smarter than modern medicine.*

Today, doctors who graduate from western medicine schools unless otherwise educated on the topic are unaware of the intelligence and efficacy of natural medicine simply because nature is virtually ignored in modern medicine. Another basic relationship is wholly neglected by modern medicine, one that traditional medicine has known for centuries: That what we put into the body relates directly to its subsequent health. This is a basic observation that any automobile mechanic knows: Poor fuel equals poor engine performance.

Furthermore, as herbs are increasingly showing efficacy, some western medical doctors are attempting to apply their pharmacology training to herbs replacing medication prescriptions for herbal and supplement prescriptions. However, herbs do not work like pharmaceuticals. As we will

illustrate here, herbs have hundreds of active and synergistic constituents, while most medications have one. Therefore, the typical single-constituent pharmacology approach used in pharmaceutical medicine cannot accurately be applied to herbal therapies. Instead of mindlessly rejecting our ancestors as witch doctors and primitives, we must accept that they learned how to work with nature.

They knew how to utilize the plants and the elements of nature to heal without polluting the streams, rivers, oceans and air. They knew how to become healthy while preserving the very elements that provide future survival. In other words, they utilized a deeper wisdom. They knew that nature would not only take care of them: They also knew that nature would take care of their children and their children's children for hundreds of generations forward. They knew that their humble respect of nature would guarantee that their grandchildren would have clean water and pure food. They were right, this wisdom, unfortunately, must have missed a few generations.

Something happened during the previous few generations. Some kind of pride and self-confidence has gripped our society and we lost our respect for nature: We forgot the wisdom that had been handed down for so many generations. Not only have we forgotten our respect for nature: We've also forgotten that herbal medicine has had thousands of years of clinical application among billions of people.

This means also that herbal medicine comes with a history of safety. In fact, it is only when we ignore the traditions of our ancestors' medicines that we get into trouble with herbs. Only when we mix herbs with medications or do not prepare the herbs according to the traditions developed by scientifically focused herbal formulators do we find toxicity among some of these herbs. Traditional medicines also understood individuality, not only among plants, but among people. Each of us is unique, and we each will respond uniquely. Therefore, it is as important today as it has been for traditional medicines that we consult with a health professional to guide us.

This book is meant to assist both the health professional and the asthma sufferer in this process. The information laid out in this book will help provide the necessary information that both parties need to make critical decisions regarding the welfare of the asthma sufferer. The protocols and conclusions provided in this book will meet the expectations of even the most skeptical conventional medicine advocate: Much of this research comes from medical schools, prestigious universities, hospitals and/or government agencies around the world. It comes from professors of medicine, physicians and dedicated medical researchers, using double-blind, placebo-controlled and randomized research protocols.

Finally, this text is not professing to be a complete pathology reference on the subject of asthma. It does not pretend to exhaustingly describe all of the diagnostic and symptomatic elements of asthma. Nor does it discuss the application of pharmaceuticals in asthma except perhaps to illustrate asthma mechanisms or constituents here and there. In other words, the author does not seek to rehash the same information that can be readily found in medical pathology or pharmacology texts. Rather, the focus of this book is the discovery of the real underlying causes of asthma, which in turn prove together with direct clinical application and research of traditional medicines that nature indeed can provide us with a pathway out of the current epidemic of asthmatic hypersensitivity griping modern society.

Who Gets Asthma?

The research indicates that asthma rates have been increasing around the world, along with the United States. As of 1980, about five million Americans had been diagnosed with asthma. As mentioned, currently asthma rates are close to 20 million Americans. This means that asthma levels have about quadrupled over the past thirty years: About a 400% rise in asthma incidence and this is not due to population growth: The U.S. population has risen by only 30% or so over that period. As of 2009, 17.5 million people in the U.S. were estimated to have an asthmatic condition. This translates to 7.7% of the population.

Some have since upgraded this estimate to closer to 20 million. Researchers from the Texas Tech University Health Sciences Center (Arif et al. 2007) studied asthma incidence among 8,020 adults over the age of twenty, using the US National Health and Nutrition Examination Survey. They calculated that 3.6% of adult Americans have current asthma, 14.7% suffer from wheezing, and 4.6% suffer from nighttime cough. Significantly more children have asthma than do adults, however. As of 2009, 7.1 million U.S. children have asthma, equating to nearly 10% of children in the U.S.

Asthma incidence tends to vary with community and geographical location. Researchers from Portugal's University of Porto (Moreira et al. 2008) analyzed 20,977 women and 18,663 men from a cross-section of Portugal's population. They found that those with an income of more than 815 Euros per month had nearly half the rates of asthma than those with an income of 314 Euros or less. They also found no significant difference between asthma rates and education. Money was the matter. Using data from the National Health and Nutrition Examination Survey (2001-2004), researchers from the University of Texas School of Public Health (McHugh et al. 2009) found that dramatically more women than men have asthma. Asthma rates were 8.8% for women and 5.8% for men.

This trend is also apparent when considering a history of asthma: 13.7% of women and 10.4% for men were diagnosed with asthma at some point in their lives. This same trend was also seen in the findings of researchers from the New York Children's Health Project and Children's Hospital at Montefiore, New York (Joseph et al. 2010). Using the National Health and Nutrition Examination Survey (1999-2004), the researchers found that children born in the U.S. have higher asthma rates than foreign-born children. They found that close to 15% of U.S.-born children have asthmatic symptoms, compared to only 7.3% of foreign-born children. Furthermore, among developed countries, those living in warmer, sunnier areas, with other factors controlled, have fewer asthma and allergies. In a large-scale international study, 17,280 adults between the ages of 20 and 44 from different countries were studied by researchers from Australia's Monash Medical School (Woods et al. 2001). Natives of Northern European countries such as Scandinavia or Germany had higher rates compared with Southern European countries such as Spain and Italy.

The Condition Called Asthma

The medical term for asthma is airway hyper responsiveness or bronchial hyper responsiveness also abbreviated as AHR or BHR. Here, the airways which include the lungs and bronchi, become inflamed and irritated, producing airway hypersensitivity. This causes the airway passages that bring

air in and out of our lungs to narrow. In minor responses, this produces what some describe as wheezing. In more severe episodes, an extreme shortness of breath becomes evident. The narrowing of the breathing passages is predicated by bronchoconstriction. Bronchoconstriction is characterized by a contraction of the smooth muscles surrounding the breathing passages. This contraction is driven by acetylcholine receptors that lie on the smooth muscle fibers. Once these receptors are switched on, the muscles contract and clamp down on the airways. This narrows the breathing passages. At the same time, mucous builds up in the airways. This mucous becomes thicker and gummier. This inhibits the draining of the mucous membranes in the airways, further reducing the airway passages.

In severe cases, this inflammatory narrowing of the breathing passages can bring about an extended period of chest tightness and gasping for air while struggling to breathe. This is often referred to as a bronchospasm. This can become a life-threatening situation, which is often treated with epinephrine and other anti-inflammatory medications. As we'll discuss in more detail later, this inflammatory narrowing is a reactionary event, which can come from environmental exposures, something consumed, exercise or even stress.

The frequency and severity of these bronchospasms depends largely on the underlying condition, as we'll describe shortly. In general, there are two broad categories of asthma. These are related to their pattern of response to triggers. The first is called intrinsic and the other is called extrinsic asthma. However, these categories are rather superficial, as we'll describe further.

Asthma is Not a Disease

Despite all the diagnoses; all the references in the various pathology texts, medical science books and websites; asthma is not a disease. Rather, asthma is a symptom. It is a reaction that indicates a deeper, underlying condition. Due to this underlying condition, the airways become hypersensitive to particular triggers. Once irritated by a trigger, the airways and their smooth muscles respond by narrowing. They also become filled with thickened mucous, which further constricts the available airway space. As the airways narrow, breathing is restricted and coughing often results. And assuming the underlying condition continues, the airways likely remain continually inflamed and irritated between episodes ready to react to the slightest trigger. This is called airway hyper reactivity or asthmatic hypersensitivity.

Asthma may also be considered a category of diseases. Such a condition category might be comparable to saying a person has a liver disorder or a blood disorder. In both of these instances, there are host of specific diseases that the person with such a category condition might have, including diseases that may originate elsewhere in the body. As laid out before, some types of asthma are considered a topic, which means the asthmatic response is triggered by an allergic response that may have little to do with the lungs just as a skin rash may be caused by eating a toxin, medication or allergen. In the case of an atopic skin response, the allergen may not have even had any contact with the skin. The person may have eaten or inhaled the allergen, yet the skin responded. Asthma is distinguishable from COPD and pneumonia, which specifically relate to infections or damage to the lungs.

However, asthmatic responses have been seen following these diseases along with many others that may occur elsewhere in the body. We could compare the asthmatic condition to sport categorization: There are many different sports, and then there are categories of sports. There is also relative specificity between categories. For example, there are ball handling sports, extreme sports, winter sports and water sports. Some categories also can exist within other categories. For example, skiing is a winter sport that can also be an extreme sport. Surfing is a water sport and also an extreme sport. In other words, asthma can be described as a category of disease conditions, or a type of symptomatic response. It is not a single disease condition in itself. For this reason, a person may have any number of disease conditions while they suffer asthmatic symptoms at the same time.

Difficulties in Asthma Diagnosis

Asthma is difficult to diagnose. This is not only because there are various forms of asthma and the fact that asthma is a symptom rather than a disease: It is also because asthma can easily be confused with chronic obstructive pulmonary disease, COPD, emphysema and other respiratory disorders. This reality was illustrated in a study from Canada's Ottawa Hospital (Pakhale et al. 2010). The researchers found, in investigating 496 adults diagnosed with asthma by a doctor, that 150 cases were not symptomatic of asthma. Using the newest diagnostic tools, they also found that obese individuals who typically have reduced lung function were more likely to be misdiagnosed as asthmatics.

The Physiology of Asthma

Understanding the mechanics of asthma is required in order to understand the causes, and nature's solutions for asthmatic hypersensitivity. While many asthma mechanisms are known, the contraction and long-term nature of asthma is still not well understood by most people, and even many health professionals. Clarifying the asthmatic physiology will require an in depth discussion of the respiratory system. Also, a working knowledge of the immune system and its components will be needed to fully comprehend some of the research and conclusions presented later on. This is because asthma is primarily a condition of a defective immune response. Our discussion on the respiratory and immune system will introduce immunity concepts that have been largely ignored in many texts on asthma.

This is because the past decade has brought numerous breakthroughs that update our functional understandings of both. Remember that the scientific terms for asthma are airway hyper reactivity or airway hypersensitivity. In other words, the immune system has become ultrasensitive, and is reacting in a hyperactive manner. A plethora of evidence now supports the conclusion that asthma is largely an inflammatory disorder. The constriction of the airways is a result of overactive inflammation, in other words. The immune system of a healthy person is the body's watchdog system: It defends against threats to the body. An asthmatic has an unhealthy immune system: The immune system is overreacting to perceived threats outside what would be considered an appropriate response. The immune system has become hypersensitive, and its overreaction comes in the form of inflammation. How do we know that asthma is an inflammatory disorder?

First, all of the ingredients of inflammation are present during an asthmatic episode. These include various inflammatory mediators such as histamine and leukotrienes. In addition, heightened levels of lymphocytes, including T-cells, B-cells, neutrophils and basophils are all present during an asthmatic episode. In addition, researchers have found that asthmatics and asthmatic episodes typically accompany greater levels of C-reactive protein (CRP). CRP is a standard way of determining heightened systemic inflammation within the body. Another correlation is the fact that most asthmatics also have heightened levels of eosinophils another inflammatory factor. Illustrating this, medical researchers from Canada's McMaster University (Duong et al. 2008) found, in studies of 26 exercise-induced asthmatics, that heightened eosinophils accompanying airway inflammation specifically correlated with EIA severity. In other words, greater levels of eosinophils were present in more severe cases.

An Overview of Inflammation

Before we dive further into the asthmatic inflammatory response, let's examine inflammation in general. Most people think of inflammation as bad. Especially when they hear that allergies involve inflammation. Rather, inflammation simply coordinates the various immune players into a frenzy of healing responses. This is a good thing. Imagine for a moment cutting your finger pretty badly. First you would feel pain letting you know the body is hurt. Second, you will probably notice that the area has become swollen and red. Blood starts to clot around the area. Soon the cut stops bleeding. The blood dries and a scab forms. It remains red, maybe a little hot, and hurts for a while. As the healing proceeds, the cut is soon closed up, leaving a scab with a little redness around it. The pain soon stops. The scab falls off and the finger returns to normal almost like new and ready for action.

Without this inflammatory process, we might not even know we cut our finger in the first place. We might keep working, only to find out that we had bled out a quart of blood on the floor. Without clotting, it would be hard to stop the bleeding. And without some continuing pain, we would be more likely to keep injuring the wound, preventing it from healing. Were it not for our immune system and inflammatory process slowing blood flow, clotting the blood, scabbing and cleaning up the site, our bodies would simply be full of holes and wounds. Our bodies simply could not survive injury. The probiotic and immunoglobulin immune system work together to deter and kill particular invaders hopefully before they gain access to the body's tissues. Should these defenses fail, they can stimulate the humoral immune system in a strategic attack that includes identifying antigens and recognizing their weaknesses. B-cells and probiotics coordinate through the stimulation of immunoglobulins and clusters of differentiation (CDs).

Asthma Triggers

As made obvious by the name, asthma triggers stimulate the hypersensitivity response that leads to an asthma exacerbation. There is a big difference between the causes of asthma and common asthma triggers, however. While it might appear from afar that the asthma episode immediately follows the trigger; the trigger is not the cause. We might compare this to a person who is depressed about losing a loved one overreacting to something someone said and becoming angry. The anger reaction might appear to have been caused by what the person said, but the real (and underlying) cause for the blowup was the loss of the loved one. We will focus on the underlying causes of asthma in the next chapter. For now, let's just discuss the major asthma triggers, and see how we might be able to avoid some of them. However, it should be remembered that we are not proposing that avoiding

asthma triggers will solve hypersensitivity or prevent asthma episodes. Yet this is what many health experts today are proposing. The problem, as we'll show here, is that asthma triggers are practically impossible to remove from our lives. Asthma triggers will always be around, haunting us. And if we were to somehow be successful in avoiding one asthma trigger, the asthmatic physiology will likely become sensitive to other triggers. Yet there is still a time and place for avoiding triggers temporarily but only temporarily. We'll explain this in greater detail later. In general, there are two sorts of asthma triggers.

The atopic trigger: This is when the body's immune system has produced a specific IgE antibody that is sensitive to an allergen. The body can maintain a host of different specific IgEs, which can easily cross over and become sensitive to other triggers. In other words, we might have formed specific IgEs to mold spores: Over time, this sensitivity to mold spores can crossover to a sensitivity to dust mites, dander and so on. **The non-atopic trigger:** A non-atopic trigger is any environmental exposure that stimulates hypersensitivity outside of the IgE-antibody system. Here an asthma episode might be triggered by a sudden change in temperatures. It might be a warm fall one day, and the next day a cold front moves in. This might trigger a hypersensitivity response in an asthmatic person. It is not as if we have formed IgEs to cold temperatures. The cold temperature simply stimulated a physiological response much as we might begin shivering when it gets cold. Researchers from the National Institutes of Health (Arbes et al. 2007) used the Third National Health and Nutrition Examination Survey to study allergens and asthma. They tested 10 allergens, and found that 56% of asthma cases in the U.S. are atopic. Furthermore, atopic-allergies are more prevalent among men, more educated people, and those who live in urban areas.

Food Trigger Doses

Most IgE-mediated food allergies require a specific range of dosage before sensitivity symptoms will result. Foods will require anywhere from five to 5,000 milligrams to produce a clinical response. For oils including peanut, sesame, sunflower, and soy oil, up to 30 milliliters can cause a response for those sensitive. Here is a chart based on the research: Food Respiratory Symptoms Reaction at 65mg/.8mL

Lowest Reactive Dose

Eggs 12% 16% 2 mg
Peanuts 20% 18% 5 mg
Milk 10% 5% 0.1 mL
Sesame 42% 8% 30 mg
(Morisset et al. 2003)

Foods Containing Histamine

Foods like cheese, sausage, sauerkraut, tuna, tomatoes, and alcohol can contain up to 500 mg/kg of histamine. Eating foods that contain high levels of histamine may sometimes trigger asthmatic flare-ups. To test this, researchers from the Floridsdorf Allergy Center in Vienna, Austria (Wöhrl et al. 2004) gave 75 mg of liquid histamine dissolved in tea or the tea alone to ten healthy non-allergic females between the ages of 22-36 years old. After testing with a standardized symptom protocol over 24 hours, they found that five of the ten subjects experienced reactions to the histamine. These

included tachycardia, mild hypotension, sneezing, runny nose and itchy nose, most within the first hour. Four of the five also had diarrhea, flatulence, headaches and other delayed symptoms that began after three hours of consuming the histamine. French INSERM researchers (Kanny et al. 1996) also studied histamine levels in food and intestinal permeability. They had previously demonstrated that ingested histamine could promote or stimulate chronic urticaria (hives).

Yeast

Yeast (*Saccharomyces cerevisiae*) is a type of fungus considered by researchers to be harmless and even probiotic among most people. Yeast is commonly used to prepare a variety of foods, including breads, pizza and other baked goods. Yeast is also found within the colons of healthy people. For this reason, this species of yeast is considered either safe or having probiotic functions within the body. Like any microorganism, however, there must exist a balance between the different probiotic species and strains within the gut in order to maintain health. Persons without that balance, or who have become infected with overgrowths of other not-so-probiotic yeast colonies such as *Candida* spp., may become sensitive to foods containing yeast. Yeast sensitivities may also yield or be a symptom of other intestinal problems. And as we'll discuss later, an overgrowth of yeast can lead to an overload of endotoxins that can stress the immune system and provoke airway hyperreactivity.

Food Additives

Many commercial foods contain numerous synthetic chemical additives. These include hundreds of artificial food colors, preservatives, stabilizers, flavorings and a variety of food processing aids. A number of these additives have been found to cause sensitivities in some people. Food additives that have been particularly suspected to trigger asthma are preservatives such as sodium benzoate, 4-hydroxybenzoate esters, BHA, BHT, aspartame, MSG and sulfites. Suspected colorings include FD&C Yellow #5 (tartrazine), FD&C Red No. 40, FD&C Yellow #6, FD&C Red No. 3, FD&C Blue No. 1, FD&C Blue No. 2 and FD&C Green No. 3. Clinical experience has confirmed that azo dyes, sulphur dioxide and benzoates have triggered asthmatic episodes in children (Freedman 1977; Novembre et al. 1992). Illustrating the effects that food additives can have, Australian researchers (Dengate and Ruben 2002) studied 27 children with irritability, restlessness, inattention and sleep difficulties.

The researchers saw many of these symptoms subside after putting the children on the Royal Prince Alfred Hospital Diet, which is absent of food additives, natural salicylates, amines and glutamates. Using preservative challenges, the researchers were also able to determine that preservatives significantly affected the children's behavior and physiology adversely. Researchers from Britain's University of Southampton (Bateman et al. 2004) screened 1,873 three-year old children for hyperactivity and the consumption of artificial food colors and preservatives. They gave the children 20 mg daily of artificial colors and 45 mg daily of sodium benzoate, or a placebo mixture. The additive group showed significantly higher levels of hyperactivity than the group that did not consume the artificial colors and preservative.

Once an additive has caused intolerance symptoms such as those from the research above, the immune system may begin to become sensitive to some of the foods these additives are combined with. This likelihood increases should the immune system become continually exposed to the foods and additives over a considerable period. Note also that many pharmaceuticals also contain significant trigger suspect colors such as FD&C yellow No. 5 (tartrazine).

Sulfites

The sulfite ion will aggressively preserve a food. Sulfites can also produce wheezing, tightness of the throat and other symptoms almost immediately after eating foods preserved with them. There is sufficient evidence to point to sulfites as a potent asthma trigger (Schroecksadel et al. 2010). Researchers from the University of Cape Town (Steinman et al. 1993) studied sulphur dioxide reactivity among 37 asthmatic children. They were challenged with sulphur dioxide in apple juice (at levels common among softdrinks with sulphur dioxide) or apple juice without the SO₂. Among the SO₂ group, 43% reacted with reductions in forced expiratory volume (FEV₁) by greater than 10%. None of the only apple juice group suffered a fall in FEV₁. The alcohol levels may also contribute to this effect when wine is being considered. Illustrating this, researchers from Australia's Centre for Asthma (Vally et al. 2007) tested eight wine-sensitive subjects with sulfite wine and non-sulfite wine. The researchers found that the wine sensitivities were unlikely caused by the sulfites in the wine. Today, sulfites are used to preserve many wines, dehydrated potatoes and numerous dried fruits. Sulfites include potassium bisulfite, sulfur dioxide,

Monosodium Glutamate

Monosodium glutamate also gets a lot of attention for triggering asthmatic symptoms. This assumption, however, has been largely unconfirmed in controlled research. In research from the Scripps Research Institute in La Jolla, California (Woessner et al. 1999), 100 asthmatics were double-blind challenged with 2.5 grams of MSG. Thirty of the test subjects had a history of asthma attacks during Oriental restaurant meals. The research found that none of the patients suffered from any asthma symptoms after receiving the MSG challenge, regardless of whether they had perceived they had an MSG-sensitivity or not. To better understand this, Harvard researchers (Geha et al. 2000) set out to study the effects of MSG sensitivities in a multi-center study. They found that of 130 human volunteers who thought they were sensitive to MSG, 38% physically responded to MSG with allergic symptoms.

However, 13% also responded to a placebo (they thought contained MSG). Subsequent retesting continued to show inconsistent responses among some of those who thought they were MSG-sensitive. This led the researchers to conclude that people who believe they are sensitive tend to react more strongly to MSG, but their responses were not always consistent. This of course may be the result of differing levels of tolerance and periods of sensitivity again depending upon immunity. This research still confirms that MSG can cause sensitivity responses, but there is a strong possibility of a placebo effect in some. There may also be a stress related relationship between MSG and the asthmatic episode.

Pesticides/Herbicides

Fumigant residuals can remain in our foods long after spraying. Foods with thin or no peels, and animals which bioaccumulate chemicals have the most risk. Pesticide residues have been observed in bloodstreams and even the umbilical cords of mothers. They can also trigger asthma.

Indoor and Chemical Triggers

Indoor pollutants also trigger asthma. They can arise from a number of sources. Let's discuss the more prevalent of these:

Fragrances

Various scents and fragrances used in deodorizers, decorations, soaps, and furniture can trigger asthma, along with being downright toxic. While a fragrance might smell like flowers or delicious foods, the typical commercial fragrance contains at least ninety-five percent synthetic chemicals. A single perfume may contain more than 500 different chemicals. Benzene derivatives, aldehydes, toluene, and petroleum-derived chemicals are just a few synthetics used in commercial fragrances. Toluene alone, for example, has been linked to asthma among previously healthy people. For this reason, we should carefully consider any product with an ingredient called "fragrances." This includes laundry detergents, dishwashing and other soaps, shampoos and other types of hair products, disinfectants, shaving creams, fabric softeners, fragrant candles, air fresheners, and of course perfumes and colognes. Discernment also should also be given to the word "unscented," as this still may have some of the same synthetics, used instead as fragrance masking elements.

Toxic Household Materials

The same researchers (Anderson and Anderson 2000) found that pulmonary irritation and decreased lung capacity results from the use of synthetic mattress pads. They identified respiratory irritants such as styrene, isopropyl benzene and limonene among polyurethane mattresses. When subjecting organic cotton mattresses to the same test, the results were quite the opposite. Increased respiratory rates and tidal breathing volumes were observed with organic fiber mattresses. The authors noted in each of the above studies that any of these toxin sources could be at least a contributing factor in the rampant rise of asthma among developed countries.

Fabric softener emission is also a dangerous source of air toxicity. Several known irritants and toxins are typically found in fabric softeners, including styrene, isopropyl benzene, thymol, trimethylbenzene and phenols. In yet another study, Anderson and Anderson subjected mice to five commercial fabric softener emissions for 90 minutes using laundry dryers.

The results clearly illustrated that fabric softeners significantly irritate airways. These negative health effects were also seen resulting from emissions of clothing driers containing fabric softener pads. The researchers (Anderson and Anderson 1999) also found that pulmonary toxicity resulted from commercial diapers, adding that a number of chemicals found in diapers were known pulmonary and sensory irritants.

Another potential indoor trigger category is propellants. Propellants are used in sprays and pump bottles to disperse fluids. While chlorofluorocarbons (CFCs) have been practically eliminated from aerosols, today's aerosols and pump sprays often involves the use of volatile organic compounds (VOCs). Noxious propellants such as isobutane, butane and propane will typically linger in the air for several minutes after spraying. They can also trigger an asthma episode. Tobacco smoke is also an important source of indoor pollution.

The American Cancer Society estimated in 2004 that 160,000 Americans die each year from lung cancer caused by smoking. Lung cancer maintains between an eleven and fifteen percent chance of survival beyond five years. It should be noted that the highest rates of global lung cancer occur for both men and women in North America and Europe (Field et al. 2006). Of course, these are also countries where indoor smoking rates are the highest.

Indoor Microorganisms

Microorganisms and their endotoxins can also trigger asthma episodes. These are collectively called biological pollutants. These microorganisms include bacteria, viruses, fungi and mold. Bacteria can come from rotting food, plants, people and pets. Dander also can carry these creatures. Viruses can trigger asthma initially, or once they infect the body's cells. Viruses damage DNA within the cells, and reproduce through the body via the DNA damage. Microorganisms can grow on anything wet especially mold. Almost any type of sitting water or dampness will grow mold, especially those in dark areas (as many fungi abhor sunlight). Mold spores reproduce and float through both the outdoor and indoor air. Once they land, they can begin multiplying into larger cultures.

While there are several species of mold, almost all require moisture to grow and populate. A concentration of spores riding the indoor air currents can cause various sensitivities, allergies, and sickness (Sahakian et al. 2008). Mold spores also produce a number of substances called mycotoxins, which can create health concerns if inhaled. Homeowners and renters should be aware of this, and make sure the houses they live in have no water entry into the basement. Moist appliances like air conditioners, bathtubs, bathroom carpets, and air ducts can also grow mold. For these reasons, we might want to frequently check the various corners and dark places in our houses and workplaces for moisture, because the fungal or bacterial populations growing on these surfaces will only get bigger with time discharging toxins into the air as they grow. Once found, the area should be dried, the mold or bacteria should be cleaned up (water with a few drops of rubbing alcohol, vinegar or chlorine will kill most mold or bacteria)

Strategies to Reduce Trigger Exposure

In the Tunnicliffe research discussed earlier, the homes of the mild and severe asthmatics were also tested for the three allergens. The severe asthmatics had greater exposure to all three allergens in their homes than did the mild asthmatic group. The most significant exposure difference was dust mites in the bedrooms of the severe asthmatic group. In other words, cutting back on trigger exposure may reduce our asthma severity. But it will not necessarily correct the underlying problem. Here are a few strategies to reduce a few of the common asthma triggers:

- Find out precisely what triggers your asthma: This seems like a no-brainer, yet with all of the information swirling around this topic, many will simply start attempting to remove all

potential asthma triggers. While this seems like a logical move, it may actually decrease tolerance in these perceived triggers, which may facilitate eventually becoming sensitive to them.

- Clean the house: Yes, it is not fun to clean the house. But it should be done weekly or semi-monthly, depending upon the house's use. Removing dust and microscopic debris will also remove the food for dust mites: skin flakes. We all slough off skin throughout the house, and this becomes our dust mites' favorite food.
Dusting with a wet cloth and vacuuming with a HEPA (HighEfficiency Particular Arresting) filter are the best strategies. The HEPA filter will keep the tiny mites in the bin and not back out through the blower. Cleaning the walls is often overlooked. Dust mites, mold and bacteria can all dwell on vertical surfaces just fine, thank you. To test the vacuum cleaner, just turn off the lights and shine a flashlight into the exhaust of the vacuum. The particulates will show up in the light.
- Bedding should be washed at least every two weeks in hot water. Observations have shown that water heated to 130 degrees F is necessary to kill dust mites.
- Blinds are better window coverings than curtains. Curtains can accumulate mold, dust mites and bacteria. They are typically difficult to wash and dry, and for that reason, they rarely get washed in most households. Blinds are very easy to clean even while still on the window. Removing them and hosing them down outside is probably a better strategy.
- Household cleaners should be natural. These include baking soda, vinegar, lemon and borax. These are all, to relative degrees, also antimicrobial.
- Tubs and bathrooms should be cleaned of molds and fungi frequently, before mold forms. Mold grows in moist, dark places, so those areas of the bathroom should be cleaned more frequently than areas exposed to sunshine.
- The best floors are wood, stone or ceramic tiles. Vinyl flooring is better than carpet, but inferior to natural materials. Carpets and floor mats attract and house bacteria, mold, viruses, dust mites and insects. The floor should be periodically washed with vinegar and rubbing alcohol.
- Carpets should be regularly vacuumed. The application of tannic acid products can reduce dust mite populations. If dust mite allergies exist, having someone else do the vacuuming is not a bad idea.
- Houseplants are great for the house because they can give off significant oxygen. But beware that their soils can breed microorganisms. Best if plants are kept where there is plenty of sunlight in contact with the soil.
- Wearing a mask during mowing is not a bad idea for those with grass pollen allergies or having someone else mow. Fresh, natural air is best assuming no pollen allergy. Windows are best left open in right environment. Environments with smog and/or fireplace smoke

should be blocked from entering the home to the degree possible, but be careful of the build-up of indoor pollutants. Most houses harbor worse air inside than outside.

- Indoor environments should be free of fireplace smoke, tobacco smoke, carbon monoxide, nitrogen oxide, VOCs and any other potential pollutant as we've discussed.
- Carbon monoxide and NO₂ strategies include venting any gas appliance to the outdoors, making sure there are no leaks, using the right fuels for each appliance; using an exhaust fan over a gas appliance; using certified wood stoves; having stoves inspected and cleaned; opening fireplace flues (vents to the outside); and opening the garage door before starting the car.

Ventilation

For these reasons, it is suggested that in all cases, indoor environments be properly ventilated. Windows should be open in the house, apartment, and workplace as much as possible. When driving, the windows should at least be cracked. Air conditioning the car or home with the windows shut, though seemingly economical, will cost our bodies in other ways often years later in lung toxicity and hypersensitivities. Better to be a little warm with fresh air in the summer than cool and toxic. The best remedy is to allow natural airflow into all of our indoor environments. While most might assume air is just a gas floating around aimlessly, air conducts various detoxification properties. Air flows in channels of temperature, pressure, and radiation currents. Air also carries with it a number of electromagnetic and waveform properties. These include negative and positive ions, as we have discussed, and more. Air flow also provides a filtering effect.

The mixture of elements in air enables the breakdown of toxins through vaporization and diffusion. While many molecules such as fluorocarbons damage our atmosphere and trap warm air, the combined elements in air work together to break down these elements, gradually eliminating and dispersing their toxic effects. So we need to keep our indoor air moving. We'll discuss air filtration systems in more detail in the last chapter. For now, know that filtration is a better policy than shutting all the windows and avoiding the outside air. Just as in water, moving air is almost always cleaner than stagnant air. That is, unless that outside air is full of soot, or pollen with a pollen allergy. As for avoiding pollens or any other allergen for that matter completely, this will be impossible. Tolerance is a better goal. The immunotherapy section in the last chapter should be considered for this.

Creating an asthma safe room

Anyone with active asthma should consider having a safe room. A safe room is a room in the house where we can go if we are feeling an asthmatic episode coming on, or in the midst of one. The clean room should be clear of potential triggers, and should provide a calming, relaxing environment. Here are a few things that can be done to maintain a safe room:

Floors: The safe room should have bare floors that are easily cleaned. Hard wood, stone or ceramic tiles are preferred. Vinyl flooring is next down the list. Carpets and floor mats should be removed. Any floor covering can invite dust, dirt, mold, bacteria and dust mites. The floor should be periodically washed with vinegar and rubbing alcohol. Walls: Clean the walls periodically. Vinegar

and alcohol are also good cleaners for walls. Just a quick wipe is all that would be needed. Also clear the ceiling corners of cobwebs.

These collect debris. Furniture: Wood furniture is best for the clean room. It should be simple and easy to dust. Fancy furniture with lots of nooks and crannies will collect dust, mold and microorganisms. Sofas or beds should be covered with an easily washable fabric. Plastic or vinyl covers can be put on to mattresses or sofas for dust mite allergic-asthmatics, but these can also outgas formaldehyde or plasticizers. Better to stick with natural coverings if possible. Best to have a washable fabric and have mattresses covered with linens.

Houseplants: These will give off oxygen, but their soils can also breed fungi and bacteria, best to keep these out of the clean room, at least for sensitive asthmatics.

Air: Fresh is best, unless outdoor air is smoggy, pollen-filled (for pollensensitive people) or otherwise toxic. The clean room should have good windows with screens, preferably windows that let in sunlight (sunlight will decrease the populations of molds and dust mites. A HEPA (high efficiency particle-arresting) air filter may be installed in the room, especially during times where outdoor or indoor air is questionable.

Water: The clean room should be kept dry. Water will feed molds and fungi. Look for leaks into the window sills. Humidifiers are not a good idea in the clean room, because the moisture can breed molds.

Pets: Pets should be kept out of the clean room. They can track in a variety of microorganisms, dust, dirt, moisture, and their own allergens in the form of dander.

Chemicals: The clean room should be clear of pesticides, fragrances, incense, and other chemicals. If bugs are a problem, try borax or traps in adjacent rooms.

The Role of Trigger Reduction

As we can see from the list above, there is a lot of work involved in reducing triggers. It is nearly impossible for a person whose asthma is triggered by one or many of the triggers discussed in this chapter to completely and permanently avoid the trigger. In fact, if we focus our energies too much on trigger avoidance as conventional medicine has we will miss the opportunity to discover and reverse the underlying causes. Therefore, we absolutely need to incorporate another strategy alongside trigger avoidance. This is the strategy, as Hippocrates proposed, of cause discovery and cause reversal. This is because at the end of the day, the asthmatic flare-up is the result of an underlying physiological defect in our response to these triggers. We've hinted at some of these defects in this and the previous chapter. Now let's focus more precisely on the science that proves the underlying causes of asthmatic hypersensitivity.

Chemical Toxin Overload

Clinical research by Professor John G Ionescu, Ph.D. (2009) concluded that environmental pollution is clearly associated with the development of hypersensitivities. Dr. Ionescu's research indicated that environmental noxious agents, including many chemicals, contribute to the total immune

burden, producing increased susceptibility for intolerances due to inflammation. Environmental toxins are also sensitizing in themselves, producing new trigger allergens. Professor Ionescu draws this conclusion from studying more than 18,000 atopic eczema patients:

“Beside classic allergic-triggering factors (allergen potency, intermittent exposure to different allergen concentrations, presence of microbial bodies and sensitizing phenols), the adjuvant role of environmental pollutants gains increasing importance in allergy induction.”

According to Dr. Ionescu, toxic inputs such as formaldehyde, smog, industrial waste, wood preservatives, microbial toxins, alcohol, pesticides, processed foods, nicotine, solvents and amalgam-heavy metals have been observed to be mediating toxins that produce the physical susceptibilities for allergic sensitization and subsequent inflammation. This is also consistent with findings of other scientists as discussed that chemicals overload the immune system and cause inflammation. Chemical toxins such as DDT, dioxin, formaldehyde, benzene, butane and chlorinated chemicals tend to accumulate within the body's tissues. This is because many of these are fat-soluble. Other compounds, such as phthalate plasticizers and parabens tend to clear the body faster because they are not fat soluble. Still, these can also cause toxicity issues if they are regularly presented to the body.

As we have shown in detail throughout this book, research has indicated that the asthmatic response is specifically related to a body-wide status of systemic inflammation, produced by an overloading of multiple toxins upon the immune system. While there may be numerous triggers some of which are also the same toxins that have been overloading the system we must put the relationships in the right perspective. This is a gigantic discussion, so here we will summarize the major categories and sources of toxic chemicals that add to our immune system burden.

Plasticizers and Parabens

Today, plasticizers and parabens are common amongst many of our medications, toys, foods packaged in plastic, and other consumer items. Phthalates are also found in many household items. While phthalates have shorter half-lives than some toxins, they have been implicated in asthma and allergies, as well as cancers and other conditions. Many cosmetics and antiperspirants contain parabens. They are thus readily absorbed into the skin where they can provoke inflammatory responses (Crinnion 2010).

Heavy Metals

Heavy metals are metal elements that exist naturally in trace quantities within our soils, waters and foods. However, extraordinary levels of heavy metals such as cadmium, lead and mercury are produced by humanity's industrial complex in the manufacturing of various consumer items. We can cite many studies that have associated heavy metal exposure to immune suppression, mercury is one of these.

Pharmaceuticals

As we discussed in the chapter on asthma triggers, a variety of medications can trigger asthmatic episodes. But can they cause asthma? While many pharmaceuticals are known to have specific side

effects of producing wheezing, breathing problems or even asthmatic episodes, practically any and every synthetic pharmaceutical can add to our body's total toxin burden. This is because the body must eventually break down any synthetic chemical in order to purge it from the body. The isolated or active chemical within the pharmaceutical may have its biological effect upon the body, but it must be broken down at some point. The body rarely if ever utilizes these chemicals as nutrients, in other words. They are foreigners to the body.

Thus, enzymes such as glutathione must break down these chemical molecules into forms that can be excreted in urine, sweat, exhalation or stool. This breakdown and disposal process requires work by the body's detoxification systems. This means that they further burden or stress a system that must remove many other toxins within the body, including other environmental toxins, microorganisms and their endotoxins, inflammatory mediators, broken-down cells and other toxins the body must get rid of. In other words, pharmaceuticals can contribute to, and even become another straw that breaks the camel's back.

Illustrating this, researchers from Britain's Imperial College (Shaheen et al. 2008) studied the association between acetaminophen use and asthma incidence among 1,028 asthmatics and healthy matched controls. They found that the weekly use of acetaminophen was significantly related to a diagnosis of asthma. The researchers concluded that: "These data add to the increasing and consistent epidemiological evidence implicating frequent paracetamol [acetaminophen] use in asthma in diverse populations." Cellular inflammation response

Lipid Peroxidation

Lipid peroxidation means that the lipids that make up the cell membrane are being robbed of electrons. This 'robbing' results in an unstable cell membrane. Let's take a look at the process of lipid peroxidation. The first step takes place with the entry of a reactive oxygen species into the proximity of the cell. Reactive oxygen species are elements that require an electron such as hydrogen (H+) in order to become stable. Fatty acids that make up the membranes of cells are the likely candidates for peroxidation. Remember, the name "lipid" refers to a fatty acid. Fatty acids include saturated fats, polyunsaturates, monounsaturates, and so on (see fatty acid discussions later on).

Several types of lipids make up the cell membrane. Fatty acids will combine with other molecules to make phospholipids, cholesterol and glycolipids. Saturates and polyunsaturates are typical, but there are several species of polyunsaturates. These range from long chain versions to short versions. They also include the cis- configuration and the trans- configuration. Cell membranes that utilize predominantly cis- versions with long chains are the most durable.

Those cell membranes with trans- configurations can be highly unstable, and irregularly porous. This is one reason why trans fats are not good. The other reason is that trans fats easily become peroxidized. Cell membranes with more long chain fatty acids are more stable and are less subject to peroxidation. Shorter chains that provide more double bonds are less stable, because these are more easily broken. Also, monounsaturated fatty acids such as GLA are more stable.

Once the fatty acid is degraded by an oxygen species, it becomes a fatty acid radical. The fatty acid will usually become oxidized, making it a peroxyfatty acid radical. This radical will react with other fatty acids, forming a cyclic process involving radicals called cyclic peroxides. This is basically a chain reaction that, if it isn't stopped, results in the cell membrane becoming completely destroyed

and dysfunctional. This forces the cell to signal to the immune system that it is under attack and about to become malignant.

The T-cell immune response will often initiate the cell's self destruct switch: TNF—tumor necrosis factor. Alternatively, the cell may be directly destroyed by cytotoxic T-cells. The combined process stimulates inflammation. As these cells are killed or self-destruct, they are purged from the system provoking increased mucous formation. While this peroxidation and cell destruction is taking place, the immune system is not simply standing by. The body enters a state called systemic inflammation. As we discussed earlier, during systemic inflammation, the immune system launches an ongoing supply of eosinophils, neutrophils and mast cells, which release granulocytes that inflame the airways. In other words, due to this ongoing peroxidation, the immune system is on a hair-trigger. Imagine a person at work who is stressed from being buried in work and a myriad of problems. You walk into their office and they immediately react: "And what do you want?" they ask. If they were not overloaded with work, problems and deadlines, your coming into their office would probably be met without such a frantic response.

But since they were overloaded, they reacted (hyper reacted is a better word) more defensively than needed, because they thought you were going to add to their workload. In other words, the asthmatic reaction is simply a defense measure by an immune system that is overwhelmed. The Evidence for Systemic Inflammation Researchers from the Texas Tech University Health Sciences Center (Arif et al. 2007) studied the relationships between C-reactive protein (CRP) and asthma among 8,020 adults over the age of twenty, using the U.S. National Health and Nutrition Examination Survey. They found that those in the highest quarter of CRP levels had a 60% greater risk of current asthma than those in the other three quarters.

Those with the highest quartile of CRP levels had more than double the incidence of asthmatic wheezing, and more than triple the incidence of nighttime coughing. A plethora of research has shown that higher C-reactive protein levels are indicative of systemic inflammation occurring somewhere in the body.

What causes inflammation? A huge list of possibilities: As we'll investigate in this chapter, a poor diet, chemical toxins, infections, smoking, obesity, a lack of exercise and/or other issues can all produce systemic inflammation. Systemic inflammation indicates that the immune system is overburdened. The extent or combination of the elements mentioned simply overwhelms the immune system.

Typically, the immune system can resolve most of these problems when it is presented with a small amount or a few of them at a time. But when an avalanche of them becomes too great, the immune system goes on alert, resulting in systemic inflammation. Systemic inflammation is the immune system's version of all-out war. The immune system begins to launch the nukes. These can include fever, vomiting, diarrhea, swelling and pain as we discussed in Chapter Two. They can also include the asthmatic episode. This effect is now prominent as researchers look at the dramatic rise of asthma among the western world.

This relates of course to the diet of the child and the diet of the mother. This is called the "maternal diet," as the physiological effects of the mother's diet directly affect the risk of asthma for the child. Harvard researchers stated it thus: "As asthma is a complex disease of gene-environment interactions, maternal diet may play an epigenetic role in sensitizing fetal airways to respond abnormally to environmental insults." (Kim et al. 2009)

Systemic Inflammation Factors

The following list summarizes conditions that collectively contribute to systemic inflammation, which in turn leads to hypersensitivity of the airways:

- 1) Toxemia: An overload of toxins that produce radicals.
- 2) Infections: Infection with microorganisms that produce mutagenicity, toxins and radicals: viruses, bacteria, yeasts and parasites.
- 3) Antioxidant enzyme deficiencies: An undersupply of antioxidizing enzymes that stabilize radicals, including glutathione peroxidase, glutathione reductase, catalase and superoxide dismutase.
- 4) Dietary antioxidant deficiencies: An undersupply of antioxidants from our foods to help stabilize radicals.
- 5) Barriers to detoxification: Lifestyle or physiological factors that block our body's ability to rid waste products and toxins. Detoxification requires exercise, fresh air, sweating, sunshine and so on.
- 6) Poor dietary choices: A poor diet burdens the body with toxins, unstable fatty acids, refined sugars and overly-processed foods.
- 7) Immunosuppression: A burdened or defective immune system.

Breastfeeding

Research is increasingly illustrating that breastfeeding is critical to the strength of baby's immune system. This of course directly relates to the risk of asthma as well. A wealth of breastfeeding research has found that babies breastfed from healthy mothers have a lower incidence of many diseases, higher rates of growth, and stronger immune systems. Breast milk contains a healthy blend of proteins, fatty acids, vitamins, nucleotides and colostrums an immunity boosting substance made up of immunoglobulins and probiotics.

Breast milk also contains the prebiotics galactooligosaccharides (scGOS) and fructooligosaccharides (FOS). Illustrating the anti-asthma effects of breastfeeding, researchers from Japan's Shiga Medical Center for Children (Kusunoki et al. 2010) surveyed 13,215 parents of children aged from seven to 15 years old. The study compared asthma incidence among three types of infant feeding histories: exclusive breastfeeding; mixed formula and breastfeeding; and exclusive formula feeding. The results showed conclusively that exclusive breastfeeding during early life produced significantly fewer cases of bronchial asthma.

Researchers from Romania's Transylvania University (Agache and Ciobanu 2010) found in their study of 33 children that a common denominator among asthmatics was breastfeeding for less than two months. Researchers from the University of Puerto Rico School of Medicine (González et al. 2010) studied 175 children and their mothers. Exclusive breastfeeding resulted in significantly lower rates of asthma and milk allergies among the children. Researchers from University of Cincinnati's Department of Internal Medicine (Codispoti et al. 2010) studied 361 children, 116 with allergic rhinitis.

They found that longer breastfeeding among African American children decreased the rates of allergies by 20%. Researchers from Sweden's Institute of Environmental Medicine (Kull et al. 2010) studied 3,825 children over a period of eight years to determine the role of breastfeeding and asthma. They determined that children exclusively breastfed for four months or more had significantly lower rates of asthma for the first eight years of their lives compared to those breastfed for less than four months. The exclusively breastfed group also were observed to have significantly

better lung function. Breast milk is critical because newborns have under-developed mucosal membranes and their immune systems are still developing.

For this reason, it is a sensitive time for the mucosal membrane-lined airways. Breast milk has been shown to stimulate greater levels of IgA within the mucosal membranes (Brandtzaeg 2010). Illustrating the effect of a lack of breastfeeding on mucosal membranes, researchers from Italy's Siena University (Garzi et al. 2002) found that infants given formula instead of breast milk had significantly greater incidence of gastroesophageal reflux (GERD) and milk allergies. Scientists from the Center for Infant Nutrition at the University of Milan (Arslanoglu et al. 2008) found that the galactooligosaccharides (GOS) and fructooligosaccharides (FOS) (present in healthy breast milk) can reduce the incidence of atopic dermatitis (AD) and various infections through six months of age.

A group of 134 non-breastfed infants was given either a prebiotic-supplemented formula or formula without prebiotics. Follow-ups continued until age two. Rates of asthma, atopic dermatitis and allergic urticaria were significantly higher among the infants given the placebo formula. The bottom line: Exclusive breastfeeding through about the first four months reduces the risk of asthma, because our immune systems become better prepared to defend our bodies from toxins and pathogens.

C-Sections

According to recent information published by the National Center for Health Statistics, almost a third of all births in the United States are by Cesarean section. Cesarean sections have increased by some 50% in the United States between 1996 and 2007, from a little over 20% to 32% in 2007-08. While many believe that C-section bears little risk to the child, this is contradicted by the research. In fact, C-section directly increases the risk of asthmatic hypersensitivity. Researchers from The Netherlands' National Institute for Public Health and the Environment (Roudit et al. 2009) studied the allergic status of 2,917 children with respect to whether they were born with a Cesarean section. They tested 1,454 of the children for IgE antibodies for inhalants and food allergens at age eight. They found conclusively that babies born with Cesarean section had significantly greater asthma incidence. C-sections also produce more milk allergies among children.

Researchers from Finland's National Institute for Health and Welfare (Metsälä et al. 2010) studied all children born in Finland between 1996 and 2004 that were diagnosed with cow's milk allergies. In all, 16,237 allergic children were found. Children born by Cesarean section had 18% greater incidence of milk allergies. C-sections produce more allergies in general among children.

Researchers from the Germany's National Research Centre for Environment and Health and the Institute of Epidemiology (Laubereau et al. 2004) studied 865 healthy infants with allergic parents. They tested the babies at one, four, eight and twelve months old. They found that babies (147) born with Cesarean section had over double the incidence of allergic sensitivities than their peers (also with allergic parents) without C-section birth. The mechanism relates to the fact that the vagina is colonized with billions of probiotic bacteria that inoculate baby with natural probiotics an integral aspect of the immune system. The C-section deprives the child of these important probiotics during a critical moment of life. Cesarean sections are often the result of induced birthing. Doctors now induce childbirth more often, and routinely. Induction leads to a greater risk of Cesarean sections. C-sections also increase the likelihood of the mother requiring pain medication during childbirth (Caughey et al. 2006).

The Role of Obesity

Obesity is irrefutably tied to asthma. An asthmatic is more likely to be obese, and an obese person is more likely to be asthmatic. Obesity rates have increased with the increase in asthma among industrialized countries. For example, researchers from Sweden's Uppsala University (Uddenfeldt et al. 2010) found in their 13-year study of 8,150 people that obesity increased the risk of adult-onset asthma by 49%, and weight loss prevented asthma episodes. Scientists from the Centers for Disease Control and Prevention (CDC 2009) determined that preschool obese children are more likely to contract asthma, and children who are obese during their preschool years have a greater likelihood of being obese during teenage and adult years.

Researchers from Canada's Ottawa Hospital (Pakhale et al. 2010) found, in a study of 496 adults with diagnosed asthma, that obese asthmatics have worse lung function and more fatalities than do normal-weight asthmatics. Included in the study group were 242 obese and 254 normal-weight persons. More men were obese than women. The asthmatic men were also more likely to have high blood pressure and gastroesophageal reflux disease (GERD); as well as reduced lung function. They also found, as mentioned earlier, that obese persons with lower lung function who saw a doctor were also more likely to be misdiagnosed with asthma.

Dietary Factors

“Asthma is caused by malnutrition. Only by diligent and consistent effort to change imbedded habits will one get permanent relief.” -Dr. John Christopher (1976) While this may be oversimplified, we will see in the studies here that our diet, our childhood diet, and the diet of our mother during pregnancy and breastfeeding all play a significant role in contracting and maintaining asthma. The mechanisms, as we have been discussing, relate to the health of the immune system and the relative levels of reactive oxygen species and antioxidant potency. An exhausted immune system will inevitably react differently than a strong immune system to a perceived foreigner. Our diets directly affect our immune system strength and the health of our airways. Let's look at the research supporting these conclusions.

In a study of 460 children and their mothers on Menorca a Mediterranean island medical researchers from Greece's Department of Social Medicine and the University of Crete (Chatzi et al. 2008) found that children of mothers eating primarily a Mediterranean diet (a predominantly plant-based diet) produced significantly lower rates of asthma among the children. They found that mothers with a high Mediterranean Diet Score during pregnancy reduced the incidence of persistent wheeze among their children by 78%. Their children also had 70% lower incidence of allergic wheezing; and a 45% reduction in allergies among their children at age six (after removing other possible variables).

Another extensive predictive study was the International Study of Asthma and Allergies in Childhood (ISAAC). The study was conducted among eight Pacific countries, which included Samoa, Fiji, Tokelau, French Polynesia and New Caledonia. The research found that the major predicating factors in current asthma wheeze were regular margarine consumption, electric cooking, and maternal smoking. Factors that decreased asthma incidence included having two or more older siblings and being born within the country currently residing in.

Furthermore, they found that the risk factors for increased rhinoconjunctivitis included the regular consumption of meat products, butter, margarine and nuts; along with regular television viewing, acetaminophen use and second-hand smoke. Allergic eczema was also associated with regular meat consumption, pasta consumption and butter consumption; along with regular television viewing, acetaminophen use and second hand smoke. The researchers concluded that: “Regular meat and margarine consumption, paracetamol [acetaminophen] use, electric cooking and passive smoking are risk factors for symptoms of asthma, rhinoconjunctivitis and eczema in the Pacific.”

The research from Sweden’s Uppsala University discussed earlier (Uddenfeldt et al. 2010) studied the lifestyle and diets in 12,560 adolescents, adults and elderly adults with a follow-up period of 13 years, between 1990 and 2003. The researchers found that those eating a diet heavy with fruit and fish significantly reduced rates of asthma. In elderly persons, the rates were reduced by nearly 50%. Medical researchers from Britain’s University of Nottingham (McKeever et al. 2010) researched the relationship between diet and respiratory symptoms, including forced expiratory volumes. Their data was derived from 12,648 adults from the Monitoring Project on Risk Factors and Chronic Diseases in The Netherlands.

They also included dietary patterns and lung function decline over a five-year basis. They found that diets with higher intakes of meat and potatoes, and lower levels of soy and cereals, was linked to reduced lung function and lower expiratory levels (FEV1) levels. They also found that the heavy meat-and potatoes diet produced higher levels of chronic obstructive pulmonary disease. They also found that a “cosmopolitan diet” with heavier intakes of fish and chicken (both of which are commonly fried) produced higher levels of wheeze and asthma. Remember the research from the University of Athens (Bacopoulou et al. 2009). Here 2,133 children at ages seven and eighteen were studied. The daily consumption of fruit and vegetables significantly reduced the risk of asthma symptoms through age 18.

National Health and Nutrition Examination Survey (2005-2006). They found that among patients diagnosed by a doctor as having asthma and/or wheeze in the last year, higher blood levels of folate was linked to lower total IgE levels a sign of reduced allergy and hypersensitivity (atopy). They also found a dose-dependent relationship between higher folate levels and doctor-diagnosed wheeze and/or asthma. Good sources of folate include lettuce, spinach, lentils, beans, asparagus and other plant-based foods.

Researchers from Spain’s University of Murcia (Garcia Marcos et al. 2007) examined the effects of diet on asthma in 106 six and seven year-old children. Utilizing a Mediterranean diet score along with a survey of symptoms, they found that eating a predominantly Mediterranean diet decreased severe asthma symptoms among the girls. Diets high in cereal grains produced 46% lower incidence of severe asthma. Frequent fruit eating decreased rhinoconjunctivitis incidence by 24%. In contrast, diets higher in fast foods produced 64% greater incidence of severe asthma.

Meanwhile, research from the National Center for Chronic Disease and Prevention (Cory et al. 2010) indicated that only 11-30% of adult Americans eat the recommended amounts of fruits and vegetables me of the lowest levels in the world. Nutrition scientists from Korea’s Kyung Hee University (Oh et al. 2010) studied the relationship between allergies, asthma and antioxidants. They found by testing 180 allergic and 242 non-allergic Korean children that higher serum levels of beta-carotene, dietary vitamin E, iron and folic acid were associated with lower incidence of atopic reactions among the children. These antioxidant nutrients are derived primarily from plant-based foods.

Many other studies have shown these associations between diet and asthma. Researchers from the Allergy and Respiratory Research Group Centre for Population Health Sciences at the University of Edinburgh's Medical School (Nurmatov et al. 2010) analyzed 62 international asthma studies for control protocols and study design. They found that 17 of 22 well designed studies that compared dietary fruit and vegetable intake with asthma showed that higher fruit and vegetables in the diet lowered asthma incidence. Their analyses found that asthmatic children had significantly lower levels of vitamin A; and that greater levels of vitamin D, vitamin E and zinc was "protective for the development of wheezing outcomes." The researchers concluded that adequate intake of antioxidant vitamins including vitamins A, C, and E were critical to reducing free radicals and inflammatory abnormalities. They also determined that antioxidants are able to reduce damage from incoming bacteria, viruses, toxins and xenobiotics (pollutants to the body). The researchers referenced a number of other studies that successfully associated oxidative stress with bronchial inflammation and subsequent asthma development.

Researchers from Italy's University G. D'Annunzio Chieti (Riccioni and D'Orazio 2005) discovered in their research that persistent asthma is linked to an increase in reactive oxygen species. Their research also found that antioxidant nutrients such as selenium, zinc and other antioxidant vitamins have the potential to help reduce asthma symptoms and severity. Consuming a predominantly plant-based diet (such as the Mediterranean diet), has clear results: It is linked with reduced allergy and asthma incidence and a reduction of systemic inflammation. This also means that diets weighted too far towards animal-based foods especially red meats—increase the likelihood of asthma, whether among mothers and their infants, adults in general, or children growing up. These associations also confirm the well-researched relationship between a diet rich in antioxidants (plant-foods have more antioxidants) and strengthened immunity in general. Issues with Animal-based Foods what is it about omnivore diets particularly those rich in red meats that is so bad? How do diets heavy in red meats contribute to increased levels of systemic inflammation and asthmatic hyperreactivity?

Here is an abbreviated list of issues:

- Fatty acid imbalances: Animal foods provide increased levels of saturated fats, which lead to greater levels of LDL cholesterol. LDL, remember, is more susceptible to lipid peroxidation.
- Arachidonic acid overload: Red meats and oily fish provide higher levels of arachidonic acid. Increased arachidonic acid levels in the body push the immune system towards inflammation.
- Nitrites: Red meats have greater levels of nitrites. This is especially true for processed and fried meats. As nitrites enter the body, they produce reactive nitrogen species. These damage cells and cell membranes, producing inflammatory peroxidation.
- Dysbiosis: Animal foods facilitate the growth of colonies of pathogenic microorganisms in the intestines. These produce endotoxins that damage cell membranes and tissues, stimulating inflammation, again through peroxidation.
- Beta-glucuronidase: Omnivore diets result in higher levels of beta-glucuronidase and other mutagenic enzymes. These enzymes directly damage cells and increase systemic inflammation.

- Toxemia: Animal foods typically contain a greater number of toxins compared to plant foods. This is because animals are
- Bioaccumulators: They accumulate toxins. Many toxic chemicals are fat-soluble: The toxins thus accumulate among fat cells. Animals also produce and circulate various waste products, and their waste production increases during slaughter. Plant-based foods, by contrast, provide various antioxidants.
- Protein metabolic stress: Animal proteins require significant effort by the body to break them down into useable amino acid and smaller peptide form. The body utilizes single amino acids and small amino acid chains (peptides). Animal proteins contain hundreds, even thousands of amino acids in a single molecule. This requires significantly more energy and enzyme production to break down and process these complex proteins.
- Acidic plasma: The excess proteins in animal foods produce greater levels of acids in the bloodstream and tissues, which can lead to toxemia. Remember, amino acids are acidic.

Nitrites

Researchers from the Harvard School of Public Health (Varraso et al. 2007) studied the effects of nitrites in the diet and lung health. They analyzed 111 diagnosed cases of COPD between 1986 and 1998 among 42,915 men who participated in the Health Professionals Follow-up Study. The average consumption of high-nitrite meats (processed meats, bacon, hot dogs) was calculated from surveys conducted in 1986, 1990, and 1994. They found that consuming these meats at least once a day increased the incidence of COPD by more than 2-½ times over those who rarely ate high-nitrite meats. These same Harvard researchers used a similar analysis of 42,917 men, but with more dietary parameters.

This research found that the “western diet” consisting of refined grains, sugary foods, cured and red meats, and fried foods, increased COPD incidence by more than four times. Meanwhile, a “prudent” diet, rich in fruits, vegetables and fish, halved COPD incidence. The same researchers from the Harvard School of Public Health studied lung function, COPD and diet among 72,043 women between 1984 and 2000 in the Nurses’ Health Study. Diets that had more fruit, vegetables, fish and whole-grain products reduced the incidence of COPD by 25%. Meanwhile, a diet heavy in refined grains, cured and red meats, desserts and French fries increased the incidence of COPD by 31%.

Pathogenic Enzymes

In the early 1980s, Dr. Barry Goldin, a professor at the Tufts University School of Medicine, led a series of studies that found that certain diets promoted a group of cancer-causing enzymes. These included beta-glucuronidase, nitroreductase, azoreductase, and steroid 7-alpha-dehydroxylase. The enzymes were linked with cancer in previous studies. (Cancer is caused by the same types of cell damage that also stimulates systemic inflammation.) A number of studies on vegetarians found lower levels of these mutagenic enzymes, while those eating animal-based diets had greater levels.

Apparently, these cancer-related enzymes originate from a group of pathogenic bacteria that tend to occupy the intestines of those with diets rich in animal-based foods.

It was discovered that the cancer-producing enzymes are actually the endotoxins (waste products) of these pathogenic bacteria. Dr. Goldin and his research teams studied the difference between these enzyme levels in omnivores and vegetarians. In one study, the researchers removed meat from the diets of a group of omnivores for 30 days. An immediate reduction of steroid 7 alpha-dehydroxylase was found. When the probiotic *L. acidophilus* was supplemented to their diets, this group also showed a significant reduction in beta-glucuronidase and nitroreductase.

In other words, two dietary connections were found regarding these disease-causing enzymes: animal-based diets and a lack of intestinal probiotics. The two are actually related, because probiotics thrive in prebiotic-rich plant-based diets and suffer in animal-rich diets. Two years later, Dr. Goldin and associates (Goldin et al. 1982) studied 10 vegetarian and 10 omnivore women. He found that the vegetarian women maintained significantly lower levels of beta-glucuronidase than did the omnivorous women. The association between colon cancer and diets heavy in red meat has been shown conclusively in a multiple studies over the years.

For example, an American Cancer Society cohort study (Chao et al. 2005) examined 148,610 adults between the ages of 50 and 74 living in 21 states of the U.S. They found that higher intakes of red and processed meats were associated with higher levels of rectal and colon cancer, after other cancer variables were eliminated. Other studies have confirmed that vegetarian diets result in a reduction of these carcinogenic enzymes produced by pathogenic bacteria. Researchers from Finland's University of Kuopio (Ling and Hanninen 1992) tested 18 volunteers who were randomly divided into either a conventional omnivore diet or a vegan diet for one month.

The vegan group followed the month with a return to their original omnivore diet. After only one week on the vegan diet, the researchers found that fecal urease levels decreased by 66%, cholyglycine hydrolase levels decreased by 55%, beta-glucuronidase levels decreased by 33% and beta-glucosidase levels decreased by 40% in the vegan group. These reduced levels continued through the month of consuming the vegan diet. Serum levels of phenol and p-cresol also inflammation-producing endotoxins of pathogenic bacteria also significantly decreased in the vegan group. Within two weeks of returning to the omnivore diet, the formerly-vegan group's pathogenic enzyme levels returned to the higher levels they had before converting to the vegan diet. After one month of returning to the omnivore diet, serum levels of toxins phenol and p-cresol returned to their previously higher levels prior to the vegan diet.

Meanwhile, the higher levels of inflammation-producing enzymes remained among the conventional omnivore diet (control) group. A study published two years earlier by Huddinge University researchers (Johansson et al. 1992) confirmed the same results. In this study, the conversion of an omnivore diet to a lacto-vegetarian diet significantly reduced levels of beta-glucuronidase, beta-glucosidase, and sulphatase (more tumor implicated, inflammation-producing enzymes) from fecal samples. Another study illustrating this link between vegetarianism, pathogenic bacterial enzymes and cancer was conducted at Sweden's Huddinge University and the University Hospital (Johansson et al. 1998) almost a decade later. Dr. Johansson and associates measured the effect of switching from an omnivore diet to a lacto-vegetarian diet and back to an omnivore diet with respect to mutagenicity by testing the body's fluid biochemistry to determine the tendency for tumor formation.

In this extensive study, 20 non-smoking and normal weight volunteers switched to a lacto-vegetarian diet for one year. Urine and feces were examined for mutagenicity (cancer causing bacteria and their endotoxins) at the start of the study, at three months, at six months and at twelve months after beginning the vegetarian diet. Following the switch to the lacto-vegetarian diet, all mutagenic parameters significantly decreased among the urine and feces of the subjects. The subjects were then followed-up and tested three years after converting back to an omnivore diet (four years after the study began). Their higher mutagenic biochemistry levels had returned. In another of Dr. Johansson's studies (Johansson and Ravalid 1995) this from Sweden's Karolinska Institute 29 vegetarians and 28 omnivores were tested. The tests revealed that the vegetarians secreted more salivary juices than did the omnivores. Salivation is critical to the health of the mucosal membranes among the oral cavity and airways.

Arachidonic Acid

To add to these issues is the problem of consuming too much arachidonic acid in the diet. Arachidonic acid is an essential fatty acid naturally converted from other fatty acids by the body. However, diets rich in red meats can directly overload the body with arachidonic acid, producing a proinflammatory condition. This subject has been studied extensively by researchers from Wake Forest University School of Medicine, led by Professor Floyd Chilton, Ph.D. Dr. Chilton has published a wealth of research data that have uncovered that foods high in arachidonic acid can produce a pro inflammatory metabolism, especially among adults. Dr. Chilton's research also confirmed that a proinflammatory metabolism is trigger-happy and hypersensitive: creating the systemic inflammatory conditions prevalent in asthma hyperresponsiveness.

In research headed up by Dr. Darshan Kelley from the Western Human Research Center in California, diets high in arachidonic acid stimulated four times more inflammatory cells than diets low in arachidonic acid content. And this problem increases with age. In other words, the same amount of arachidonic acid-forming foods will cause higher levels of arachidonic acid as we get older (Chilton 2006). According to the USDA's Standard 13 and 16 databases, red meats and fish produce the highest levels of arachidonic acid in the body. Dairy, fruits and vegetables produce little or no arachidonic acid. Grains, beans and nuts produce none or very small amounts. Processed bakery goods produce a moderate amount of arachidonic acid.

Phytanic Acid

Another association we can make between inflammation and diets rich in animal-based foods relates to phytanic acid. Phytanic acid (tetramethylhexadecanoic acid) is a byproduct of plant food digestion inside the intestinal tracts of ruminating animals such as cows, goats, sheep and so on. While phytanic acid can be derived from plant-based foods, greater concentrations of none sterified phytanic acid are formed in animals when chlorophyll is degraded within the stomachs of ruminants, along with mammalian peroxisomes. This is the result of these animals' unique multiple-stomach digestion process of grasses and other plant material.

Humans, of course, do not digest food in the same manner, so we do not produce these concentrated levels of none sterified phytanic acid from plant-based diets. Otto-von-Guericke University (Germany) professor Dr. Peter Schönfeld has showed that the nones terrified phytanic acids from ruminants directly damage the membranes of our cell's mitochondria. The end result, his research

found, is a corruption of the mitochondrial ATP energy production process (Schönfeld 2004). This corruption in turn damages cell function, stimulating inflammation.

Undeniable Evidence In 1985, researchers (Lindahl et al.) studied 35 asthma patients. Each of them had clinical asthma for an average of 12 years, and they were all consistently taking asthma medication with many on oral cortisone. The patients switched to a vegan diet for one year. After four months on the vegan diet, 71% had a significant reduction of asthma symptoms. After one year on the vegan diet, 92% had a significant reduction of asthma symptoms. Lung function also increased among all the patients. Vital capacity, forced expiratory volume (FEV1) levels all improved. Blood analyses were performed to measure levels of IgE, IgM, haptoglobin, cholesterol and triglycerides. These levels all significantly improved in all the patients. The researchers also reported that the patients all began to take more responsibility for their health, and their overall health care costs decreased dramatically.

Problems with Processed Foods

Food processing consists of one or a combination of the following actions on food:

- chopping or pulverizing
- heating to high temperatures
- distilling or extracting its constituents otherwise isolating some parts by straining off or
- filtering
- clarifying or otherwise refining

Most consider food processing a good thing, because we humans like to focus on one or two characteristics or nutrients within a food. The idea is that we want the essence of the food, and don't want to fool around with the rest. In most cases in terms of commercial food it is a value proposition, because all the energy and work required to produce the final food product must equal or be greater than the increase in the processed food's financial value. Therefore, the more concentrated or isolated the attractive portion is, the more financial value is added. Typically, this increase in financial value is due to the food being sweeter, smoother or simply easier to eat or mix with other foods. In the case of oils or flours, the food extract is used for baking purposes, for example. In the case of sugar which is extracted and isolated from cane and beets it is added to nearly every processed food recipe.

Ironically, what is left behind in this extraction is the food's real value. The healthy fiber and nutrients are stripped away in most cases. Plant fiber is a necessary element of our diet, because it renders sterols that aid digestion and reduce LDL cholesterol. Many nutrients are also attached to and protected by the plant's fibers. Once the fiber is stripped away, the remaining nutrients are easily damaged by sunlight, air, and the heat of processing. What is being missed in the value proposition of food processing is that nature's whole foods have their greatest value nutritionally prior to processing.

When a food is broken down, the molecular bonds that attach nutrients to the food's fibers and complex polysaccharides are lost. As these bonds are lost, the remaining components can become unstable in the body. When these components such as refined sugar and simple polysaccharides

(starches) become unstable, they can form free radicals in the body. They thus add to our body's toxic burden because they can damage our cells. In other words, whole foods provide the nutrients our bodies need in the combinations our bodies recognize. Nutrients are bonded within a matrix of structure and fiber, rendering their benefits as our bodies require them. In some cases, we might need to physically peel a food to get to the edible part.

In other cases, such as in the case of beans and grains, we may need to heat or cook them to soften the fibers to enable chewing and digestion. In the case of wheats, we can mill the whole grain (including the bran) to deliver the spectrum of fibrous nutrients. In other words, the closer we match the way our ancestors ate foods, the more our bodies will recognize them, and the better our bodies will utilize them. What does processing do to create more sensitivity?

Our digestive enzymes and probiotics have evolved to break down (or not) certain types of molecules. Imbalanced or denatured molecules can be considered foreign. We can also see how processing increases diseases when we compare the disease statistics of developing countries with those of developed countries. For example, like many developing countries, India has more heart disease in recent decades because of increased consumption of processed and fried foods. In the same way, the Chinese thrived for thousands of years on a rice-based diet. But when modern processing machines introduced white dehulled rice, malnutrition diseases began to occur. This is because the dehulling process results in the loss of important lignans, B vitamins E vitamins and others. Processed and refined foods damage intestinal health and promote free radicals. They are nutrient-poor. They burden and starve our probiotics. Frying foods also produces a carcinogen called acrylamide (Ehling et al. 2005).

Increased Intestinal Permeability

Wait a second; what do the intestines have to do with asthma? Let's examine the science closely: The consensus of the research is that the gastrointestinal tract, from the mouth to the anus, is the primary defense mechanism against antigens as they enter the body. The mucous membrane integrity, the probiotic system, digestive enzymes, and the various immune cells and their mediators work together to orchestrate a "total blockade" structure using the mucosal membranes. However, should these barriers be weakened or become imbalanced, hypersensitivity can result due to increased exposure of the epithelial layers. When it comes to the intestinal barrier, weaknesses can be influenced by a number of factors, including toxins, diet, and other environmental factors (Chahine and Bahna 2010).

In other words, poor dietary choices, toxin exposures and environmental forces related to lifestyle and living conditions can damage the integrity of mucosal membranes—not just in the esophagus, airways and stomach: A weakened intestinal mucosal membrane exposes intestinal cells to digestive acids, undigested foods, microorganisms, undigested food macromolecules, and toxins. These contribute to overloading the immune system, producing systemic inflammation and hypersensitivity. The intestines also have a microscopic barrier structure. The tiny spaces between the intestinal epithelial cells composed of villi and microvilli are sealed from the general intestinal contents with what are called tight junctions. Should the tight junctions become irritated by acids, toxins or pathogens (such as microorganisms) they will open up: Their barrier or seal will be broken. When tight junctions are unnaturally open, the wrong molecules can cross the epithelium through a transcellular pathway. Researchers have found more than 50-odd protein species among the tight junction. Should any of these proteins fail due to exposure to toxins in the form of radicals, the

barrier can break down, allowing intestinal contents access to the bloodstream. Once these intestinal macromolecules access the body's internal tissues and fluids, they can stimulate a hyper-immune response: a systemic inflammatory response (Yu 2009). As we'll find, many researchers are seeing the connection between intestinal permeability and allergy and asthma conditions. For example, Louisiana State University researchers (Chahine and Bahna 2010) found that the intestinal wall uses specific immunologic factors to defend the body against antigens. Their research showed that a defective lining leads to allergic responses and hypersensitivity reactions. They named the cause of these inflammatory responses "defects in the gut barrier."

Yeast, Molds and other Fungi

Yeast and mold are members of the fungi family. While many fungi such as mushrooms are protective to the immune system, an overburdened immune system can become sensitive to microorganism yeasts and molds. Yeasts can become infective and can directly overload the immune system. Mold and their airborne spores can also overload the immune system. This makes these fungi causative elements of asthma. This was confirmed by researchers from the National University of Singapore (Tham et al. 2007), who found that home dampness and indoor mold is linked to an increase in asthma and allergy symptoms among children. They studied 4,759 children from 120 daycare centers. After eliminating other possible effects, home humidity was significantly associated with increased rates of allergic rhinoconjunctivitis.

As discussed earlier, allergic rhinoconjunctivitis is the inflammation of the conjunctiva and sinuses as a result of histamine release following an allergic immune response. As mold burdens the immune system, the body can respond with asthmatic hypersensitivity. Overgrowths of yeasts like *Candida albicans* can also contribute to or be a primary cause for asthma and allergies. A 1987 study (Gumowski et al.) found that among 64 cases of asthma or rhinitis, 52 had formed hypersensitivities to *Candida albicans* meaning they were likely infected now or in the recent past. *Candida albicans* can grow conjunctively with *Staphylococcus aureus*, resulting in the accelerated growth of both microorganisms. This can result in a tremendous burden for the immune and probiotic systems as they try to defend against the incursion of combined yeast and bacteria infections.

Asthma and Probiotic Deficiencies

But can probiotic deficiencies directly cause asthma? Let's look at the evidence. Most people think of the intestines when they hear the word probiotics. Yes, it is true that the intestines host the majority of the body's probiotic bacteria. However, nearly all of the body's mucosal membranes house probiotics. Our probiotics are therefore at home within our oral cavity, sinus cavity, larynx, pharynx, esophagus and airways. They line these regions and guard their territories (also part of our body) with tenacity. They attack and take apart invading viruses, bacteria, fungi and a variety of toxins. As we've discussed earlier, they also alert our immune system of pending invasions. This doesn't mean that our intestinal bacterial are not critical to the health of the lungs. In fact, medical researchers from Australia's Garvan Institute of Medical Research, along with the Cooperative Research Center for Asthma and Airways (Maslowski and Mackay 2011) have found that asthma is significantly related to the gut's microbiology.

They also found that the research supports a conclusion that probiotic deficiencies are especially associated with asthma incidence among developed nations. It should be noted that these

conclusions come after a significant amount of research has proven the role of probiotics in maintaining health. In this section, we'll discuss some of the basics of probiotic health, along with conclusive research that prove probiotics' role in asthma incidence, lung infections and systemic inflammation.

Probiotics, Asthma and Respiratory Infections.

This microorganism imbalance can also take place among the airways in a probiotic-deficient body. Evidence illustrates that pathogenic microorganisms such as *Staphylococcus aureus*, *Streptococcus pneumoniae* and *Haemophilus influenzae* can infect the lungs, and severe respiratory infections can later produce asthmatic hypersensitivity. Research has confirmed that probiotic bacteria inhabit the nasal cavity, the mouth and the airways. Just as probiotics line the mucosal membranes of the intestines, mouth and sinuses; they also line the mucosal membranes of the airways.

As we'll show, research has confirmed that ingested probiotics, probiotic lozenges and probiotic sprays reduce lung infections. Scientists from the Swiss National Accident Insurance Institute (Glück and Gebbers 2003) gave 209 human volunteers either a conventional yogurt or a combination of *Lactobacillus GG* (ATCC 53103), *Bifidobacterium sp. B420*, *Lactobacillus acidophilus 145*, and *Streptococcus thermophilus* every day for 3 weeks. Nasal microbial flora was measured at the beginning, at day 21 and at day 28. Significant pathogenic bacteria were found in most of the volunteers' nasal cavities at the beginning of the study. The consumption of the probiotic-enhanced milk led to a 19% reduction of pathogenic bacteria in the nasal cavity. The researchers concluded that, "The results indicate a linkage of the lymphoid tissue between the gut and the upper respiratory tract."

Scientists from Barcelona (CoboSanz et al. 2006) gave 251 children aged 3 to 12 years milk either with or without *Lactobacillus casei* for 20 weeks. The probiotic group of children experienced significantly fewer respiratory tract infections, bronchitis and/or pneumonia (32% vs. 49%). The probiotic children also had a reduction in the duration of fatigue (3% vs. 13%). In addition, there was a difference in the duration of sicknesses among the probiotic children compared to the placebo group.

French scientists (Forestier et al. 2008) assessed whether ventilator-associated pneumonia in intensive care units could be prevented or lessened by the use of probiotics. The 17-bed intensive care unit at the ClermontFerrand Teaching Hospital was used to test 208 patients with an intensive care unit stay of more than 48 hours. Patients were fed a placebo or *Lactobacillus rhamnosus* through a nasogastric feeding twice daily from their third day in the unit until discharge. Infective *Pseudomonas aeruginosa* cultures were measured at admission, once a week, and upon discharge. Bacteriological tests of the respiratory tract were also done to determine patient infections. The study results indicated that respiratory *P. aeruginosa* colonization and/or infection was significantly reduced among the probiotic group. Ventilator-associated pneumonia by *P. aeruginosa* in the probiotic group was reduced by more than 50% compared to the placebo group.

Greek scientists from the Faculty of Medicine of the University of Thessaloniki (Kotzampassi et al. 2006) gave a placebo or probiotic combination to 65 elderly critically ill and mechanically ventilated multiple-trauma patients for 15 days. The combination consisted of *Pediococcus pentosaceus 5-33:3*, *Leuconostoc mesenteroides 32-77:1*, *L. paracasei subsp. paracasei 19*; and *L. plantarum 2,362*; and inulin, oat bran, pectin and resistant starch as prebiotics. The

probiotic patients had significantly lower incidence of infection, sepsis and death than did the placebo group. Number of days in the ICU and number of days under ventilation were significantly reduced compared to the placebo group. The researchers concluded that: “The administration of this synbiotic formula in critically ill, mechanically ventilated, multiple trauma patients seems to exert beneficial effects in respect to infection and sepsis rates and to improve the patient’s response, thus reducing the duration of ventilatory support and intensive care treatment.”

Scientists from the University of Buenos Aires (Río et al. 2002) studied the incidence and severity of respiratory tract infections. Fifty-eight children from 6 to 24 months old, normal or undernourished according to heightweight indices took either a placebo or a combination of live *Lactobacillus acidophilus* and *Lactobacillus casei* probiotics. Their episodes were classified as pneumonia, bronchitis, or recurrent obstructive bronchitis and upper respiratory tract infection. A total of 34 episodes occurred in the probiotic group while 69 episodes occurred in the placebo group. The probiotic combination significantly suppressed pneumonia and bronchitis in both the normal and undernourished probiotic groups.

Researchers from the University of Arkansas’ Medical School (Wheeler et al. 1997) studied 15 asthmatic adults in two one-month crossover periods with placebo or yogurt containing *L. acidophilus*. The probiotic consumption increased immune system interferon gamma and decreased eosinophils both markers for systemic and airway inflammation.

Probiotics, Childhood Wheezing and Allergies

Research confirms this relationship. For example, researchers from Finland’s University of Turku (Kalliomäki et al. 2001) gave the probiotic *Lactobacillus GG* or placebo to mothers of high asthma risk children during pregnancy and to their infants for six months. They found that the incidence of atopic eczema often the precursor for asthma later in childhood was half in the probiotic group as compared to the placebo group.

University of Helsinki researchers (Viljanen et al. 2005) treated 230 milkallergic infants with *Lactobacillus GG*, four probiotic strains, or a placebo for four weeks. Among IgE-sensitized allergic children, the LGG provoked a reduction in symptoms while the placebo group did not. University of Milan researchers (Arslanoglu et al. 2008) found that a mixture of prebiotics galactooligosaccharides (GOS) and fructooligosaccharides (FOS) reduces allergy incidence. A mix of these or placebo were given with formula for the first six months after birth to 134 infants. The incidence of dermatitis, wheezing, and allergic urticaria in the prebiotic group was half of what was found among the placebo group. The researchers concluded that: “The observed dual protection lasting beyond the intervention period suggests that an immune modulating effect through the intestinal flora modification may be the principal mechanism of action.”

Allergy researchers from Helsinki University (Kuitunen et al. 2009) gave a probiotic blend of two lactobacilli, bifidobacteria, propionibacteria and prebiotics, or a placebo to mothers of 1,223 infants with a high risk of allergies during the last month of pregnancy term. Then they gave their infants the dose from birth until six months of age. They evaluated the children at five years of age for allergies. Of the 1,018 infants who completed the dosing, 891 were evaluated after five years. Among the Cesarean-birth children, allergy incidence was significantly lower in the probiotic group compared to the placebo group (24% versus 40%).

Researchers from Finland's University of Turku (Kirjavainen et al. 2003) gave 35 infants with milk allergies Lactobacillus GG or a placebo for 5.5 months. The researchers concluded that: "Supplementation of infant formulas with viable but not heat-inactivated LGG is a potential approach for the management of atopic eczema and cow's milk allergy."

Probiotics and Immunosuppression

As we've discussed, asthma is directly related to an overloaded and burdened immune system. This has also been termed as systemic inflammation and immunosuppression. Probiotics are nature's smart army corps of engineers. They will help rebuild cellular functions, immune cell function, and help stimulate better immune system responses. Rebuilding our immune system is the absolute requirement for anyone seeking to reverse the effects of diseases related to systemic inflammation and immunosuppression such as asthma. Hundreds of studies have illustrated probiotics' direct affect upon immunosuppression. Here we will show a tiny sampling.

Japanese scientists (Hirose et al. 2006) gave Lactobacillus plantarum strain L- 137 or placebo to 60 healthy men and women, average age 56, for twelve weeks. The probiotic group had increased Con A-induced proliferation (acquired immunity), increases in IL-4 production by CD4+ T-cells, and a more balanced (anti-inflammatory) Th1:Th2 ratios. Researchers from Britain's Scarborough Hospital (McNaught et al. 2005) gave a placebo or Lactobacillus plantarum 299v to 103 critically ill patients along with conventional therapy. On day 15, the probiotic group had significantly lower serum (anti-inflammatory) IL-6 levels compared to the control group. Researchers from the Department of Immunology at Japan's Juntendo University School of Medicine (Takeda et al. 2006) gave a placebo or Lactobacillus caseiShirota to 9 healthy middle-aged adults and 10 elderly adults daily for three weeks. After three weeks of supplementation, L. casei significantly increased natural killer cell activity (stimulated immunity) among the volunteers, especially among those who had low NK-cell activity before probiotic supplementation.

Researchers from the University of Vienna (Meyer et al. 2007) gave healthy women yogurt with Lactobacillus bulgaricus and Streptococcus thermophilus, with or without Lactobacillus casei. After two weeks, both yogurt groups had significantly increased blood levels of tumor necrosis factor-alpha (TNF by 24% in the regular yogurt group and by 63% in the L. casei yogurt group. They also observed significantly higher levels of cytokines interleukin (IL)- 1beta (by 40%) and interferon gamma (by 108%). In addition, IL-10 decreased during L. casei-enhanced yogurt treatment, but then significantly increased after the yogurt treatment was stopped (by 129%). These are all signs of strengthened immunity. Researchers from Finland's University of Turku (Ouweland et al. 2008) gave a placebo, Bifidobacterium longum, or Bifidobacterium lactis Bb-12 to 55 institutionalized elderly subjects for 6 months. The probiotic groups showed modulated pro-inflammatory cytokine TNF-alpha and cytokine IL-10 levels compared with the placebo group.

Selenium

A considerable amount of research has illustrated that selenium deficiencies are common among asthmatics. While this fact seems simple enough to comprehend, as many diets are lacking in selenium, it should be noted that selenium deficiency is dramatically more common among asthmatics than the general population. Additionally, asthmatics only make up a small segment of

the population, so while dietary deficiency among asthmatics is certainly a possibility, there is reason to believe that more is taking place than a simple selenium deficiency.

Before we break down the issue further, let's look at some of the science that confirms that asthmatics deal with an extraordinary level of selenium deficiency: In one of the early studies that established this link, researchers from Stockholm's Karolinska Institute (Hasselmark et al. 1993) confirmed that asthma is linked with selenium deficiency, along with reduced levels of the selenium-dependent liver enzyme, glutathione peroxidase. They then gave 24 intrinsic asthma patients either placebo or 100 micrograms of sodium selenite per day for two weeks. The selenium group had higher glutathione levels and activity, and their asthma significantly improved as compared with the placebo group.

In another study, 20 asthma patients were given 200 micrograms of organic selenium per day for 16 weeks. The researchers (Voitsekhovskaia et al. 2007) observed that symptoms of asthma and oxidative stress among the patients significantly decreased. The researchers also found that forced expiratory volumes and forced volume capacities following selenium treatment substantially increased. Quality of life scores also increased substantially.

Researchers from Slovakia's Institute of Preventive and Clinical Medicine (Gazdik et al. 2002) tested 17 corticoid-dependent asthmatic adults with 200 micrograms of selenium per day. They found that pro-inflammatory eosinophils decreased significantly, lymphocyte proliferation (sign of inflammation) significantly decreased, and IgE levels were significantly lower after 12, 24, 72 and/or 96 weeks of selenium dosing. Overall inflammation was also lower among the selenium-dosed patients. Researchers from Slovakia's Institute of Preventive and Clinical Medicine (Jahnova et al. 2002) also gave 20 asthmatic adults either a placebo or 200 micrograms of selenium per day for six months, in addition to inhaled corticosteroids and beta agonists. They found that the selenium blocked IFNgamma adhesion molecules, reducing inflammation.

The Tryptophan Defect

As another example of the potential for pharmaceuticals to stimulate systemic inflammation, many children with asthma have illustrated a defect in the availability of tryptophan. Tryptophan is an amino acid critical for a number of processes in the body. If tryptophan is not properly metabolized, it can remain in the body at unhealthy high levels. This can be evidenced by extraordinary high levels of xanthurenic and knurenic acid in the urine. One of the problems with high levels of tryptophan is that tryptophan is the precursor of serotonin. Thus, high tryptophan levels produce high levels of serotonin. And high serotonin levels can cause over-contraction among the smooth muscles of the airways producing wheezing.

Dehydration

The fact that dehydration (lack of sufficient fluid intake) can contribute to airway constriction and hypersensitivity has been confirmed by research. For example, after a significant review of multiple studies, the conclusion of scientists from Germany's Research Institute of Child Nutrition (Manz 2007) concluded that asthma is specifically associated with dehydration. The mucosal membranes are made primarily of water. In a dehydrated state, our mucosal membranes thin. It is for this reason

that other research has found that many ulcerated conditions can be cured simply by drinking adequate water (Batmanghelidj 1997).

Water is directly involved in inflammatory metabolism. Research has revealed that increased levels of inflammatory mediators such as histamine are released during periods of dehydration in order to help balance fluid levels within the bloodstream, tissues, kidneys and other organs. Our airways are also bathed in water. Inadequate water intake will dehydrate the airways. This produces irritation and hypersensitivity.

Research by Dr. Batmanghelidj (1987; 1990) led to the realization that the blood becomes more concentrated during dehydration. As this concentrated blood enters the capillaries of the respiratory system, histamine is released in an attempt to balance the blood dilution. This stimulates a tightening of the smooth muscles, and constricted airways. The immune system is also irrevocably aligned with the body's water availability. The immune system utilizes water to produce lymph fluid. Lymph fluid circulates immune cells throughout the body, enabling them to target specific intruders. The lymph is also used to escort toxins out of the body. Intracellular and intercellular fluids are necessary for the removal of nearly all toxins and pretty much every metabolic function of every cell, every organ and every tissue system.

Water also increases the availability of oxygen to cells. Water balances the level of free radicals. Water flushes and replenishes the digestive tract. Thus, water is necessary for the proper digestion of food, as well as nutrition utilization. The gastric cells of the stomach and the intestinal wall cells require water for proper digestive function. The health of every cell depends upon water. There is certainly reason to believe that dehydration is a key contributing cause for asthmatic hypersensitivity.

Sun Exposure/Vitamin D

Multiple studies have found that asthma and allergies are significantly greater among regions further from the equator and those with less sunlight exposure. In both Europe and the U.S. with the exception of urban areas with greater air pollution—those living in Southern regions have shown significantly lower incidence of asthma and allergies along with fewer hospital visits. Remember that the sun is our best source for vitamin D.

Researchers from the Massachusetts General Hospital in Cambridge (Camargo et al. 2011) tested the cord blood of 922 newborn babies for vitamin D levels. They found that infants who developed a history of wheezing at 15 months and a diagnosis of asthma by five years old were more likely to have suffered deficiencies in vitamin D. Incidence also increased with lower vitamin D levels. Researchers from the Children's Hospital Boston (Rudders et al. 2010) studied anaphylaxis emergency room visits throughout the United States. They found that those living in Southern regions had significantly lower incidence of anaphylaxis and far fewer hospital visits. The Northeast region had 5.5 visits per thousand, while the South had 4.9 visits per thousand. The researchers concluded that: "These observational data are consistent with the hypothesis that vitamin D may play an etiologic role in anaphylaxis."

Food allergies also appear to be related to the sun. In a study from Australia's Monash Medical School (Woods et al. 2001) food allergy rates were higher among Northern European countries than among Southern European countries. Researchers from Finland's University of Helsinki (Erkkola et

al. 2009) studied the relationship between supplemental vitamin D during pregnancy and the occurrence of asthma and allergic rhinitis in the child. Their study followed 1,669 mothers and children for five years. They determined that the average vitamin D intake of the whole group was 5.1 micrograms from food and 1.4 micrograms from supplements. They found that increased vitamin D intake from foods significantly reduced asthma occurrence among the children.

Medical researchers from Japan's Fukuoka University (Miyake et al. 2010) studied 763 Japanese mother-child teams for associations between diet and wheeze through the age of 16-24 months. They found that vitamin D supplementation during pregnancy significantly reduced the occurrence of wheeze among the children. Scientists from the Childhood Asthma Management Program multicenter research project (Brehm et al. 2010) studied the relationship between asthma episodes and serum vitamin D levels among 1,041 children a third of which were minorities. They found that 35% of all the asthmatic children were vitamin D deficient. They also found that the deficiency in vitamin D was linked to more severe asthma episodes including emergency visits and hospitalizations.

Researchers from the Emergency Medicine Network and Massachusetts General Hospital (Ginde et al. 2009) confirmed in their research that vitamin D deficiency is linked to respiratory tract infections. They conducted an analysis of the Third National Health and the Nutrition Examination Survey, a survey sponsored by the U.S. Centers for Disease Control. Levels of 25-hydroxyvitamin D were examined in 18,883 participants 12 years and older. After adjusting for demographics, season issues, body mass index, smoking history, asthma, and chronic obstructive pulmonary disease relationships, they found that vitamin D deficiency was associated with greater incidence of upper respiratory infections.

The researchers also found that vitamin D levels were generally lower amongst minorities. This relates to the fact that darker skin pigmentation contains more melanin. Because melanin blocks UV from the sun, higher skin melanin levels require more sun for vitamin D production than lighter skin colors. It is also interesting to note, as we documented earlier, that both minorities and low socioeconomic status also have higher rates of asthma. Viral infections are often contracted during the wintertime. This is also when the body's vitamin D production from sunlight is lowest.

Contracting asthma has been linked to viral infections as we've shown. It is also linked to immunosuppression. Vitamin D induces cathelicidin production (Grant 2008). Cathelicidins are proteins found within the lysosomes of macrophages and polymorphonuclear cells (PMNs). These immune cells are intensely antiviral and antibacterial in nature. They are also stimulated and regulated by vitamin D within the body. Additional effects and mechanisms of sunlight and vitamin D are discussed in the author's book, *Healthy Sun*.

Lack of Exercise

A plethora of research has shown that sedentary lifestyles dramatically increase the risk of asthma, and asthma is highest among those who do not exercise regularly. Let's look at some of the research supporting these conclusions:

Researchers from the Medical College of Wisconsin and the Children's Hospital of Wisconsin (Weisgerber et al. 2008) tested moderate-to-vigorous exercise among asthmatic children from

Milwaukee's highest asthma zip codes. A total of 45 children either vigorously swam or played golf. During the program, only six asthma episodes (which were immediately resolved) resulted, and that was out of 1,125 person-sessions of swimming and golf. After the program, asthma severity decreased substantially, urgent care asthma visits decreased, and quality of life significantly increased among the children and their parents.

Researchers from Connecticut's Yale-Griffin Prevention Research Center (Katz et al. 2010) studied children from five schools in Independence, Missouri. Three schools were given "Activity Bursts in the Classroom" (ABC) training, while two similar schools provided control groups. Classroom teachers led their children in multiple, brief, yet structured physical activity breaks throughout the day. The study found that the ABC training reduced asthma medication requirements for those children who were on asthma medication.

Researchers from the Center for Child and Adolescent Health Policy (Oreskovic et al. 2009) found in a cross-sectional study of 176 asthmatic children that few asthmatic children walk or bike to school. The rate was only 16%. They suggested that this was a contributing factor to their asthma. University of São Paulo School of Medicine (Mendes et al. 2010) tested 101 asthma patients. They were either randomly assigned to an aerobic training group or a control group that conducted breathing exercises. The 51-patient control group was tested twice a week for three months. Levels of anxiety reduced and quality of life factors increased significantly more among the aerobic training group. The aerobic group also had a greater number of asthma-free days with better control overall. Russian researchers (Kuz'mina and Vavilova 2009) treated overweight patients with bronchial asthma with graduated physical exercise and kinesiology therapy using ergo training devices during physical therapy. Remedial gymnastics were also applied with increasing tolerance to increase respiratory capacity. The treatment promoted metabolic balance and increased quality of life among the patients.

Researchers from the Taipei Medical University (Wang and Hung 2009) studied the benefits of swimming on asthmatic children. They assigned half of 30 young asthmatics to six weeks of swimming training. After the six weeks, the swimmers had average peak expiration flows of 330 liters per minute versus 252 L/min for the non-swimming group. Symptom severity was also significantly better amongst the swimming group.

Medical researchers from Portugal's University of Porto (Moreira et al. 2008) conducted a three month physical training program on asthmatic children. The exercise training program was found to significantly reduce allergic IgE levels; and mite-specific IgEs decreased significantly. Researchers from Finland's Kainuu Central Hospital (Juvonen et al. 2008) studied the health of 892 young military men, which included 224 asthmatics and 668 healthy recruits between 2004 and 2005. They found that when the recruits entered the military, 70% of the asthmatics had frequent exercise induced asthmatic episodes, and 76% had cold-air related asthmatic episodes. The asthmatics also had high levels of C-reactive protein (CRP), indicating systemic inflammation. The asthmatic recruits also experienced twice as many respiratory infections each month. However, after 180 to 362 days of military training, the asthmatics had 12% higher scores on twelve-minute running, reduced CRP levels and fewer respiratory infections.

Anxiety, Stress and Depression

Mood and stress factors are super critical to immune function. They are also associated with our

breathing technique, the condition of our smooth muscles around the airways, and the health of our mucous membranes. Many physicians and asthma clinicians have documented that some severe asthmatics suffer from depressive states and anxiety; and react more negatively to stressful situations. Researchers from Italy's University of Milan (Di Marco et al. 2011) found that multiple studies have successfully determined a correlation between asthma and anxiety, and asthma and depression. They illustrated that there is a physiological basis for the interaction between mood, stress and the asthmatic reflex. They found that stress in the home and among family members can induce "hyporesponsiveness of the hypothalamus-pituitary-adrenal axis." This means a reduction in combined response from the hypothalamus, pituitary gland and adrenals, equating to a depressed stress response and a subsequent reduced production of adrenal substances such as adrenaline and cortisol. The researchers found that higher levels of stress, anxiety and depression can result in reductions of cortisol production, contributing to increased inflammation.

Researchers from the Department of Medical Sciences of Sweden's Uppsala University (Leander et al. 2009) followed 290 subjects. They found that those who developed asthma had a greater incidence of sleep disturbances (30% versus 10%), depression (40% versus 20%) and difficulty relaxing (40% versus 13%) compared to those who were asthma-free. Those who contracted asthma also had significantly lower levels of energy, appetite and sleep than those without asthma. Asthma sufferers also had less patience, less memory, lower fitness levels and less appreciation than those without asthma.

These issues indicate the more emotional and lifestyle issues related to asthma. Yes, asthmatics have higher levels of depression and anxiety. They also get less sleep. Are these related? Yes. Sleep deficiencies have been linked with mood disorders in numerous studies over the past five decades of sleep research. Furthermore, depression and anxiety have been specifically linked to a lack of REM-stage sleep (refer to the author's book, *Natural Sleep: Solutions for Insomnia* for references and further discussion).

We must remember one important characteristic of asthma as pointed out in the first chapter: asthma is not a disease. Rather, it is a symptom of a condition of systemic inflammation throughout the body, combined with defects among the mucosal membranes of the airways. There are many possible toxins and pathogens as well as lifestyle factors that weaken our immune system that contribute to this status of systemic inflammation.

While focusing on removing asthma triggers may relieve the immune system of some of this burden, it does not remove these underlying causes of asthmatic hypersensitivity. As was pointed out by the father of modern medicine, Hippocrates, it is only when we find and remove the underlying causes of a condition that we can embark on an effective mission to determine those strategies that reverse the condition. Now that we've determined the underlying causes for asthma, let's take the next step.

Dietary Strategies

Before we delve too deep into this subject, let's reflect on some of the research regarding dietary measures. As illustrated, significant research has shown that diets rich in fruits and vegetables lower the risk of asthma, and reduce the incidence of asthma. Can dietary changes help control asthma? Yes. The research has confirmed that diets rich in fruit and vegetables do indeed help control asthma.

Remember Lindahl et al (1985). This research followed 35 asthma patients who had had asthma for an average of 12 years. They were consistently taking asthma medication. The patients then switched to a vegan diet for one year. After four months on the vegan diet, 71% had a significant improvement in symptoms. After one year on the vegan diet, 92% were significantly improved. Lung function increased. Vital capacity, forced expiratory volume (FEV1) levels all improved. Blood tests also showed dramatic improvements.

Dr. Raja Jabar, M.D. from the State University of New York Hospital and Medical Center reviewed this and other asthma research regarding the role of diet and asthma. He confirmed that diet has a significant effect upon asthma. Dr. Jabar concluded: “Patients with asthma and allergic rhinitis may benefit from hydration and a diet low in sodium, omega-6 fatty acids, and trans fatty acids, but high in omega-3 fatty acids, onions, and fruits and vegetables (at least five servings a day).”

Let’s discuss the essentials of a wholesome diet. Diets high in fruits and vegetables:

- increase antioxidant levels
- increase detoxification
- lower the burden on the body’s immune system
- provide a host of bioavailable nutrients
- provide fiber, reducing LDL lipid peroxidation
- feed our probiotic colonies
- increase the strength of the liver
- alkalize and help purify the blood
- provide the body with trace and macro minerals
- lower inflammation

All of these effects work together to reduce and even reverse asthmatic hypersensitivity, as was evidenced in the study above and the studies we laid out in the previous chapter. Note that a serving is actually quite small. An apple is a typical serving. A cup of broccoli is a serving. Given this, it is pretty easy to eat five servings of fruits and vegetables per day.

Whole Food Antioxidants

A plethora of research has confirmed that damage from free radicals is implicated in many health conditions, including asthmatic hypersensitivity. Free radicals damage cells, cell membranes, organs, blood vessel walls and airways producing asthma-causing systemic inflammation as the immune system responds to an overload of tissue damaging radicals. Free radicals are produced by toxins, pathogens, trans fats, fried foods, red meats, radiation, pollution and various chemicals that destabilize within the body. Free radicals are molecules or ions that require stabilization. They reach stabilization by ‘stealing’ atoms from the cells or tissues of our body. This in turn destabilizes those cells and tissues producing damage.

Antioxidants serve to stabilize free radicals before our cells and tissues are robbed by donating their own atoms. A diet with plenty of fruits and vegetables supplies numerous antioxidants. Although antioxidants cannot be considered treatments for any disease, many studies have proved that increased antioxidant intake supports immune function and detoxification. These effects allow the

immune system to respond with greater tolerance. Antioxidant constituents in plant-based foods are known to significantly repeal free radicals, strengthen the immune system and help detoxify the system.

These include lecithin and octacosanol from whole grains; polyphenols and sterols from vegetables; lycopene from tomatoes and watermelons; quercetin and sulfur/allicin from garlic, onions and peppers; pectin and rutin from apples and other fruits; phytocyanidin flavonoids such as apigenin and luteolin from various greenfoods; and anthocyanins from various fruits and oats.

Foods that are particularly detoxifying and immunity-building include fresh pineapples, beets, cucumbers, apricots, apples, almonds, zucchini, artichokes, avocados, bananas, beans, collard greens, berries, casaba, celery, coconuts, cranberries, watercress, dandelion greens, grapes, raw honey, corn, kale, citrus fruits, watermelon, lettuce, mangoes, mushrooms, oats, broccoli, okra, onions, papayas, parsley, peas, whole grains, radishes, raisins, spinach, tomatoes, walnuts, and many others.

These plant-based foods are also our primary source of soluble and insoluble fiber. Diets with significant fiber help clear the blood and tissues of toxins, and lipid peroxidation friendly LDL cholesterol. Fiber is also critical to a healthy digestive tract and intestinal barrier. Fiber in the diet should range from about 35 to 45 grams per day according to the recommendations of many diet experts. Six to ten servings of raw fruits and vegetables per day should accomplish this which is even part of the USDA's recommendations. This means raw, fibrous foods should be present at every meal.

Good fibrous plant sources also contain healthy lignans and phytoestrogens that help balance hormone levels, and help the body make its own natural corticoids. Foods that contain these include peas, garbanzo beans, soybeans, kidney beans and lentils. Plant-based foods provide these immune stimulating factors because these vary same factors make up the plants' own immune systems. For example, the red, blue and green flavonoid pigments in plants and fruits help protect the plant from oxidative damage from radiation. The proanthocyanidins in grains like oats, for example, help protect the oat plant from crown rust caused by the *Pucciniacoronata* fungus. So the same biochemicals that stimulate immunity in humans are part of plants' immune systems.

These same whole food phytonutrients also neutralize oxidative radicals in our bodies the reason they are called antioxidants. How do we know this? Scientists can measure the ability of a particular food to neutralize free radicals with specific laboratory testing. One such test is called the Oxygen Radical Absorbance Capacity Test (ORAC). This technical laboratory study is performed by a number of scientific organizations that include the USDA, as well as specialized labs such as Brunswick Laboratories in Massachusetts.

Research from the USDA's Jean Mayer Human Nutrition Research Center on Aging at Tufts University has suggested that a diet high in ORAC value may protect blood vessels and tissues from free radical damage that can result in inflammation (Sofic et al. 2001; Cao et al. 1998). These tissues, of course, include the airways. Research has confirmed that consuming 3,000 to 5,000 ORAC units per day can have protective benefits.

ORAC Values (100 grams) of Selected (raw) Fruits (USDA, 2007-2008)

Cranberry 9,382

Plum 7,581
Blueberry 6,552
Blackberry 5,347
Raspberry 4,882
Apple (Granny) 3,898
Strawberry 3,577
Cherry (sweet) 3,365
Gooseberry 3,277
Pear 2,941
Pomegranate 2,860
Orange 1,819
Tangerine 1,620
Grape (red) 1,260
Mango 1,002
Kiwi 882
Banana 879
Tomato (plum) 389
Pineapple 385
Watermelon 142

The Alkaline Diet

This discussion of nutrients should also include the reflective effects of a healthy diet: The proper acid-alkaline balance among the blood, urine and intercellular tissue regions. The reference to acidic or alkaline body fluids and tissues has been made by numerous natural health experts over the years. Is there any scientific validity to this? Many nutritionists condemn an acidic metabolism and loosely call appropriate metabolism as a state of alkalinity. Strictly speaking, however, an alkaline environment is not healthy. The blood, interstitial fluids, lymph and urine should be slightly acidic to maintain the appropriate mineral ion balance.

Let's dig into the science. Acidity or alkalinity is measured using a logarithmic scale called pH. The term pH is derived from the French word *pouvoirhydrogene*, which means 'hydrogen power' or 'hydrogen potential.' pH is quantified by an inverse log base 10 scale. It measures the proton-donor level of a solution by comparing it to a theoretical quantity of hydrogen ions (H^+) or H_3O^+ .

The scale is pH 1 to pH 14, which converts to a range of 10^{-1} (1) to 10^{-14} (.00000000000001) moles of hydrogen ions. This means that a pH of 14 maintains fewer hydrogen ions. It is thus less acidic and more alkaline (or basic). The pH scale has been set up around the fact that water's pH is log-7 or simply pH 7 due to water's natural mineral content. Because pure water forms the basis for so many of life's activities, and because water neutralizes and dilutes so many reactions, water was established as the standard reference point or neutral point between what is considered an acid or a base solution. In other words, a substance having greater hydrogen ion potential (but lower pH) than water will be considered acidic, while a substance with less H^+ potential (higher pH) than water is considered a base (alkaline).

Now the solution with a certain pH may not specifically maintain that many hydrogen ions. But it has the same potential as if it contained those hydrogen ions. That is why pH is hydrogen power or hydrogen potential. In human blood, a pH level in the range of about 6.4 is considered healthy

because this state is slightly more acidic than water, enabling the bodily fluids to maintain and transport minerals. It enables the potential for minerals to be carried by the blood, in other words. Minerals are critical to every cell, every organ, every tissue and every enzyme process occurring within the body. Better put, a 6.4 pH offers the appropriate currency of the body's fluids: This discourages acidosis and toxemia, maintaining a slight mineralized status.

Acidosis is produced with greater levels of carbonic acids, lactic acids, and/or uric acids among the joints and tissues. These acids are readily oxidizing, which produces free radicals. However, an overly alkaline state can precipitate waste products from cells, which also floods the system with radicals. For this reason, toxemia results from either an overly acidic blood-tissue content or an overly alkaline blood-tissue content. In other words, pH balance is the key. Ions from minerals like potassium, calcium, magnesium and others are usually positively oriented with alkaline potential. But to be carried through a solution, the solution must have the pH potential to carry them. Besides being critical to enzymatic reactions, these minerals bond with lipids and proteins to form the structures of our cells, organs and tissues including our airways, nerves and mucosal membranes.

Natural health experts over the past century have observed among their patients and in clinical research that an overly acidic environment within the body is created by a diet abundant in refined sugars, processed foods, chemical toxins and amino acid-heavy animal foods. More recently, research has connected this acidic state to toxemia. The toxemia state is a state of free radical proliferation, which damages cells and tissues. It is also a state that produces systemic inflammation, because the immune system is over-worked as it tries to remove the cell and tissue damage. As mentioned earlier, animals accumulate toxins within their fat tissues. They are bioaccumulators.

Thus, animals exposed to the typical environmental toxins of smog and chemical pollutants in their waters and air along with pesticides and herbicides from their foods will accumulate those toxins within their fat cells and livers. And those who eat those animals will inherit (and further accumulate) these accumulated toxins. In addition, animals secrete significant waste matter as they are being slaughtered. Plants are not bioaccumulators. While they can accumulate some pesticides and herbicide chemicals within their leaves and roots, they do not readily absorb or hold these for long periods within their cells. This is because many environmental toxins are, as mentioned, fat soluble. Because plants have little or no fat, they can more easily systemically rid their tissues of many of these toxins over time.

Further, as the research has shown, a diet heavy in complex proteins which contain far more amino acids than our bodies require increases the risk and severity of asthmatic hypersensitivity. Amino acids are the building blocks of protein. A complex protein can have tens of thousands of amino acids. While proteins and aminos are healthy, a diet too rich in them will produce deposits in our joints and tissues, burdening our immune system.

As we discussed in the last chapter, research also reveals that diets rich in red meats discourage the colonization of our probiotics, and encourage the growth of pathogenic microorganisms that release endotoxins that clog our metabolism and overload our immune system. Diets rich in red meats also produce byproducts such as phytanic acid and beta-glucuronidase that can damage our intestinal cells and mucosal membranes within the intestines.

Greater levels of cooked saturated fats also raise cholesterol levels, especially lipid peroxidation-prone low-density lipoproteins (LDL). The complexities of digesting complex proteins produce increased levels of beta glucuronidase, nitroreductase, azoreductase, steroid 7 alphahydroxylase,

ammonia, urease, cholyglycine hydrolase, phytanic acid and others. These toxic enzymes deter our probiotics and produce systemic inflammation. Not surprisingly, they've been linked to colon cancer.

By contrast, plant-based foods contain many antioxidants, anti-carcinogens and other nutrients that strengthen the immune system and balance the body's pH. Plant-based foods also discourage inflammatory responses. Plant-based foods feed our probiotics with complex polysaccharides called prebiotics. They are also a source of fiber (there is little fiber in red meat) critical for intestinal health. Nutrition researchers from Portugal's University of Porto (Barros et al. 2008) studied the diets and asthma severity among 174 asthmatic adults. They used symptoms, lung function and exhaled nitric oxide to gauge asthma severity and control among the patients. After eliminating factors related to medications, age, sex, education and other factors; they found that those whose asthma was controlled had a 23% higher a MED Score (a diet score denoting higher intake of fruits, vegetables, fiber and healthy oils) and drank less alcohol compared to more severe asthmatics. They also found that significant adherence to the Mediterranean diet reduced the risk of uncontrolled asthmatic episodes by 78%. They concluded: "High adherence to traditional Mediterranean diet increased the likelihood of asthma to be under control in adults." The Mediterranean diet does not completely eliminate meat, but it is focused on more plant based foods, healthier oils and less red meat.

However we configure our diet, there are choices we can make at every meal. The research shows that the greater our diet trends toward the Mediterranean diet, the lower our toxic load will be and the stronger our immunity will be. This will allow us to better combat and eventually lower systemic inflammation. This also not a condemnation of dairy, milk is a great food, assuming it contains what nature intended: probiotics. Real milk is inseparable from probiotics, and when probiotics are killed off by pasteurization, milk becomes a dubious food. We'll talk about this more later.

Fat Strategies

The types of fats we eat relate directly to food sensitivities because some fats are pro-inflammatory while others are anti-inflammatory. This doesn't mean that the pro-inflammatory fats are necessarily bad. Rather, we must have a balance of fats between the pro- and anti-inflammatory ones, with the balance trending towards the anti-inflammatory side. The fat balance of our diet is also important because our cell membranes are made of different lipids and lipid-derivatives like phospholipids and glycolipids. An imbalanced fat diet therefore can lead to weak cell membranes, which leads to cells less protected and more prone to damage by oxidative radicals and increased intestinal permeability.

Illustrating this, Danish researchers (Willemssen et al. 2008) tested the intestinal permeability/barrier integrity of incubated human intestinal epithelial cells with different dietary fats. (Remember the relationship between intestinal permeability and asthma verified by research given in the last chapter). The different fats included individual omega-6 oils linolenic acid (LA), gamma linolenic acid (GLA), DGLA, arachidonic acid (ARA); a blend of omega-3 oils alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), docohexaenoic acid (DHA); and a blend of fats similar to the composition of human breast milk fat. The researchers found that the DGLA, ARA, EPA, DHA and GLA oils reduced interleukin-4 mediated intestinal permeability. LA and ALA did not. The blend with omega-3 oils, "effectively supported barrier function," according to the researchers. They also concluded that DGLA, ARA, EPA and DHA all long chain polyunsaturated fats—were "particularly

effective in supporting barrier integrity by improving resistance and reducing IL-4 mediated permeability.”

Healthy Cooking

While raw whole foods are often more wholesome to the body, some foods must be cooked to make them more digestible. These include most grains, beans, and some vegetables. Our section on Chinese medicine earlier illustrated that some herbs also require cooking to eliminate certain toxins. The question is: how much cooking and processing do we need to do to our foods? How much cooking is necessary?

Foods such as beets, asparagus, broccoli, rhubarb, squash and many others are delicious and nutritious after being steamed or lightly boiled in clean water. Other plant foods are best eaten raw. These include lettuce, cucumbers, avocado, onions and many others. Because the nutrients in these foods are not so tightly bound within the cell walls of the plants, they can be destroyed by the heat and/or easily separated during cooking. While the cell walls of plants do contain nutrients, they must be broken down during mastication and digestion. Some cell walls are tougher than others are, and require cooking or processing to break their cell walls. Chlorella a blue-green algae is a good example. Many nutrients in chlorella are bound within tightly-packed cell walls, so chlorella is more nutritious when the cell walls have been broken prior to ingestion.

A healthy diet strikes a balance between raw and cooked foods. A perfect way to accomplish this is a dinner that includes a salad topped with seeds, yogurt, olive oil and apple cider vinegar; and an entrée of cooked grains and/or beans with a nice sauce spiced with antioxidant herbs. Breakfast and lunch can include fresh fruit, nuts, raw cheese and fermented dairy; with lightly cooked grains such as oats and barley. Snacks can go raw with apples, nuts, raisins and seeds for sustained, slow-digesting energy and essential fats. A plant-based food diet can be extremely creative and varied. It can also be extremely colorful and exotic. This is because there are so many different foods and spices to choose from. A flip through a Mediterranean diet cookbook will confirm this immediately.

Note also that eating or drinking extremely cold foods is not advisable for asthmatic hypersensitivity. This means that water and drinks are better at room temperature or slightly cool but never with ice. This also means that ice cream, snow cones, frozen yogurts and other such “foods” should be avoided (not to mention their grotesque refined sugar levels).

Supplements

Choline:

Choline is a B vitamin that has in some research, shown to help reduce asthma episode severity and frequency. High doses tested have been in the range of three grams per day.

Magnesium

We discuss magnesium in a separate section later that includes other minerals. Magnesium supplements have been shown in some research to specifically benefit asthma. Other research has shown intravenous magnesium to be effective for asthma episode emergency treatment.

Omega 3 fatty acids

We illustrated the full breadth of fatty acid foods previously. It is important to have a balance of fatty acids, rather than to just eat a poor fatty food diet and then simply add a DHA or ALA supplement on top. Note that one study found fish oil may not be good for aspirin-induced asthma. Algae-sourced DHA supplements provide an effective way to supply mercury-free and pollution-free DHA.

Quercetin

We also discussed quercetin foods previously. Quercetin supplements may be appropriate if the diet is lacking in plant-based foods. As mentioned earlier, this flavonoid inhibits histamine and leukotrienes inflammatory mediators in the body.

Selenium

Research has suggested that many asthmatics tend to be deficient in selenium, as we discussed in detail in Chapter Four. Selenium supplements can help reduce asthma symptoms as well. While selenium supplements might offer generous amounts, one brazil nut will supply about 120 micrograms of selenium. This is 170% of the recommended daily value.

Vitamin C

Vitamin C is considered by researchers as one of the “first line of defense” antioxidants, because it is readily available to neutralize free radicals at mucosal membranes and tissue fluids. A number of studies have shown that vitamin C can lower wheezing incidence and asthma episodes. Exercise induced asthma seems to be significantly benefited by vitamin C supplementation prior to exercise, according to some of the research. Vitamin C supplement doses typically range from one to three grams per day. As mentioned, chelated versions and versions with bioflavonoids help the potency of vitamin C. Some health researchers have also noted that vitamin C and quercetin tend to work well together. This is why apples and onions are so healthy. While fruits and many vegetables offer readily-assimilable doses of vitamin C with bioflavonoids, vitamin C drink powders with chelated ascorbates also provide a good way to supplement extra vitamin C.

Coenzyme Q10 (CoQ10)

Many health proponents swear by CoQ10, but there is little research to confirm that CoQ10 can reduce asthma. Furthermore, many plant foods and other foods contain CoQ10. CoQ10 stimulates mitochondria activities, which can help support immunity.

Lycopene

This phytonutrient, usually isolated from tomatoes, has been shown in some research to reduce asthma episodes. Beta-carotene and other Carotenoids: These vitamin A precursors are essential antioxidants often lacking in many diets. Some research has shown that carotenoids can prevent exercise-induced asthma.

Vitamin E

Vitamin E supplementation has been shown to help prevent cardiovascular and respiratory diseases. A few studies have shown inconclusive findings, however. One note to make about this is that there are several types of tocopherols and tocotrienols, and many vitamin E supplements are limited to one or two types. Subsequent study has shown that combinations of multiple tocopherols and tocotrienols have significant benefit. This means combinations of tocopherols and tocotrienols obtained from whole foods (grains and palms have high levels) or their derived supplements. The bottom line is that the E vitamins are essential antioxidants that help prevent lipid peroxidation as discussed earlier.

Vitamin B6

We discussed this nutrient earlier. As the body deals with toxins and medications such as theophylline deficiencies may develop. This is because this and most other B vitamins donate methyl groups, used to neutralize and chemicals and radicals in the bloodstream.

Vitamin B12

This is another important methyl donor. B12 is also important to the health of the nerves, so deficiencies can increase nerve issues in addition to increased hypersensitivity. For people with intrinsic factor problems, the assimilation of B vitamins may be difficult. For this reason, the injection of B vitamins has been shown to help improve asthmatic hypersensitivity. However, we should note that sublingual B vitamins have been shown to be readily assimilated in the same manner injections are. They are also less expensive and painful to administer. There are several good sublingual B vitamin supplements available.

Magnesium, Sulfur, Zinc and Other Minerals

Magnesium deficiency has been found to be at the root of a number of conditions, especially those related to anxiety, spasms and muscle cramping. Not surprisingly, asthmatic hypersensitivity can be

significantly reduced with magnesium supplementation. Magnesium, along with calcium, is critical for smooth muscle tone and nerve conduction. Magnesium is part of the calcium ion channel system. Magnesium regulates calcium infusion into the nerves, which helps keep them stabilized and balanced. This is why magnesium deficiencies within the calcium ion channel system causes overstrain among muscles. This translates to spasms, cramping and muscle fatigue. If magnesium levels are low, the ion channels will be unstable, stimulating nerve hyperactivity. This nerve hyperactivity can cause smooth muscles to over contract. This is critical to asthma sufferers because the airway constriction is contributed by the over-contraction of the smooth muscles surrounding the airways.

Magnesium is also a critical element used by the immune system. A body deficient in magnesium will likely be immunosuppressed. Animal studies have illustrated that magnesium deficiency leads to increased IgE counts, and increased levels of inflammation specific cytokines. Magnesium deficiency is also associated with increased degranulation among mast/basophil/neutrophil cells, which stimulates the allergic response. The science confirms this.

Researchers from Bastyr University (Kazaks et al. 2010) gave 340 milligrams a day of magnesium or a placebo to 55 adult asthma patients for 6-½ months. They found that one minute forced expiratory volume (FEV1) tests significantly increased among the magnesium group. They also found that peak expiratory flow rates also increased, and the magnesium group significantly improved in their quality of life and asthma control questionnaire scores. Researchers from Britain's City Hospital in Nottingham (Hill et al. 1997) gave placebo or 400 milligrams of magnesium per day to 17 asthmatic patients for one week. They found that the magnesium supplemented group had improved symptom scores. The researchers also noted that epidemiological evidence indicates that low magnesium intakes are associated with lung hyperreactivity, wheezing, and reduced lung function.

Dr. Jabar from the State University of New York Hospital and Medical Center, notes the blood magnesium levels can help determine if magnesium supplements can help. Magnesium levels among red blood cells indicate whether magnesium will likely have any effects. This was illustrated in research from Taiwan's Hungkuang University (Wang et al. 2007) that studied 2,386 children. They found that lower magnesium intake was not associated with asthma incidence. However, the average daily magnesium intake among these children ranged from 123-135% of the Taiwanese Dietary Reference Intakes. This indicates that magnesium deficiency must exist in order for magnesium supplementation to help.

It is no surprise that magnesium has also been shown to benefit anxiety, as it helps balance nerve firing. Magnesium has also been shown to have antiasthmatic effects when combined with dosing with larger (one gram or more) doses of vitamin C. Foods high in magnesium include soybeans, kidney beans, lima beans, bananas, broccoli, Brussels sprouts, carrots, cauliflower, celery, cherries, corn, dates, bran, blackberries, green beans, pumpkin seeds, spinach, chard, tofu, sunflower seeds, sesame seeds, black beans and navy beans, mineral water and beets.

Calcium is also critical for the functioning of nerves and muscles. Every cell utilizes calcium, evidenced by calcium ion channels present in every cell membrane. Therefore, calcium is necessary for healthy lungs and airways. Thus, calcium deficiency results in more than bone problems. Muscle cramping and airway constriction are also side effects of calcium deficiency. Low calcium levels also result in deranged nerve firing, which can produce anxiety and depression. Supplementing calcium should also be accompanied by magnesium supplementing. For example, a supplement with

1,000 mg of calcium can be balanced by 600 mg of magnesium along with trace minerals. Good calcium foods include dairy, bokchoy, collards, okra, soy, beans, broccoli, kale, mustard greens and others. Zinc is another important mineral for an asthmatic condition.

Researchers from Italy's INRAN National Research Institute on Food and Nutrition (Devirgiliis et al. 2007) have investigated the relationship between zinc and chronic diseases including asthma. Their research determined that an "imbalance in zinc homeostasis" can impair protein synthesis, cell membrane transport and gene expression. These factors, they explained, stimulate imbalances among hormones and tissue systems, producing inappropriate hyperresponsiveness.

Researchers from Australia's University of Adelaide (Lang et al. 2011) found that poor zinc nutrition is associated with lung disorders. They also found that low zinc is linked to a loss of appetite. This of course relates to mucosal membrane health. They found that smoke exposure increased bronchial inflammation, and dietary zinc reduced lung inflammatory macrophages by 50-60%. They concluded that: "Zinc is an important anti-inflammatory mediator of airway inflammation." As zinc ions pass through the cell membrane, they assist the cell in the uptake of nutrients. Zinc transporters interact with genes to regulate the transmission of nutrients within the cell, and the pathways in and out of the cell. Zinc concentration within the cell is balanced by proteins called metallothioneins.

These proteins require copper and selenium in addition to zinc. Metallothioneins are critical to the cell's ability to scavenge various radicals and heavy metals that can damage the cells. Deficiencies in metallothioneins have been seen among chronic inflammatory conditions such as asthma, as well as fatal diseases such as cancer. Research has also shown that zinc modulates T-cell activities (Hönscheid et al. 2009). Dr. Jabar (2002) commented that, "patients with upper respiratory tract infections can expect a shorter duration of symptoms by taking high doses of vitamin C (2g) with zinc supplements, preferably the nasal zinc gel, at the onset of their symptoms." Good zinc foods include cowpeas, beans, lima beans, milk, brown rice, yogurt, oats, cottage cheese, bran, lentils, wheat and others.

Sulfur

Research has also confirmed that dietary sulfur can significantly relieve allergy symptoms. In a multi-center open label study by researchers from Washington state (Barrager et al. 2002), 55 patients with allergic rhinitis were given 2,600 mg of methylsulfonylmethane (MSM) a significant source of sulfur derived from plants for 30 days. Weekly reviews of the patients reported significant improvements in allergic respiratory symptoms, along with increased energy. Other research has suggested that sulfur blocks the binding of histamine among receptors. Good sources of sulfur include avocado, asparagus, barley, beans, broccoli, cabbage, carob, carrots, Brussels sprouts, chives, coconuts, corn, garlic, leafy green vegetables, leeks, lentils, onions, parsley, peas, radishes, red peppers, soybeans, shallots, Swiss chard and watercress.

Potassium is lowered by theophylline medications and some other asthma medications. Low potassium levels will contribute to imbalances in blood pressure and the kidneys. These issues also relate directly airway constriction. Good potassium foods include bananas, spinach, sunflower seeds, tomatoes, pomegranates, turnips, lima beans, navy beans, squash, broccoli and others. Trace minerals: These should not be ignored in this discussion. Trace elements are important to nearly every enzymatic reaction in the body. While minerals have been shown to provide therapeutic

results, we must be careful about mineral supplements, especially those that provide single or a few minerals. Minerals co-exist in the body, and a dramatic increase in one can exhaust others as the body depletes the oversupply. Thus, an isolated macro-mineral supplement can easily produce a mineral imbalance in the body, which can produce a variety of hypersensitivity issues. Better to utilize natural sources of minerals. These include, first and foremost, mineral-intensive vegetables. Nearly all vegetables contain generous mineral content in the combinations designed by nature. Best to eat a mixed combination of vegetables to achieve a healthy array of trace minerals.

Whole food mineral sources also contain many trace minerals in their more digestible chelated forms. Chelation is when a mineral ion bonds with another nutrient, providing a ready ion as the body needs it. Most organically-grown plant-based foods provide a rich supply of trace minerals, assuming we are eating enough of them.

Other good sources of full spectrum trace minerals include natural mineral water, whole (unprocessed) rock salt, coral calcium, spirulina, AFA, kelp and chlorella. These sources will typically have from 60 to 80 trace elements, all of which are necessary for the body's various enzymatic functions. See the author's book, *Pure Water*. We should also note that research by David Brownstein, M.D. (2006) has illustrated that whole unprocessed salt does not affect the body high blood pressure, asthma severity and so on like refined salts (often called sodium). These naturally-chelated mineral sources also prevent the side effects known for mineral supplements.

Numerous holistic doctors now prescribe full-spectrum mineral combinations for asthmatic conditions. Many have attested to their clinical successes in recommending minerals to balance the inflammatory response and stimulate healthy mucosal membranes. Full range supplements that have RDA levels of the macrominerals combined with trace levels of the other minerals can provide a good foundation. Eating more than 5-6 servings a day of fruits and vegetables can provide the rest.

Total Health Eating Plan

If you bought this book as a package with "*7 Steps to Health*" then I highly recommend you read it as it goes into a lot more detail into each food group.

The list below is pretty much the **absolute best** that you can possibly do to destroy disease fast. If you decide to implement everything that is written, then you are a true warrior of your health, you will see the results quicker than anyone, and you will achieve a healthy glowing and beautiful body in no time. For some it may not be as easy so please remember to take it slow and do what you feel is best for you. Start slowly, see and feel the result, then continue to add further changes. Do what you can, as best you can, you don't have to overwhelm yourself.

For you to reap the full benefits of your health and wellbeing, never get sick or develop disease, the following list should become a lifestyle commitment and not just a temporary measure.

- 1. Limit junk fats.** This is one of the main reasons why disease occurs. You must never eat trans fats, hydrogenated fats, fried or heavily processed fats, canola oil, soy oil, margarine, crisco, etc.
- 2. Limit white foods.** This includes sugar, white flour, white pasta, gluten containing grains, potatoes, as well as yeast. Many celebrities including Cameron Diaz and Oprah have endorsed this diet because of the toxic effects these ingredients have on our bodies. The only sweeteners that are actually good for you are raw coconut crystals, stevia, raw agave powder, and raw honey - you can eat as much of them as you like.
- 3. Limit animal protein.** Animal protein has been linked in numerous world renowned international studies to directly promote cancer growth, diabetes, and heart disease like a switch. This is absolutely key to a successful healing regimen and one which is recommended by almost all the prominent holistic doctors and clinics. Beef, chicken, fish, eggs are all considered animal protein and should be completely avoided if you wish you cure your disease in a short period of time. For more information please refer to "*The China Study*" by Colin Campbell.
- 4. Limit processed foods.** It's quite simple; "If it came from a plant, eat it. If it was made in a plant, don't!" This might be a little challenging at first, but it is crucial for your health. You have no idea how many toxic additives, chemicals, preservatives, and flavor enhancers are added to our foods which lead to nasty ailments and diseases. If it comes in a package, try to avoid it as much as possible. Also, if the label reads "spices" as an ingredient, this doesn't mean actual spices like basil, pepper, dill, or parsley, it can mean up to **10,000 different chemical additives** disguised under the word "spices." This also includes processed rancid and hydrogenated fats and oil which destroy your cell membrane. Get used to eating and cooking with fresh vegetables, fruits, nuts, seeds and combinations of them.

It is very important for someone with disease and ill health to avoid processed and artificial oils and fats, margarine, Crisco, hydrogenated oils, fried oils, all fats used in store bought pastries, cookies and cakes. Consumption of these fats is creating weak and brittle cell membranes and preventing you from ever achieving optimal health.

5. No pasteurized dairy. Pasteurized dairy is directly linked to cancer, heart disease and diabetes. It is no surprise that countries that have the highest dairy consumption; Denmark, Norway, and

Holland have the highest rates of breast cancer. Nations where cheese consumption has tripled in the last 30 years, like England and France and Canada and the United States, have tripling rates of asthma and breast cancers. Raw dairy is a completely different product if compared to pasteurized dairy. The heating process of pasteurization destroys virtually everything beneficial in the milk such as enzymes, vitamins, fats, immune supporting factors, and beneficial bacteria. If you can find a raw milk provider near you, I highly recommend all raw dairy products. Visit www.westonaprice.org or www.realmilk.com for more information on raw dairy.

6. Do not use microwaves (the microwave article should be included in your bonus material), **drink tap water** (chlorine and fluoride react with all supplements and oxygen making them inert as well as stealing oxygen from your own body which promotes an acidic environment—not good for anyone looking to get rid of their disease or stay healthy), **do not use non-natural air fresheners, body washes, soaps, deodorants with aluminum** (reduces electrical potential of your cells making them sick and cancerous), **and toxic household cleaners** (full of hormone disruptors, chemicals that are known and proven carcinogens, DNA inhibitors, and other very nasty effects that you do not want near you as you destroy your disease). I know this might sound a little over the top but every standard chemical puts and even greater toxic load on your system. Again, I'm just letting you know the facts, the choice is always up to you.

Yes Foods

The following foods should be your main go to fighting arsenal and you can eat them as much as you like.

1. Raw, whole, fresh fruits and vegetables. The easiest way to stay healthy is to pack your meals with at least 50% raw foods. Every meal should be at least half made of raw fruits or vegetables. Spinach, kale, broccoli, cauliflower, cucumbers, tomatoes, peppers, radishes, squash, carrots, leeks, sprouts etc. Buy them organic if you can.

2. Good Fats and Oils. The only oils that should go anywhere near your plate are flax oil, hemp oil, coconut oil, and some olive oil due to the fact that your cells walls are hard, rigid, and dont allow nutrients, insulin, or oxygen to flow in and out. If you want to get rid of disease, you must never consume trans fats, hydrogenated fats, and regular vegetable oils like canola or soy. This includes all regular pastries, cakes, cookies, fast foods, pre-packaged foods, tv dinners, and mostly everything found in a grocery store. This is the reason diabetes, cancer, heart disease and other conditions are growing exponentially in our country, because there is simply no good fats found in our foods.

Good fats and oils are your main weapon against disease!

3. Sprouted, gluten and yeast free breads. Ezekiel and Genesis brands have a great lineup of sprouted and gluten free breads. Find some raw butter and you have a delicious substitute for the standard disease causing white bread with sugar loaded jelly. Yeast is also cancer food; Japanese research links breast cancer with the ingestion of goods baked with yeast. The problem is mycotoxins, which are waste products of yeast. There are many health problems that can be directly attributed to yeast, including arteriosclerosis, obesity, and AIDS.

4. Gluten free grains. Amaranth, buckwheat, millet, montina, oats, quinoa, rice, sorghum, teff, wild rice are all great meat replacing meals that are packed with nutrition and health promoting factors. Sprouted grains are anywhere from 3 to 10 times more nutritious than unsprouted and I highly recommend the sprouted kind. Also do your best to get them organic if your finances permit.

5. Raw, unpasteurized dairy products. Milk, cottage cheese, sour cream, butter are all amazing potent and nutritious disease-busting foods. They provide your body with virtually everything.

6. Green smoothies and shakes. Water, spinach/Kale, and fruits/berries with some natural sweetener Stevia is all you need for a delicious alkaline promoting disease destroying meal packed with everything your body needs. You may make as many green smoothies as you like and mix them with various ingredients like bananas, apples,

7. Raw nuts and seeds. Any nut other than peanuts should be your friend. Loaded with healthy fats, vitamins, minerals, and healthy calories you may snack on nuts as often as you like. Just make sure they are unprocessed, not fried or baked, in their **raw** state.

8. Salads. Here you can be as creative as you like. Any combination of leafy greens, vegetables, spices, and oils like flax or hemp will be bursting with flavor. Try experimenting with different spices and vegetables to find a salad that is exciting and one you can eat every day.

Step by step

MORNING

- Drink a glass of baking soda with water first thing in the morning (take half a teaspoon of baking soda, pour a little boiling water on it and mix until it stops fizzing, then pour 500ml/17oz of warm water and drink). Baking soda is a powerful alkalizer improving blood, lymph, digestion, and metabolism.
- 15 minutes later drink another glass of warm water.
- 15 minutes later drink a third glass of warm water with 5 drops of 3% hydrogen peroxide (for more information on hydrogen peroxide please refer to chapter on hydrogen peroxide in 7 Steps to Health book).
- 15-30 minutes later drink a large green smoothie (spinach, banana or other fruits in a 50-50 proportion, meaning half of the smoothie is made of spinach and the other half is fruits, along with water, stevia or raw honey to sweeten, and any other fruits or berries to your liking blended in a blender).

DAILY FOODS AND SUPPLEMENTS

- 68 oz/2 liters of clean filtered water daily.
- 5-10 grams of vitamin C, 800 IU vitamin E, 10000 IU vitamin D, 1000-5000 milligrams (mg) of EPA and DHA omega 3 (all compounds divided and spread as evenly as possible into 2-3 portions throughout the day with meals).
- 3 tablespoons of flax or hemp oil daily taken by itself, in salads, smoothies or any other way you wish.
- 3 tablespoons of bee pollen taken by itself, in water, in salads, smoothies or any other way you wish.
- A good probiotic and prebiotic (can be found in your local health food or vitamin store).
- Attend a sauna or infrared sauna twice a week for at least 30 minutes to sweat out toxins (make sure to sit or lie on the bottom bench where the temperature hovers around 60 degrees C/140 F).
- Walk vigorously every day for 30 minutes, rain or shine.

POWERFUL TIPS

- You may eat your regular meals throughout the day, but the main rule to the 7 Steps system is you must have a big salad made of spinach and other leafy greens along with other vegetables, spices, oils, and/or nuts before each meal (the leafy greens taking up at least half of your salad, or 200 grams at the minimum). And before each snack have 2 fruits. A simple google search yields hundreds of delicious salad recipes as well as various sauces and dips you may add to them. The key is to make your salads tasty and delicious, so experiment and have fun!
- Your meals should be primarily fruits, vegetables, nuts, seeds, gluten free grains, and some fish in as close to a 80-10-10 proportion as you can (80% carbs, 10% fats, 10% proteins). To visualize this; if you picture you plate a clock. From 12 to 9 will be salads/vegetables/fruits, and the rest is protein and oils such as seafood/nuts/seeds/oils.
- Do not eat anything before 8 am. After 8 pm only eat salads and vegetables.
- If you have a chance to sun tan, spend 10-15 minutes with at least 80% of your skin exposed directly to sun's rays. Make sure the light is not blocked by glass or windows, as that blocks the necessary wavelengths to create vitamin D within your body.
- If you go to a restaurant, always order a large salad with your meals.

SHOPPING LIST

- Spinach, bananas, and other fruits for your morning smoothie.
- Leafy greens and vegetables for your salad. You may experiment with spices, balsamic vinegars or grated nuts.
- Flax oil and hemp oil.
- Bee pollen.
- Vitamin C, Vitamin E, Vitamin D, Omega 3 (EPA and DHA) and a good pre and pro biotic.
- Vitamins and other supplements can be found in your local health food store.

THINGS TO AVOID AT ALL COSTS

- Pasteurized milk and milk products (for more information please see the section on milk in the 7 Steps to Health book)
- Substitute pasteurized milk (all milk sold in stores is pasteurized), with raw milk from your local farmers or food co-op. Please visit <http://www.realmilk.com/real-milk-finder/> to find a raw milk provider near you.
- Zero calorie sweeteners and foods (except stevia which is completely natural and derived from leaves), and sugar (substitute with stevia, or good quality local honey)
- Gluten and gluten containing foods (substitute with gluten free whenever possible). Gluten free grains include: corn, millet, quinoa, brown rice, buckwheat, oats, sorghum, teff, amaranth, popcorn, montina. You may have 2 cheat days during the week when you can have gluten containing foods.
- Substitute all meats with seafood (all meats including beef, chicken, lamb etc.)

Bonus Tips- These steps will further increase you wellbeing and multiply the health benefits

Find an organic whole food superfood powder or one that has a high quantity of superfoods such as spirulina, chlorella, barley grass, wheat grass, etc. These are located in the supplements or natural food aisle of your grocery store, or can be found in health food stores.

The reason I always recommend whole foods supplements instead of separately taking vitamins is because vitamins and minerals in foods are bound to natural food complexes with proteins, carbohydrates and lipids. The human body recognizes this entire complex and digests it much easier.

Although whole foods are important, even organic whole foods sometimes do not provide our bodies everything we need. Vitamins fill that nutrient void and supplement your body with everything it needs.

Protein - do not buy whey or milk derived protein, they are detrimental to your health and have a whole list of negative effects on your body. There are much more powerful alternatives in the form of vegetable sources. One of these is hemp seeds or hemp powder. These can be found in many grocery stores in the alternative foods or vegetarian section. If you can't find hemp protein, you can look for "vegetarian protein" powders which usually have protein sources like peas or beans. Or if you want to avoid powders, you can eat meals with protein rich veggies like sprouted grains, beans, lentils, peas, chick peas, spinach, asparagus, broccoli or cauliflower.

Take lentils for example, a cup has 18 grams of protein and 1 gram of healthy fat. While an 80 gram (3 ounce) steak has 20 grams of protein, 20 grams of fat, out of which 7 are saturated, unhealthy fats. In addition to potential growth hormones, antibiotics, and cancer causing chemicals that are produced when meat is prepared.

Another protein alternative is spirulina which has the highest protein content of any natural food (65%); far more than animal and fish meat (which only has 15-25%), soybeans (just 35%), dried

milk (35%), peanuts (25%), eggs (12%), grains (8-14%) or whole milk (3%) and has tremendous amounts of vitamin B12, much higher than in beef!

Change Gradually

If you try to change everything about your diet all at once, you won't stick with it. Go slow. Change **one item at a time** and **get accustomed** to the healthier alternative before tackling another. Make sure to go at your own pace and remember that this is not a race or one of those useless "30 day diet programs," you didn't become sick overnight, and you won't get cured overnight.

Now remember, you don't have to do everything if you are unable to. The most important things are to eliminate all meat products, pasteurized dairy, sugar and processed foods and processed fats. Just removing these 4 things will bring you unbelievable health.

The most important aspect is to take it slow and change at your own pace. Set goals for yourself and write down what you need to do today. You may even create a simple checklist if it is easier for you. Do your best to avoid cheating but at the same time do not suffer or create unhappiness for yourself because of a lifestyle change. At first it might not be so easy to stick to your goals when you live around so many temptations, but as you progress and your lifestyle changes strengthen, it will become easier and easier day by day. If you happen to give in at some point, allow what happened, accept your action, but tell yourself that you will be stronger next time and do your absolute best to stick to your goals.

As you slowly start changing your diet and actions, you will naturally and easily take on the healthy lifestyle. You will begin to see the difference in yourself, your appearance, well being, and happiness levels will rise dramatically, and people will begin to notice. Take it slow, take it easy, but be consistent and believe in yourself!

Easy Dietary Additions

An easy way to start is with the following dietary additions.

If you get rid of all the junk and start your new diet with these items, you will see changes within your body within the first few days.

- **50% of your meals have to be raw.** Meaning a salad with all meals and raw unprocessed nuts/fruits/dried fruits/raw food bars as snacks.
- Drink 2 green smoothies daily with hemp protein and a scoop of a whole food green powder.
- In the morning take a teaspoon of **bee pollen** under the tongue and let dissolve, then swallow. Or add it to your smoothies, shakes or salads.
- Drink at least 1.5-2 Litres of **clean filtered water daily** (drink 500 ml or 16oz of water as soon as you wake up).
- Supplement with **minimum** 5-10 grams of spirulina and chlorella each per day, as well as 5 grams of vitamin C (L-ascorbate), 800 IU of vitamin E, and 6000 IU of vitamin D.
- Take a 15 minute walk every day, rain or shine.

Healing Crisis or Herxheimer

As you begin your new nutrition routing and cleanses, your body will be dumping high amounts of toxins, chemicals, and billions of dead cells, microbes, and bacteria into your excretory organs, blood, and pathways. Many doctors do not recommend fasting or colon hydrotherapy or cleanses because they produce various symptoms like fevers, chills, fatigue, muscle aches, nausea, diarrhea, skin breakout and other conditions. Yet this is **solely** due to your body dumping trash from all the little corners and crevasses of your body in an attempt to cleanse and detoxify itself. Basically it means your body is releasing more toxins than you can safely dispose of. This is called a detoxification reaction or healing crisis.

The more toxins one's body, the more severe the healing crisis will be. Some feel worse and attribute it to the failing treatment, yet your attitudes should be completely the opposite. You should **welcome** these reactions with open arms, it means your body is finally becoming healthy and you are on the **right** track.

Such reactions are temporary and can occur immediately -- or within several days, or even several weeks, of a detox. Symptoms usually pass within 1-3 days, but on rare occasions can last several weeks. If you are suffering from a major illness, the symptoms you experience during the healing crisis may be identical to the disease itself. Sometimes discomfort during the healing crisis is of greater intensity than when you were developing the chronic disease.

This may explain why there may be a brief flare-up in one's condition. Often the crisis will come after you feel your very best. Most people feel somewhat ill during the first few days of a cleanse because it is at that point that your body dumps toxins into the blood stream for elimination. With a more serious condition there may be many small crises to go through before the final one is possible. In any case, a cleansing & purifying process is underway, and stored wastes are in a free-flowing state.

The symptoms can be absolutely anything, from new symptoms to old illnesses flaring up. Whatever symptoms begin after you start the protocol, it is a sign that everything is working.

You might also experience "brain fog" symptoms which feels like you can't think clearly or put thoughts together. This is also normal and is a result of dead microbes and waste matter being excreted.

Advanced Protocol

Almost every single person who has dedicated 30 days to this protocol has seen their disease completely disappear. Take the 30 day challenge and watch your health and vitality skyrocket, while your ill health and extra weight melts away. You must follow this protocol exactly as written if you want to get rid of your disease in 30 days, no exceptions. If you are unable to do everything, then your results might come a little slower, and it might take 2-6 months.

100% Raw

Everything you eat must be **100% raw**, uncooked, and unprocessed. Various salads, fruits, vegetables, green smoothies, fruit smoothies, raw nuts, sprouted grains, dehydrated fruits and vegetables, and anything that is in its raw form.

- No meat (beef, chicken, fish, eggs, etc.)
- No flour products (anything baked, cooked, or fried with flour products)
- No pasteurized dairy products (milk, cheese, yogurt, except the flax seed and cottage cheese mixture)
- No pre-packaged foods, nothing processed or cooked

Baking Soda- Mix a teaspoon of regular baking soda with half a cup of boiling water until fizzing disappears. Pour half a cup of cool water, and drink first thing in the morning. Baking soda alkalizes the entire body improving the immune system, metabolism, mineral absorption, and eliminates yeast and fungal infections.

Bee Pollen – 5 tablespoons daily (3 teaspoons in a tablespoon). You may either take it directly or put it in shakes, smoothies, salads, and anything else that is not going to be heated or cooked.

Exercise - at least 30 minutes of excursive, it can be a walk, a jog, a gym session, or a sporting event.

Green Smoothies - at least one green smoothie daily.

Fasting - The most powerful way to detox is absolutely free. Do at least one water or freshly squeezed juice fast every week.

Sunshine - If you can, get at least 15 minutes of sunshine to at least 70% of uncovered skin. Make sure you are directly in the sunlight, not behind glass as glass stops most of the beneficial UV rays.

Sauna - Attend a sauna at least twice a week to help your body sweat out toxins.

Rebounder - Buy a small trampoline rebounder and jump for 5-10 minutes a day. This gets the lymph flowing stimulating the immune system.

Colon hydrotherapy - A professional session at least twice a week until colon is clean, or weekly enemas done at home.

Supplements

Herb mixture - Tansy, wormwood, cloves, fennel seeds, cumin seeds, thyme, knotweed ground up into a powder and in equal proportions. Half a tea spoon each intake.

Green Superfood Powder - Add a scoop to your smoothies every day

Vitamin C - 5-10 grams of the regular ascorbic acid kind daily, **not** the Ester-C brand (l-Lysine and l-Proline have been found to stimulate the effects of vitamin C)

Vitamin E - 800 IU daily

Vitamin D3 - 10000 IU daily

Vitamin B12 - 1000 mcg daily

Chromium - 250 mcg daily

Vanadium - 250 mcg daily

Digestive Enzymes - Depends on brand, check bottle for guidelines

Zinc - 50 mg daily

B Complex - Depends on brand, check bottle for guidelines (minimum 50 mg daily)

Bioflavonoids including Quercetin - 150 mg daily

Borage oil - 1000mg capsules three times daily (perfect blend of omega 3 and 6, with GLA, LA, EA fats)

Iodine - 2 drops daily in a glass of water

Cinnamon - 5 grams daily, may be mixed in shakes, green smoothies, salads, sprinkled on top of fruits or taken in pill form

Suggestions

If you notice the healing crisis/Herxheimer reaction becoming very strong, this means your body is not handling the toxin release.

If you feel the symptoms getting very strong, which sometimes happens as a huge wave of toxins gets released into the system, fast for a day, drink green smoothies, herb mix, eat salads, at least 2-3 liters of water daily, vitamin C, D, E, attend a sauna every day, and nothing else. An enema always helps in such situations, even if you have a high fever and enema is known to reduce a fever (sauna also helps which will sweat out the toxins).

You may resume the protocol once the symptoms subside.

Highly recommended books on diabetes:

"The pH Miracle for Diabetes : The Revolutionary Diet Plan for Type 1 and Type 2 Diabetics" by Robert O. Young, PhD

"Infectious Diabetes" is by Doug Kaufmann and David Holland, M.D.

Final Thoughts

I would like to conclude this book with some final thoughts which will summarize what you have just read. The most important idea that I would like you to see and feel is that health and wellness comes from the inside out. The idea that there exists a miracle pill, remedy, cure, item, or anything else other than a holistic (physical, emotional, spiritual) approach to health, is simply a lie. If we do not eliminate the CAUSE of our problem, be it physical or emotional, no matter what we do, we will be treating the SYMPTOM of that problem, and never eliminate that one thing that is CAUSING it.

I will go back to my example of hitting your finger with the hammer. No matter how many prescription drugs, treatments, pills or creams you decide to use, if you do not stop hitting your finger with the hammer, you will be stuck in a closed loop, a situation without an exit, a problem that will continue to emerge no matter what you do.

All the “cures” I have listed are only but a sample of what is out there. There are literally hundreds of various cures for cancer, diabetes, heart disease etc. which most people have never heard of (we now know WHY we have never heard of them). I want to urge you to not get stuck on the treatments themselves, but understand **the big picture** of how and why they work. Because if you know the how's and why's, you are free to substitute various things to make up your own combinations.

The only thing, and I repeat the ONLY thing, that can make you lose weight, cure your diseases, and make you totally healthy is a holistic approach to your wellbeing. You need:

1. **Real Food**
2. **Real Water**
3. **Real Air and Sun**
4. **Real Rest**
5. **Real Exercise**
6. **Detox**
7. **Deficiencies**

Slowly but surely, begin to take these steps to a better you.

Additional Information

www.theicim.org

www.mercola.com

www.naturalnews.com

[Your Body's Many Cries for Water by F. Batmanghelidj](#)

[Fire Your Doctor! How to Be Independently Healthy by Andrew Saul](#)

[The Case Against Fluoride: How Hazardous Waste Ended Up in Our Drinking Water and the Bad Science and Powerful Politics That Keep It There by Paul Connett, James Beck, and H. Spedding Mickle](#)

[GMO Trilogy + Seeds of Deception \(set\): Why Genetically Modified Organisms Threaten Your Health, the Environment and Future Generations by Jeffrey M. Smith](#)

[12 Steps to Raw Foods: How to End Your Dependency on Cooked Food by Victoria Boutenko and Gabriel Cousens](#)

[Vitamin C: The Real Story: The Remarkable and Controversial Story of Vitamin C by Steve Hickey](#)

[The Gerson Therapy: The Proven Nutritional Program for Cancer and Other Illnesses](#)

Cancer. Hepatitis. Migraines. Arthritis. Heart Disease. Emphysema. For years, the medical establishment has called these chronic or life-threatening diseases "incurable." But now, the Gerson Therapy offers hope for those seeking relief from hundreds of different diseases. Juice your way to wellness. One of the first alternative cancer therapies, the Gerson Therapy has successfully treated thousands of patients for over 60 years. Now, in this authoritative revised and updated edition, alternative medicine therapist Charlotte Gerson and medical journalist Morton Walker reveal even more on the powerful healing effects of fruits and vegetables. Not only can juicing reverse the effects of many degenerative illnesses-it can save lives. "The Gerson Therapy" shows you: How to beat cancer by changing your body chemistry; Special juicing techniques for maximum healing power; and, How to combat allergies, obesity, high blood pressure, AIDS, lupus, and other diseases. This unique resource will help and inspire anyone who has ever said, "I want to get well. Just show me how." "The Gerson Therapy" offers a powerful, time-tested healing option that has worked for others - and can work for you!

[Psychodietetics by Emanuel Cheraskin](#)

"Changing your diet can change your life. You don't have to take our word for it; you can prove it to yourself." (p 132) So say this team of medical doctor and dentist, in one of the most persuasive and readable books on megavitamin therapy for emotional illness. The authors put forward surprisingly effective cures for drug dependency, mental illness, senility, depression, anxiety, hyperactivity in children, alcoholism and other ailments, supported by case histories and 290 medical references. Self-diagnostic questionnaires and an Optimal Diet are included, plus a hypoglycemia diet and notes on how to administer large doses of niacin (vitamin B-3) without side effects. (225 pages, paper)

[The Untold Story of Milk, Revised and Updated: The History, Politics and Science of Nature's Perfect Food: Raw Milk from Pasture-Fed Cows by Ron Schmid](#)

[The Myth of Mental Illness: Foundations of a Theory of Personal Conduct by Thomas Stephen Szasz](#)

The most influential critique of psychiatry ever written, Thomas Szasz's classic book revolutionized thinking about the nature of the psychiatric profession and the moral implications of its practices. By diagnosing unwanted behavior as mental illness, psychiatrists, Szasz argues, absolve individuals of responsibility for their actions and instead blame their alleged illness. He also critiques Freudian psychology as a pseudoscience and warns against the dangerous overreach of psychiatry into all aspects of modern life.

Thank You

I want to personally thank you for taking the time to read this book and empowering yourself for change. I want to wish you all the light and happiness in the world and the strength to continue this path which you so eagerly started. It is simple, but not easy, so stay vigilant and always look ahead, towards the future, towards your goals.

The greatest discovery of any generation is that a living soul can alter his life by altering his attitude. – William James