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Allergy Control Products Index

The following table is provided to help you determine which environmental controls are appropriate for your situation. A complete description of these products can be found at www.aquathinallergystore.com

Condition	Allergy Products Index					
Asthma	Allergy Free Bedding	HEPA Air Cleaner	Denaturing Products	Compressors and Nebulizers	Peak Flow Meters	Humidifier
Animal Dander Allergy	AllerPet Coat Conditioner	HEPA Air Cleaner	Pet Shampoo	HEPA Vacuum Cleaner	Denaturing Products	A/C and Furnace Filters
Dust Mite Allergy	Allergy Free Bedding	HEPA Air Cleaner	Denaturing Products	Laundry Aids	HEPA Vacuum Cleaner	A/C and Furnace Filters
House Dust Allergy	Dust Immobilizer	HEPA Air Cleaner	HEPA Vacuum Cleaner	Particle Mask	Denaturing Products	A/C and Furnace Filters
MCS	Household Cleaning Products	Personal Care Products	Zeolite	HEPA Air Cleaner	Oxygen Based Bleach	Glycerin Soap
Mold Allergy	Mold Test Kit	HEPA Air Cleaner	Mold Inhibitor	HEPA Vacuum Cleaner	Laundry Aids	Allergy Free Bedding
Pollen Allergy	HEPA Air Cleaners	Denaturing Products	HEPA Vacuum Cleaners	Particle Mask	A/C and Furnace Filters	Laundry Aids

For your convenience, this table is also available on the internet.

Simply visit www.aquathinallergystore.com and click on Allergy Solutions Index. This table will appear along with active links to the appropriate products.

UNDERSTANDING THE IMMUNE SYSTEM

Self and Nonself

The heart of the immune system is the ability to distinguish between self and nonself. Virtually every body cell carries molecules that identify it as self. The body's immune defenses do not normally attack tissues that carry a self marker. When immune defenders encounter cells or organisms carrying molecules that say "foreign," the immune troops move quickly to eliminate the intruders. Any substance capable of triggering an immune response is called an antigen. Antigens can be a virus, a bacterium, a fungus, or a parasite. An antigen announces its foreignness by means of characteristic shapes called epitopes, which protrude from its surface.

Keeping Out Foreigners

The immune system stockpiles a tremendous arsenal of cells. In order to have room to match millions of possible foreign invaders, just a few of each type of antibody are stored. When an antigen appears, those matched cells multiply into a full-scale army. Antibodies belong to a family of large molecules known as immunoglobulins. Immunoglobulins are proteins, made up of chains of amino acids. Scientists have identified nine chemically distinct classes of human immunoglobulins (Ig). Each type plays a different role in the immune defense strategy. IgE, which normally occurs only in trace amounts, is the villain in allergic reactions. Each IgE antibody is specific; one reacts against oak pollen, another against ragweed.

OOPS! False Alarm

The first time an allergy-prone person is exposed to an allergen, he or she makes large amounts of the corresponding IgE antibody. These IgE molecules attach to the surfaces of cells in the body. When an IgE antibody encounters its specific allergen, it signals the body to begin powerful chemical warfare. These chemicals include histamine, heparin, eosinophils, and neutrophils.



Your Nose Knows these Symptoms..... Do You?

It's really warfare, but to you, it may appear as one or more of the following symptoms:

- Sneezing often accompanied by a runny or clogged nose
- Coughing
- Postnasal drip
- Itching eyes, nose, or throat
- Allergic shiners (dark circles under the eyes caused by increased blood flow near the sinuses)
- The "allergic salute" (in a child, persistent upward rubbing of the nose that causes a crease mark on the nose)
- Watery eyes
- Conjunctivitis (inflammation of the membrane that lines the eyelids, causing red-rimmed, swollen eyes, and crusting of the eyelids).



First The Diagnosis

People with allergy symptoms, such as the runny nose of allergic rhinitis, may at first suspect they have a cold--but the "cold" lingers on. It is important to see a doctor about any respiratory illness that lasts longer than a week or two. When it appears that the symptoms are caused by an allergy, you should see a physician who understands the diagnosis and treatment of allergies. If your medical history indicates that the symptoms recur at the same time each year, the physician will work under the theory that a seasonal allergen (like pollen) is involved. Properly trained specialists recognize the patterns of potential allergens common during local seasons and the association between these patterns and symptoms. The medical history suggests which allergens are the likely culprits. The doctor also will examine the mucous membranes, which often appear swollen and pale or bluish in persons with allergic conditions.

Skin Tests

Doctors use skin tests to determine whether a patient has IgE antibodies in the skin that react to a specific allergen. The doctor uses diluted extracts from allergens such as dust mites, pollens, or molds commonly found in the local area. The extract of each kind of allergen is injected under the patient's skin or is applied to a tiny scratch or puncture made on the patient's arm or back. Skin tests are one way of measuring the level of IgE antibody in a patient. With a positive reaction, a small, raised, reddened area (called a wheal) with a surrounding flush (called a flare) will appear at the test site. The size of the wheal can give the physician an important diagnostic clue, but a positive reaction does not prove that a particular pollen is the cause of a patient's symptoms. Although such a reaction indicates that IgE antibody to a specific allergen is present in the skin, respiratory symptoms do not necessarily result.

Blood Tests

Although skin testing is the most sensitive and least costly way to identify allergies in patients, some patients such as those with widespread skin conditions like eczema should not be tested using that method. There are other diagnostic tests that use a blood sample from the patient to detect levels of IgE antibody to a particular allergen. One such blood test is called the RAST (radioallergosorbent test), which can be performed when eczema is present or if a patient has taken medications that interfere with skin testing.



Know Your Enemy Half the Battle is Knowledge

Pollen

Each spring, summer, and fall, tiny particles are released from trees, weeds, and grasses. These particles, known as pollen, hitch rides on currents of air. Although their mission is to fertilize parts of other plants, many never reach their targets. Instead, they enter human noses and throats, triggering a type of seasonal allergic rhinitis called pollen allergy, which many people know as hay fever or rose fever (depending on the season in which the symptoms occur). Of all the things that can cause an allergy pollen is one of the most widespread. People with pollen allergies often develop sensitivities to other troublemakers that are present all year, such as dust mites. Year-round airborne allergens cause perennial allergic rhinitis, as distinguished from seasonal allergic rhinitis.

What is pollen?

Plants produce microscopic round or oval pollen grains to reproduce. In some species, the plant uses the pollen from its own flowers to fertilize itself. Other types must be cross-pollinated; that is, pollen must be transferred from the flower of one plant to that of another plant of the same species. Insects do this job for certain flowering plants, while other plants rely on wind transport. The

types of pollen that most commonly cause allergic reactions are produced by the plain-looking plants (trees, grasses, and weeds) that do not have showy flowers. These plants manufacture small, light, dry pollen granules that are custom-made for wind transport.

Where is pollen most common?

Most allergenic pollen comes from plants that produce it in huge quantities. A single ragweed plant can generate a million grains of pollen a day. Samples of ragweed pollen have been collected 400 miles out at sea and 2 miles high in the air. The chemical makeup of pollen is the factor that determines whether it is likely to cause hay fever. For example, pine tree pollen is produced in large amounts by a common tree, which would make it a good candidate for causing allergy. The chemical composition of pine pollen, however, appears to make it less allergenic than other basic types. Because pine pollen is heavy, it tends to fall straight down and does not scatter. Therefore, it rarely reaches human noses. Among North American plants, weeds are the most prolific producers of allergenic pollen. Ragweed is the major culprit, but others of importance are sagebrush, redroot pigweed, lamb's quarters, Russian thistle (tumbleweed), and English plantain. Grasses and trees, too, are important sources of allergenic pollens. Although more than 1,000 species of grass grow in North America, only a few produce highly allergenic pollen. These include timothy grass, Kentucky bluegrass, Johnson grass, Bermuda grass, redtop grass, orchard grass, and sweet vernal grass. Trees that produce allergenic pollen include oak, ash, elm, hickory, pecan, box elder, and mountain cedar. It is common to hear people say that they are allergic to colorful or scented flowers. In fact, only florists, gardeners, and others who have prolonged, close contact with flowers are likely to become sensitized to pollen from these plants. Most people have little contact with the large, heavy, waxy pollen grains of many flowering plants because this type of pollen is not carried by wind but by in-



When do plants make pollen?

One of the most obvious features of pollen allergy is its seasonal nature--people experience its symptoms only when the pollen grains to which they are allergic are in the air. Each plant has a pollinating period that is more or less the same from year to year. Exactly when a plant starts to pollinate seems to depend on the relative length of night and day--and therefore on geographical location--rather than on the weather. (On the other hand, weather conditions during pollination can affect the amount of pollen produced and distributed in a specific year.) Thus, the farther north you go, the later the pollinating period and the later the allergy season (the reverse is true south of the Equator). A pollen count, which is familiar to many people from local weather reports, is a measure of how much pollen is in the air. This count represents the concentration of all the pollen (or of one particular type, like ragweed) in the air in a certain area at a specific time. It is expressed in grains of pollen per square meter of air collected over 24 hours. Pollen counts tend to be highest early in the morning on warm, dry, breezy days and lowest during chilly, wet periods. Although a pollen count is an approximate and fluctuating measure, it is useful as a general guide for when it is advisable to stay indoors and avoid contact with the pollen.



Household Dust And

An allergy to dust found in houses is perhaps the most common cause of perennial allergic rhinitis. House dust allergy usually produces symptoms similar to pollen allergy.

What is house dust?

Rather than a single substance, house dust is a varied mixture of potentially allergenic materials. The particles seen floating in a shaft of sunlight may contain fibers from different types of fabrics; cotton lint, feathers, and other

stuffing materials; bacteria; mold and fungus spores (especially in damp areas); food particles; bits of plants and insects; and other allergens peculiar to an individual home. Dust also may contain microscopic mites. These mites also live in bedding, upholstered furniture, and carpets. Ordinarily, they would thrive in summer and die in winter. However, in a warm, humid house, they continue to thrive even in the coldest months. Their waste-products, which contain proteins, actually provoke the allergic reaction. Waste-products of cockroaches are also an important cause of allergy symptoms from household allergens, particularly in some urban areas of the United States.



What are Dust Mites?

Dust mites are tiny animals you cannot see. Every home has dust mites. They feed on skin flakes and are found in mattresses, pillows, carpets, upholstered furniture, bedcovers, clothes, stuffed toys, and fabric or other fabric-covered items. Body parts and feces of dust mites can trigger allergic reactions in sensitive individuals. House dust mite allergy is the major year-round allergy in the world.



Dogs, Cats, and Other Animals



Many animals such as horses and goats can be allergy-causing. But because they live so closely with us, household pets are the most common source of allergic reactions to animals. Many people think that pet allergy is provoked by the fur of cats and dogs. But researchers have found that the major allergens are proteins secreted by oil glands in the animals' skin and shed in dander as well as proteins in their saliva, which sticks to the fur when the animal licks itself. People have always said that when it comes to allergies, cats are worse than dogs. We now know that it is because cats lick themselves more than dogs, thereby spreading the aller-

In addition, cats may be held more and spend more time in the house, close to humans. Urine is also a source of allergy-causing proteins. When the substance carrying the proteins dries, the proteins can then float into the air. Some rodents, such as guinea pigs and gerbils, have become increasingly popular as household pets. They, too, can cause allergic reactions in some people, as can mice and rats. Urine is the major source of allergens from these animals. Allergies to animals can take two years or more to develop and may not subside until six months or more after ending contact with the animal. Carpet and furniture are a reservoir for pet allergens, and the allergens can remain in them for four to six weeks. In addition, these allergens can stay in household air for months after the animal has been removed. Therefore, it is wise for people with an animal allergy to check with the landlord or previous owner to find out if furry pets had lived previously on the premises.



Mold

Along with pollens from trees, grasses, and weeds, molds are an important cause of seasonal allergic rhinitis. People allergic to molds may have symptoms from spring to late fall. The mold season often peaks from July to late summer (reversed below the Equator). Unlike pollens, molds may persist after the first killing frost. Some can grow at sub-freezing temperatures, but most become dormant. Snow cover lowers the outdoor mold count dramatically but does not kill molds. After the spring thaw, molds thrive on the vegetation that has been killed by the winter cold. In the warmest areas of the United States, however, molds thrive all year and can cause year-round (perennial) allergic problems. In addition, molds growing indoors can cause perennial allergic rhinitis even in the coldest climates.

What is mold?

There are thousands of types of molds and yeast, the two groups of plants in the fungus family. Yeasts are single cells that divide to form clusters. Molds consist of many cells that grow as branching threads called hyphae. Although both groups can probably cause allergic reactions, only a small number of molds are widely recognized offenders. The seeds or reproductive particles of fungi are called spores. They differ in size, shape, and color among species. Each spore that germinates can give rise to new mold growth, which in turn can produce millions of spores.

What is mold allergy?

When inhaled, microscopic fungal spores or, sometimes, fragments of fungi may cause allergic rhinitis. Because they are so small, mold spores may evade the protective mechanisms of the nose and upper respiratory tract to reach the lungs. In a small number of people, symptoms of mold allergy may be brought on or worsened by eating certain foods, such as cheeses, processed with fungi. Occasionally, mushrooms, dried fruits, and foods containing yeast, soy sauce, or vinegar will produce allergic symptoms. There is no known relationship, however, between a respiratory allergy to the mold *Penicillium* and an allergy to the drug penicillin, made from the mold.



Where do molds grow?

Molds can be found wherever there is moisture, oxygen, and a source of the few other chemicals they need. In the fall they grow on rotting logs and fallen leaves, especially in moist, shady areas. In gardens, they can be found in compost piles and on certain grasses and weeds. Some molds attach to grains such as wheat, oats, barley, and corn, making farms, grain bins, and silos likely places to find mold.

Hot spots of mold growth in the home include damp basements and closets, bathrooms (especially shower stalls), places where fresh food is stored, refrigerator drip trays, house plants, air conditioners, humidifiers, garbage pails, mattresses, upholstered furniture, and old foam rubber pil-

are favorite places for molds to grow. Loggers, mill workers, carpenters, furniture repairers, and upholsterers often work in moldy environments.

Which molds are allergenic?

Like pollens, mold spores are airborne allergens that are abundant, easily carried by air currents, and allergenic in their chemical makeup. Found almost everywhere, mold spores in some areas are so numerous they often outnumber the pollens in the air. Fortunately, however, only a few dozen different types are significant allergens. In general, *Alternaria* and *Cladosporium (Hormodendrum)* are the molds most commonly found both indoors and outdoors throughout the United States. *Aspergillus*, *Penicillium*, *Helminthosporium*, *Epicoccum*, *Fusarium*, *Mucor*, *Rhizopus*, and *Aureobasidium (Pullularia)* are also common.

Are there other mold-related disorders?

Fungi or microorganisms related to them may cause other health problems similar to allergic diseases. Some kinds of *Aspergillus* may cause several different illnesses, including both infections and allergy. These fungi may lodge in the airways or a distant part of the lung and grow until they form a compact sphere known as a "fungus ball." In people with lung damage or serious underlying illnesses, *Aspergillus* may grasp the opportunity to invade the lungs or the whole body. In some individuals, exposure to these fungi also can lead to asthma or to a lung disease resembling severe inflammatory asthma called allergic bronchopulmonary aspergillosis. This latter condition, which occurs only in a minority of people with asthma, is characterized by wheezing, low-grade fever, and coughing up of brown-flecked masses or mucus plugs. Skin testing, blood tests, X-rays, and examination of the sputum for fungi can help establish the diagnosis. Corticosteroid drugs are usually effective in treating this reaction; immunotherapy (allergy shots) is not helpful.

Indoor Air Regulations and Mold

Standards or Threshold Limit Values (TLVs) for airborne concentrations of mold, or mold spores, have not been set. Currently, there are no EPA regulations or standards for airborne mold contaminants.



Chemical Sensitivity

Synthetic chemicals are all around us. They're in the products we use, in the clothes we wear, in the food we eat, in the air we breathe, and the water we drink.. Because chemicals are everywhere in the environment, it's not possible to escape exposure. No wonder, then, many people have become sensitized to the chemicals around them. For some people this doesn't pose a serious problem. They may have what appears to be a minor allergy to one or more chemicals. Chemical sensitivity is not an allergic reaction because IgE is not present. Other people are much more seriously affected. They may feel tired, and suffer from mental confusion, breathing problems, sore muscles, and a weakened immune system. Such people suffer from a condition referred to as Multiple Chemical Sensitivity (MCS).

What is Multiple Chemical Sensitivity?

MCS is triggered by exposures to chemicals in the environment. Individuals with MCS can have symptoms from chemical exposures at concentrations far below the levels tolerated by most people. Symptoms occur in more than one organ system in the body, such as the nervous system and the lungs. Exposure may be from the air, from food or water, or through skin contact. The symptoms may look like an allergy because they tend to come and go with exposures, though some people's reactions may be delayed. As MCS gets worse, reactions become more severe and increasingly chronic, often affecting more bodily functions. No single widely available medical test can explain symptoms. In the early stages of MCS, repeat exposure to the substance or substances that caused the initial health effects provokes a reaction. After a time, it takes less and less exposure to this or related chemicals to cause symptoms. As the body breaks down, an ever increasing number of chemicals, including some unrelated to the initial exposure, are found to trigger a reaction. MCS affects the overall health and feeling of well-being of those with the disorder. It typically impairs many bodily functions including the nervous system and digestion. Each individual affected by MCS has a unique set of health problems. A chemically sensitive person may also have other preexisting health conditions.

Many affected people experience a number of symptoms, in relation to their chemical exposures. MCS may result from a single massive exposure to one or more toxic substance or repeated exposures to low doses. People with MCS may become partially or totally disabled for several years or for life.

Treatment

MCS is difficult for physicians to define and diagnose. There is no single set of symptoms which fit together as a syndrome, nor a single diagnostic test for MCS. Instead, physicians should take a complete patient history which includes environmental and occupational exposures, and act as detectives in diagnosing this problematic condition. After the onset of MCS, a person's health generally continues to deteriorate. It may only begin to improve once the chemical sensitivity condition is uncovered. While a number of treatments may help improve the baseline health status for some patients, at the present time, there is no



Conventional Treatment

Medications

For people who find they cannot adequately avoid airborne allergens, the symptoms often can be controlled with medications. Effective medications that can be prescribed by a physician include antihistamines and topical nasal steroids--either of which can be used alone or in combination. Many effective antihistamines and decongestants also are available without a prescription.

Antihistamines. As the name indicates, an antihistamine counters the effects of histamine, which is released by the mast cells in the body's tissues and contributes to allergy symptoms. For many years, antihistamines have proven useful in relieving sneezing and itching in the nose, throat, and eyes, and in reducing nasal swelling and drainage. Many people who take antihistamines experience some distressing side effects: drowsiness and loss of alertness and coordination. In children, such reactions can be misinterpreted as behavior problems.

During the last few years, however, antihistamines that cause fewer of these side effects have become available by prescription. These non-sedating antihistamines are as effective as other antihistamines in preventing histamine-induced symptoms, but do so without causing sleepiness. Some of these non-sedating antihistamines, however, can have serious side effects, particularly if they are taken with certain other drugs. A patient should always let the doctor know what other medications he/she is taking.

Topical nasal steroids. This medication should not be confused with anabolic steroids, which are sometimes used by athletes to enlarge muscle mass and can have serious side effects. Topical nasal steroids are anti-inflammatory drugs that stop the allergic reaction. In addition to other beneficial actions, they reduce the number of mast cells in the nose and reduce mucus secretion and nasal swelling. The combination of antihistamines and nasal steroids is a very effective way to treat allergic rhinitis, especially in people with moderate or severe allergic rhinitis. Although topical nasal steroids can have side effects, they are safe when used at recommended doses. Some of the newer agents are even safer than older ones.

Cromolyn sodium. Cromolyn sodium for allergic rhinitis is a nasal spray that in some people helps to prevent allergic reactions from starting. When administered as a nasal spray, it can safely inhibit the release of chemicals like histamine from the mast cell. It has few side effects when used as directed, and significantly helps some patients with allergies.

Decongestants. Sometimes re-establishing drainage of the nasal passages will help to relieve symptoms such as congestion, swelling, excess secretions, and discomfort in the sinus areas that can be caused by nasal allergies. (These sinus areas are hollow air spaces located within the bones of the skull surrounding the nose.) The doctor may recommend using oral or nasal decongestants to reduce congestion along with an antihistamine to control allergic symptoms. Over-the-counter and prescription decongestant

nose drops and sprays, however, should not be used for more than a few days. When used for longer periods, these drugs can produce a “rebound effect” which can lead to even more congestion and swelling of the nasal passages.

Immunotherapy

Immunotherapy, or a series of allergy shots, is the only available treatment that has a chance of reducing the allergy symptoms over a longer period of time. Patients receive subcutaneous (under the skin) injections of increasing concentrations of the allergens) to which they are sensitive. These injections reduce the amount of IgE antibodies in the blood and cause the body to make a protective antibody called IgG. Many patients with allergic rhinitis will have a significant reduction in their symptoms and in their need for medication within 12 months of starting immunotherapy. Patients who benefit from immunotherapy may continue it for three years and then consider stopping. Although many patients are able to stop the injections with good, long-term results, some do get worse after immunotherapy is stopped. As better allergens for immunotherapy are produced, this technique will become an even more effective treatment.



Allergen Avoidance **Your First Line of Defense is at Home**

Now that you understand exactly what causes an allergic reaction, the actual nature of the reaction, and the common allergens, it's easy to put that knowledge to work for you. Allergen control should start at home. Different allergens require different approaches. Some strategies require little to implement, others require an investment of time or money.

Pollen

Complete avoidance of allergenic pollen or mold means moving to a place where the offending substance does not grow and where it is not present in the air. But even this extreme solution may offer only temporary relief since a person who is sensitive to a specific pollen or mold may

subsequently develop allergies to new allergens after repeated exposure. For example, people allergic to ragweed may leave their ragweed-ridden communities and relocate to areas where ragweed does not grow, only to develop allergies to other weeds or even to grasses or trees in their new surroundings. Because relocating is not a reliable solution, allergy specialists do not encourage this approach. There are other ways to evade the offending pollen: remaining indoors in the morning, for example, when the outdoor pollen levels are highest. Sunny, windy days can be especially troublesome. If individuals with pollen allergy must work outdoors, they can wear face masks designed to filter pollen out of the air and keep it from reaching their nasal passages. As another approach, some people take their vacations at the height of the expected pollinating period and choose a location where such exposure would be minimal. The seashore, for example, may be an effective retreat for many with pollen allergies.

Air Conditioners and Passive Filters

When possible, an allergic person should use air conditioners inside the home or in a car to help prevent pollen allergens from entering. Various types of passive air-filtering devices made with fiberglass or electrically charged media may help reduce allergens produced in the home. These can be added to the heating and cooling systems in your home and are considered passive because they contain no motors and require no electricity. When evaluating filters to be placed on your system, compare “dust spot” and “dust arrestance” numbers. The higher the number the better. But keep in mind that a filter with a high allergen trapping ability will need to be replaced or cleaned often. Windows should be kept closed at all times. That “fresh air” you want to let in is filled with pollen and mold spores. Laundry should not be hung outside to dry where it will collect airborne pollen.

Active Filters

Portable devices that can be used in individual rooms are especially helpful in reducing allergens. Your Aquathin Allergy Store Specialist can suggest which kind of filter is best for you. The airflow should be sufficient to exchange the air in the room five or six times per hour; therefore, the efficiency of the

filtering device is determined by the size of the room. Beware of exaggerated claims for appliances that cannot really clean the air. Be wary of machines that are made of plastic or have glue in their filters. These machines emit volatile organic compounds and actually pollute the very air they are supposed to clean. Make sure the unit has a powerful motor. Very small air cleaners cannot remove dust and pollen. Be sure to ask how many cubic feet of air per minute (CFM) are moved by the motor. The higher the number the better. Remember, no purifier can prevent viral or bacterial diseases such as influenza, pneumonia, or tuberculosis. Some units contain ultraviolet lights as an additional “sanitizing” feature. When used properly, ultraviolet light can be a powerful sanitizing agent. Unfortunately, in these machines, the air passing by the light does not linger long enough to achieve true sanitizing. Buyers of electronic precipitators should compare the machine’s ozone output with federal standards. Ozone can irritate the nose and airways of persons with allergies, especially those with asthma, and can increase allergy symptoms. And finally, a word about “HEPA” filters: HEPA is a standard of measurement. The acronym stands for High Efficiency Particulate Air. To be true HEPA, the filter must arrest 99.997% of particles as small as .3 microns. “HEPA-like” is marketing term that lacks true meaning. A dehumidifier may be helpful because dust mites require high humidity to live and grow. Care should be taken to clean the unit frequently to prevent mold growth. However, while low humidity may reduce dust mite levels, it also may irritate the nasal passages and lungs of some people.

Mold

Mold allergens can be difficult to avoid, but some steps can be taken to at reduce exposure. First, the allergy sufferer should avoid those hot spots mentioned earlier where molds tend to be concentrated. Remember, molds can be found almost anywhere; they can grow on virtually any substance, providing moisture is present. There are molds that can grow on wood, paper, carpet, and foods. The lawn

should be mowed and leaves should be raked up, but someone other than the allergic person should do these chores. If you must do such work yourself, wear a tightly fitting particle mask to reduce exposure and resulting symptoms. Travel in the country, especially on dry, windy days or while crops are being harvested, should be avoided as should walks through tall vegetation. A summer cabin closed up all winter is probably full of molds and should be aired out and cleaned before a mold-sensitive person stays there. Around the home, a dehumidifier will help dry out the basement, but the water extracted from the air must be removed frequently to prevent mold growth in the machine.

Are mold counts helpful?

Similar to pollen counts, mold counts may suggest the types and relative quantities of fungi present at a certain time and place. For several reasons, however, these counts probably cannot be used as a constant guide for daily activities. One reason is that the number and types of spores actually present in the mold count may have changed considerably in 24 hours because weather and spore dispersal are directly related. Many of the common allergenic molds are of the dry spore type--they release their spores during dry, windy weather. Other fungi need high humidity, fog, or dew to release their spores. Although rain washes many larger spores out of the air, it also causes some smaller spores to be shot into the air. In addition to the effect of day-to-day weather changes on mold counts, spore populations may also differ between day and night. Day favors dispersal by dry spore types and night favors wet spore types. There is no practical way to eliminate all mold and mold spores in the indoor environment; the way to control indoor mold growth is to control moisture. If mold is a problem in your home or school, you must clean up the mold and eliminate sources of moisture. Fix the source of the water problem or leak to prevent mold growth.
Reduce indoor humidity (to 30-60%) to decrease mold

growth by: venting bathrooms, dryers, and other moisture-generating sources to the outside; using air conditioners and dehumidifiers; increasing ventilation; and using exhaust fans whenever cooking, dishwashing, and cleaning. Clean and dry any damp or wet building materials and furnishings within 24-48 hours to prevent mold growth.

Clean mold off hard surfaces with water and detergent, and dry completely. Absorbent materials such as ceiling tiles, that are moldy, may need to be replaced. Reduce the potential for condensation on cold surfaces by adding insulation. In areas where there is a perpetual moisture problem, do not install carpeting.

Dust and Dust Mite

Dust and dust mite-sensitive individuals, especially those with allergies and asthma, can reduce some of their misery by creating a "dust-free" bedroom. Of all the rooms in your home, the room you sleep in is the most important. Dust may contain molds, fibers, and dander from dogs, cats, and other animals, as well as tiny dust mites. The routine cleaning necessary to maintain a dust-free bedroom also can help reduce exposure to cockroaches, another important cause of asthma in some allergic people. Most people cannot control dust conditions under which they work or spend their daylight hours. But everyone can, to a large extent, eliminate dust from the bedroom. To create a dust-free bedroom, it is necessary to reduce the number of surfaces on which dust can collect. The National Institute of Allergy and Infectious Diseases suggests the following :

- Carpeting makes dust control impossible. Although shag carpets are the worst type for the dust-sensitive person, all carpets trap dust. Therefore, hardwood, tile, or linoleum floors are preferred. Treating carpets with tannic acid eliminates some dust mite allergen, but tannic acid is not as effective as removing the carpet and must be repeatedly applied.

- Keep only one bed in the bedroom. Most important, encase box springs and mattress in a dust-proof or allergen-proof cover. If choosing an encasement that does not use a membrane for protection, look for a fabric with the smallest pore size. Scrub bed springs outside the room. If a second bed must be in the room, prepare it in the same manner.
- Keep all animals with fur or feathers out of the room. People allergic to dust mites are often allergic to cats, dogs, and other animals.
- Use only washable materials on the bed. Sheets, blankets, and other bedclothes should be washed frequently in water that is at least 130°F (54.4°C). Lower temperatures will not kill dust mites. If you set your hot water temperature to a lower value (as is commonly done to prevent scalding), wash items at a commercial establishment that uses high wash temperatures. If you must launder at home using lower temperatures, use a benzyl benzoate additive, such as De-Mite.
- Keep furniture and furnishings to a minimum. Avoid upholstered furniture and cloth blinds. A wooden or metal chair that can be scrubbed may be used in the bedroom. If desired, hang plain, lightweight curtains on the windows. If curtains are hung, treat in the same manner as bedlinens (i.e., wash weekly in hot water).
- To prepare the room for a dust-sensitive person, clean the room thoroughly and completely once a week. Clean the floors, furniture, tops of doors, window frames, sills, etc. with a damp cloth or mop. Close the doors and windows when finished. Cleaning should be done early in the day to allow time for all dust to settle before the dust-sensitive person is ready to occupy the room.



Pollen

Almost all higher order plants produce pollen. This means controlling outdoor allergens is difficult but not impossible. Fortunately, not all pollens lend themselves to easy dispersal. As discussed in the previous section on pollen, only the light-weight powdery pollen is a widespread troublemaker. It is produced by plants that use the wind to spread their pollen from plant to plant. The heavy sticky pollen produced by plants that use insects to spread their pollen is not usually a problem. With this in mind, take a look around your lawn and garden. If you are starting a new landscape, select plants that produce little powdery pollen. Weeds usually produce their pollen as they mature, so it is important to pull them as they sprout. Keep grass mowed on a regular basis so that it does not form a flower spike. This spike holds the allergy causing pollen. A ground cover such as ivy may be used instead of grass. If an allergy producing plant cannot be removed from your existing landscaping, keep it pruned. Remove pollen bearing portions of the plant before they open and release the allergen into the air.



Even though you control the pollen in your yard, you might not be able to control the pollen in your neighbor's yard. On dry windy days, it is best to stay inside and keep the windows closed. Do not hang laundry out to dry on windy days, as the airborne pollen will be trapped in the fabric.



Household Cleaning Products

Many of the cleansers we use in our home contain toxic chemicals and release unhealthy fumes into our homes. The products utilize petroleum distillates or chlorine to dissolve grease, dirt, and grime. Many are caustic and are eye and skin irritants and can cause respiratory irritation if inhaled. In addition, these products contain neuro-



toxins such as ethylene glycol n-hexyl ether, butoxyethanol, and diethylene glycol monobutyl ether. Many safer alternatives now exist to these toxic cleaners. There are citrus based furniture and general cleansers as well as soy based products. Both citrus and soy are two of the most powerful non-toxic cleaners. Oxygen based bleaches are now available to replace toxic chlorine bleaches. These products utilize sodium percarbonate, a highly effective less toxic alternative to chlorine that releases no fumes as it cleans. If you choose to use toxic products, open windows and run fans to increase ventilation and wear a respirator for protection. When selecting cleaning products, read the label thoroughly. Also beware of air "fresheners". These products use oils and fragrances to cover or mask household odors. These products are also lung irritants and should be avoided by those who have allergies, asthma, or chronic lung diseases. If household odors are a problem, they should be attacked from the source and not covered up. Pet, cooking, and other household odors can be controlled using the mineral zeolite. This mineral is available in pebble or rock form as well as a powder. Zeolite works by absorbing odors as the source and keeps them from becoming airborne.



Food Allergy

With a true food allergy, an individual's immune system will overreact to an ordinarily harmless food.. Food *intolerance* is sometimes confused with food allergy. Food intolerance refers to an abnormal physical response to a food or food additive that is not an allergic reaction. The best way to treat food allergy is to avoid the specific foods that trigger the allergy. To avoid eating a "hidden" food allergen away from home, always inquire about ingredients when eating at restaurants or others' homes.

Read food labels carefully and become familiar with technical or scientific names for foods. For example, milk may not be listed as an ingredient; rather, the label may list casein (a milk protein), sodium caseinate or milk solids. Be prepared for emergencies. Anaphylactic reactions caused by food allergies can be potentially life-threatening. If you have experienced an anaphylactic reaction to a food it must be strictly avoided. Be prepared for emergencies. Anaphylactic reactions can be potentially life-threatening. Those who have experienced an anaphylactic reaction to a food must strictly avoid that food.

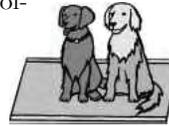
Pets



The most effective method to control animal allergens in the home is to not allow an animal inside. If you do permanently remove an animal, it is important to clean the home (including floors and walls, but especially carpets and upholstered furniture) thoroughly. Pet allergen levels are reported to stay in the home for several months after the pet is removed even with cleaning. Isolation methods to reduce animal allergen in the home are suggested (e.g., keeping the animal in only one area of the home, keeping the animal outside, or keeping the allergic or asthmatic individual away from the animal) but the effectiveness of these methods has not been determined. To the contrary, several reports indicate that animal allergen is carried in the air and on the resident's clothing to all parts of the home, even when the animal is isolated. In fact, animal allergen is often detected in locations where no animals were housed. In these situations, it is assumed that the allergen was carried in on people that have animals or on people that have been around animals or people with animals. Often people sensitive to animal allergens are advised to wash their pets regularly. Recent research indicates that washing pets may only provide temporary reductions in allergen levels.



There is no evidence that this short term reduction is effective in reducing symptoms and it has been suggested that during the washing of the animal the sensitive individual may be initially exposed to higher levels of allergen. Thus the most effective method to control exposure to animal allergens is to keep your home pet free. However, some individuals may find isolation measures to be sufficiently effective. Isolation measures include keeping pets out of sleeping areas, keeping pets away from upholstered furniture, carpets, and stuffed toys, keeping the pet outdoors as much as possible, and isolating sensitive individuals from the pet as much as possible. In addition, there are now products that denature or break down the allergen-causing. These products use tannic acid, tea tree oil, or other substances to render the allergen harmless. The Alkaline Laboratories make products to apply where the animal goes frequently. These treatments must be repeated every 30 to 60 days to be effective. However, the treatments may provide sufficient relief to enable you to keep the pet. The AllerPet company has a complete line of products designed for application directly to the pet. Whether you use isolation methods or denaturing agents or a combination of both, it is important to keep pets away from fabric-covered furniture, carpets and stuffed toys.



Time Out!

Time to take inventory. If necessary, you should review what you have read so far. By now you should see how and why allergen avoidance tactics really do work. The whole idea behind investing time, money, and energy in allergen avoidance is to achieve some level of relief. Some of the tactics may seem easy and some may seem extreme. However, no tactic will work without your commitment to controlling allergies by controlling your environment.



The EPA's 3 Keys To Cleaner Indoor Air

According to the Environmental Protection Agency (EPA), the three most common approaches to reducing indoor air pollution, in order of effectiveness, are:

- **Source Control:** Eliminate or control the sources;
- **Ventilation:** Dilute and exhaust pollutants through outdoor air ventilation; and
- **Air Cleaning:** Remove pollutants through proven air cleaning methods.

Of the three, the first approach – **source control** – is the most effective. In addition to the steps we have already covered, this also involves minimizing the use of products and materials that cause indoor pollution. The second approach – **outdoor air ventilation** – is also effective and commonly employed. Ventilation methods include installing an exhaust fan, increasing outdoor air flows in mechanical ventilation systems, and opening windows, if possible. However, during time of high pollen and mold counts, windows should be kept closed. The third approach – **air cleaning** – is used to supplement source control and ventilation. Air filters, electronic particle air cleaners, and ionizers are often used to remove airborne particles, and gas adsorbing material is sometimes used to remove gaseous contaminants when source control and ven-



Pure Water and Medication Untreated water can interfere with pharmaceuticals

By Dr. Harvi Lipshultz and Alfred J. Lipshultz reprinted by permission from Water Technology, April 1992

Any water treatment professional is familiar with the many health risks related to consuming unpurified water. What many people, even in the water industry do not yet know is

that tap water can interfere with the medications doctors prescribe. Many prescription vials carry small, highly colored stickers that say “Take on any empty stomach” or “Do not take with dairy products or antacids.” The pharmacist places these stickers on the vial because the components of food, milk or antacids will inhibit the absorption of the medicine and render it partially or totally inactive. These same components are found in tap water and can render some medication inactive. Antibiotics, specifically tetracycline, norflaxin and ciprofloxacin can be affected in this way. Also, certain medications depend upon an acidic (low pH) environment to be absorbed. The stomach provides an acidic site of absorption, but if tap water is basic (high pH), it might render the environment neutral and inhibit the absorption and activity of certain medications.

Fluoride Considerations

Another pharmacological reason not to use untreated tap water to swallow medications is related to the fluoride content of the water. Many post-menopausal women suffer from osteoporosis, which is a breakdown or thinning of the bones. The treatment of this condition is hormonal and calcium supplements. However, if calcium is consumed with tap water, the fluoride in the water will render the calcium insoluble. Therefore, the calcium might not be absorbed, and it will have no effect on bone formation.

If tap water contains an excessive amount of fluorides, it may cause a condition known as endemic dental fluorosis, which appears as a dark brown spotting of the teeth. In certain cases, the teeth become chalky in appearance. American Medical Association (AMA) has issued several printed statements about drinking water and human health. AMA states, “Since drinking water frequently contributes significantly to the human intake of a number of chemicals, the physician should be aware of the consumption of water to health authorities so that physicians can prescribe alternative water sources for hypertensives and

in relation to the patient's conditions, For example, the sodium content of drinking water in public systems is reported others who must restrict sodium intake." All patients with any type of cardiovascular disease should benefit from sodium-free water.

Another pharmacological interaction occurs between sodium and the medication lithium. Consuming excessive amounts of sodium will increase the excretion of lithium resulting in a decrease in the activity of lithium and an increase in the symptoms of bipolar affective disorders or manic-depressive illnesses.

As people get older, their renal (kidney) functions decrease. Drinking chemical-laden water puts an additional stress on an already stressed renal system. Evidence of this is seen in people who are maintained on hemo-dialysis because of a kidney failure. They are advised not to consume tap water with excessive ammonia levels, since ammonia causes toxic uremic effects in this patient population.

AMA also attributes outbreaks of disease to the quality of water. Microorganisms such as protozoa, fungi, and coliform bacteria have been found in tap water, usually resulting in an advisory to boil the water. These microorganisms are potentially dangerous to anyone who consumes them, and they pose a particular danger to people with weakened immune systems, as in cases of chemotherapy, radiation and AIDS.

There are just some on the pharmacological reasons not to drink unpurified tap water, including the possible inactivation of medications, aggravation of existing health problems or even the creation of new ones. Mounting evidence of serious health risks such as these provide ample motivation for increasing number of people to investigate the water treatment option.



Other Things to Think About

Humidifiers

Humidifiers are commonly used in homes to relieve the discomforts of dry nose, throat, lips, and skin. The moisture they add to dry air also helps alleviate common nuisances brought on by winter heating, such as static electricity, peeling wallpaper, and cracks in paint and furniture. However, excess moisture encourages the growth of mold and dust mites. Recent studies by the Environmental Protection Agency (EPA) and the Consumer Product Safety Commission (CPSC) have shown that ultrasonic and impeller (or "cool mist") humidifiers can disperse materials, such as microorganisms and minerals, from their water tanks into indoor air. At present, only limited information is available on the growth of microorganisms and the dispersal of microorganisms and minerals by home humidifiers. Proper care and cleaning of humidifiers is important for reducing potential exposures to microorganisms, such as bacteria and molds. Microorganisms often grow in humidifiers which are equipped with tanks containing standing water. Breathing mist containing these pollutants has been implicated as causing a certain type of inflammation of the lungs. The federal government has not concluded that the dispersal of minerals by home humidifiers poses a serious health risk. However, do you really want these particles in your lungs? Common sense tells us that using pure water with no mineral content (such as the water produced by the Aquathin® patented reverse osmosis deionization system) will reduce exposures to these materials. The young, the elderly, and those people with lung diseases or respiratory allergies may be particularly susceptible to certain types of airborne pollutants. However, if you make use of the following recommendations potential for dispersal of microorganisms and minerals from your humidifier should be reduced.



Can I Use Tap Water in Humidifier?

Unfortunately, cool mist humidifiers are very efficient at dispersing minerals from untreated tap water into the air. In addition, some consumers are bothered by a "white dust" that may appear on surfaces during use of these devices. Most importantly, minerals in tap water may increase the development of crusty deposits, or scale, in humidifiers. Scale can be a breeding ground for microorganisms. Retarding the growth of scale is the most compelling reason to find alternatives to tap water. For this reason, or if white dust is a problem or you wish to minimize your exposure to minerals in the tap water as a matter of prudence, you should either:

- Use pure water, such as that produced by the Aquathin® patented reverse osmosis deionization systems
- Use bottled water labeled "distilled." While distilled water still contains some mineral content, it will likely contain lower mineral content than untreated tap water.
- Consider using demineralization cartridges or filters if supplied or recommended for use with your humidifier. Be aware, however, that the ability of these devices to remove minerals may vary widely. Watch for the appearance of "white dust," which would indicate that minerals are not being removed. Also, in areas of the country where the mineral content in the tap water is high, using Aquathin® purified water may be less expensive than cartridges, filters or buying distilled water.

Even More About Humidifiers

Console humidifiers are encased in cabinets and designed for floor use. Portable humidifiers are smaller and more readily moved. Central humidifiers are built into heating and air-conditioning systems, and humidify the whole house. The two types of humidifiers which generally appear to produce the most microorganisms and minerals are the ultrasonic and impeller types discussed earlier.

Two additional types of humidifiers can allow for growth

of micro-organisms if they are equipped with a tank that holds standing water. But, the following types generally disperse less, if any, of pollutants into the air. These are:

- Evaporative, which transmit moisture into the air invisibly by using a fan to blow air through a moistened absorbent material, such as a belt, wick, or filter.
- Steam vaporizer, which create steam by heating water with an electrical heating element or electrodes. "Warm mist" humidifiers are a type of steam vaporizer humidifier in which the steam is cooled before exiting the machine.

Note: A steam vaporizer tested by the EPA did not disperse measurable amounts of minerals; evaporative humidifiers have not been tested by EPA for mineral dispersal.

Using Your Humidifier Properly

It is important to use a humidifier only when conditions require it, to use the correct moisture setting for existing conditions, and to clean it thoroughly.

- Empty the tank, wipe all surfaces dry, and refill the water in portable humidifiers daily to reduce any growth of microorganisms; follow the manufacturer's instructions for changing water in console humidifiers. Be sure you unplug the unit from the electrical socket first.
- Use water with no mineral content to prevent the build-up of scale and the dispersal of minerals into the air.
- Clean portable humidifiers every third day. Empty the tank and use a brush or other scrubber to clean it. Remove any scale, deposits, or film that has formed on the sides of the tank or on interior surfaces, and wipe all surfaces dry. Be smart, unplug the unit first.
- Follow the manufacturer's directions for the use of cleaning products or disinfectants. If specific directions are not provided, clean all surfaces coming in contact with water with a 3% solution of hydrogen peroxide. If you use any cleaning or disinfecting agent, rinse the tank thoroughly with several changes of distilled or Aquathin® reverse osmosis deionization water to prevent dispersal of chemicals into the air during use.

- 
- Follow the manufacturer's directions on cleaning and maintaining console and central (furnace mounted) humidifiers. If the humidifier contains a tank, do not allow water to stand in the tank for extended periods of time, and keep the water clean.
 - Keep steam vaporizer humidifiers out of the reach of children.
 - Do not humidify the indoor environment above 50%. Higher humidity levels may encourage mold and dust mites. Hygrometers, available at local hardware stores, may be used to measure humidity levels. Some humidifiers contain a built-in humidistat which may be adjusted to the proper moisture level. If water condenses on windows, walls, or pictures, either relocate the humidifier, lower its humidistat setting, or reduce its use.
 - Do not permit the area around the humidifier to become damp or wet. If dampness occurs, turn the output volume of the humidifier down. If the humidifier output volume cannot be adjusted, use the humidifier intermittently. Do not allow absorbent materials, such as carpeting, drapes, or table cloths, to become damp.
 - Follow the manufacturer's instructions regarding the use maintenance and replacement of any materials supplied with the humidifier. Use appropriate materials as recommended by the product manufacturer.
 - Clean the humidifier, as directed, at the end of the humidifying season or when the unit is not expected to be used often. Before storage, make sure all the parts are dry. Dispose of all used demineralization cartridges or filters. Store the unit in a dry location. Before using the unit again, clean the unit and remove any dust on the outside.



There are humidifiers that include an ultraviolet light that shines on the water reservoir. As noted previously, ultraviolet light has a sanitizing effect, and the ultraviolet light is designed to keep mold and bacteria from growing in the water. While these units still must be cleaned periodically, if a humidifier must be used frequently, this type of unit may be worth the investment.



Roaches Can Really Bug You

Researchers have recently discovered that the droppings or body parts of cockroaches contain allergens. Cockroaches are commonly found in crowded cities and all over the southern United States. Cockroach allergens likely play a significant role in asthma in many inner-city areas.

Actions You Can Take

An important key to pest management is to rid your home of places for pests to hide and to keep them from food and water. Pesticides are toxic for people as well as pests. Try to use integrated pest management methods that present the least risk. Some of these methods are:

- Do not leave out food or garbage.
- Store food in airtight containers.
- Clean all food crumbs or spilled liquids right away.
- Wash dishes as soon as you are done with them.
- Keep counters, sinks, tables and floors clean and clear of clutter.
- Fix plumbing leaks and other moisture problems.
- Take stacks of boxes, newspapers, and other items where cockroaches may hide out of your home.
- Make sure trash is properly stored in containers with lids that close securely, and remove trash daily.
- Try using baits, or traps first before using pesticides.
- If sprays are used:
 - Limit the spray to the infested area.
 - Do not spray where you prepare or store food, or where young children play, crawl, or sleep.
 - Carefully follow instructions on the label.
 - Make sure there is plenty of fresh air when you spray, and keep the person with asthma out of the room while spraying. After spraying, the room should be thoroughly aired out.





Knowledge is Power

We started with the premise that knowledge is half the battle. By reading this booklet, you are on the way to Allergy Free Living. Now you must put what you know to work. Make an assessment of your current home. Remember to focus on the room in which you sleep. That should be your safe, “clean” room. It should always be ready to provide you with 8 hours of clean air while you sleep, or it can serve as a refuge when symptoms seem unbearable.



Don't Be A Sucker!

Unfortunately, with growing consumer awareness of allergies, many enterprising and not so reputable people are trying to make a buck off your suffering. But you are informed, you aren't going to let them. Beware of the following marketing claims:

Its Hypoallergenic! The term hypoallergenic means that the materials used to construct the product were not shown to cause an allergic reaction in those persons tested. A pillow marked hypoallergenic only means the material in the pillow itself has not been shown to cause allergies. It does not mean that the pillow will not harbor molds and dust mites. Unless the pillow is made with an allergen proof barrier cloth, it will certainly contain dust mites and other allergens in a short period of time.

Its All Natural! There is nothing wrong with products that are all natural. But use common sense and read the label. Remember all natural does not always mean all good. Arsenic and poison ivy are all natural.

Its HEPA filtered! When a sales person tells you a product is HEPA filtered, ask if the filtering system is sealed. The vacuum cleaner market is a great example of this tactic. Many companies are marketing “allergy” vacuums with HEPA filters that actually make problems worse than better. This is because the units leak contaminants before they

And finally, your doctor should be your ally. Remember they work for you. Don't be afraid to ask questions. After all, it is YOUR body.

Additional Allergy Free Living Resources

POLLEN MAPS & DOCTOR REFERRALS

American Academy of Allergy, Asthma and Immunology
611 East Wells Street
Milwaukee, WI 53202
1-800-822-ASMA (doctor referrals)

ASTHMA DIAGNOSIS & TREATMENT

Physician guidelines and patient information.
National Asthma Education Program
(301) 251-1222

FOOD ALLERGY NETWORK

Guidelines for patients, parents, teachers.
4744 Holly Avenue
Fairfax, VA 22030
(703) 691-3179
<http://www.foodallergy.org>

CURRENT RESEARCH

National Institute of Allergy and Infectious Diseases
National Institutes of Health
Bethesda, MD 20892

EUROPEAN RESOURCES

Guide du Mieux-Etre
Dr. Jean-Marie Danze & Francine Delvaux
22 Rue Du Chalet
B 4920 Aywaille, Belgium
Tel 00-32-43.84.50.63 Fax 00-32-43.84.78.45

ALLERGEN CONTROL SUPPLIES

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This booklet is a compilation of information provided by the Environmental Protection Agency, The National Institutes of Health, and the National Institute of Allergy and Infectious Diseases, as well as our experience with allergen control. The information within is designed to enhance your knowledge. Always consult with your allergist to take proper action.

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