MULTIPLE CHEMICAL SENSITIVITY

What Is It?
Multiple chemical sensitivity (MCS) is a chronic condition in which an individual is highly sensitive to chemicals that are normally tolerated by other people. MCS is also known as environmental illness, sick building syndrome, chemical intolerance, toxin-induced loss of tolerance, reactive airway dysfunction and even Persian Gulf War syndrome.

In most people, the illness develops after an initial chemical exposure. Subsequently, the person becomes very sensitive to many different chemicals, even at very low exposures that were previously tolerated.

What Causes It?
The common chemical triggers of MCS include:

- Tobacco smoke
- Alcohol
- Perfume
- Cosmetics
- Traffic exhaust
- Gasoline fumes
- Carbon monoxide
- Nail polish remover
- Newspaper ink
- Office products
- Hair spray
- Paint
- Mercury
- Pesticides
- Insecticides
- Formaldehyde
- Cleaning products
- Artificial colors, flavors, preservatives
- Monosodium glutamate (MSG)
- New carpet
- Flame retardants (clothing and furniture)
- Chlorine from swimming pools

The precise cause of MCS is not known, though a few theories are being investigated. There is controversy surrounding these theories, however. Some believe that MCS is a purely psychological illness. Some like to call MCS sufferers hypochondriacs. They do this because of the many different symptoms and chemical triggers of the illness. The truth is, MCS is difficult to study. But some researchers are making headway. The biological mechanisms underlying multiple chemical sensitivity are slowly being uncovered and are disproving the idea that MCS is a mental illness. These theories include:

- Oxidative stress
- Imbalanced immunity
- Central sensitivity
- Inflammation
- Limbic system dysfunction

Oxidative stress can explain both the initial triggering of MCS as well as the chronic persistence of the illness.
particular oxidative stress cycle in the body, known as the nitrous oxide/peroxynitrite cycle, is activated by a wide variety of chemicals. Each chemical activation worsens the cycle, which then becomes difficult to stop. A chemical trigger or triggers initiates the cycle, and subsequent chemical contact, even at very low exposures, perpetuates the cycle, promoting the chronic nature of the illness. This oxidation may result in the vast array of symptoms that are found in MCS.

Interestingly, this nitrous oxide/peroxynitrite cycle is also found in illnesses including chronic fatigue syndrome, fibromyalgia and post traumatic stress disorder. Even more interesting is that these conditions often overlap each other. They are usually triggered by an initial event that results in a chronic state of ill health. (For more information, see the Chronic Fatigue Syndrome and Fibromyalgia sections.)

The immune imbalance found in MCS involves a number of factors, but most notably concerns immune cells called T cells. There are two types of T cells—helper T cells and suppressor T cells. Helper T cells help to fight infection and suppressor T cells help to stop that fight once the infection is no longer a threat. In people exposed to a number of chemicals, suppressor T cells predominate, which means that the immune response becomes suppressed.

Nerve inflammation is another finding in people with MCS. This is thought to occur by the irritation of nerve endings in the upper airways from inhaled chemicals. This inflammation can manifest in other areas of the body causing the wide array of symptoms seen in MCS, specifically headache, myalgia (aches), arthritis and airway symptoms.

One theory of MCS states that inhaled chemicals enter the nostrils and affect the limbic system of the brain. The limbic system regulates mood and emotions, formation of new memories, fear, rage, aggression, pleasure and reproductive cycles—all related to the symptoms of MCS.

The hypersensitivity seen in MCS could be due to some underlying factors. These factors are also found in other health conditions that are similar to MCS such as chronic fatigue syndrome and fibromyalgia. These underlying health conditions, when not treated, can contribute to the worsening of MCS. These factors include:

- Dysbiosis
- Candida overgrowth
- Leaky gut
- Food allergies and sensitivities
- Liver dysfunction

Dysbiosis is an imbalance in the ratio of good to bad bacteria, or microbes, in the gut. Fungal dysbiosis can also occur, which usually involves an overgrowth of Candida. This increase in pathogenic bacteria and/or Candida results in the production of toxins and inflammation which causes...
the small intestine to become permeable, or leaky—a condition called leaky gut. (See the Leaky Gut Syndrome and Candidiasis sections for more information on these conditions.)

A leaky gut allows toxins to enter into the body. These toxins travel throughout the bloodstream and provoke an inflammatory response in various areas of the body. This can influence the symptoms that are experienced in MCS.

In addition, a leaky gut can increase the body’s sensitivity to substances that are normally tolerated. This is common with food allergies and sensitivities, but also occurs with chemicals, especially those that are ingested with food, such as the pesticides on fruits and vegetables or the many chemicals used in processed foods.

Toxic load is another term that is used in reference to MCS. Toxic load is the amount of toxins that the body can effectively handle and detoxify. This amount is different for everyone. In people with MCS, toxic load is very low. The body simply cannot tolerate toxins of any sort. Liver dysfunction may cause a slower detoxification process, also known as sluggish liver, resulting in an overburden of toxins. Leaky gut contributes to this overburden by sending toxins to the liver that would otherwise remain in the intestines and pass with bowel movements.

It is easy to see how digestive dysfunction can increase the toxic load of the body, which can influence the chemical sensitivity of an individual. Correcting this underlying dysfunction often leads to an improvement in MCS symptoms.

What Are the Signs and Symptoms?

There is a wide variety of symptoms in MCS. These include:

- Fatigue
- Headache
- Insomnia
- Irritability
- Depression
- Memory loss
- Nausea
People with MCS may have difficulty functioning in normal living or working conditions. Some people must go to great lengths to avoid the chemicals that are practically ubiquitous in today’s world.

### How Is It Diagnosed?

Diagnosis begins with a thorough medical history and physical exam. Certain tests may also be used to determine diagnosis. Challenge tests are most preferred—the patient eliminates certain chemical triggers for a period of time and reintroduces them to see if a reaction occurs. It can be difficult to eliminate certain triggers, however, so this testing can be complicated.

Other tests that may be used for diagnosis of MCS are immune tests, such as IgE or IgG allergy tests and T lymphocyte tests. These tests can aid in determining treatment.

### What Is the Standard Medical Treatment?

There are varying treatments for MCS. All agree on one thing—avoidance of chemical triggers is important. From there, treatment varies. Some conventional doctors will dismiss the illness saying that it is “all in your head.” Antidepressant medications, usually selective serotonin reuptake inhibitors (SSRIs), are often prescribed by these doctors.

Some environmental specialists trained in multiple chemical sensitivity use a technique called provocation/neutralization, or immunotherapy. This therapy involves testing a wide variety of chemical and allergenic substances for an allergic response in the individual. For the substances that cause a reaction in the patient, gradually smaller doses are given to stop the reaction. Based on those tests, minute amounts of reactant substances are prepared and administered over a period of time as a way of desensitizing the body to those substances. Over time, the body becomes more able to tolerate the substances.
Multiple chemical sensitivity (MCS) generally refers to severe sensitivity or allergy-like reaction to many different kinds of pollutants including: solvents, volatile organic compounds, perfumes, petrol, diesel, smoke, and chemicals in general. It also often encompasses problems with regard to pollen, house dust mites pet and dander. Symptoms range from: burning, stinging eyes, wheezing, breathlessness, nausea, extreme fatigue/lethargy, headache/migraine/vertigo/dizziness, poor memory and concentration, runny nose (rhinitis), sore throat, cough, sinus problems, skin rashes and/or itching skin, sensitivity to light and noise, sleeping problems, digestive upset, and muscle and joint pain.

What a set of symptoms! You can see there would be overlap. There are other syndromes thrown in with MCS including: toxic injury (TI), chemical sensitivity (CS), chemical injury syndrome, 20th century syndrome, environmental illness (EI), sick building syndrome, idiopathic environmental intolerance (IEI) and toxicant-induced loss of tolerance (TILT).

As you may expect, these above diagnoses, with so many symptoms covering so many areas, have created much controversy and emotional responses on the part of the medical profession. In fact, the diagnosis of MCS is not recognized as an organic, chemical-caused illness by the American Medical Association, as shown in the following quote: "The phenomenon of multiple chemical sensitivities is a peculiar manifestation of our technophobic and chemophobic society. It has been rejected as an established organic disease by the American Academy of Allergy and Immunology, the American Medical Association, the California Medical Association, the American College of Physicians, and the International Society of Regulatory Toxicology and Pharmacology. It may be the only ailment in existence in which the patient defines both the cause and the manifestations of his own condition. Despite this, it has achieved credibility in workmen's compensation claims, tort liability, and regulatory actions."

From the above quoted article one can see there is considerable confusion and frustration over whether or not MCS is a real disease, a psychological disorder, or even as implied, an unscrupulous way to get paid without working. Modern medicine frankly has neither the time, resources, or training to deal with patients with the above symptom complexes, most of which can be related to some type of environmental toxicity that affects certain individuals at much lower doses than would affect the majority of people.

Until mainstream medicine can honor and treat people as distinct individuals, the problem of MCS and how to treat it will remain unsolved. Yet, I believe we have most of the tools needed to help these frustrated, misunderstood and unfortunate people.
Science continues to find and classify minor genetic differences like SNIPS, or single nucleotide isolated polymorphisms (there are hundreds of clinically important SNIPS). A SNIP involves one nucleic acid substitution in a given gene, which can have huge downstream health consequences. One example is the 677 C-T substitution, which means a cytosine is substituted for a thymine on position 677 on a given gene. When this occurs (and it does in 15 to 20 percent of the population), it means the cells cannot make enough 5-methyl reductase enzyme, which translates into not enough methyl donors for repairing our DNA damage. Women bearing children with spina bifida most often have this or similar SNIPS, and thousands of cases could have been prevented by merely supplementing with B vitamins, especially folate. This information was known for at least a decade before the government-mandated supplementation of foods with folate. Today we have 5-methyl folate, which is even better, since it bypasses the need for the reductase enzyme.

There are also many SNIPS that have to do with detoxification of toxins in the gut lining, liver, and throughout the body. In addition, there is the APOE gene that has much to do with detoxifying heavy metals like mercury. People with one or two APOE 4 genes need to focus seriously on detox programs on a permanent basis. It is easy to see that a person with one or more genomic variations in the detox pathways could have multiple symptoms related to various toxins that would not trouble people with normal detoxification pathways.

As far as the gut connection goes, most of the symptoms mentioned are shown to have a connection to leaky gut syndrome. This occurs when there is an immune imbalance due to a high load of food and/or microbial antigens (toxins) reaching the gut and the associated lymphoid tissue (GALT), and causing immune dysfunction that can affect essentially all areas of the body through upregulation (increase) of inflammation.

There is an excellent review article that outlines many of the possible therapeutic steps for people with MCS. Some of the more important points are: avoid toxins, eat an organic diet, supplement with vitamins, minerals, and antioxidants. (B6 deficiency was found in 58 percent of patients who were supplementing with oral B6.) Consider amalgam removal, chelation, and treat Candidal gut overgrowth and balance gut flora with probiotics.
People with multiple chemical sensitivity are dealing with an overburdened liver due to toxicity. I have learned a lot about this condition from a wonderful woman I met years ago, Gloria Gilbère. She educated me about this condition as she was going through her own health crisis. She, like me, was able to bring herself back to good health through cleansing and detoxification. I recommend her books, “I Was Poisoned by My Body” and “Chemical Cuisine.”

People with multiple chemical sensitivity need to be careful to take things slowly while healing. The first step is to regulate bowel elimination. Two to three bowel movements a day need to be occurring before detox and cleansing begin. This ensures that the body is able to regularly release toxins with the bowel movement. Then, a mild Total Body Cleanse, taken at half strength, should be done. From there, supporting the liver is critical. A Liver Detox, taken at half strength, followed by daily support of the liver with a liver supporting supplement, is recommended. The following suggestions will also be helpful.

**Recommended Testing**

- Comprehensive stool analysis (CSA) (See the Appendix.)

**Diet**

- A diet high in fruits and vegetables, and low in saturated and trans fats is beneficial for people with multiple chemical sensitivity. Follow the Fiber 35 Eating Plan found in the Appendix.
- A rotation diet may be helpful for people with food sensitivities. Rotating foods every four days can help to decrease the body’s reaction to foods that are eaten frequently.
- Eat organic foods when possible to avoid chemical residues found in conventionally grown foods.
- Replace saturated fats with monounsaturated and polyunsaturated fats.
- Limit sugar and simple carbohydrate (white flour, white rice, white pasta, etc.) intake.
- Replace these carbs with complex carbohydrates found in whole grains.

**Lifestyle**

- Avoid or minimize exposure to known chemical irritants.
- Use natural and hypoallergenic household and personal care products.
- Proper ventilation and use of HEPA air filters can help to decrease airborne irritants.
- When driving in high traffic areas, keep the windows closed to reduce exposure to exhaust pollutants.
- Sauna therapy can help to release toxins through sweat.

**Complementary Mind/Body Therapies**

- Stress can be a major component of this illness, so find ways to reduce it with therapies such as meditation, yoga, deep breathing, massage, biofeedback, or music therapy.
- Acupuncture may be helpful for people with multiple chemical sensitivity.
- Colon hydrotherapy is helpful for people with multiple chemical sensitivity.

**Brenda’s Bottom Line**

Eat organic foods when possible to avoid chemical residues.
<table>
<thead>
<tr>
<th>Recommended Nutraceuticals</th>
<th>Dosage</th>
<th>Benefit</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td><strong>Critical Phase</strong></td>
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<tr>
<td>Natural Laxative Formula</td>
<td>See Appendix</td>
<td>Regular bowel elimination is essential for people with MCS.</td>
<td>Should be used short-term.</td>
</tr>
<tr>
<td>Total Body Cleanse</td>
<td>Find a mild cleanse for first time cleansers</td>
<td>Encourages bowel elimination and detoxification.</td>
<td>Use after bowel elimination has been regulated. Take at half strength.</td>
</tr>
<tr>
<td>Liver Detox</td>
<td>As directed, to be taken after 30-day total body cleanse.</td>
<td>Encourages detoxification involving the liver.</td>
<td>Should contain milk thistle seed extract containing silymarin, phosphatidylcholine, selenium and herbs. Take at half strength.</td>
</tr>
<tr>
<td>Energy Support Formula</td>
<td>Use as directed</td>
<td>Improves the body’s energy production and muscle function.</td>
<td>Should contain CoQ10, L-carnitine, NADH and rhodiola.</td>
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<tr>
<td><strong>Helpful</strong></td>
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<tr>
<td>Multivitamin/mineral Formula</td>
<td>High potency</td>
<td>To correct any insufficiencies that may affect metabolic function.</td>
<td>Be sure vitamins are in their natural forms.</td>
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<tr>
<td>Bentonite clay/Glucomannan/charcoal Formula</td>
<td>Use as directed</td>
<td>Absorbs toxins and improves elimination.</td>
<td>Take with plenty of water.</td>
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<tr>
<td>Antioxidant Supplement</td>
<td>Use as directed</td>
<td>Protects tissue from oxidative damage that occurs with chemical exposure.</td>
<td>You can purchase a high-potency antioxidant formulation from most health food stores.</td>
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<tr>
<td><strong>Daily Maintenance</strong></td>
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<tr>
<td>Critical Liver Support Formula</td>
<td>Use as directed</td>
<td>Enhances liver detoxification.</td>
<td>Should include milk thistle seed extract containing silymarin, N-acetyl-cysteine, alpha lipoic acid and L-glutathione.</td>
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<tr>
<td>Omega-3 Fatty Acids</td>
<td>At least 2 grams daily</td>
<td>Reduces inflammation.</td>
<td>Get a concentrated, enteric coated, high dose EPA/DHA formulation.</td>
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<tr>
<td>Digestive Enzymes</td>
<td>Take with meals</td>
<td>Helps digest and absorb nutrients from food.</td>
<td>If low stomach acid is found, find a formula that contains hydrochloric acid.</td>
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<tr>
<td>Fiber</td>
<td>4-5 grams twice daily as part of a 35 gram per day fiber diet</td>
<td>Helps regulate bowel movement and eliminate toxins.</td>
<td>Use a combination soluble/insoluble fiber supplement.</td>
</tr>
<tr>
<td>Probiotics</td>
<td>30 - 80 billion culture count twice daily</td>
<td>Stimulates immune system, reduces inflammation and helps bind toxins.</td>
<td>Look for high amount of bifidobacteria, the main beneficial bacteria in colon.</td>
</tr>
<tr>
<td>Vitamin D&lt;sub&gt;3&lt;/sub&gt;</td>
<td>1000-5000 iu daily</td>
<td>Anti-inflammatory. Most people are low or deficient.</td>
<td>Blood levels should be between 50 and 70 ng/mL.</td>
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See further explanation of supplements in the Appendix