# Environmental Medicine Update

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## Treatment of People with Multiple Chemical Sensitivity

Multiple chemical sensitivity (MCS) is a condition in which a person experiences negative health effects in many organ systems from exposure to low levels of common chemicals. Exposure can be from inhalation, such as breathing someone else's perfume; from absorption through the skin, such as coming into contact with a cleaning product or detergent; or from ingestion, such as eating or drinking something with heavy metal or pesticide contamination. There has been some progress made in the development of a standard definition for MCS, but mostly the diagnosis is based on symptoms.

People with MCS suffer from intolerance to low levels of chemicals in our environment. They experience very negative sensations to chemicals that most people either don't react to or only find mildly irritating. The effects may range from a mild to severe and include:

- headache
- dizziness
- nausea
- musculoskeletal pain
- poor memory and concentration
- depression, anxiety
- irritability
- fatigue
- digestive disturbances
- skin rashes

Almost everyone is this country is exposed to small amounts of toxic chemicals on a daily basis. So why doesn't everyone have symptoms of MCS? There are many theories as to why some people develop it, yet there is no agreed-upon etiology. What is clear is that people suffering from MCS are born with some type of predisposition to react to their environment. The newest area of research is genetic polymorphisms. The liver is the main organ that metabolizes the chemicals which we inhale, ingest, or otherwise come into contact with. It has numerous enzymatic pathways responsible for metabolism of chemicals. Genetic polymorphism is a mild alteration of one or more of these enzymes that impair the breakdown of toxins. People with MCS seem to be unable to properly metabolize and eliminate chemicals from the body, thus accumulating them and disrupting the hormonal, neurological, and immune systems.

It is a chicken-or-egg question in terms of what comes first: does exposure to a chemical disrupt the body and create sensitivity, or is a person born with genetic changes that automatically cause reactions to chemicals? Some studies have shown a clear link to exposure to a specific chemical and MCS. In 1998 in the *American Journal of Medicine*, a study linked exposure to pesticides, solvents such as toluene, and formaldehyde as initiators of headache, fatigue, brain fog, allergies, skin reactions, depression, anxiety, musculoskeletal pain, and respiratory and neurological symptoms.[1]

As difficult as it is for patients suffering from MCS to get a diagnosis, it is even harder to find treatment. We still lack a widely accepted treatment protocol for the condition. Patients turn to conventional doctors as well as alternative practitioners seeking relief from symptoms and hope for a cure. Often patients spend time and money seeing numerous practitioners and trying various treatments, often getting only partial relief from symptoms. A study in 2003 published in *Environmental Health Perspectives* tried to examine the perceptions of persons with MCS and what treatments helped, harmed, or had no effect.[2]

The most highly rated treatments were:

1. creating a chemical-free living space (this can be very costly)
2. chemical avoidance
3. prayer
4. meditation
5. acupressure
6. touch for health
7. air filter
8. rotation diet

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Therapies rated more harmful than helpful were:

1. provocation-neutralization testing for chemicals and preservatives
2. UltraClear
3. hydrogen peroxide
4. Microhydrin
5. prescription antidepressants (all of them)
6. antiseizure medications (other than Neurontin)
7. glutathione nasal spray
8. acyclovir

Another interesting perception was the removal of mercury fillings. Forty-seven percent of persons with MCS who had their mercury amalgam fillings removed experienced no noticeable effect on their condition, 9% believed that it was harmful in some way, and 27% thought that it was helpful.[2] This study is by no means meant to create a standard of care for persons with MCS. I, in fact, have had patients respond well to some of the treatments it listed as being more harmful than helpful; I think it merely underscores the difficulty in treating this condition and provides some idea about MCS patients' perceptions regarding the improvement of their condition.

I have treated over 100 people with symptoms consistent with a diagnosis of MCS. Following are a few case examples to offer guidance on how patients and practitioners may begin to address this challenging condition.

**Case 1: Severe MCS**

Susan was a 58-year-old woman living in the South Bay area of California who set up a phone appointment for an environmental medicine consult. She stated that she was unable to drive to my office in the East Bay for an in-person appointment because she was too chemically sensitive to leave her home, let alone drive a car on a busy urban highway. She e-mailed the necessary new-patient paperwork, which included questionnaires on her health history and environmental history. She faxed a copy of blood work done by her primary-care provider 6 months prior that showed normal CBC (complete blood count), CMP (comprehensive metabolic profile), lipid, and TSH (thyroid stimulating hormone). Her past medical history consisted of a hysterectomy at age 42 for fibroids, and hypothyroidism since age 46 for which she was taking 150 mcg Synthroid. This was the only medication she could tolerate. She had a diagnosis of depression, anxiety, fibromyalgia, and chronic fatigue syndrome along with the chemical sensitivity. She was not working and had been on disability for 3 years. Her symptoms included headaches daily; fatigue; muscle aches; and mood changes when ever she smelled certain "chemical odors," ate certain foods, was around conventional cleaning products, or drove for more than 20 to 30 minutes.

Her environmental exposure history was significant for her growing up in Sonoma County, where pesticides were frequently used. She recalled, in her 30s, about once a week smelling a sulfur smell in her neighborhood and finding a coating or white dust in the car. She thought that these were from pesticides sprayed in the wine country, 3 miles from her home.

She had done her own research on chemical sensitivity and had changed everything in her home environment and was living "chemically free." She was using a reverse osmosis water filter and HEPA-type air filters at home. The only treatment she had tried in the past that she thought helped reduce her sensitivity was what she described as allergy shots. But the improvement didn't last; and the symptoms were currently severe and she was having what she called a "flare-up."

The initial treatment plan consisted of:

1. castor oil packs daily for 30 minutes over the liver with heat;
2. alternating hot/cold showers daily with 3 minutes hot, 30 seconds cold rinse, and repeating 2 times;
3. coffee enema 3 times a week;
4. fat-free Pringles: 5 chips once a day for two weeks, then 5 chips twice a day for two weeks;
5. 2 tbsp ground flaxseed a day on food;
6. 3 servings of cruciferous vegetables a day.

I didn't give her any supplements in the beginning because I knew that she would react. The Pringles were for the olestra content. Some studies show that a nonabsorbable lipid in the intestine, such as olestra, can increase the excretion of organochlorine compounds in the feces.[3,4] She called within 5 days to state that she was having gas, bloating, and cramping. I had her stop the cruciferous vegetables, which resolved the symptoms. After 4 weeks, she felt well enough to drive to my office for a follow-up appointment. She was 5 feet, 5 inches; 140 pounds; and fair skinned. She stated that she had more energy, less-frequent headaches (about every other day), and fewer muscle aches. She wanted to proceed with more treatment.

The second treatment plan consisted of:

1. continue castor oil packs and showers;
2. stop the Pringles and coffee enemas;
3. ¼ tsp psyllium-husk powder a day in water;
4. sauna therapy 2 to 3 times a week: 10 minutes hot, 30-second cold shower, repeat 3 times, and end on cold;
5. colon hydrotherapy twice a week;
6. 2 caps a day of a supplement for the liver consisting of:

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| *Arctium* root | 300 mg |
| dandelion root | 300 mg |
| silymarin | 100 mg |
| celandine | 100 mg |
| fringe tree | 100 mg |
| beet root | 100 mg |

She called within 2 days and said that she was having gas, bloating, and cramping. I had her stop the psyllium-husk powder, which resolved the symptoms. After another 4 weeks, we had a phone appointment and she said that she could only tolerate 1 colonic a week and the sauna only 2 times a week. Anything more frequent made her feel tired and "ache all over." Her headaches had diminished to once a week, and she was able to take the liver-support product without any adverse reaction. It was now time to heal the gut.

The next treatment consisted of:

1. stop the castor oil pack;
2. continue colonic and sauna, ground flaxseed, and liver product;
3. glutamine powder: 200 mg twice a day in water;
4. probiotic powder: twice a day with food;
5. liquid fish oil: 1500 mg a day.

In patients with MCS, I always try to use powders and liquids to decrease the chance of reaction to the makeup of the capsule, tablet, or gelcap. She called within 4 days and said she was having a severe reaction/flare-up and had a rash all over her body and severe headache. I asked her to stop the fish oil and glutamine powder. I knew that the probiotic was not the culprit and told her to restart the Pringles therapy and coffee enemas for 2 weeks, then reintroduce the fish oil and glutamine powder one at a time. She called 2 weeks later and said that the reaction was caused by the glutamine powder. This flare-up set her back and she was not able to get a colonic, go to the sauna, or leave the house again during the two weeks.

This process went on for 3 to 4 months. I was able to build her up to tolerating a colonic twice a week, sauna therapy 4 times a week, and consuming broccoli and brussels sprouts without reaction. We added N-acetylcysteine, IV glutathione push of 500 mg once a week for 3 weeks, and a product consisting of:

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| alpha-lipoic acid | 200 mg |
| glycine | 500 mg |
| glutamine | 500 mg |
| L-methionine | 400 mg |
| taurine | 500 mg |
| phosphatidylcholine | 100 mg |
| DMG | 500 mg |
| DHA | 550 mg |

Her headaches resolved and her energy improved. She could drive short distances without reacting and even go into public places such as a restaurant for short periods of time. Her fibromyalgia, anxiety, and depression needed to be addressed and we agreed to find a physician closer to her home to continue the work we started.

**Case 2: Mild MCS**

Cindy, a 43-year-old woman from Michigan, came to see me for what she described as chemical sensitivity. During the intake, she stated that she had severe reactions to odors and chemicals in the environment, and she thought that it was from growing up and living outside Detroit, where there was (and still is) a lot of industry creating air and water pollution. She stated that her symptoms were dizziness, headache, and fatigue when she smelled strong chemical odors such as cleaners, detergents, soaps, and other solvents or fragranced products. The first thing I noticed was that she was wearing a strong synthetic perfume. The staff in the office commented on how strong it was, because we are a scent-free clinic.

She had tried a detox diet that she read about in a book but could not remember the name of the book. She had tried acupuncture and Chinese herbs; she could not recall or did not know the name of the herbs. She had been to a chiropractor and took some supplements for her liver but wasn't certain of the name of the product or the ingredients. She had no reaction to these products but no relief from her symptoms. Her CBC, CMP, lipid panel, and thyroid panel were within normal limits.

I ran a urine solvent panel, and her levels of xylene and toluene were elevated. I also ran a provocative urine heavy metal test with 2200 mg DMSA, and her mercury was 32 (should be below 7); the other metals were within normal range. It was determined that the mercury came from her lifetime intake of fish once a week from the Great Lakes region. The two solvents that were found in her body came from air pollution, driving, and frequent air travel. She flew once a month for work for the past 8 years.

Her initial 6-week treatment consisted of education on avoiding chemicals in her food, air, water, and products, both at home and work. She was told to stop wearing perfume and to get a whole-house water filtration system and a HEPA-type room air filter. She was set up on a detox diet aimed at supporting elimination through the bowel and kidney. Then she was placed on a 6-month chelation plan using oral DMSA 5 days on, 9 days off for 3 cycles, along with sauna therapy 4 times a week and a colonic 2 times a week.

Other supplements included:

1. a detox cofactor support product consisting of high-dose vitamin and mineral cofactor for phase 1 and 2 liver detox pathways;
2. a product to support phase 1 and 2 pathways for people with MCS:

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| alpha-lipoic acid | 200 mg |
| glycine | 500 mg |
| glutamine | 500 mg |
| L methionine | 400 mg |
| taurine | 500 mg |
| phosphatidylcholine | 100 mg |
| DMG | 500 mg |
| DHA | 550 mg |

She called from Michigan after 8 weeks and said that she had completed the chelation, colonic, sauna therapy, and diet and made the changes to her home and life in regard to avoiding chemicals. Her dizziness, headaches, and fatigue all improved. She declined to retest for heavy metals and wasn't willing to give up wearing perfume but did cut back on the amount she used and agreed to only wear it on special occasions.



## Notes

1. Bell IR et al. Illness from low levels of environmental chemicals: relevance to chronic fatigue and fibromyalgia. *Am J Med.* 1998;105(3A):74s–82s.
2. Gibson PR, Elms ANM, Rudling LA. Perceived treatment efficacy for conventional and alternative therapies reported by persons with multiple chemical sensitivity. *Environ Health Perspect.* 2003;111(12)1498–1504.
3. Jandacek RJ, Tso P. Enterohepatic circulation of organochlorine compounds: a site for nutritional intervention. *J Nutr Biochem.* 2007;18:163–167.
4. Moser GA, McLachlan MS. A non-absorbable dietary fat substitute enhances elimination of persistent lipophilic contaminants in humans. *Chemosphere.* 1999;39(9):1513–1521.

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