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# MCSA NEWS

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News

# Washington Governor Proclaims May for MCS Awareness

Thank you to Washington Governor Christine Gregoire for signing a proclamation (pictured on the cover) declaring May 2011 *Multiple Chemical Sensitivity Awareness Month*. This proclamation was made possible by several wonderful and hard working people in the state of Washington.

Every year countless individuals and organizations listed across the United States request proclamations for the many forms of environmental illness, including:  
*Multiple Chemical Sensitivity Awareness Month*  
*Electromagnetic Sensitivity Awareness Month*  
*Toxic Injury Awareness and Education Month*  
*Indoor Toxic Mold Awareness Week*

*Chemical Awareness Week*  
*Food Allergy Awareness Month*  
*Neuroendocrine-immune Disorders Awareness Day*  
*Chronic Fatigue Syndrome Awareness Month*  
*Fibromyalgia Awareness Month*  
*Myalgic Encephalomyelitis Awareness Day*  
*Gulf War Illness Recognition Day*

A list of these individuals and organizations may be found at:  
[http://mcs-america.org/index\\_files/proclamations.htm](http://mcs-america.org/index_files/proclamations.htm)

For more information on how to request a proclamation and plan for awareness events, see:  
<http://tinyurl.com/5smehmo>

Para obtener más información sobre cómo solicitar una proclama y el plan de actividades de sensibilización, consulte:  
<http://tinyurl.com/64bfm9y>



*Op - Ed*

# ***Mass Psychogenic Illness Real or Imagined?***

**“According to a patient rating system by Health Grades, Inc., Staudenmayer achieved only one star in a five star rating system, the lowest grade.”**

Five workers who were exposed to solvents used in membrane roofing repair work on an office building were assessed by Herman Staudenmayer and colleagues in a recently published study and labeled as suffering from mass psychogenic illness (MPI).<sup>1</sup>

Herman Staudenmayer is a psychologist in private practice in Denver, Colorado with a long history of disbelief in the physiological basis of illnesses resulting from toxic exposures. He advocates for treating patients with these illnesses via psychological methods for which there is no evidence of an efficacious cure.

According to a patient rating system by Health Grades, Inc., Staudenmayer achieved only one star in a five star rating system, the lowest grade.

Qualified treating physicians diagnosed the workers in this study with irritant-associated vocal cord dysfunction (IVCD) and reactive airways disease syndrome (RADS) resulting from the sol-

vent exposure.

Staudenmayer and his colleagues claim that subsequent testing of the building in question revealed exposure levels believed to be well below those doses anticipated to cause clinical symptoms. Despite the empty reassurance, the workers all fell ill within a two days period of work in the building. Mathematical calculations conducted in this study have failed to take into account extraneous variables and synergistic effects which may have occurred in the building during the exposure period; therefore, they are an unreliable predictor of actual exposure levels.

The study makes a baseless claim that there was no objective medical evidence validating the symptoms experienced by the workers and diagnosed by the treating physicians. Instead it asserts that this was nothing more than a case of mass psychogenic illness created by worker fears. However, the study provides no objective evidence of mass psychogenic illness and the methodology is unsubstantiated.



***“The financial benefits of malingering are non-existent, a mere tiny amount of disability benefits that does not cover basic living expenses and often requires fighting for many years to obtain while remaining poverty stricken with no income as life is endangered without funds for basic necessities and medical treatment.”***



There are no reliable clinical tests to diagnose mass psychogenic illness and the diagnostic criterion is very subjective. Essentially mass psychogenic illness refers to outbreaks of illness attributed to a toxic agent but for which no plausible organic cause has yet been uncovered. It's a diagnosis of exclusion, making it very easy to ignore concrete, objective facts, such as the treating physician's evaluation and diagnosis, in favor of diagnosing mass psychogenic illness which protects responsible parties from litigation.

A 2010 study published in *Epidemiology* examined 280 chemical incidents and found that only 7% were probable cases of mass psychogenic illness.<sup>2</sup> The remaining 93% of cases were related to the toxic exposure. This is a statistically significant finding that puts mass psychogenic illness in a rare minority.

In regard to the exposed workers, the study asserts that its, “psychological evaluation identified defensiveness and self-serving misrepresentations of exaggerated health concerns associated with somatization and malingering.” Here a blind eye is turned to the detail that affected subjects want to get well and get on with life, hence insistence in finding out what is causing symptoms and learning how they might be eliminated.

The vast majority of patients are not interested in lawsuits and/or malingering. Malingering is present in a sizable minority of patients according to research.<sup>3</sup> The financial benefits of malingering are non-existent, a mere tiny amount of disability benefits that does not cover basic living expenses and often requires fighting for many years to obtain while remaining poverty stricken with no income as life is endangered without funds for basic necessities and medical treatment. The usefulness of such as label lies in preventing effective and honest litigation against responsible parties. .

**“There  
are no  
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Perhaps the most ridiculed finding in this study is the claim that social histories taken on the exposed subjects identified prior stressful life events that were predictors of psychological predisposition for mass psychogenic illness. It is almost laughable to think that a person could go through life without a stressful life event. Life is full of tests, competitions, applications, relocations, marriage, divorce, job stress, financial challenges, relationship struggles, and other ordinary and stressful life events. It is implausible that anyone could be alive and not have experienced a stressful life event. To cite this as a predictor for mass psychogenic illness is unsupported, invalid, and unreliable in the face of its own subjectivity.

The study further claims that the subjects illness beliefs were reinforced by treating physicians diagnoses of what is referred to as “pseudo-disorders associated with patient misrepresentation of exaggerated health concerns”. However, physician’s routinely base their diagnoses on objective clinical evidence. The study fails to provide any exclusion criteria and blatantly disregards clinical laboratory results supporting the diagnoses made by qualified medical doctors in favor of pseudo scientific theories which may protect defendants in toxic tort litigation.

There are no clinical tests to prove mass psychogenic illness exists. Junk science like this is a disservice to physicians, patients, and scientists alike. It is inconceivable that irresponsible pseudoscience like this managed to make it into the Journal of Medical Toxicology and become indexed in PubMed?

### References

1. Staudenmayer H, Christopher KL, Repsher L, Hill RH. Mass Psychogenic Illness: Psychological Predisposition and Iatrogenic Pseudo-vocal Cord Dysfunction and Pseudo-reactive Airways Disease Syndrome. J Med Toxicol. 2011 Feb 8.
2. Page, L, Keshishian, C, Leonardi, G, Murray, V, rubin, GJ, Wessley, S. Frequency and Predictors of Mass Psychogenic Illness. Epidemiology: September 2010;21(5);744-747. doi: 10.1097/EDE.0b013e3181e9edc4
3. Greve KW, Ord JS, Bianchini KJ, Curtis KL. Prevalence of malingering in patients with chronic pain referred for psychologic evaluation in a medico-legal context. Arch Phys Med Rehabil. 2009 Jul;90(7):1117-26.



*Op-Ed*

# Why Our Urban Trees Are Dying

- Andrew Goldsworthy, PhD

**“Electricity  
is  
carried  
in living  
organisms  
by  
ions.”**

## Introduction

Trees are now dying mysteriously from a variety of diseases in urban areas all over Europe and are also showing abnormal photoperiodic responses. In addition, many have cancer-like growths under the bark (phloem nodules) and the bark may also split so that the underlying tissues become infected. All of these can be explained as being a result of weak radio-frequency radiation from mobile phones, their base stations, WiFi and similar sources of weak non-ionising radiation. But first let us look at how living organisms use electric currents that they generate themselves and which perform vital functions in their normal day-to-day metabolism and growth. We will then go on to see how weak electromagnetic fields can disrupt these and bring about many unwanted biological effects.

## Electricity in living organisms

Electricity is carried in living organisms by ions (electrically charged atoms and molecules). It is generated using metabolic energy to pump ions through cell membranes, which are thin semi-fluid films made mainly of lipids and protein. This generates an electrochemical gradient (a combination of a voltage and concen-

tration gradient) across the membrane and is a store of energy that can then be used for other purposes. The electrical component of this gradient is called the membrane potential and is typically several tens of millivolts for an external membrane.

## The chemiosmotic production of ATP in bacteria

Even simple cells such as bacteria use electricity. Bacteria use energy derived from metabolising their food to pump positively charged hydrogen ions out of the cell through their external membranes to give an electrochemical gradient. These ions are then let in again in such a way that the energy of this gradient is used by an enzyme called an ATPase to generate ATP in a process known as “chemiosmosis”. ATP is the main energy currency of the cell and can then be used for a variety of purposes.

## Ion co-transport

The energy of the electrochemical gradient is also used by transporter enzymes in the membrane to carry nutrients actively into the cell against a concentration gradient. Transporter enzymes mechanically couple the passive movement of ions down their electrochemical gradient to the active transport of other materials in a process known as ion co-transport, which is the main mechanism for active transport in cells.



**“Cell polarity makes one end of a cell different to the other and is determined electrically.”**

### The situation in higher plants

Higher plants get most of their ATP from their mitochondria, which oxidise food materials in the dark, and from photosynthesising chloroplasts in the light. These organelles were derived from bacteria over a billion years ago, when they were engulfed by and then lived symbiotically with the precursors of animal and plant cells. They still make ATP electrically by chemiosmosis like the original free-living bacteria, but they make some of this ATP available to the plant (or animal) cell.

Plant cells use some of this ATP to pump hydrogen ions out through their own external membranes to give a second electrochemical gradient, which can be used for the active transport of nutrients and other materials into or out of the cell by ion co-transport. It follows that the efficiency of these processes depends on the insulating properties of the cell membrane. If electromagnetic fields make it leak, the energy available to the cell will be reduced and it will not function or grow so well.

### Cell polarity

The membrane potential also helps to generate a voltage between the apex and base of the cell, which gives rise to physiological cell polarity. Cell polarity makes one end of a cell different to the other and is determined electrically. For example, in a

tip-growing cell, positive ions are pumped out over most of the cell surface to generate the membrane potential, but are let back in again, mostly at the growing tip, which has the greatest demand for energy. This makes the outside of the cell at the tip slightly negative to the outside of the rest of the cell. This is the trans-cellular potential, which is measured as the voltage between the tip and base of the cell. It is typically about one millivolt, but is enough to move differently charged materials electrophoretically to different places along the cell's axis. This makes the two ends of the cell physiologically different and helps to create and maintain cell polarity.

### Polarity in tissues

When polar cells divide, the daughter cells usually retain the same polarity so that, if they give rise to a column of cells, such as in the trunk of a tree, the daughter cells are electrically in series so that their voltages add up. By placing electrodes at different levels up the tree trunk we can measure relatively large voltages that correspond to the sum of the voltages generated by the intervening cells.

However, it isn't quite as simple as this because of the complex structure of the tree. For example, the cambium gives rise to horizontal columns of cells as it divides to increase the girth of the tree. Also, there may be variable voltages between different parts of the tree as their cells use ion currents to absorb nutrients. Nevertheless, the voltages that we measure between different parts of the tree are a reasonable measure of its physiological activity. I will say more about this later.





### Cell membranes

As we have seen, plants make extensive use of direct currents (DC) for a variety of purposes, but they do not use alternating currents (AC). In fact, artificially applied alternating currents are harmful. Suzanne Bawin and her co-workers discovered this in the 1970s when they found that weak electromagnetic fields could remove calcium ions from the cell membranes of animal brain tissue. These calcium ions are important because they are positively charged and help to bind together the negatively charged molecules that make up most of the membrane, rather like cement binds together the bricks in a wall. If some of these calcium ions are removed by alternating fields, the membranes will be weakened, become more inclined to leak, and this can produce a variety of biological effects.

One of the effects is to partially short-circuit the membrane potentials of individual cells. This would make the production and use of its energy less efficient, leading to poor growth and loss of vigour. Also, by its likely effect in reducing the trans-cellular potentials, it could disrupt the orderly polar growth of tissues and lead to the production of disorganised cancer-like structures.

However, the most serious effect is on the leakage of materials from lysosomes (in animals) and vacuoles (in plants), both of which contain toxic materials and digestive enzymes normally used to digest and recycle waste. These enzymes include DNase, which destroys

DNA, and it has already been shown many times in animal tissue cultures that just a few hours exposure to mobile phone radiation can shatter their DNA into fragments. This could lead to mutations, loss of cellular function and possible cell death. The same may be true for plants and trees.

### Weak alternating fields are more effective than strong ones

When people tried to measure the field strengths that released calcium from cell membranes, they discovered that it occurred only within narrow ranges of signal strengths (amplitude windows) above and below which there was little or no effect.

We can explain this with a simple analogy. Imagine trying to harvest ripe apples by shaking the tree. If you do not shake hard enough, nothing happens. If you shake very hard, all the apples fall off. But somewhere between the two, if you shake it with just the right strength (amplitude of shaking) only the ripe ones fall off.

Now let us apply this to cell membranes, which are made of negatively charged components bound together by positively charged ions, of which calcium with its double positive charge is the most important. There are also other ions such as potassium with only one positive charge, but these are less effective. When an alternating field is applied across the membrane it tries to vibrate in time with the field, with the negative membrane components moving in one direction and their positive ions trying to move in the other. If the field is very weak, nothing much happens. If it is very strong, all the ions bounce on and off the membrane in time with the field and there is no overall change in the balance of the ions involved. However, somewhere between the two, there is an "amplitude window" where the field is only strong enough to remove the calcium ions because of their double charge. Their place is then taken by less affected ions with only a single charge, such as potassium. As a result, more and more calcium is removed with each cycle of the alternating field until the membrane is weakened sufficiently to leak and produce a biological effect.

## Evidence from the biological effects of “electronically” conditioned water

Electronic water conditioners are now widely used to remove lime scale from plumbing. They change the physico-chemical properties of water and impurities in it to make it more attractive to calcium ions and enable it to remove the lime-scale. They work by applying very weak pulsed electromagnetic fields to the water from antennas wound around the supply pipe. We used it to test the hypothesis that it could produce biological effects similar to the direct application of electromagnetic fields by removing calcium from cell membranes.



After conducting many experiments on both yeast and higher plant seedlings, we concluded that it really does produce similar biological effects. However, exactly what happened depended on the time for which the water had been conditioned. Irrigation with water conditioned for less than half a minute stimulated the germination and growth of wheat seeds, but the growth stimulation did not last long and the untreated controls soon caught up. However, water conditioned for longer inhibited growth from the outset. A possible explanation for this is that the weakly conditioned water (conditioned for less than half a minute) causes minor damage to cell membranes, which activates repair mechanisms, including the synthesis of enzymes and materials normally needed for growth. However this can only occur for a limited time because the resources needed become exhausted, the growth stimulation stops and the untreated controls catch up. Arguably, the more strongly conditioned water does so much damage that the initial growth stimulation does not occur and we see only the inhibition. This dual effect is

quite common with direct exposure to electromagnetic fields. Short exposures seem to stimulate growth but longer exposures inhibit it. This could be what is happening to our trees to cause bark crack and phloem nodules.

### Cracks in the bark

If growth is initially stimulated by electromagnetic fields, then we might expect the tissues that are already programmed to grow to respond first. These would include the cells of the cambium, which normally divide to increase the girth of the tree. If this were too rapid, it could cause the bark to split and the

cracks could then become infected. So this extra growth may not necessarily be a good thing.

### Phloem nodules

These can be explained by using what we know about plant tissue cultures. These are usually made by putting pieces of plant onto a nutrient medium containing high concentrations of growth hormones. This makes them produce large amounts of undifferentiated callus, which can grow indefinitely so long as the hormone supply is maintained. If the hormone concentration is reduced by placing the callus on a medium with less hormone, it may differentiate to give something that looks like phloem nodules, having what looks like vascular tissue surrounded by callus. Could this be happening to the trees? If the electromagnetic growth stimulation involves the production of extra growth hormones, this could stimulate the production of undifferentiated callus in the phloem to form “cancer-like” growths. When the rapid growth stage subsides, less hormone is available and the callus differentiates to form the central vascular tissue characteristic of phloem nodules.

## The biological clock

Every living cell in plants and animals has a normally accurate clock mechanism that enables it to tell the time of day so that it can anticipate the arrival of dawn and dusk. It is needed because different enzymes are required during the day to those needed at night. Because enzymes take some time to make, their synthesis must start well before they are needed. The biological clock is therefore like an alarm clock that tells the cell to get ready for its day's work before dawn. As a result, many metabolic processes are coupled to the clock mechanism in preference to the actual change between day and night. This gives rise to circadian rhythms for these processes which can often continue indefinitely, approximately every 24-hours, even under constant conditions.



## Radio-frequency radiation interferes with the biological clock

Unfortunately, these circadian rhythms are seriously disrupted by radio frequency electromagnetic radiation. We have seen this happen with the electrical potentials measured in trees at Alphen aan den Rijn and Wageningen. The potentials (which are a measure of physiological activity) followed a 24-hour cycle but faded out in a matter of weeks when radio frequency radiation was applied from a WiFi access point. This is bad news since it means that anything controlled by the clock can never work at peak activity under these circumstances.

One of the most important things controlled by the biological clock is the immune system. The immune system requires quite a lot of energy. In plants, it is normally programmed to become active just before the clock “thinks” it should be day

(the subjective day) during which there is normally spare energy available from photosynthesis. In animals, the immune system works best in the subjective night, when the lack of physical activity during sleep normally makes more spare energy available. However, in either case, if the clock is not functioning properly due to electromagnetic radiation, then at no time will the immune system be functioning at maximum activity and the tree or animal will become more susceptible to a whole range of diseases to which it might otherwise be resistant.

## Cryptochrome and the biological clock

The effect of radio frequency radiation on the biological clock is probably due to its effects on the pigment cryptochrome, which is an essential part of the clock. Cryptochrome is affected by radio waves because it works by shuffling electrons between two free radicals. Free radicals are magnetic, and this shuffling of electrons between them is affected by both permanent magnetic fields and radio frequency fields. The frequencies responsible are lower than those of microwaves, but can be generated when microwaves are modulated to carry information or speech.

This effect on cryptochrome was first discovered by Ritz and his co-workers in 2004 in birds (robins) that use its sensitivity to permanent magnetic fields to navigate using the Earth's magnetic field. They found that the birds became unable to orient themselves for navigation when exposed to a wide range of radio frequencies. If this is true for animal navigation, it is probably also true for its role in timekeeping and circadian rhythms will also be disrupted. We have already seen this in human beings. People living too close to mobile phone masts frequently report poor sleep at night and tiredness during the day, probably because their circadian sleep/wake cycle has been either disrupted or its amplitude reduced, just as we have seen in our trees.

## Effects on the shedding of leaves

A more obvious effect of radio waves on the biological clock is on the shedding of leaves and fruit in some trees. This is normally a photoperiodic response to the short days of autumn, with the day-length being measured by the biological clock. An increasing number of trees are now failing to shed their leaves and/or fruit at the proper time and they may even remain attached throughout the winter. Oak and beech seem to be particularly badly affected, but it happens with other trees too. This is an indication that the biological clocks and circadian rhythms of these trees are no longer functioning properly, and it is a reasonable prediction that their immune systems, which are also coupled to the clock, are also not functioning properly. Such trees can be expected to become more susceptible to disease and may soon become unhealthy and die. Similar effects on animals and humans are to be expected.

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## Suggestions for further reading

Details of the chemiosmotic production of ATP and ion co-transport for the uptake of nutrients can be found in almost any good biochemistry text book.

More on the effects of electromagnetic fields on plants can be found in a Chapter 11 by A Goldsworthy in "Plant Electrophysiology; Theory and Methods. Ed. AG Volkov, Springer 2006.

More on circadian rhythms can be found in "Introducing Biological Rhythms" WL Koukkari and RB Sothorn, Springer, 2006.

Effects of radio waves on cryptochrome can be found in Ritz et al. Nature 429 13th May 2004. pages 177-180.

Effects of radio waves on humans: <http://tinyurl.com/34gvn29>

Effects of conditioned water on yeast: A Goldsworthy et al. Water Research 33, 1618-1626 (1999).



Andrew Goldsworthy was born in 1939. After a conventional Grammar School education he obtained a First Class Honors Degree in Botany followed by a PhD for research into plant physiology and biochemistry at the University of Wales. He went on to lecture at Imperial College London, where he spent the rest of his career. He has had many teaching and research interests, ranging from the biochemistry of photorespiration to the biology of space flight. He retired in 2004 but remains as an honorary lecturer. He was also a scientific advisor to the European Space Agency and is currently a scientific advisor to several European charities concerned with the environment and electromagnetic fields, including the Bio Electromagnetic Research Initiative, the Radiation Research Trust, and Electrosensitivity-UK. He has always had a strong interest in how living organisms use internally-generated electric currents to control their growth and metabolism, and in their disruption by externally-applied currents and fields. In his retirement, he pieced together nuggets of information from a wide range of scientific journals and created simple layperson's explanations of how weak electromagnetic fields affect us all. The first of these can be found at <http://tinyurl.com/2nfujj>. The present article was submitted at the request of the Canadian House of Commons Standing Committee on Health for a hearing on April 29th 2010 on the biological effects of microwave radiation".

*Scientific Study*

# Scientific Consensus on Electromagnetic Fields

**“Current measures of safety have been found to be grossly inadequate.”**

After three days of intensive discussion, a scientific panel is arguing for a new approach to protecting the global public from electromagnetic fields (EMF).

EMF exposures result from the use of electric power and from wireless telecommunications technologies for voice and data transmission. Other sources of exposure include energy, security, military, and radar systems used in weather and transportation.

Scientific evidence shows biological disruption from EMF exposure, including changes in glucose metabolism, inner ear disturbances, cell leakage, cancer, neurological disease, immune system impairment, sleep disruption, and alterations in mood and cognitive abilities.

Current measures of safety have been found to be grossly inadequate.

solute proof.

Sensitive populations account for about half of the global population and include the elderly, ill, children, and genetically susceptible. This group is the most vulnerable to the negative effects of EMF exposure.

In terms of the safety of technologies emitting EMF, the panel shifts the burden of proving safety to the manufacturers and suppliers. In addition, the panel suggests that technologies be proven safe before they are marketed as opposed to the current system of safety testing only after negative events affect significant numbers of people.

The panel also suggests that an open access disease registry be formed to track trends of EMF exposure related illnesses, particularly cancer, immune, and neurological problems.

Finally, the panel strongly recommends that the environmental causes of electrosensitivity be classified as a functional impairment.

## Reference

Fragopoulou A, Grigoriev Y, Johansson O, Margaritis LH, Morgan L, Richter E, Sage C. Scientific panel on electromagnetic field health risks: consensus points, recommendations, and rationales. *Rev Environ Health*. 2010 Oct-Dec;25(4):307-17.



“New, biologically-based public exposure standards are urgently needed to protect public health worldwide,” said the panel. These standards must err on the side of prudent precaution, not ab-

*Scientific Study*

# *Left Hung Out to Dry with EI*

**“All experts had a wide spectrum of beliefs about the cause of MCS.”**

In the face of current scientific research, it almost seems preposterous that any debate still exists over the legitimacy of environmental illnesses. Yet, a very small minority steadfastly sticks to antiquated ideas that environmental illnesses are not organic conditions.

“More than 20 years after it was first identified, the anomalous condition, multiple chemical sensitivities (MCS), remains immersed in controversy, with a continuing debate over its causation being played out in the medico-scientific community and in the courts,” says Tarryn Phillips.

Phillips is a researcher at the School of Social and Cultural Studies, University of Western Australia,

Phillips drew on ethnographic research which was conducted in Perth, Western Australia to scrutinize the decision-making practices of experts, eight skeptics and eight who support an organic chemical explanation for multiple chemical sensitivity (MCS).

Both groups use evidence-based, inductive reasoning. All experts had a wide spectrum of beliefs about the cause of MCS.

However, skeptics used a different set of requirements for evidence and showed more faith in the current definitions of toxicity than those who support an organic chemical explanation.

New research is showing that chemical body burden and effect on health is not limited to single exposures. Rather multiple exposures of different chemicals can act synergistically to create a much larger effect than the mere effete of two independent chemicals added together.

The skeptics were less likely to acknowledge the uncertainties in their fields, hence exhibited a more closed minded approach to these new paradigms and research findings.

“However, when they were engaged in litigation as expert witnesses,” says Phillips, “due to their supportive or skeptical tendency, the oppositional legal system polarized their opinions and exacerbated the perceived divide between them. Ultimately, the adversarial medico-legal process inhibits genuine dialogue between some of the key players in the MCS debate, thus impeding understanding and consensus about the condition.”

Without this understanding, many patients are left hung to dry without appropriate justice and medical care that can improve their condition. Despite that, one thing is certain among them all. MCS is very real.

**Reference**

Phillips T. Debating the legitimacy of a contested environmental illness: a case study of multiple chemical sensitivities (MCS). *Sociol Health Illn.* 2010 Nov;32 (7):1026-40.



Q&amp;A

## How Does MCS Begin and Who is At Risk?

**“The symptoms of MCS can usually be traced to a single acute exposure or a series of chronic low-dose exposures to toxic chemicals.”**



**Q: How does someone get MCS? Is it from chemical exposure or is it a physiological abnormality? Could I be at risk?**

**A:** The symptoms of multiple chemical sensitivity (MCS) can usually be traced to a single acute exposure or a series of chronic low-dose exposures to toxic chemicals.

Someone who works in a restaurant that routinely sprays pesticides in the kitchen may have no symptoms for years and then suddenly develop MCS after a single pesticide application. This routine exposure is thought to lead to bioaccumulation and an eventual tipping point at which the toxicity is too great. This is commonly seen in nurses (floor wax exposure) and nail salon workers (solvents, etc) who are chronically exposed in the work place.

Other cases of MCS develop immediately after an acute (large) toxic exposure, such as a poisoning, spill at work, building renovation with poor ventilation, or an environmental disaster.

Most diseases also have a genetic component, including well known ones like diabetes and cancer. A number of studies have identified a genetic component that increases susceptibility to MCS through a reduced ability to metabolize and eliminate

toxic chemicals from the body.

MCS is not strictly genetic though; anyone can develop MCS with enough toxic chemical exposure and chemical exposure. Genetics alone does not cause MCS. There must be a toxic chemical exposure for MCS to occur. It was once put that "genetics loads the gun; the environment pulls the trigger".

In addition, genes can be altered or damaged by certain chemical exposures, leading to increased susceptibility that was not present to begin with.

Researchers are just beginning to understand the synergistic effects of chemicals. Simply put, exposure to two or more chemicals at the same time may produce a toxicity related reaction that is much more potent than the two individual chemicals could produce alone. The combination increases the toxicity to a level much greater than 1 chemical + 1 chemical. The effect could be 10 fold or more when two chemicals are combined.

Since chemicals are all around us in the home, workplace, and environment, it is challenging to determine exactly what people are exposed to and how these chemicals interact in synergy with one another in the human body.

## Resources

# Patient Support & Resources

## MCS America Forums

### MCSA Public

<http://health.groups.yahoo.com/group/mcsa-public/>

Open to the general public open to discuss MCS, support, ideas, information, announcements, news and activism.

### MCS America Members Activist/Support

<http://health.groups.yahoo.com/group/mcs-america-members-support>

This group also fulfills the function of discuss support, ideas, information, announcements, and/or share personal activism like the MCSA-Public group, only with a closed membership that requires a membership application. This group also has the added benefit of being a place where individuals and other organizations and activists can engage in collaborative efforts with MCS America and being recipient to all the news feeds (see MCSA Feeds below). Members of this group are considered associate members of MCS America. Members do not operate MCS America in any way, but rather collaborate with the organization and are privy to some internal operations, activities, and events.

### MCSA Feeds

<http://health.groups.yahoo.com/group/mcsafeeds>

The purpose of this public access group is to receive daily distribution of news and research studies on multiple chemical sensitivity, chemical injury, environmental concerns, and other related environmental illnesses and disorders. Anyone can join without an application. Only the moderator posts to this group. This is not a discussion group. This group distributes about 15 articles on average each day.

### MCS Salvage and Share

<http://health.groups.yahoo.com/group/MCSA-safer-salvage-and-share>

A public access group similar to Freecycle, except it's a free recycling program for safer reusable's geared towards individuals with MCS, CFS, FM, and other related disabilities correlated with the environment. The purpose of this program is to find, give, and recycle needed "safe" or "safer" items. All items are exchanged for free. Shipping cost are arranged between donor and recipient. Anyone can join without an application.

### Multiple Chemical Sensitivities and Toxic Injury

<http://groups.google.com/group/mcs-ti>

This is a small non-Yahoo based group open to the general public to discuss MCS, support, ideas, information, announcements, news and activism.

### MCS Hawaii

<http://health.groups.yahoo.com/group/mcs-hawaii>

Open to the general public residing in Hawaii to discuss support, ideas, information, announcements, and/or share personal activism. No application is required. This group is currently recipient to all the news feeds (see MCSA Feeds above). This list is operated in part by a state subsidiary volunteer who resides in the state.

### MCS Nebraska

<http://health.groups.yahoo.com/group/MCS-Nebraska>

Open to the general public residing in Nebraska to discuss support, ideas, information, announcements, and/or share personal activism. No application is required. This list is operated in part by a state subsidiary volunteer who resides in the state. or subscribe at:

### MCS Michigan

<http://health.groups.yahoo.com/group/mcs-michigan>

Open to the general public residing in Michigan to discuss support, ideas, information, announcements, and/or share personal activism. No application is required. This list is operated in part by a state subsidiary volunteer who resides in the state.

## Support Forums Outside the MCS America Network

### 4Mom

<http://groups.yahoo.com/group/4MOM/>

According to Mt. Sinai Medical School, there are many illness' caused by toxic substances such as pesticides. They are studying the role other toxins play on the new childhood diseases triggered by environmental factors. They call this the new epidemic. Mothers of Many is for all parents with children who are ill and are affected by toxic chemicals such as Attention Deficit Disorder, Asthma, Cancer, Autism, Tourettes Syndrome, Multiple Chemicals Sensitivities (MCS), Parkinson's, and any other condition affected.

### Bay Area MCS

<http://health.groups.yahoo.com/group/bayareamcslist/>

Classified ads and notices for people with MCS (Multiple Chemical Sensitivity) in the San Francisco Bay Area.

### CFS CFIDS ME

[http://health.groups.yahoo.com/group/CFS\\_CFIDS\\_ME/](http://health.groups.yahoo.com/group/CFS_CFIDS_ME/)

This Group is to promote friendly discussion about places where people have gone and feel more or less recovered from CFS/ME/CFIDS.

### Chemical Disability Australasian NETWORK

<http://groups.yahoo.com/group/CDANET/>

A Discussion/Chat/Mutual help list run by and for the chemically disabled.

### CMCS-EI Christian MCS, CFS, FM, and EI Group

<http://health.groups.yahoo.com/group/CMCS-EI/>

We are a Christian group who have invisible illnesses.

### Creative Canaries Community

<http://health.groups.yahoo.com/group/CreativeCanariesCommunity>

This group is an online meeting place for creative artists with Chemical Sensitivities.

**Detox**

<http://health.groups.yahoo.com/group/mcs-america-members-support>

"Detox" is a group to serve chemically injured, environmentally ill, multiple chemical sensitivity, and related illness such as chronic fatigue, candidiasis, hypoglycemia, lupus, and others.

**Disinissues**

<http://groups.yahoo.com/group/Disinissues/>

The purpose of Disinissues is to share experience and advice about the processes of obtaining and maintaining Social Security Disability Insurance (SSDI), Supplemental Security Income (SSI), and long-term disability insurance. The group is targeted mainly towards those with invisible disabilities, such as CFIDS and other conditions not on Social Security's Listing of Impairments.

**EMF Refugee**

<http://health.groups.yahoo.com/group/emfrefugee/>

This ML has been created with the intent of bringing refugees together in countries around the world to form their own EMF-free communities in natural environments where they can heal and create healing environments for the Earth and others.

**Environmental Illness 001**

[http://health.groups.yahoo.com/group/environmental\\_illness001/](http://health.groups.yahoo.com/group/environmental_illness001/)

This group is dedicated to curing / resolving all issues related to Environmental Illness, including but not limited to: Multiple Chemical Sensitivity (MCS), Multiple Food Allergy, Leaky Gut Syndrome, Candida, Epstein Barr Virus, Chronic Fatigue, Fibromyalgia, Heavy Metal Poisoning, Porphyria, endocrine system dysregulation, etc.

**eSens - Electrical Sensitivity**

<http://health.groups.yahoo.com/group/eSens/>

Do you feel ill when you're near computers, cell phones, fluorescent lights, or wireless internet? If so, you may have "electrical sensitivity".

**Gaslist-L (Glutaraldehyde, Aldehyde, and Solvent Sensitivity)**

<http://www.ncchem.com/snftaas/gaslist.htm>

This list has been established to serve persons interested in Glutaraldehyde, Aldehyde, and Solvent Sensitivity, especially darkroom personnel, radiographers, and diagnostic medical sonographers. The purpose of the list is to promote internet-wide exchange of research and information.

**Green Canary**

<http://groups.yahoo.com/group/GreenCanary>

This list is dedicated to a life free from toxic chemicals, and the health problems that they can cause.

**Immune**

<http://immuneweb.org/lists/immune.html>

This is the list for support and information about multiple chemical sensitivities, chronic fatigue syndrome, fibromyalgia, lupus, multiple sclerosis, porphyria, allergies, asthma, and other immune-related ailments.

**Immune Parenting**

<http://groups.yahoo.com/group/immune-parenting/>

This list is for both men and women who have Multiple Chemical Sensitivity, Chronic Fatigue Syndrome, Fibromyalgia, autoimmune disorders, or other immune system medical issues--or their partners--who are parents, pregnant, trying to conceive, or who are thinking about parenthood.

**Live Chat at the Health and Environment Resource Center**

<http://www.herc.org/chat>

This chat room is not associated with any group. It is unmoderated and no password is required. Chat Times: Saturday - 7 pm ET, 6 pm CT, 5 pm Mtn, 4 pm Pac; Monday - 9 pm ET, 8 pm CT, 7 pm Mtn, 6 pm Pac; Wednesday - 8 pm ET, 7 pm CT, 6 pm Mtn, 5 pm Pac.

**MCS Canada**

<http://health.groups.yahoo.com/group/MCS-Canada/>

This group was formed to assist patients and concerned parties from all nationalities learn to cope with environmental injury, including disorders such as MCS, ME, CFS, FM, Lyme, Lupus, GWS, PPS, as well as related and associated illnesses.

**MCS Canadian Sources**

<http://groups.yahoo.com/group/MCS-CanadianSources>

MCS Canadian Sources is a support, information and resource exchange for those living and coping with Multiple Chemical Sensitivity (MCS), Environmental Illness (EI), or Chemical Injury (CI).

**MCS Photography**

<http://health.groups.yahoo.com/group/MCSphotography/>

MCS Photography is for those with multiple chemical sensitivity who capture and share the world and their life through photography.

**MCS Recycle**

<http://groups.yahoo.com/group/MCSRecycle/>

The objective of this group is to be able to share with each other items that are chemical free and have been used in a non-toxic environment. This group is planet-wide.

**MCS Safe Shelter USA**

<http://health.groups.yahoo.com/group/mcssafeshelterusa/>

Short-term and long-term housing for people with MCS (Multiple Chemical Sensitivity). Check our database for listings by state. Find rentals, hotels, and housing to purchase.

**MCS Singles**

<http://groups.yahoo.com/group/mcs-singles>

Addresses the unique challenges of living alone without help as a single with MCS. Examines solutions, provides a place for general discussion, and is a resource for peer support.

**MCS Survivors**

<http://communityzero.com/mcsurvivors>

For those who experience environmental illness or multiple chemical sensitivities (MCS), here is a place to gather, exchange ideas, links to helpful websites, even have live chats. Enjoy!

**MCS Toxic Injuries**

<http://health.groups.yahoo.com/group/MCS-Toxic-Injuries/>

MCS-Toxic-Injuries is a self-moderated, secular, apolitical newsgroup for toxically-injured environmentally sensitive people to support one another and exchange coping methods, treatments and experiences.

**MCS Village**

<http://health.groups.yahoo.com/group/MCSVillage/>

The purpose of this group is to discuss the feasibility of building a village(s) or community in which MCS/EI patients can live safely, and to provide a forum to discuss the legal, medical, geographic, architectural, social and funding issues.

**MCS Writers Group**

<http://health.groups.yahoo.com/group/mcswritersgroup/>

A place for writers who have chemical sensitivities (or chemical injury) to share their stories and articles, work on and develop public writing skills, exchange editing skills and perspective, and develop ideas in order to bring awareness and education to the published world about what it is like to live with MCS/ES/CI/EI.

**Midwest Oasis MCS E-mail Support**

<http://health.groups.yahoo.com/group/MO-MCS/>

Midwest Oasis MCS E-mail Support is the e-mail arm of the Midwest Oasis MCS Support Group. Although people from all geographical areas are welcome to join, a partial focus of this list will be discussion of regional issues affecting MCS (Multiple Chemical Sensitivity) in Missouri and other Midwestern states.

**Multiple Chemical Sensitivity (Chemical Sensitivity, Porphyrin & CO)**

<http://health.groups.yahoo.com/group/MultipleChemicalSensitivity/>

Discussion group where people afflicted with Chemical Sensitivity, Chronic Carbon Monoxide Poisoning &/or Disorders of Porphyrin Metabolism can talk about their illness, inquire with others on avoidance, methods of cleaning & products one can use for necessary hygiene.

**Old Dominion MCS-FMS\_CFIDS Support Group · A Virginia Fibro MCS CFIDS Group**

[http://health.groups.yahoo.com/group/OldDominionMCS-FMS\\_CFIDSsupportgroup/](http://health.groups.yahoo.com/group/OldDominionMCS-FMS_CFIDSsupportgroup/)

Too many people in Va. have Fibromyalgia, Myofascial Pain Syndrome, CFIDS, Gulf War Syndrome (GWS), ES, and Multiple Chemical Sensitivity. The group owner wanted to create an informative, supportive group for Virginians, and others.

**Planet Thrive**

<http://www.planetthrive.com/>

A dynamic online community for those activity seeking answers and support for a variety of health concerns. A place where people around the world help each other get well and stay well.

**Sick Buildings**

<http://health.groups.yahoo.com/group/sickbuildings/>

Toxic molds are running rampant in our homes, offices and schools. Exposure to mycotoxins has been linked to the death of infants, as well as immune-compromised adults. Despite increasing reports of mold-induced illness and health problems associated with mold exposure, our public health agencies offer little, if any support or funding for research into this growing problem.

**Sprayno**

<http://groups.yahoo.com/group/sprayno/>

This is a list to exchange information regarding environmental issues in the northern suburbs and NY metro area focusing especially on encouraging activism in this area and educating the public about toxic effects of pesticide/herbicide usage.

**Tenth Paradigm Society**

<http://health.groups.yahoo.com/group/TenthParadigmSociety/>

The Tenth Paradigm Society mailing list is for the dissemination and discussion of information concerning the NO/ONOO- cycle mechanism, a new paradigm of human disease, proposed by Martin L. Pall, Ph.D. Dr. Pall adopted the term "Multisystem Illness" to describe

those diseases that fall under the tenth paradigm. They include: Chronic Fatigue Syndrome (CFS/CFIDS/M.E.), Multiple Chemical Sensitivity (MCS), Fibromyalgia (FM/FMS), Post-Traumatic Stress Disorder (PTSD), and Gulf War Syndrome (GWS).

**The Sanctuary**

<http://www.mcs-international.org/phpBB3/>

MCS-International.Org's Holistic Support Forums For sufferers of Multiple Chemical Sensitivity and all other forms of Chemical Injury and Environmental Illness.

**Toxics Discussion**

<http://groups.yahoo.com/group/ToxicsDiscussion/>

If you're keen on a toxics-safe future for the planet, then this is the discussion group for you. Toxics are defined here as naturally occurring or man-made chemicals (elements/compounds/mixtures) that have a toxic effect.

**WSMCSN (Washington State MCS Network)**

<http://groups.yahoo.com/group/WSMCSN>

WSMCSN is a decentralized network of groups and individuals in Washington State who share information about the issues of Multiple Chemical Sensitivity.

**Additional Forum Listing Webpage**

<http://www.mcs-america.org/forums>

## Physician & Dentist Referral Lists

**Physician Referral List by State**

<http://mcs-america.org/doctorlist.pdf>

Some of the physicians on this list specialize in MCS, others in FM and CFS. It is recommended that patients and doctors consult with one another prior to beginning any treatment to ensure understanding of the patient's needs and compatibility of patient and physician.

**Dentist Referral List by State**

<http://mcs-america.org/dentistlist.pdf>

Some of the dentists on this list are specifically familiar with MCS, others are not. It is recommended that patients and dentists consult with one another prior to beginning any treatment to ensure understanding of the patient's needs and compatibility of patient and dentist.

## Air Quality Reports

**Air Now Air Quality Reports**

<http://www.airnow.gov/>

**EPA State and Regional Indoor Environments Contact Information**

<http://www.epa.gov/iaq/wherelive.html>

**The National Association of Clean Air Agencies 4 Cleaner Air**

<http://www.4cleanair.org/>

**American Lung Association: State of the Air**<http://lungaction.org/reports/stateoftheair2007.htm>**Current Local & National Allergy Levels**<http://pollen.com/Pollen.com.asp>**Scorecard: Pollution Index by Area**<http://www.scorecard.org/>**Toxmap Hazardous Waste Site Locations**<http://toxmap.nlm.nih.gov/toxmap/main/index.jsp>**USA Smoke/Fire Pollution Map**<http://www.firedetect.noaa.gov/viewer.htm>**Antenna Search (USA)**[http://mcs-america.org/index\\_files/www.AntennaSearch.com](http://mcs-america.org/index_files/www.AntennaSearch.com)**EPA Safe Drinking Water Information by State**<http://www.epa.gov/safewater/dwinfo/>**EPA Radon Zone Map**<http://www.epa.gov/radon/zonemap.html>

## Brochures

**Air Fresheners & Plug-Ins**<http://mcs-america.org/airfresh.pdf>**Chemical in Air Fresheners Reduces Lung Function**<http://mcs-america.org/lung.pdf>**Consequences of Childhood Chemical Injury Poster By Margaret S. O’Nan**<http://mcs-america.org/onan.pdf>**Electrosensitivity Brochure by Kato Yasuko**<http://mcs-america.org/KatoYasukoElectrosensitivityBrochure.doc>**Fabric Softener**<http://mcs-america.org/fabricsoftener.pdf>**Fragrances**<http://mcs-america.org/fragrances.pdf>**Grandma’s Cupboard: General Cleaning Solutions**<http://www.mcs-america.org/general.pdf>**Grandma’s Cupboard: Kitchen Cleaning**<http://www.mcs-america.org/kitchen.pdf>**Grandma’s Cupboard: Personal Care**<http://www.mcs-america.org/personal.pdf>**Grandma’s Cupboard: Laundry**<http://www.mcs-america.org/laundry.pdf>**Household Mold brochure from Quebec government**<http://publications.msss.gouv.qc.ca/acrobat/fl/documentation/2002/02-214-01A.pdf>**ILRU: Understanding & Accommodating People with MCS in Everyday Living**<http://mcs-america.org/ilru.pdf>**Indoor Air Chemistry**<http://mcs-america.org/indoorair.pdf>**Interior Design and MCS**<http://mcs-america.org/interior.pdf>**Jill Mellum: Breathe Easier, Hold the Fragrances Brochure**<http://mcs-america.org/fragrancefacts.pdf>**MCS Homebuyer’s Questionnaire**<http://mcs-america.org/Homebuyer'sQuestionnaire.pdf>**MCS Task Force of New Mexico Brochure**<http://mcs-america.org/newmexico.pdf>**MCS Public Accommodations**<http://www.nettally.com/prusty/PUBLIC%20ACCOMMODATIONS.pdf>**MCS Statistics**<http://www.mcs-america.org/MCSStatistics.pdf>**No Scents Makes Sense Brochure**<http://www.nb.lung.ca/pdf/NoScentsMakeSense.pdf>**Theory on the Cause of MCS: Peroxynitrite and Nitric Oxide**<http://www.mcs-america.org/cause.pdf>**Understanding Multiple Chemical Sensitivity**<http://www.mcs-america.org/understanding.pdf>**Use of Baking Soda as a Fungicide**<http://mcs-america.org/fungicide.pdf>**Vaccine Poster - Are We Poisoning Our Children?**<http://www.generationrescue.org/pdf/080212.pdf>**Visiting a Person with MCS**<http://mcs-america.org/visiting.pdf>**What you should know before visiting a person who has NRLA and/or MCS**<http://mcs-america.org/VisitingNRLA-MCS.pdf>

## Signs

**Acute Toxic Effects of Fragrances Business Card**<http://mcs-america.org/acutetoxiceffectsoffragrancescard.pdf>**Chemical Awareness Ribbon**<http://mcs-america.org/ribbon.gif>

**Electrosensitivity Sign - Please Turn Off Your Cell Phone**

<http://mcs-america.org/KatoYasukoElectrosensitivitySignTurnOffYourCellPhone.pdf>

**Facemask on Tweety**

<http://mcs-america.org/tweety.jpg>

**Fragrance Free Sign: Brooks University**

[http://www.brocku.ca/oehs/graphics/Fragrance\\_Free\\_Sign.pdf](http://www.brocku.ca/oehs/graphics/Fragrance_Free_Sign.pdf)

**No Scents Makes Sense Sign**

<http://mcs-america.org/scentsign.pdf>

**No Latex Sign by Jane Sagmoe**

<http://mcs-america.org/nolatemask.JPG>

**You Could Be Next Sign**

<http://mcs-america.org/nextsign.pdf>

**Want to Put Your Friends and Family in Jail?**

<http://mcs-america.org/jail.pdf>

**Wood Smoke Trespass Flyer 8 1/2 x 11**

<http://mcs-america.org/woodsmokeflyer.pdf>

## Activist Materials

**Fragrances on Mail and/or Catalogs**

<http://mcs-america.org/FragrancedMailCatalogBillsLetterforActivists.doc>

**Air Freshener Use**

<http://www.mcs-america.org/customairfreshenerletter.doc>

**Use of Fragrance, Cologne, and Perfume**

<http://mcs-america.org/UseofFragranceLetterforActivists.doc>

**Fabric Softener Emissions**

<http://www.mcs-america.org/LetterAboutFabricSoftener.doc>

**Letter to State Representatives to Ban Woodsmoke**

<http://mcs-america.org/woodsmoke.doc>

**Letter to Doctors and Medical Boards Supporting MCS as a biological Illness (fully cited and scientifically supported)**

Website: <http://mcs-america.org/MCSPositionStatement.htm>

PDF: <http://mcs-america.org/MCSPositionStatement.pdf>

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**Request for Accommodations Under the Americans with Disabilities Act**

<http://www.mcs-america.org/RequestforAccommodation.doc>

## Public Service Announcements

**Public Service Announcement #1**

**Air fresheners have been pulled off thousands of shelves nation-wide!**

<http://www.mcs-america.org/AirFreshenerPSA1.pdf>

**Public Service Announcement #2**

**When you use fragranced products, did you know you are wearing toxic chemicals!?**

<http://www.mcs-america.org/WhenYouUseFragrancedProductsPSA2.pdf>

**Public Service Announcement #3**

**Secondhand Fragrances are Like Secondhand Smoke!**

<http://www.mcs-america.org/SecondHandFragrancesPSA3.pdf>

**Public Service Announcement #4**

**Scented laundry detergents and fabric softeners pollute indoor and outdoor air!**

<http://www.mcs-america.org/ScentedLaundryDetergentsPSA4.pdf>

**Public Service Announcement #4 (SPANISH)**

**Scented laundry detergents and fabric softeners pollute indoor and outdoor air!**

<http://mcs-america.org/mcsamerica/ScentedLaundryDetergentsPSA4Spanish.pdf>

**Public Service Announcement #5**

**Wood Smoke... The Other Secondhand Smoke!**

<http://www.mcs-america.org/WoodSmokePSA5BurningIssues.pdf>

**Public Service Announcement #6**

**Fragrances undermine public health!**

<http://www.mcs-america.org/FragrancesPSA6.pdf>

**Public Service Announcement #7**

**Fragranced Laundry Products Pollute Our Air**

<http://mcs-america.org/PSA7FragrancedLaundry.pdf>

## Clothing & Novelties for Activism

**MCS America Store for the Environment**

<http://www.mcs-america.org/MCSstore..htm>

**Zona's T-Shirts and Stuff Zone**

<http://members.shaw.ca/zonazone/shop/tshirts.html>

## Virtual & Work-at-Home Jobs

**Agent, Staffing at Home**

<http://www.staffingathome.com/>

**Agent, West at Home**

<http://www.westathome.com/>

**Agent, Working Solutions**

<http://www.workingsol.com/home.htm>

**Bolger, PayPerPost.com**

[http://payperpost.com/blogger\\_signup.html](http://payperpost.com/blogger_signup.html)

**Call Center Representative, Accolade Support**

<http://www.accoladesupport.com/>

**Call Center Representative, Overflow USA**

<http://www.overflowusa.com/>

**Call Center Representative, Overflow USA**

<http://www.overflowusa.com/>

**Caller Employee, Customer Loyalty Concepts**

<http://www.customloyal.com/Employment.aspx>

**Chef Instructor, Chefs Line**

<http://www.chefsline.com/>

**Customer Care, VIP Desk**

<http://www.vipdesk.com/info/default.asp>

**Customer Service, Alpine Access**

<http://www.alpineaccess.com/external/index.html>

**Editor, EditFast.com**

<http://www.editfast.com/>

**Expert, JustAnswer Corp**

<http://www.justanswer.com/>

**Freelancer, Team Double-Click**

<http://www.teamdoubleclick.com/freelance.html>

**Guide, About .com**

<http://beaguide.about.com/>

**Guide, ChaCha**

<http://www.chacha.com/>

**Home Agent, Convergys**

<http://www.convergysworkathome.com/>

**Independent Call Center Agent, LiveOps**

<http://tinyurl.com/5xfv7n>

**Telemarketing, Intrep Sales Partners**

<http://www.intrep.com/>

**Online Juror, eJury.com**

<http://www.ejury.com/>

**Online Juror, OnlineVerdict.com**

<http://onlineverdict.com/>

**Online Juror, Trial Practice Inc.**

<http://trialpractice.com/>

**Third Party Verifier, BSG Payments LLC**

<http://tinyurl.com/4vcldx>

**Virtual Assistant, Virtual Office Temps**

<http://virtualassistantjobs.com/>

**Virtual Services, Arise Virtual Solutions**

<http://www.arise.com/Content/default.asp>

**Writer, Associated Content**

<http://www.associatedcontent.com/>

**Writer, CyberEdit Inc.**

<http://www.cyberedit.com/>

**Writer, MyEssays.com**

<http://www.myessays.com/sell.php>

**National Telecommuting Institute, Inc.**

<http://www.nticentral.org/>



## Environmentally Safer Housing

**Allergy And Environmental Health Association Of Quebec (AEHAQ) Environmentally Adapted, Social Housing Project For People Suffering From Environmental Sensitivities**  
[http://www.aeha-quebec.ca/bb\\_housingproject.htm](http://www.aeha-quebec.ca/bb_housingproject.htm)

**Barrhaven Non-Profit Housing Inc. Environmental Sensitivity Units**  
 Steepleview Crossing,  
 3001 Jockvale Road, Nepean, Ontario, K2J 4E4  
 (613) 823-6230 Fax: (613) 825-7724  
<http://ehaontario.ca/barrhaven-housing.htm>  
<http://www.bnphi.org/es.htm>

**Canada-wide Housing Connection**  
 1-613-278-0463  
<http://ehaontario.ca/interview.htm>

**Ecology House, San Rafael, California (built in 1994)**  
 375 Catalina Blvd  
 San Rafael, CA 94901  
 (415) 456-4453  
<http://www.tikvah.com/cc/eh>  
[eh@ecologyhouse.net](mailto:eh@ecologyhouse.net)

**Escalante House**  
 P.O. Box 652  
 Escalante UT 84726  
 Phone/Fax: (435) 826-4778  
[toripat@color-country.net](mailto:toripat@color-country.net)

**Environmentally Friendly Housing Partnership**  
 Pride and Joy Condos -- North  
 5685 South AIA Highway  
 Melbourne Beach, FL 32951  
 (321) 409-8233 - Phone  
 (321) 725 4883 -- FAX  
<http://www.prideandjoycondos.com/>  
[damianorob@aol.com](mailto:damianorob@aol.com)

**Green Homes for Sale**  
<http://greenhomesforsale.com/>

**Safe Haven Community Housing**  
 P.O. Box 25281  
 Portland, Oregon 97298  
[judiths@teleport.com](mailto:judiths@teleport.com)  
<http://www.geocities.com/safehavencommunity/#ntact>

**The Pandora Initiative (Canada)**  
<http://tier10.com/>

**Quail Haven - MCS Housing**  
 Just North of Tucson, AZ  
 Call Diane Ensign for details:  
 May through January call: (406) 586-3658 (Montana).  
 January through May call: (520) 825-7276 (Tucson).  
<http://madelinx.tripod.com/>

**Seagoville Ecology Housing**  
 15126 Beckett Road  
 Seagoville, Texas 75159  
 (972) 287-2059 Fax: (972) 287-7682  
<http://www.ehcd.com/resources/ecologyhousing.html>

**The Natural Place Environmental Residence and Hotel**  
 1962 NE 5th St.  
 Deerfield Beach, FL 33441  
 954-428-5438  
<http://www.thenaturalplace.com/default.htm>

## Safer Building & Regulations

**Alliance for Healthy Homes**  
<http://www.afhh.org/>

**American Lung Association: Resources & Referrals for and from the Master Home Environmentalist program.**  
<http://tinyurl.com/5vvk9e>

**Architectural House Plans Healthy Homes Construction Guidelines**  
 Information: <http://tinyurl.com/6dteuz>  
 Booklet: <http://www.architecturalhouseplans.com/products/>

**Assessment of the Indoor Air Quality of a Suite for an Environmentally Hypersensitive Occupant**  
<http://mcs-america.org/IAQforanEIOccupant.pdf>

**Considerations For Safer Construction And Renovation By Preston Sturgis**  
<http://www.environmentalhealth.ca/w9394safer.html>

**Dr. Grace Ziem's Environmental Control Plan for MCS Patients**  
<http://www.mcsrr.org/resources/articles/S3.html>

**The Eco Building Guild**  
<http://www.ecobuilding.org/>

**The Effect of Housing on Individuals with Multiple Chemical Sensitivities**  
<http://tinyurl.com/6gor7u>

**Building for Health Materials Center**  
<http://www.buildingforhealth.com/>

**Ecohaus**  
<http://www.ecohaus.com>



**Heal Your Home Center**

<http://tinyurl.com/6dteuz>

**The Healthy Housing Coalition: Basic Needs for Rental Housing for Chemically Sensitive Persons**

<http://www.herc.org/hhc/Basicrentalneeds.html>

**Healthy Housing Practical Tips**

<http://tinyurl.com/5bfgzd>

**IEQ Indoor Environmental Quality**

[http://ieq.nibs.org/ieq\\_project.pdf](http://ieq.nibs.org/ieq_project.pdf)

**International Institute for Building Biology and Ecology**

<http://www.buildingbiology.net/>

**LEED® Canada Green Building Rating System**

<http://www.cagbc.org/leed/systems/index.htm>

**The Medical Perspective on Environmental Sensitivities: Building codes, regulations and guidelines**

<http://tinyurl.com/6zmqh>

**Moving House - Things To Look For If You Suffer From MCS**

<http://www.drmyhill.co.uk/article.cfm?id=147>

**Multiple Chemical Sensitivity (MCS): The Controversy and Relation to Interior Design**

<http://www.idec.org/publication/IIArticleMCS.pdf>

**Optimum Environments for Optimum Health & Creativity: Designing and Building a Healthy Home or Office, William J. Rea, M.D.**

[http://www.ehcd.com/books/home\\_building\\_designing.html](http://www.ehcd.com/books/home_building_designing.html)

**Recommended Architectural Features for Multi-Family Housing to Better Accommodate Chemical and Electrical Sensitivities, Susan Molloy, M.A.**

<http://www.ctaz.com/~bhima/recommcshous.htm>

**Research House for the Environmentally Hypersensitive**

<http://tinyurl.com/5prv3>

**Safer Construction Tips for the Environmentally Sensitive**

<http://tinyurl.com/5tgx7l>

**Understanding & Accommodating People with Multiple Chemical Sensitivity in Independent Living, Chapter 4, The Housing Challenge in MCS**

<http://www.ilru.org/html/publications/bookshelf/MCS.html#chapter4>

**Disclaimer**

*This data is for informational purposes and is not intended to replace the examination, diagnosis and treatment of a licensed physician and no such claims are inferred. MCS America will not be responsible for misuse of this information or the misuse of any information provided by its member organizations. Articles, citations, links and information are not necessarily the opinion of MCS America and printing does not constitute MCS America's endorsement.*

**U.S. Department of Housing and Urban Development National Healthy Homes Conference**

<http://www.hud.gov/offices/lead/2008NHHC.cfm>

**U.S. Department of Housing and Urban Development Healthy Housing Reference Manual**

<http://tinyurl.com/5apna5>

**Builders and Building Material Suppliers**

**Green Building Store**

<http://www.greenbuildingstore.co.uk/naturalpaints.php>

**Healthy Buildings, Inc (Air Quality Testing)**

[http://www.healthybuilding.com/html/about\\_us.html](http://www.healthybuilding.com/html/about_us.html)

**Heating and Cooling Options for the Environmentally Sensitive**

<http://eiwellspring.org/HeatingAndCooling.htm>

**Resources for the Chemically Injured: Building Materials**

<http://www.lassentech.com/eibuld.html>

**Tad Taylor's Healthy Homes, LLC**

<http://www.healthy-homes.com/>

**Other Housing Resources**

**Extreme Home Makeover**

<http://abc.go.com/primetime/xtremehome/index?pn=apply>

**Ontario Human Rights Code: Policy and Guidelines on Disability and the Duty to Accommodate Non-Evident Disabilities**

<http://tinyurl.com/6ejep8>

**Residential Rehabilitation Assistance Program for Persons with Disabilities (Canada).**

[http://www.cmhc-schl.gc.ca/en/co/prfinas/prfinas\\_003.cfm](http://www.cmhc-schl.gc.ca/en/co/prfinas/prfinas_003.cfm)

News

# Community News

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VIDEO: ME CFS XMRV Expert Dr Paul Cheney - Hits Back on 'GET' Graded Exercise therapy!

<http://www.youtube.com/watch?v=rStN9Vedl9M>

Peculiar geese deaths baffle wildlife officials

<http://beta.toledoblade.com/local/2011/02/18/Peculiar-geese-deaths-baffle-wildlife-officials.html>

Common Household Insecticides Linked to Delayed Neurodevelopment

<http://www.medscape.com/viewarticle/737598?src=mpnews&spon=12>

EU to ban toxic chemicals in household plastics

<http://www.reuters.com/article/2011/02/17/us-eu-chemicals-ban-idUSTRE71G4GI20110217>

Apple admits toxic chemicals disabled employees of Chinese suppliers

<http://english.peopledaily.com.cn/90001/90776/90882/7291502.html>

Fencing Out the Smart meters

<http://www.kionrightnow.com/Global/story.asp?S=14016676>

Assessment of Radiofrequency Microwave Radiation Emissions from Silver Springs OWS-NIC514 Model Wireless Electric Meter

[http://sagereports.com/smart-meter-rf/?page\\_id=429](http://sagereports.com/smart-meter-rf/?page_id=429)

Star Exclusive: Agent Orange "soaked" Ontario teens

<http://www.thestar.com/news/canada/article/940243--star-exclusive-agent-orange-soaked-ontario-teens>

Doc Says Vog Visits Up 40%

<http://www.kitv.com/health/26903770/detail.html?>



# Featured Research Studies

## Effects of Ambient Particulate Matter and Fungal Spores on Lung Function in Schoolchildren

Bing-Yu Chen, MSa, H. Jasmine Chao, PhD<sup>b</sup>, Chang-Chuan Chan, PhD<sup>a</sup>, Chung-Te Lee, PhD<sup>c</sup>, Hung-Pin Wu, PhD<sup>d,e</sup>, Tsun-Jen Cheng, PhD<sup>a</sup>, Chu-Chih Chen, PhD<sup>f</sup>, Yue Leon Guo, PhD<sup>a,g</sup>  
Pediatrics. 2011 Feb 21. [Epub ahead of print]

### Objectives

Studies examining the combined health effects of both have been relatively lacking. We conducted a longitudinal study to investigate whether exposure to air pollutants and fungal spores might exacerbate childhood respiratory health.

### Methods

Study participants were 100 elementary and middle-school students in Taipei County, Taiwan. A structured respiratory health questionnaire was administered in September 2007, followed by monthly spirometry from October 2007 to June 2008. During the study period, complete daily monitoring data for criteria air pollutants were obtained from the Environmental Protection Administration monitoring station and Aerosol Supersite. Fungal spores were measured from Sunday to Saturday in the week when lung-function measurements were made for each study month. Lung-function measurements were compared with air pollutants and fungal spores using mixed-effects models with 1-day-lag modeling.

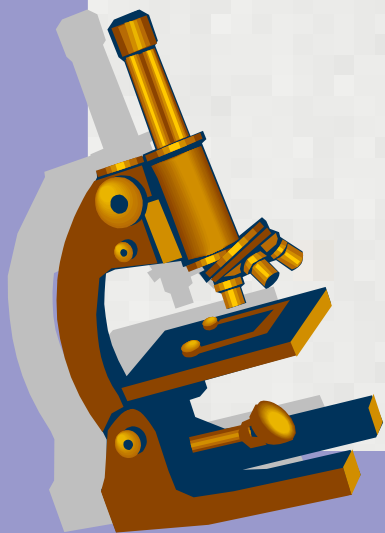
### Results

The particulate matter with an aerodynamic diameter of 2.5  $\mu\text{m}$  or less level 1 day before the lung function measurements was negatively associated with forced vital capacity. The fungal spore level was negatively associated with both forced expiratory vital capacity and forced expiratory volume in 1 second. O<sub>3</sub> level was negatively associated with forced expiratory flow at 25%, 50%, and 75% of forced vital capacity, and average expiratory flow over the middle half of forced vital capacity.

### Conclusions

This study suggested that exposure to particulate matter with an aerodynamic diameter of 2.5  $\mu\text{m}$  or less and fungal spores might cause adverse effects on the vital capacity of schoolchildren. Exposure to O<sub>3</sub> adversely affected small airway function.

PMID: 21339279 [PubMed - as supplied by publisher]



## Medication-induced mitochondrial damage and disease

John Neustadt and Steve R. Piezenik. Mol. Nutr. Food Res. 2008, 52, 780 – 788.

Montana Integrative Medicine, Bozeman, MT, USA

Since the first mitochondrial dysfunction was described in the 1960s, the medicine has advanced in its understanding the role mitochondria play in health and disease.

Damage to mitochondria is now understood to play a role in the pathogenesis of a wide range of seemingly unrelated disorders such as schizophrenia, bipolar disease, dementia, Alzheimer's disease, epilepsy, migraine headaches, strokes, neuropathic pain, Parkinson's disease, ataxia, transient ischemic attack, cardiomyopathy, coronary artery disease, chronic fatigue syndrome, fibromyalgia, retinitis pigmentosa, diabetes, hepatitis C, and primary biliary cirrhosis.

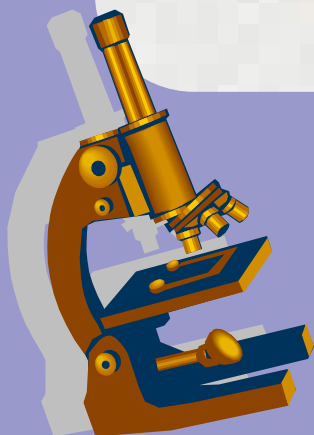
Medications have now emerged as a major cause of mitochondrial damage, which may explain many adverse effects. All classes of psychotropic drugs have been documented to damage mitochondria, as have stain medications, analgesics such as acetaminophen, and many others.

While targeted nutrient therapies using antioxidants or their precursors (e.g., N-acetylcysteine) hold promise for improving mitochondrial function, there are large gaps in our knowledge.

The most rational approach is to understand the mechanisms underlying mitochondrial damage for specific medications and attempt to counteract their deleterious effects with nutritional therapies.

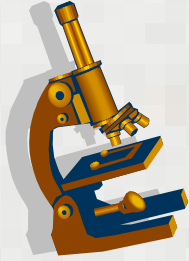
This article reviews our basic understanding of how mitochondria function and how medications damage mitochondria to create their occasionally fatal adverse effects.

PMID: 18626887 [PubMed - indexed for MEDLINE]



## Amyotrophic lateral sclerosis and occupational exposure to electromagnetic fields.

Davanipour Z, Sobel E, Bowman JD, Qian Z, Will AD. Bioelectromagnetics. 1997;18(1):28-35. Department of Neurology, University of Southern California School of Medicine, Los Angeles 90033, USA.



### Abstract

In an hypothesis-generating case-control study of amyotrophic lateral sclerosis, lifetime occupational histories were obtained. The patients (n = 28) were clinic based. The occupational exposure of interest in this report is electromagnetic fields (EMFs). This is the first and so far the only exposure analyzed in this study. Occupational exposure up to 2 years prior to estimated disease symptom onset was used for construction of exposure indices for cases. Controls (n = 32) were blood and nonblood relatives of cases. Occupational exposure for controls was through the same age as exposure for the corresponding cases. Twenty (71%) cases and 28 (88%) controls had at least 20 years of work experience covering the exposure period. The occupational history and task data were used to classify blindly each occupation for each subject as having high, medium/high, medium, medium/low, or low EMF exposure, based primarily on data from an earlier and unrelated study designed to obtain occupational EMF exposure information on workers in "electrical" and "nonelectrical" jobs. By using the length of time each subject spent in each occupation through the exposure period, two indices of exposure were constructed: total occupational exposure (E1) and average occupational exposure (E2). For cases and controls with at least 20 years of work experience, the odds ratio (OR) for exposure at the 75th percentile of the E1 case exposure data relative to minimum exposure was 7.5 (P < 0.02; 95% CI, 1.4-38.1) and the corresponding OR for E2 was 5.5 (P < 0.02; 95% CI, 1.3-22.5). For all cases and controls, the ORs were 2.5 (P < 0.1; 95% CI, 0.9-8.1) for E1 and 2.3 (P = 0.12; 95% CI, 0.8-6.6) for E2. This study should be considered an hypothesis-generating study. Larger studies, using incident cases and improved exposure assessment, should be undertaken.

PMID: 9125230 [PubMed - indexed for MEDLINE]

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