

CHAPTER 22: SILENT WINTER

Some people develop the chemical flu after exposure. They usually believe that they have fallen ill with a virus or other infection because they first experience their deteriorating health as a set of flu-like symptoms.⁵⁰⁷ These symptoms drag on, will not go away, keep coming back, or even get worse. They go through multiple rounds with doctors and medical practitioners of all kinds, being tested for Epstein-Barr, other viruses, Lyme disease, bacterial infection, mold, parasites, etc. Most are ultimately looked upon skeptically, blankly, or with exasperation by the conventional medical community while they try to cling on to their normal life.

One common health issue for those experiencing the chemical flu is chronic fatigue. Fatigue itself is arguably the most typical human response to any foreign invading agent (chemical, viral, bacterial, or other). When our body senses a dangerous substance at the cellular level, it starts to significantly shut down activity to protect itself from further exposure. The cells literally close down and stop letting substances in and out of them.⁵⁰⁸ The body also gets busy dealing with the problematic substances in our system. When this happens, our energy levels become limited.

Chronic fatigue occurs when our bodies are overwhelmed by something for a much longer period of time. Fatigue is no longer a fleeting condition; rather, it becomes a state of being. The body enters a prolonged cellular

⁵⁰⁷ Unger ER, Lin JS, Brimmer DJ, et al., “CDC Grand Rounds: Chronic Fatigue Syndrome—Advancing Research and Clinical Education,” *MMWR Morbidity & Mortality Weekly Report* 65, 1434–1438 (Dec. 2016).

⁵⁰⁸ See generally Robert K. Naviaux, “Metabolic Features of Cell Danger Response,” *Mitochondrion* 16, 7-17 (May 2014).

defense mode, meaning that the cells are not letting anything move freely in and out of them, unfortunately also limiting access to nutrients and the elimination of toxins at a cellular level. The longer the state persists, the more severe the condition becomes. The body becomes increasingly starved of nutrients at the cellular level. The cells get increasingly overwhelmed by toxins already within their borders. This is an exhausting state for the body to be in for extended periods of time. In order to conserve energy under these lock-down conditions, the body enters a particular form of hibernation experienced as chronic fatigue.⁵⁰⁹ A true state of Silent Winter.

Chronic fatigue caused by toxic chemicals begins with the same symptoms one would expect with an infection. They may include headache, fever, chills, nausea, cough, muscle aches, joint pain, rash, or fatigue.⁵¹⁰ This is because the body views toxic chemical exposure like any other infection or foreign invasion within the body.

I was exposed to Carbamate pesticide when my house was sprayed for [bug] infestation soon after I had moved in...Thereafter, every time [we used] the vacuum cleaner [it] disturbed the remains of it. I reacted with flu like symptoms and extreme [allergic] reactions...

—Anonymous Victim

I was [diagnosed with chronic fatigue] in 1985. Abrupt onset [with] flu like symptoms. Periods of improved health and return to work. Never fully recovered but functional. Following treatment for cancer with chemotherapy and two years later a whole house renovation with chemical off gassing...I crashed and never recovered. That was eight years ago. I am now severely ill. House and bed bound. The decline of my cognitive function has been the worst part of it. I can no longer read or watch a movie. I was a documentary film producer.

- Anonymous Victim

Flu-like symptoms resulting from chemical exposure are well-known to industry. For example, employees who worked with toxic PFAS chemicals at DuPont referred to having the “Teflon flu.”⁵¹¹ Fatigue, joint/muscle pain, cough and fever are known to be caused by “metal fume fever” in industrial

⁵⁰⁹ See generally Robert K. Naviaux, “Metabolic Features of Cell Danger Response,” *Mitochondrion* 16, 7-17 (May 2014).

⁵¹⁰ “Environmental Illness,” Michigan Medicine, University of Michigan (Dec. 13, 2018), available at <https://www.uofmhealth.org/health-library/zp3199>; see also Chapters 19-20.

⁵¹¹ Robert Bilott, *Exposure* (Simon & Schuster 2019).

workers.⁵¹² Occupational exposure to formaldehyde is known to induce flu-like symptoms.⁵¹³ A flu-like epidemic has been induced in workers exposed to vinyl-based plastic fumes.⁵¹⁴ The list goes on.

I went to work at Ford motor company at a production plant in 1976. 3 months later after chemical exposure, I came down with [chronic fatigue]. I know [that I] was exposed to lead. I know I was also exposed to PCB's....I had a doctor that thought I may [have] had Lupus. I tested negative. My sleep had [also] evaporated....Then in the late 80s I had the bad flu that I never recovered from. Eventually I developed Lymphoma and lived through that. I have lived with [chronic fatigue] for such a long time it is just my normal.

—Anonymous Victim

A viral infection or other factor can be involved in the development of chronic fatigue or any other environmental illness. Initially chemical overload causes significant damage to our immune system, robbing us of our ability to effectively deal with potential viruses, bacteria, etc.⁵¹⁵ Subsequently an infection can become the final straw that breaks the camel's back. The invading bug can be relatively benign (like the cold virus) but become very hard to eliminate in the chemically injured. For this reason, long-term chronic fatigue sufferers sometimes refer to their disease as chemical AIDS.

For 12 years I lived in a valley that did crop dusting....We woke up to the sound of the planes and most of the summer the air in the valley tasted like pesticides. We would even play outside while the planes passed overhead. The mist made the air sticky. But I didn't get sick [with chronic fatigue until] I came down with a severe case of Mono.

—Anonymous Victim

There are now four members of my family with [chronic fatigue]. We were exposed to a now-banned pesticide, chlordane...which had been used as a termiticide under our home before we bought it. [Three]

⁵¹²“Occupational Diseases - A Guide to their Recognition,” The National Institute of Safety and Health, 409 (1977), quoted in Letter from the Industrial Commission of Ohio to Owens-Corning Fiberglass Corp., dated April 1, 1986, available at toxicdocs.org.

⁵¹³“Fact Sheet on Formaldehyde” Ford Motor Company (est. 1980), available at toxicdocs.org.

⁵¹⁴ConocoVista memo re “Paragon Plastics Health Allegations,” (May 13, 1991), available at toxicdocs.org.

⁵¹⁵Jamie C. DeWitt, et al., “Exposure to per-fluoroalkyl and polyfluoroalkyl substances leads to immunotoxicity: epidemiological and toxicological evidence,” *Journal of Exposure Science & Environmental Epidemiology* 29, 148–156 (Nov 2019).

of us became ill over the course of 3 years....Our fourth family member, our son, became ill several years later after an exposure to chemicals... [Three] of us appeared to have an infection (two with antibiotic use) immediately prior to suddenly becoming very ill, although we were being exposed for years. We have significant chemical sensitivity and still have [chronic fatigue] even though we are now living in a home built with safer materials.

—Anonymous Victim

Chronic fatigue is not just long-term fatigue. It involves a whole host of other symptoms signaling a dysfunction in the body. These can include weak or irregular heartbeat, dizziness, ear ringing, slow wound healing, brain-fog, loss of mental cognition, slurring of speech, nausea, temperature regulation issues, debilitating headaches, memory loss, neurological problems, muscular issues, and joint problems.⁵¹⁶

Chronic fatigue is similar in many respects to a few other chronic diseases, including fibromyalgia and lupus. Fibromyalgia patients experience chronic fatigue. However, they also experience chronic pain in the body—in the muscles, ligaments, tendons and/or joints.⁵¹⁷ It is unclear whether chronic fatigue and fibromyalgia are two separate diseases or a slightly different manifestation of the same thing. For example, chronic fatigue used to be called myalgic encephalomyelitis (ME). “Myalgic” means “muscular pain” and “encephalomyelitis” means “inflammation of the brain and spinal cord.”⁵¹⁸ The distinction between chronic fatigue and fibromyalgia is therefore quite blurry. Whether a patient is diagnosed with chronic fatigue or fibromyalgia may depend on the diagnosing doctor and the symptoms the patient may be experiencing at the time.

Lupus, a rarer disease that affects African Americans and women disproportionately, is also quite similar to chronic fatigue and fibromyalgia. Lupus is essentially chronic fatigue and significant body pain with a characteristic butterfly rash on the face.⁵¹⁹ While lupus is most commonly associated with a specific type of inflammation, research confirms that inflammation

⁵¹⁶ Based on interviews with chronic fatigue sufferers; see also Mangalathu S.Rajeevan, “Pathway-focused genetic evaluation of immune and inflammation related genes with chronic fatigue syndrome,” *Human Immunology* 76(8), 553-560 (Aug 2015).

⁵¹⁷ “Symptoms,” National Fibromyalgia Association, available at <http://www.fmaware.org/wp-content/uploads/2017/05/Symptoms.pdf> (last visited May 22, 2019).

⁵¹⁸ Merriam Webster Dictionary Online, available at <https://www.merriam-webster.com/dictionary/encephalomyelitis> and <https://www.merriam-webster.com/dictionary/myalgic> (last visited May 22, 2019).

⁵¹⁹ “Lupus - Overview,” Mayo Clinic, available at <https://www.mayoclinic.org/diseases-conditions/lupus/symptoms-causes/syc-20365789> (last visited May 22, 2019).

also goes hand in hand with fibromyalgia⁵²⁰ and chronic fatigue in general.⁵²¹ These diseases seem to ultimately stem from the same types of problems but are expressed differently in different people.

Recent estimates suggest that up to 4 million people in the US suffer from chronic fatigue syndrome.⁵²² Another 10 million people are estimated to have fibromyalgia (chronic fatigue + joint pain).⁵²³ Lupus (chronic fatigue + joint pain + rash) is believed to affect under one million Americans. Collectively chronic fatigue, fibromyalgia and lupus affect nearly 5% of the US population or 1 in 20 people. These numbers are estimates only, as researchers believe that up to 85% of US citizens suffering from chronic fatigue may never be diagnosed.⁵²⁴ This is because the disease is poorly acknowledged in society and because many people fear that a formal diagnosis would adversely impact their future career opportunities and health insurance benefits.

Gulf War veterans have some of the highest incidences of chronic fatigue—20% have been diagnosed with either chronic fatigue or fibromyalgia (i.e. fatigue + joint pain).⁵²⁵ They further are known to have digestive problems and chronic skin conditions, among others.⁵²⁶ The prevalence of chronic fatigue in Gulf War veterans is so high that Gulf War Veterans who develop chronic fatigue are automatically eligible to receive VA disability compensation.⁵²⁷ The US government concedes that Gulf War veterans

⁵²⁰ Coskun Benlidayi, “Role of inflammation in the pathogenesis and treatment of fibromyalgia.” *Rheumatology International* 39(5), 781-791 (Feb 2019).

⁵²¹ Mangalathu S.Rajeevan, “Pathway-focused genetic evaluation of immune and inflammation related genes with chronic fatigue syndrome,” *Human Immunology* 76(8), 553-560 (Aug 2015).

⁵²² Ashley R. Valdez, “Estimating Prevalence, Demographics, and Costs of ME/CFS Using Large Scale Medical Claims Data and Machine Learning,” *Frontiers in Pediatrics* 6, 412 (Feb 2018); Peggy Rosati Allen, “Chronic Fatigue Syndrome: Implications for Women and their Health Care Providers During Childbearing Years,” *Journal of Midwifery and Women’s Health* 53(4), 289-301 (Jul-Aug 2008).

⁵²³ “Symptoms” & “Prevalence,” National Fibromyalgia Association, available at <http://www.fmaware.org/about-fibromyalgia/symptoms/> and <http://www.fmaware.org/about-fibromyalgia/prevalence/> (last visited May 22, 2019).

⁵²⁴ Peggy Rosati Allen, “Chronic Fatigue Syndrome: Implications for Women and their Health Care Providers During Childbearing Years,” *Journal of Midwifery and Women’s Health* 53(4), 289-301 (Jul-Aug 2008) and Testimony of Dr. Suzanne Vernon, Centers for Disease Control Press Briefing Transcripts, “Chronic Fatigue Syndrome,” dated April 20, 2006, available at <https://www.cdc.gov/media/transcripts/t060420.htm>.

⁵²⁵ J.W. Ashford, “Caring for ODS/S Veterans at the WRIISC: Focus on Symptoms: Chronic Pain, Chronic fatigue, Irritable Bowel Syndrome, etc.,” US Department of Veterans Affairs (June 25, 2018), available at <https://www.va.gov/RAC-GWVI/meetings/jun2018/AshfordRAC20180625508compl.pdf>.

⁵²⁶ Eisen SA, et al., “Gulf War veterans’ health: medical evaluation of a U.S. cohort,” *Annals of Internal Medicine* 142(11), 881-890 (Jun 2005).

⁵²⁷ Myalgic Encephalomyelitis/Chronic Fatigue Syndrome in Gulf War Veterans,” US Department of Veteran’s Affairs, available at <https://www.publichealth.va.gov/exposures/gulfwar/chronic-fatigue-syndrome.asp> (last visited April 15, 2019).

have had a variety of chemical exposures to pesticides, chemical warfare, radioactive materials, contaminated water, oil well smoke, jet fuels, solvents, hydraulic fluids and other toxic petrochemicals, that individually or collectively has caused their physical illnesses and disabilities.⁵²⁸

Military recruits at home are facing similar issues. The majority of our military bases within the US are contaminated with toxic chemicals from various training operations.⁵²⁹ For example, one of the most contaminated army bases is located at Fort McClellan in Alabama. PCB's, nerve gases, radioactive compounds, Agent Orange, and other chemicals are found there, poisoning the locals.⁵³⁰

I had basic training at Ft McClellan Alabama....many there are fighting to get the government to recognize that our health issues stem for exposure to toxic chemicals while there....

—Anonymous Chronic Fatigue Victim

PFAS, a toxic class of chemicals frequently used as flame retardants (see Chapters 11–12), have recently been added to the list as a result of widespread contamination at US military facilities.⁵³¹

Citizens who have served our country in other ways have also developed chronic fatigue as a result of toxic chemical exposure. For example, volunteers who stepped up during 9/11 at Ground Zero of the World Trade Center suffer a variety of chemical-related illnesses, including chronic fatigue.

[My sister and I] were both volunteers down at the World Trade Center at Ground Zero. We were citizens who responded to the attack on the World Trade Center. I volunteered through the Red Cross and then the Salvation Army....Subsequent to my stepping foot at Ground Zero I have developed, in this order, vitiligo, which is a disease of the skin pigmentation; asthma and reactive airway disease; post-traumatic stress, depression and generalized anxiety disorder; GERD and

⁵²⁸ J.W. Ashford, "Caring for ODS/S Veterans at the WRIISC: Focus on Symptoms: Chronic Pain, Chronic fatigue, Irritable Bowel Syndrome, etc.," US Department of Veterans Affairs (June 25, 2018), available at <https://www.va.gov/RAC-GWVI/meetings/jun2018/AshfordRAC20180625508compl.pdf>.

⁵²⁹ John W. Hamilton, "Contamination at U.S. Military Bases: Profiles and Responses," *Stanford Environmental Law Journal* 35(2), 223-249 (June 2016).

⁵³⁰ Potential Exposure at Fort McClellan," US Department of Veterans Affairs, available at <https://www.publichealth.va.gov/exposures/fort-mcclellan/> (last visited July 10, 2019); and "Fort McClellan Groundwater Contamination Veterans Benefits," Woods & Woods LLC, available at <https://www.woodslawyers.com/fort-mcclellan-groundwater-contamination-veterans-benefits/> (last visited July 10, 2019).

⁵³¹ Tara Copp, "DoD: At least 126 bases report water contaminants linked to cancer, birth defects," *Military Times* (April 26, 2018) and Melanie Benesh, "Mapping PFAS Chemical Contamination at 106 U.S. Military Sites," *Environmental Working Group* (March 6, 2019).

IBS; moderate obstructive sleep apnea; fibromyalgia; autoimmune antiphospholipid antibody syndrome, which is a blood disorder; lupus and Hashimoto's Disease, along with chronic fatigue....⁵³²

The reason why Ground Zero was so toxic is because we construct buildings with materials containing highly problematic chemicals. These include the chemicals found in glues, coatings, paints and other synthetic or treated materials. All of these burned, combusted and volatilized into the air during the 9/11 attack. First responders rushed in and breathed in the fumes and fine particles from the ruins.

Office workers have also become sick from our built environment. The problem has become sufficiently common that it has a name: "Sick Building Syndrome." In 1994, the newly constructed DuPage County Courthouse outside of Chicago made national headlines when 700 people had to be evacuated as a result of the chemical off gassing.⁵³³ A few of the employees at the courthouse were interviewed on the CBS evening news about their experience with chemically induced chronic fatigue:

Mrs. Lori Chassee (Employee): "So we talked about the 3:00 nap time, people asleep at their desks, inability to wake up. But [we'd] do it almost tongue and cheek and [there was] a lot of laughing about it and laughing about the people that [were the] sickest."

Ms. Claudette Lewis (Employee): "On the weekends, I was fine. I could function. And then on Monday morning, you'd go back and [the fatigue would] start all over again."

Reporter: "Claudette Lewis has come down with chronic fatigue syndrome...."⁵³⁴

The 1980s and 1990s were particularly bad for the building industry. Many toxic chemicals and mold-prone building materials were used in construction. Operable windows went out of fashion and a "tighter building envelope" with little natural ventilation was all the rage. As a result, toxic fumes off-gassed into the building, rather than outside. A number of studies—including one study performed by the EPA itself—demonstrated that the

⁵³² Testimony of Denise Villamia to the US Department of Health and Human Services found in the transcripts of the "James Zadroga 9/11 Health and Compensation Act of 2010 Public Meeting" convened by the Department of Health and Human Services on March 3, 2011, at page 155:14-23.

⁵³³ Jan Ferris, "Jury Blames DuPage for 'Sick' Courthouse," *Chicago Tribune* (Dec 31, 1994).

⁵³⁴ Transcripts of CBS Evening News from October 12, 1992, as obtained from the Chemical Fabrics and Film Association, available at <https://toxicdocs.org>. The original video clip is available at <https://tvnews.vanderbilt.edu/programs/341246>.

indoor air quality was significantly worse than the outdoor air quality at such buildings.⁵³⁵

Indoor air quality can be a serious issue any time you introduce toxic chemicals into the indoor environment. A man I interviewed spent his childhood continuously exposed to toxic fumes from dry-cleaning chemicals and mothballs in the family's coat closet. This led to allergies and brain fog early on in life. The exposures also lay the foundation for health problems later on. He developed chronic fatigue after moving into a brand new building for work in his early adult life. He remembers reacting to the carpets and other new building materials. He first became sick with recurrent infections before falling down with chronic fatigue.

Research over the last decades confirms that people who fall ill with chronic fatigue generally have had multiple and cumulative exposures—all of which came at the wrong time for them.⁵³⁶ Some are continuously around toxic substances at work. Others are inadvertently exposed to pesticides near their home. Those who are lucky can account for their major exposures. Many others may have some suspicions but do not truly know what was in their environment and when.

[I worked at a nuclear energy plant when I was young and] by noon hour one day, my nylons had dissolved off of my legs. Now what was in the air that day, and did it bother anybody? I don't know....I got chronic fatigue syndrome in 1991. My younger sister of a year [who also worked at the nuclear energy plant] got it five years ahead of me.... I've got two aunts, one was 108 and one was 106, and I'm still a bit of a pistol. [But] I was in bed for three years -- '91, '92 and '93....⁵³⁷

—Anonymous Victim

My [chronic fatigue] became severe when I moved into a new timber-framed house which was heavily treated with [insecticides and wood preservatives]. I and a number of my [neighbors]...became ill with various immune illnesses. My young next door [neighbor] died, one other young woman, like me, ended up in a nursing home....I learnt only recently that a cousin's husband was the manager of the company

⁵³⁵Nicholas Ashford & Claudia Miller, *Chemical Exposures: Low Levels and High Stakes* (2nd ed.), 11-15 (Wiley & Sons 1998).

⁵³⁶Robert Naviaux, "Metabolic Features of Cell Danger Response," *Mitochondrion* 16, 7-17 (May 2014).

⁵³⁷Transcript of testimony of Former Employee at Atomic US Facility given at the "Energy Employees Occupational Illness Compensation Program Act - Special Exposure Cohort Townhall Meeting #3," held by the National Institute for Occupational Safety & Health on August 7, 2002, at page 80:5-12.

who built the houses and so was regularly in contact with the treated wood. It caused him to become seriously ill and he died....

—Anonymous Victim

I grew up with a strawberry farm that bordered my backyard fence in the 1970s and early 80s. I've just recently discovered that the pesticides applied to this crop are particularly toxic.

—Anonymous Chronic Fatigue Sufferer

Those with chronic fatigue also develop intolerance to things such as household chemicals, fragrances, certain foods, sounds, mold, bug bites, Wi-Fi / EMF, and a whole host of other things. Usually the longer their state of chronic fatigue, the more severe the issues become. Chronic fatigue sufferers are especially chemically sensitive on average, compared to the rest of the general population.⁵³⁸ Chemical sensitivity is likely the first indication of toxic chemical overload in their bodies that can ultimately result in long-term chronic fatigue or another chronic illness. Indeed, some level of chemical sensitivity is likely to develop years before other problems set in. As a result, chronic illness and multiple chemical sensitivity go hand in hand.

I've been diagnosed with Chronic Fatigue Syndrome, and yes, toxic exposures trigger me.

—Anonymous Victim

I've been diagnosed with fibromyalgia for a year and didn't know it was all connected. Just walking in a supermarket down the [laundry detergent aisle] is a nightmare [and] I try my best to hold my breath.

—Anonymous Victim

Industry has applied their lobbying efforts and PR magic to keep environmental illnesses such as chronic fatigue and chemical sensitivity from getting serious recognition.⁵³⁹ If these diseases—along with other chronic illnesses—were publicly recognized as being caused by toxic chemicals rather than lifestyle, then they would become a liability for industry. We would recognize that toxic chemicals—rather than the victim—has caused

⁵³⁸ Iris Bell, et al., "Illness from Low Levels of Environmental Chemicals: Relevance to Chronic Fatigue Syndrome and Fibromyalgia," *The American Journal of Medicine* 105(3A) Supp, 74S-82S (Sept. 1998).

⁵³⁹ Anne McCampbell, "Multiple Chemical Sensitivities Under Siege," *Townsend Letter for Doctors and Patients* 210 (January 2001) (reprinted).

the problem and industry might be sued or even regulated. This does not sit well with industry (or our government, who does not like to regulate). As a result, the connection between toxic chemicals and environmental illness is frequently rejected, denied, ignored, and sometimes even treated as a form of emotional psychosis in public discourse. There are also public efforts to explain chronic illness away on a biological level excluding the link to toxic chemical exposure. Many studies seek to identify a common medical framework for talking about diseases without having to mention the role of chemical toxicity. Indeed, the pharmaceutical industry seeks to develop biomarkers for disease (rather than examining their environmental causes) so that they can develop responsive drugs and monetize a cure.

Industry has also worked very hard to silence the voices of sufferers of environmental illness so that they do not have to deal with them. One way has simply been to ignore the diseases, so that people who fall ill will simply go away. This strategy is so successful in occupational health that it falls under the rubric of: “the healthy worker effect.” The relationship between chronic fatigue and the healthy worker effect was described back in the early 1980s in a Union Carbide internal corporate memo:

If a worker...develops symptoms such as chronic fatigue or vague aches and pains, he may voluntarily “drop out.” He often leaves a demanding job in big industry for a less demanding job in a small service industry. He will probably never get studied [in a worker health study]. Some ‘drop outs’ never get steady employment again.⁵⁴⁰

When industry has not been able to get victims of environmental illness to quietly go away, it has resorted to social ostracism such as harassment, lay-offs, stigmatization, on-the-job monitoring and the withholding of occupational diagnosis and treatment.⁵⁴¹

⁵⁴⁰ Communication from T.A. Lincoln to Bonnie Almond, The “Healthy Worker Effect,” Nuclear Division News (3/23/81), an internal Union Carbide document available at toxicdocs.org.

⁵⁴¹ Tamara L. Mix, “Social Control and Contested Environmental Illness: The Repression of III Nuclear Weapons Workers.” *Human Ecology Review* 16(2), 172-183 (Winter 2009).