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THE BETTER HEALTH NEWS

TOXIC CHEMICALS, ENDOMETRIOSIS AND CHRONIC ILLNESS

ENVIRONMENTAL ISSUES

A study appearing in *Toxicology Science* [2001; 59(1):147-59] demonstrated that animals with elevated serum levels of dioxin and chemicals similar to dioxin had a high prevalence of endometriosis, and the severity of disease correlated with the serum concentration of the toxic chemical. Research appearing in *Human Reproduction* [2005; 20(1):279-85 (ISSN: 0268-1161)] tested blood levels of PCBs in women with endometriosis and concluded that anti-estrogenic PCBs may be associated with the development of endometriosis. Research appearing in *Fertility and Sterility* [2005; 84(2):305-12 (ISSN: 1556-5653)] also found a connection between the body burden of PCBs and similar chemicals to the incidence of endometriosis.

Researchers at the National Institute of Child Health and Human Development (NICHD), George Washington University, and the Endometriosis Association conducted a cross sectional survey of 3,680 women with surgically diagnosed endometriosis. The study was published in the journal, *Human Reproduction* [2002;17 (10):2715-2724].

In this study, they found an increased incidence of many chronic and autoimmune diseases in women with endometriosis compared to the general population. Allergies occurred in over 60% of the endometriosis patients compared to the 18% in the general population. Hypothyroidism was seven times more common, chronic fatigue syndrome was more than 100 times more common, and fibromyalgia was nearly twice as common in endometriosis patients. Endometriosis patients also had an increased incidence of autoimmune diseases like lupus, rheumatoid arthritis and Sjogren's syndrome. Thus the incidence of chemical exposure and endometriosis, as well as other illnesses seem to be correlated.

PARKINSONS AND CHEMICAL EXPOSURE

Parkinson's disease may be, in part, due to environmental issues, according to an article, ["Environmental Risk Factors in Parkinson's Disease", Russell, Tanya, Food of Chemical Toxicology, 1992;30 (4):343-348.]. Parkinson-like symptoms can be caused by exposure to chemicals like phenothiazines and butyrophenones. In the early 1980's drug abusers who actually injected themselves with the chemical 1-methyl-4-phenyl-1,2,3 6-tetrahydropyridine (MPTP) developed, within a few days, a severe motor disorder resembling the advanced stages of Parkinson's disease. This drug has been used as a model in studying Parkinson's disease. The compound paraquat has been studied also since it has a similar structure to MPP+. There is some anecdotal evidence of pesticide-induced Parkinson's disease, as well as a significant correlation in some cases between rural residents and early onset Parkinson's disease, and between childhood well water drinking and early onset Parkinson's disease, Although the latter are still debatable. In another study there was some relationship between working in a paper mill or an orchard and the correlation with Parkinson's disease. The investigators suggest that the industrial chemicals used in the paper mills and orchards might be related to the cause and development of the disease.

According to an article, [*"Oxidative Stress in Parkinson's Disease," Jenner P, Ann Neurol, 2003;53 (Suppl 3):S26-S38.*], oxidative stress may be a factor in Parkinson's disease. There is convincing evidence that nitric oxide reacts with superoxide to produce peroxynitrite and ultimately hydroxyl radical, which can lead to dopamine cell degeneration in Parkinson's disease. Oxidative stress is associated with mitochondrial dysfunction, excitotoxicity, nitric oxide toxicity and inflammation. Oxidative stress can impair ubiquitination and degrade proteins directly. Products of oxidative stress can damage the 26S proteasome. Impairment of proteasomal function leads to free radical generation and oxidative stress. Oxidative stress and the release of products of oxidative stress are a part of dopaminergic cell death. There is little doubt that oxidative stress leads to an increase in oxidative damage in the substantia nigra. Oxidative stress can be an initiator and a component of dopaminergic cell degeneration in Parkinson's disease.

Taking antioxidants, like bioflavonoids may help to protect the nervous system. Bioflavonoids are natural antioxidants formed by

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plants. Three such compounds, hesperidin, hesperetin and neohesperidin, are found in citrus fruit. Research that appeared in the *Journal of Agricultural and Food Chemistry* (published on line Jan, 2008, ahead of print) showed that bioflavonoids protect cells from damage. The researchers injected cells with the different concentrations of the bioflavonoids and then injected the cells with hydrogen peroxide (to create oxidative stress and cell destruction). They found that all three of the bioflavonoids acted to protect the cells, reducing cell loss and preventing membrane damage from the peroxide. They also increased the activity of the antioxidant enzyme, catalase.

The activity of citrus bioflavonoids may act to protect the nervous system. More researchers are considering the idea that Alzheimer's disease if from a build up of beta amyloid plaques, which are associated with an increase in cell damage and death from oxidative stress.

CHEMICALS IN OUR BODIES

The average American now has 116 synthetic compounds in his or her body, according to the Centers for Disease Control and Prevention in Atlanta. These compounds include dioxin, polycyclic aromatic hydrocarbons and organochlorine pesticides. There are about 75,000 different chemicals produced in the United States each year, 3,000 of which are produced in quantities greater than 50,000 tons each year. Chemicals that were banned decades ago persist in the soil, air and water. DDT, banned 34 years ago, still exists in detectable levels in many people. It would be interesting to see the result if the CDC tested for all of these chemicals.

Recent studies have detected pesticides, plastics and polymers in umbilical cord blood, in the placenta, in human milk and in the bloodstreams and body fat of infants. These substances may have far reaching effects on our health. One toxin threatening mothers and children is mercury. Mercury has been linked to breast cancer, autism and attention deficit disorder. In 2002, a study found that nearly 15% of American women of reproductive age had enough mercury in their blood to endanger a developing fetus.

In 1993, Mary Wolff, an associate professor at New York's Mount Sinai Medical Center, published a paper in the *Journal of the National Cancer Institute*, indicating that exposure to certain chemicals may play a role in breast cancer. Women with high blood levels of DDE (a compound formed when DDT breaks down), had risk of developing breast cancer that was four times higher than women with low levels of DDE. DDT was banned in the US in the 1970s. It can mimic the hormone estrogen and is a known to disrupt the endocrine system. Research published in the *Journal of Nutritional and Environmental Medicine* states that exposure to small amounts of certain chemicals can increase the risk of developing cancer - particularly for infants and young adults. A study on rats published in the Dec. 6, 2006 online edition of *Reproductive Toxicology* found that exposure to biphenol A during fetal life may cause breast cancer in adult women.

An article appearing in *Food and Chemical Toxicology,* (1992;30(4):343-348) looked at the relationship between certain chemicals and Parkinson's disease. Parkinson-like symptoms can occur from exposure to certain toxins, such as manganese and carbon monoxide. Drugs like phenothiazines and butyrophenones may cause symptoms similar to Parkinson's. The chemical 1-methyl-4-phenyl-1,2,3 6-tetrahydropyridine (MPTP) causes symptoms similar to Parkinson's disease. This drug has been used as a model in studying Parkinson's disease. Paraquat has been studied since it has a similar structure to MPP+. There is some evidence that Parkinson's disease can be induced by pesticides. There is a correlation between early onset Parkinson's disease in people who drank well water in childhood. There also seems to be a relationship between Parkinson's disease and working in a paper mill or in an orchard. The author suggests that there may be a relationship between the chemicals used in orchards and paper mills that may be linked to Parkinson's disease. Also, environmental factors play a role in the disease, although there may be other factors.

It is easier to build strong children than to repair broken men.

Frederick Douglass

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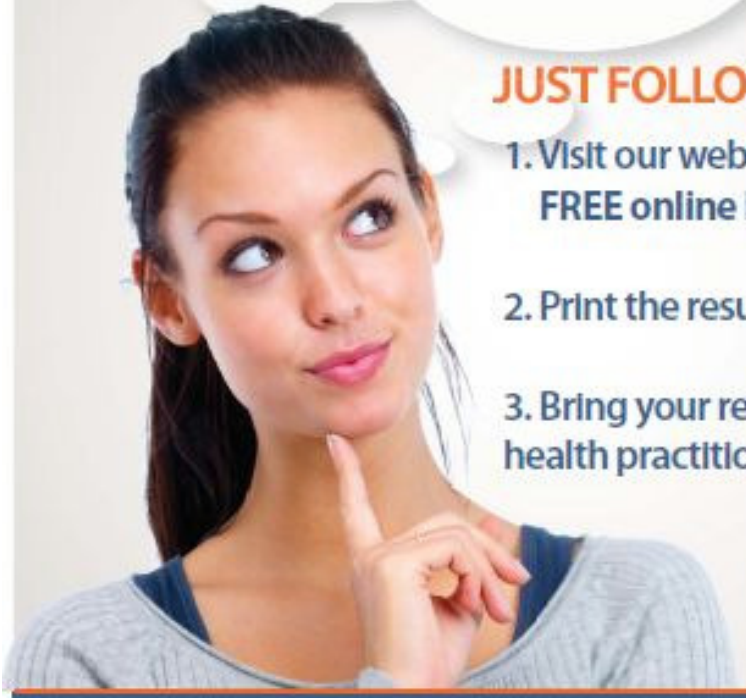

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DAMAGE FROM GMOS AND ROUNDUP

An article appearing in *Food and Chemical Toxicology* (2012 Nov;50(11):4221-31. doi: 10.1016/j.fct.2012.08.005. Epub 2012 Sep 19), looked at the link to GMOs, Roundup hebicide, and disease. The health effects of a Roundup-tolerant genetically modified maize (from 11% in the diet), cultivated with or without Roundup, and Roundup alone (from 0.1 ppb in water), were studied 2 years in rats. In females, all treated groups had a 2-3 fold increase in death rate as compared to controls, and more rapidly. This difference was also visible in 3 male groups fed GMOs. All results were hormone and sex dependent, and the pathological profiles were comparable. Females developed large mammary tumors. They developed them more often than controls, the pituitary was the second most disabled organ; the sex hormonal balance was modified by GMO and Roundup treatments. In treated males, liver congestions and necrosis were 2.5-5.5 times higher. This pathology was confirmed by optic and transmission electron microscopy. Marked and severe kidney nephropathies were also generally 1.3-2.3 more frequent. Males presented 4 times more large palpable tumors than controls which occurred up to 600 days earlier. Biochemistry data confirmed very significant chronic kidney deficiencies; for all treatments and both sexes. Seventy-six percent of the altered parameters were kidney related. These results can be explained not only by the non linear endocrine-disrupting effects of Roundup, but also by the overexpression of the transgene in the GMO and its metabolic consequences.

The average American consumes 193 pounds of GMO food each year. According to research in the *Journal of Environmental and Analytical Toxicology,* "Exposure of mammals to glyphosate may cause loss of mitochondrial transmembrane potential and result in oxidative stress to liver and brain. Both apoptosis and autophagy are involved in glyphosate toxicity mechanisms. Case reports indicated that exposure to glyphosate was related to Parkinsonism." Researchers have found higher glyphosate levels in chronically ill people than in healthy subjects.