The Glutathione Report

Optimal Health With The Master Antioxidant

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In This Issue

Editor:
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Glutathione News Updates

Glutathione makes it to "superfoods" list

22 February 22 2004; Mail & Guardian (subscription)
Dr Steven Pratt, an authority on food and ageing, and co−author of the book at the heart of America's latest diet craze, SuperFoods Rx : Fourteen Foods That Will Change Your Life, claims that his superfoods offer the ultimate combination of the life−enhancing nutrients, namely vitamin C, folic acid, selenium, vitamin E, lycopene, lutein, alpha−carotene, beta−carotene, beta−cryptoxanthin, **glutathione**, resveratrol, fibre, omega−3 fatty acids and polyphenols. The New England Journal of Medicine, the American Journal of Clinical Nutrition and the Journal of Agricultural Food Chemistry have all lent him their support.

Glutathione in Pratt's superfoods list

27 January 2004; Rocky Mountain News
Steven Pratt's superfoods list is based on an exhaustive study of the scientific research behind the world's best daily diets. The 14 nutrients that show up consistently in the most health−promoting, disease−preventing, anti−aging diets in the world are: vitamin C, folic acid, selenium, vitamin E, lycopene, lutein, alpha−carotene, beta−carotene, beta cryptoxanthin, **glutathione**, resveratrol, fiber, omega−3 fatty acids and polyphenols.

Glutathione S−transferase helps Tibetans adapt to high−altitude

19 February 2004; Cordis News
Ability to adapt to life at high altitudes is inherited according to a new study. Oxygen deficiency, or hypoxia, not only affects the lungs and brains of mountain climbers in the form of altitude sickness, but also affects their muscles. Tibetans have significantly higher levels of an antioxidant enzyme known as **glutathione S−transferase**, which neutralises free radicals in muscle tissues. Because of this enzyme, Tibetans are presumably better equipped to neutralise the free radicals produced as a result of hypoxia.

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Glutathione compound in COPD trials

12 February 2004; The Scotsman
Volunteers suffering from chronic obstructive pulmonary disease (COPD) are being sought to take part in trials of a new treatment being run by Edinburgh University. COPD, developed by one in five smokers, blocks the airways, inflames the lungs and causes the sufferer breathing problems, but cannot be treated with drugs used for other respiratory diseases. People who go on to develop COPD, a condition which also includes chronic bronchitis and emphysema, have been shown to have too little of an antioxidant called **glutathione** in their lungs. As part of the trial, sufferers will inhale an antioxidant which has been shown to reduce inflammation in the lungs and the amount of mucus being produced.

Prebiotics make gut bacteria produce more glutathione

7 February, 2004; The Times (subscription)
Taking prebiotics encourages the bacteria in the gut to produce a chemical, **glutathione**, which can protect the lining of the gut against damaging toxins that can lead to colon cancer. Prebiotics are found in most carbohydrate whole foods − artichokes, wheat grains, banana and chicory are particularly good sources − and there is a wide range of commercial prebiotics extracts on the market that can easily be added to drinks or taken with food.

Glutathione precursors prevent brain cell death in Alzheimer's

5 January 2004; The Journal of Cell Biology, Volume 164, Number 1, 123−131
Amyloid−ß peptide (Aß) accumulation in senile plaques, a pathological hallmark of Alzheimer's disease (AD), has been implicated in neuronal degeneration. **Glutathione (GSH) precursors** inhibited Aß activation of neutral sphingomyelinase (nSMase) and prevented oligodendrocyte (OLG) death, whereas GSH depletors increased nSMase activity and Aß−induced death.

Glutathione S−transferase gene controls onset of Alzheimer's, Parkinson's disease

Human Molecular Genetics, 2003, Vol. 12, No. 24 3259−3267
Genetics researchers say they have found a gene crucial to Alzheimer's and Parkinson's disease that determines not if we get the diseases, but when. The gene for **glutathione S−transferase** omega−1 or GSTO−1—showed genetic correlations with the age at disease onset.

Homocysteine−vitamin−glutathione link in Alzheimer's

31 January 2004; The Times (subscription)
Evidence has been piling up over the link between the amount of an amino acid called homocysteine in your blood and your chance of developing Alzheimer’s. Simply by taking a combination of B vitamins, antioxidants and minerals, you can lower the level, along with your risk of contracting the disease. Welsh GP,

Andrew McCaddon, showed that the more homocysteine that patients with Alzheimer's had, the worse their mental performance and the worse their "cognitive impairment" the less they had of an antioxidant called **glutathione**. Amyloid plaques encroaching on the brain cause a rise in the production of free radicals, or oxidative stress. Antioxidants, such as vitamin C and E "mop up" the damaging free radicals.

Selenium supplements become popular

27 January 2004; Newsday
Selenium supplements have become popular because some studies suggest they may play a role in decreasing the risk of certain cancers, and in how the immune system and the thyroid gland function. Selenium is a co−factor for the enzyme **glutathione peroxidase** which breaks down free radicals.Too much selenium can cause some toxic effects including gastrointestinal upset, brittle nails, hair loss and mild nerve damage.

Glutathione S−transferase regulates allergic response to diesel fumes

8 January 2004; University of Southern California
The risk of developing respiratory allergies from exposure to diesel emissions depends largely on genetics, according to a study funded by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH).

Genetic differences in GST genes in allergic response to air pollution

8 January 2004; NIH/National Institute of Allergy and Infectious Diseases
Researchers from the Keck School of Medicine of the University of Southern California and the David Geffen School of Medicine at UCLA have found that genetic differences in the **glutathione S−transferase M1 (GSTM1) and glutathione S−transferase P1 (GSTP1) genes** seen in about half the population leave allergy−sufferers particularly susceptible to the effects of diesel particles. Antioxidants can detoxify these particles and temper the body's allergic inflammatory response. Researchers believe that the better the body can use antioxidants to defend itself, the better it can protect itself from airborne pollutants.

Neuro−toxic chemicals lower glutathione levels

Journal of Neurochemistry, Vol. 88, No. 3, 2004 513−531
In a recent review, six chemicals, 2−halopropionic acids, thiophen, methylhalides, methylmercury, methylazoxymethanol (MAM) and trichlorfon, that cause toxicity to certain neuronal (brain) cells, were reviewed. All six were found decrease **cerebral glutathione (GSH),** thereby reducing cellular antioxidant status and making the cells more vulnerable to reactive oxygen species (free radicals).

Glutathione Peroxidase protects brain cells from injury

Journal of Neurochemistry, Vol. 87, No. 6, 2003 1527−1534
Generation of reactive oxygen species (ROS) and oxidative damage play a pivotal role in the neuron (brain cell) death from brain injury. In this recent study, over−expression of antioxidant enzymes catalase (CAT) or **glutathione peroxidase (GPX)** was shown to potently decrease neurotoxicity.

Hangover Remedies − Raw eggs, glutathione and more...

30 December 2003; Sydney Morning Herald, Australia
Although raw eggs are a good source of cysteine, which helps the body make **glutathione**, the antioxidant that's diminished by alcohol, eating raw eggs isn't recommended because of the risk of salmonella poisoning. If you're into herbal remedies, you could consider using milk thistle, which supposedly promotes liver function (and boosts glutathione). Milk Thistle is a powerful antioxidant and supports the liver by preventing the depletion of glutathione, an amino acid−like compound that is essential in aiding the body's ability to destroy toxins such as alcohol.

Low glutathione peroxidase levels indicate impending heart attack

N Engl J Med 2003;349:1605−13
Low levela of **glutathione peroxidase 1** activity in the erythrocytes (red blood cells) is associated with an increased risk of cardiovascular events among patients with coronary artery disease, according to the findings of a multinational prospective study. Hence in addition to assessing traditional risk factors, measuring levels of glutathione peroxidase 1 may help to predict an impending heart attacks. In addition, increasing glutathione peroxidase 1 activity might lower the risk of heart attack.

About the Editor:
Priya Shah holds a Master's degree in Biotechnology and has first−hand research experience in molecular biology. She entered the field of electronic publishing after a successful stint in health and environmental journalism and now works from home as an electronic publisher and full−time mom.