

## Health Bits and Pieces (HFN 33:2) Written By Dan Kenner, Ph.D.

### Truth Decay

An increase in bone mass due to fluoride ingestion or treatment (for osteoporosis) does not translate into improved bone strength, and high doses of sodium fluoride for osteoporosis treatment may increase the risk of vertebral fractures. In a 2005 study, it was found that 47% of children living in a New Delhi neighborhood with average water fluoride level of 4.37 ppm have evidence of clinical hypothyroidism attributable to fluoride. They found borderline low FT3 levels among all children exposed to fluoridated water. Researchers from the Harvard School of Public Health (HSPH) and China Medical University in Shenyang for the first time combined 27 studies and found strong indications that fluoride may adversely affect cognitive development in children. Based upon the findings, the authors say that this risk should not be ignored, and that more research on fluoride's impact on the developing brain is warranted. A new study reveals that States with a higher portion of artificially fluoridated water had a higher prevalence of ADHD. This relationship held up across six different years examined. The authors, psychologists Christine Till and Ashley Malin at Toronto's York University, looked at the prevalence of fluoridation by State in 1992 and rates of ADHD diagnoses in subsequent years.

*Riggs B, Hodgson S, O'Fallon M, et al., "Effect of fluoride treatment on the fracture rate in postmenopausal women with osteoporosis," The New England Journal of Medicine 322:12, pp. 802-809 (1990);*

*A. K. Susheela, M. Bhatnagar, K. Vig, and N. K. Mondal, "Excess fluoride ingestion and thyroid hormone derangements in children living in Delhi, India," Fluoride, vol. 38, no. 2, pp. 98-108 (2005);*

*Malin A, Till C, "Exposure to fluoridated water and attention deficit hyperactivity disorder prevalence among children and adolescents in the United States: an ecological association,"*

*Environmental Health 2015, 14:17 doi:10.1186/s12940-015-0003-1; Choi A, Sun G, Zhang Y, Grandjean P, "Developmental Fluoride Neurotoxicity: A Systematic Review and Meta-Analysis," Environmental Health Perspectives; DOI:10.1289/ehp.1104912.*

### Probiotics and Depression

In a study published just last week in *Brain, Behavior and Immunity*, researchers found that multispecies probiotics have an effect on mood after four weeks of supplementation. Hippocrates stated, "All disease begins in the gut," and there is more and more evidence and research to support this. There is definitely a gut-brain relationship between nutrition and the gut microbiome, and how they support brain health and function.

Probiotics are essential in improving digestion and immune function. In this study, researchers investigated whether the administration of a multispecies probiotic (containing *Bifidobacterium bifidum*, *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Lactobacillus brevis*, *Lactobacillus casei*, *Lactobacillus salivarius*, and *Lactococcus lactis*) had an effect on rumination (i.e., recurrent thoughts about possible causes and consequences of a person's distress). "Rumination is one of the most predictive vulnerability markers of depression," says psychologist and study author Laura Steenbergen. "Persistent ruminative thoughts often precede and predict episodes of depression."

This study was blind at three levels – group allocator, participants, and outcome assessor. It investigated the effect of multispecies probiotic intervention on cognitive reactivity to sad mood, as well as reported symptoms of depression and anxiety. It was placebo-controlled,

randomized, and had a pre- and post-intervention assessment design. Among the 40 participants, 20 people received a placebo and the others received a probiotic mixture. Participants came to the lab twice: once at the beginning of the study and again four weeks later. Both times they filled out a questionnaire for measuring depression. The participants who received the probiotics showed significantly reduced “ruminative thoughts” compared to the placebo group. These results provide the first clinical evidence that probiotics may help reduce negative thoughts. It may also illuminate a cognitive mechanism that may be responsible for the positive mood effects of probiotic supplementation.

*Steenbergen L, Sellaro R, van Hemert S, Bosch J, Colzato L, “A randomized controlled trial to test the effect of multispecies probiotics on cognitive reactivity to sad mood,” Brain, Behavior, and Immunity, 2015; DOI: 10.1016/j.bbi.2015.04.003.*

### **The War on Non-Drugs**

New York Attorney General Eric Schneiderman is once again attacking the supplement industry. Recently, he sent a letter co-signed with 13 other Attorneys General requesting Congress to “launch a comprehensive congressional inquiry in the herbal supplement industry” because “a current state investigation has raised serious concerns about the marketing and safety of the herbal supplements regularly consumed by millions of Americans.” As many of you know, the testing method Schneiderman used was questionable at best. The DNA testing had no apparent verification by other test methods and did not employ a second or third analytical laboratory to confirm the findings of the first lab results. In addition, many of the products tested were extracts that would not be expected to contain DNA from parent materials. Also not taken into consideration is the fact that DNA can also be damaged by heat during the manufacturing process.

The letter advises certain congressional subcommittees, along with the FDA, to conduct an investigation that would consider tightening supplement regulations that would include new rules regarding ingredients, labeling guidelines, and manufacturing practices. These regulations are supposedly meant to enhance quality assurance in an industry that already is highly regulated and has an excellent record for quality. The only remaining regulation is to subject supplements to the multibillion-dollar FDA drug safety and efficacy approval process, which the New York Attorney General knows no one will ever pay for since natural supplements cannot be patented.

Current good manufacturing practices (cGMPs) for supplements could not be more stringent. Laws to guarantee safe products already exist and it is up to the FDA to enforce those laws. The testing regimens that the supplement industry are held to under cGMPs are one reason that supplements have such a proven track record of safety. One report found that there were an average of 1,575 adverse event reports (AERs) related to supplements per year between 2008 and 2011. When you consider about 50% of Americans take supplements every day, this means that only 1/100th of 1% of all supplement users ever experience any problems at all. In addition, AERs are not concrete evidence of supplements being a factor in an adverse event, but simply a possible correlation. On the other hand, in 2008 there were 526,527 AERs from pharmaceuticals, which is *488 times* more than the number of supplement AERs.

### **Statins Promote Atherosclerosis and Heart Failure**

This new study validates the theory that statins may be causative in coronary-artery calcification and can be toxic to the mitochondria, impairing muscle function in the heart and blood vessels through the depletion of CoQ10 and 'heme A' and, consequently, ATP generation. The study demonstrated that statins inhibit the synthesis of Vitamin K<sub>2</sub>, which is an important cofactor for matrix Gla-protein activation. This vitamin is responsible for the protection of the arteries from calcification. In addition, statins inhibit the biosynthesis of selenium-containing proteins, such as glutathione peroxidase, that suppress peroxidative stress. An impairment of selenoprotein biosynthesis may be a contributing factor in congestive heart failure similar to cardiomyopathies seen with selenium deficiency. The epidemic of heart failure and atherosclerosis, therefore, may paradoxically be aggravated by the prevalent use of statin medication. The researchers propose that the current statin treatment guidelines be seriously reevaluated. Heart disease is the leading cause of death in the United States, yet in many instances it may be prevented when individuals make healthy dietary and lifestyle choices.

*Okuyama H, Langsjoen P, Hamazaki T, Ogushi Y, Hama R, Kobayashi T, Uchino H, "Statins stimulate atherosclerosis and heart failure: pharmacological mechanisms," Expert Review of Clinical Pharmacology, 2015 Feb 6:1-11.*

### **Red Wine Active Principle**

According to new research published by the Texas A&M Health Science Center College of Medicine, the powerful polyphenol resveratrol may help prevent age-related memory decline. Resveratrol has been widely publicized for its cardiovascular health benefits. However, researchers believe it also has positive effects on the hippocampus, an area of the brain involved in memory (in particular, long-term memory), learning, mood, and spatial navigation. Since natural cognitive decline occurs after middle-age, the study's findings may have implications in helping with age-related memory loss in the elderly. Resveratrol may also be useful in helping with neurodegenerative conditions such as Alzheimer's disease.

In this study, which was published in *Scientific Reports*, researchers reported that the use of resveratrol had significant benefits in learning, memory, and mood in aged rats. "The results of the study were striking," Shetty said. "They indicated that for the control rats who did not receive resveratrol, spatial learning ability was largely maintained but ability to make new spatial memories significantly declined between 22 and 25 months. By contrast, both spatial learning and memory improved in the resveratrol-treated rats." The results demonstrated neurogenesis doubled in the rats given resveratrol compared to the control rats. The resveratrol-treated rats also had significantly improved microvasculature, indicating improved blood flow, and had a lower level of chronic inflammation in the hippocampus. This study provides evidence that the use of resveratrol in middle-aged individuals may help support improved memory and mood function as they age.

*Maheedhar Kodali M, Parihar V, Hattiangady B, Mishra V, Shuai B, Shetty A, "Resveratrol Prevents Age-Related Memory and Mood Dysfunction with Increased Hippocampal Neurogenesis and Microvasculature, and Reduced Glial Activation," Scientific Reports, 2015; 5: 8075 DOI: 10.1038/srep08075.*