Chromium Connections: Promising Health Roles Surface At Expert Summit

Leading experts on the mineral chromium came together in early April in Boston for a summit titled, “Chromium in Health and Disease.” EN was there to report on the latest research.

At the conference, researchers revealed some exciting new health roles for chromium and reinforced some old ones. Among the most important: chromium’s role in preventing and controlling diabetes and heart disease and, more surprisingly, as a possible treatment for depression.

New Data for Diabetes. Researchers discovered some time ago that chromium boosts the activity of insulin, which in turn aids the body’s ability to metabolize glucose. It is only natural, then, to project that chromium might benefit people with diabetes. Now, researchers have also linked chromium to a reduction in insulin resistance, often the forerunner to type 2 diabetes.

The link is clear. Conference speakers pointed out that people with type 2 diabetes lose almost twice as much chromium in their urine and have lower levels of the mineral in their blood than people without diabetes.

William Cefalu, M.D., of the University of Vermont College of Medicine, presented findings from a well-

Breathe Easy: Good Nutrition Can Help Keep Your Lungs Healthy

Most of us find ourselves short of breath at one time or another. But for folks living with chronic lung disease, labored breathing is more serious than an occasional gasp for air. Chronic lung disease is the fourth leading cause of death in the U.S., claiming more than 120,000 lives each year.

The U.S. Centers for Disease Control and Prevention estimate that nearly 13 million people are living with chronic obstructive pulmonary disease (COPD), while over 17 million suffer from asthma, two common chronic lung conditions.

COPD—a collective term for chronic bronchitis and emphysema—leads to an irreversible obstruction of airflow in the lungs. In chronic bronchitis, lung tissue becomes inflamed and scarred, while in emphysema the lung’s air sacs are permanently weakened. In asthma, environmental triggers like cold air or allergens cause airways to become inflamed and narrowed, although not permanently.

The lung damage from all three conditions results in similar symptoms: shortness of breath, chest tightness, coughing and excessive mucus production. The good news is that COPD and asthma are largely preventable.

“Not smoking is the number one best prevention,” advises Neil Schachter, M.D., associate director of the pulmonary division at Mount Sinai School of Medicine in New York City. Reducing exposure to environmental pollutants is also key. Still, nutrition has garnered much attention recently, as researchers are discovering links between diet and lung health. EN examines the latest evidence.

Antioxidants to the Rescue? Oxygen-rich lung tissue provides a prime target upon which dangerous free radicals can wreak havoc. An imbalance between oxidant stress and antioxidant resources can lead to cell death and eventually a loss of lung function.

Just such an imbalance was found in a recent study from the University (continued on page 4)
controlled trial of people at risk for type 2 diabetes. Those given 1,000 micrograms a day of chromium picolinate experienced significant improvement in insulin sensitivity compared to those getting a placebo. Cefalu is currently involved in a new six-month study of people already diagnosed with type 2 diabetes.

"So far," he said, "I’m seeing 100% response in those who are obese, in terms of a positive effect on blood glucose."

Richard Anderson, Ph.D., a longtime chromium researcher with the U.S. Department of Agriculture (USDA), said research clearly shows that chromium supplements can improve blood sugar control even beyond the benefits of glucose-lowering medications. He insists, “Even people with type 1 diabetes show improvement with chromium supplements.”

Key to Heart Disease in Toenails?
Researchers from Johns Hopkins University and Harvard’s School of Public Health reported on similar research from the U.S., Europe and Israel. Their findings strongly suggest a role for chromium in heart health. In two separate studies, chromium levels in toenails (believed to be a good indicator of chromium status in the body) were measured in men and compared to the number of heart attacks they had experienced. In both studies, the less chromium present in their toenails, the greater their risk of heart attack.

“The connection was strongest among men who were overweight,” said Harvard’s Eric Rimm, Sc.D. The findings reinforce the idea that there may be connections among chromium status, insulin resistance, diabetes and heart disease.

New Role in Depression?
The newest and perhaps the most exciting finding of the conference was the revelation that chromium may play a role in treating "atypical" depression, which constitutes 22% of all depression. It includes any depression that does not meet criteria for other specific depressive disorders. It often manifests itself during the teen years as a social phobia or sensitivity to rejection.

Jonathan Davidson, M.D., of Duke University Medical Center in Durham, North Carolina, presented the findings of a well-controlled study in which he gave 15 patients suffering from depression either a placebo or 400 micrograms of chromium picolinate a day. During the eight-week study, those getting chromium were increased to 600 micrograms.

The dramatic results? Of those getting chromium, 60% experienced relief from symptoms—in some cases rapidly. “This compares to antidepressant medications, which have a 40% to 50% rate of success and typically come with side effects that many patients find intolerable,” said Davidson. A larger trial is due to further test chromium’s effectiveness in treating depression is planned.

What About Safety? Earlier laboratory studies have suggested the possibility of genetic damage with large doses of chromium picolinate. However, chromium has generally been considered one of the safest minerals. Scientific panels in both the U.S. and Britain have found no evidence of harmful effects, even at extremely high doses of up to 10,000 micrograms a day of the picolinate form.

The USDA’s Anderson and John Hathcock, Ph.D., an expert on vitamin and mineral safety at the Council for Responsible Nutrition, a supplement industry trade group, reviewed the safety studies done to date. Their conclusion, they told conference attendees, is that chromium has a low toxicity. They found no studies that documented any consistent negative effects of chromium in people or animals. That includes the results of a clinical study that specifically tested for DNA damage in people taking 1,000 micrograms of chromium picolinate a day.

Time to Take a Supplement? The question, then, is whether you should increase your chromium intake in hopes of fending off diabetes, heart disease and possibly depression. The experts at the summit weren’t making any promises, of course, but they were optimistic that good chromium nutrition might help defend against these diseases.

It may not be coincidence that chromium levels in the body decrease with age, dropping by about 25% to 40% as the risk for metabolic syndrome, diabetes and heart disease increases. This increased need, at a time of decreased availability, makes seniors more vulnerable to chromium depletion.

Flying in the face of these facts, the Institute of Medicine, which only recently made specific recommendations for chromium, put the recommended intake for people over 50 at 20 micrograms a day for women and 30 for men, inexplicably lower than its recommendations of 25 (women) and 35 (men) for younger people.

Chromium is present in a lot of foods, but most provide only one to two micrograms per serving, and dietary chromium is poorly absorbed. Virtually all of the chromium studies that have triggered a positive response used supplements, not foods.

EN Weighs In. Not everyone should run out and buy chromium supplements; the potential for benefit seems to be greatest for overweight people at risk for diabetes and heart disease. If you’re at risk for either condition, discuss taking chromium supplements with your doctor. Most of the evidence suggests it won’t hurt and it could possibly help.

Look for supplements of chromium picolinate, the most stable and best absorbed form, at a dose of 200 to 1,000 micrograms a day, the amounts used in research. A ConsumerLab.com review of chromium picolinate supplements found most brands tested to be reliable.

—Densie Webb, Ph.D., R.D.