

Austin Quan Yin Newsletter

The Better Health News

Special Interest Articles:

- Crohn's disease and the pancreas
- Insulin insensitivity and sleep
- Arthritis and bowel flora
- Nutrients in Crohn's disease and ulcerative colitis
- Arginine and congestive heart failure
- Hawthorn and CHF
- Probiotics and inflammatory bowel disease

Vitamin B₁₂ and Aging

Vitamin B₁₂ levels tend to decrease with age. This was verified by research appearing in the *Archives of Family Medicine* (October 1994;3:918-922). Many problems with depression, forgetfulness or other mental issues that are experienced by the elderly may be due to vitamin B₁₂ or folic acid deficiency. One study that appeared in the *European Journal of Clinical Investigation* (1994;24:600-606), looked at 296 elderly

patients diagnosed with mental disease. Serum folate, homocysteine, and cobalamin (B₁₂) were measured. Over 7% of these patients had normal serum cobalamin levels, but high homocysteine. Treatment of these patients with vitamin B₁₂ injections reduced homocysteine levels. Addition of folic acid to the treatment also lowered homocysteine in patients with low folate.

Vitamin B₁₂ and Cognition

Vitamin B₁₂ does seem to help with cognitive function. A small pilot study, appearing in the *Journal of the American Geriatric Society* (February 1992;40(2):168-172) looked at 22 subjects with low serum B₁₂ levels in conjunction with cognitive dysfunction. The subjects received B₁₂ injections (1000 milligrams) daily for one week, weekly for four weeks then monthly for a period of six months. At the beginning of the study and after at least six months of therapy, the subjects

were evaluated with the Mattis Dementia Rating Scale. Of the 18 patients who finished the study, 11 showed improvement. The amount of improvement experienced by the subjects correlated with the amount of time they had exhibited symptoms. The authors of this study believe that there is a narrow window of opportunity to treat patients with cognitive problems due to vitamin B₁₂ deficiency and that elderly patients should be regularly screened.

Crohn's Disease & the Pancreas

Patients with Crohn's disease may have decreased pancreatic activity. A study appearing in the journal, *Gut* (1990;31:1076-1079) compared the activity of amylase and lipase (pancreatic enzymes that digest carbohydrate and fat respectively) in patients with Crohn's disease and healthy controls. The 59 men and 84 women with the disease had less pancreatic enzyme activity than the 50 men and 65 women who did not have the disease. The lowest enzyme activity was found in those with the most extensive bowel involvement.

A number of studies have shown that patients with Crohn's disease tend to have consumed a lot of refined sugar prior to developing the disease. Research appearing in the *Scandinavian Journal of Gastroenterology* (1983;18:999-1002), *Epidemiology* (January, 1992;3(1):47-52) and the *British Medical Journal* (September 29, 1979;2:762-764) support this. A study appearing in *Z Gastroenterol*

(January 1981;19(1):1-12) compared patients on a low carbohydrate, sugar-free diet to those eating a high carbohydrate diet. It was a small study, but 80% of the Crohn's disease patients on the low carbohydrate, sugar-free diet experienced improvement of symptoms. Four of the five patients on the high carbohydrate diet had to be removed from the study because their symptoms flared up.

Elaine Gottschall's model for Crohn's disease is one where the capacity to digest complex carbohydrates is overwhelmed. Carbohydrate is then broken down in the small intestine by bacteria, irritating the lining and further degrading the body's capability to digest carbohydrate. Her book, **Ending the Vicious Cycle**, goes into this mechanism in great detail and proposes a diet that is free of disaccharides and complex carbohydrates.

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Insulin Insensitivity and Sleep

Research published in *Family Practice News* (April 1, 2005:1,4) looked at 44 healthy adults and their sleep patterns. Half of the group slept a normal amount of time each night (averaging 7 hours, 52 minutes of sleep each night) and half of whom were described as chronic "short sleepers", averaging only 5 hours and 16 minutes of sleep each night. Overall, the short

sleepers tended to have lower insulin sensitivity when compared to the group who slept normally. In general, obesity is inversely related to the amount of time spent sleeping. Sleep deprived individuals generally experienced improved results on glucose tolerance tests when they increase the amount of sleep they get.

Arthritis and Bowel Flora

Reactive arthritis, following bouts of diarrhea, bowel infection or bowel inflammation is well-documented. Several species of bacteria have been associated with reactive arthritis including *Vibrio cholerae*, *Salmonella*, *Shigella*, *Yersenia* and *Campylobacter*. Between 10-20% of patients with Crohn's disease develop a reactive arthritis. More information about this is found in "Antigens, the Gastrointestinal Tract and Arthritis", Inman, Robert D., M.D., *Rheumatic Disease Clinics of North America* (May 1991;17(2):309-321).

Food, in some instances can produce the symptoms of rheumatoid arthritis. One small study examined 16 patients with rheumatoid arthritis (RA) who reportedly had arthritis related to food consumption. Of the 16, three of the patients demonstrated subjective and objective changes after a blind controlled food challenge. They were also asymptomatic when not exposed to the offending food. It is possible that elimination diets may work for some RA patients. According to the journal article, "Intestinal Flora, Bacteria and Arthritis: Why the Joint", Hazenberg, M.P., *Scandinavian Journal of Rheumatology* (1995;24(Suppl. 101):207-211), products from bowel bacteria may be implicated in certain cases of arthritis.

Another study, "Small Intestinal Bacterial Overgrowth in Patients With Rheumatoid Arthritis", Henriksson, A.E.K., et al, *Annals of Rheumatic Diseases* (1993;52:503-510) studied 25 patients who tested positive for RA. Eight of the 25 (32%) were either

hypochlorhidric (low stomach acid) or achlorhydric (no stomach acid). They were compared to achlorhydric controls and controls with normal stomach acid production, who did not test for rheumatoid factor. Of the subjects with inadequate hydrochloric acid production, half of the controls and half of the RA patients had small intestine bacterial overgrowth. Of the subjects with normal stomach acid production, none of the controls had bacterial overgrowth in the small intestine, but in the RA group, 35% had bacterial overgrowth in the small intestine. The authors conclude that there is a connection between bacterial overgrowth and RA.

A diet that works to balance the bowel flora, like an elimination diet or a vegan diet can be beneficial to patients with RA. Improving the diet is a safe, inexpensive way to address the disease. Finding and eliminating food sensitivities may be useful in treating RA. Eating vegetables helps to balance the bowel flora. Adequate enzyme and hydrochloric acid production may also help to keep the bowel flora in balance. Although these are small studies and observations, it should be noted that Alexander Fleming's discovery of a substance produced by mold that inhibited bacterial growth did not get much attention at first either. Earlier observers noted that mold suppressed bacterial growth, but thought nothing of it. But these minor observations set the stage for the development of penicillin.

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Nutrients in Crohn's & Ulcerative Colitis

Some vitamin deficiencies may contribute to the severity of inflammatory bowel disease. The disease creates vitamin deficiency, which in turn makes the disease more severe. A study involving 30 male and 31 female patients with inflammatory bowel disease was published in the *American Journal of Gastroenterology* (2003;98(1):112-117). It found that vitamin B₆ levels were significantly lower in patients with inflammatory bowel disease than in healthy controls. Furthermore, vitamin B₆ levels were lower in patients who were experiencing a flare up in their symptoms than they were for patients in remission. Low vitamin B₆ levels were also associated with higher levels of what are known as inflammatory markers (these are chemicals that, when present, indicate inflammation) C-reactive protein is an example of an inflammatory marker; it was increased in patients with low B₆ levels.

Research appearing in the *American Journal of Gastroenterology* (2003; 98(2):348-53) shows that vitamin supplementation reduces oxidative stress in patients with Crohn's disease.

The study involved 57 Crohn's patients who were determined to have oxidative stress. Oxidative stress was established by measuring pentane and ethane in the breath, and plasma lipid peroxides. F₂-isoprostane was measured at the beginning of the study and after four weeks. The researchers found that supplementation with a multiple increased blood levels of vitamin C and alpha tocopherol (a component of vitamin E) and all the indicators of oxidative stress decreased significantly. They concluded that patients with Crohn's

disease were under oxidative stress and would benefit from supplementation with antioxidant nutrients.

Other research appearing in the *American Journal of Clinical Nutrition* (2001; 74(2):259-64) also shows that oxidative stress is an issue for patients with Crohn's disease. Here the researchers compared 37 patients with Crohn's disease to 37 healthy subjects. Breath pentane (a measure of lipid peroxidation, or oxidative stress) was measured in both groups. The measurement was significantly higher in patients with Crohn's disease—even in those patients taking medication—than it was in the healthy subjects. Serum measurement of antioxidant nutrients was also lower in the patients with Crohn's disease than it was in the healthy subjects.

Vitamin A is among the nutrients that are deficient in patients with inflammatory bowel disease (ulcerative colitis or Crohn's disease). In a study appearing in *Hepato-Gastroenterology* (1991;38:391-395) 32 patients with inflammatory bowel disease (17 patients with Crohn's disease and 15 patients with ulcerative colitis) were compared to healthy controls. The retinol (vitamin A) levels and retinol-binding protein levels were lower in the patients with inflammatory bowel disease than in healthy controls. In ulcerative colitis patients who were successfully treated, vitamin A level increase to normal, even without vitamin A supplementation. Similarly, vitamin A levels normalize in patients with Crohn's disease when the disease is inactive.

Arginine and Congestive Heart Failure

A study that appeared in the *Journal of the American College of Cardiology* (November 1, 1995;26(5):1251-6) looked at the effect arginine had on patients with congestive heart failure. L-Arginine was given intravenously to 12 patients with either New York Heart Association class II or class III heart failure. The treatment produced significant increases in stroke volume and cardiac output. There was also a lowering of mean arterial blood pressure and systemic vascular resistance.

Other research appearing in *Clinical Cardiology* (2000;23:205-210) also found that an infusion

with L-arginine reduced arterial pressure, reduced heart rate (from an average of 88 beats per minute to 80 beats per minute), increased right arterial pressure, increased cardiac output and increased stroke volume. The treatment improved overall cardiac performance.

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Hawthorn and CHF

Hawthorn (*Crataegus species*) has been used to treat heart disease since the 1st century. Traditional use of the berries include the treatment of heart problems ranging from irregular heartbeat, high blood pressure, chest pain, hardening of the arteries, and heart failure.

A double-blind, placebo-controlled study appeared in *Phytomedicine* (2003;10(5):363-9); it looked at the effectiveness of treatment with

Crataegus berries (Hawthorn) had on patients with heart failure. A total of 143 subjects, with a mean age of 64.8, participated in the study. They were treated with either a standardized extract of Crataegus berries or a placebo for a period of eight weeks. There was a greater improvement in exercise tolerance and a reduction in both fatigue and shortness of breath in the supplemented group as compared to those receiving the placebo.

Probiotics & Inflammatory Bowel Disease

"Happiness: a good bank account, a good cook and a good digestion."

—Jean Jacques Rousseau

Normal bowel flora may play a role in inflammatory bowel disease (Crohn's disease and ulcerative colitis). An article appearing in the *Scandinavian Journal of Gastroenterology* (2001;36(Suppl 234):29-40) discussed the role of bowel flora and intestinal permeability in this disease. The cells lining the intestine form a barrier that selects what gets inside of the body and what stays outside of the body. If these cells fail to act as an effective barrier, too much intestinal permeability may become a problem (sometimes called "leaky gut"). This article states that increased intestinal permeability leads to a lack of tolerance to the bacteria that normally exist in the bowel (also as a consequence of leaky gut). There is evidence the immune system works against the bacteria that exist in the bowel, perhaps even overreacting. Also, the makeup of the bacteria is different in these patients.

In patients with inflammatory bowel disease, the bacteria tend to invade the mucosa (lining of the intestine). Research appearing in *Gastroenterology* (January 2002;122(1):44-54) compared

colonoscopic biopsies in 305 patients with 40 normal controls. Patients with inflammatory bowel disease had much higher concentrations of bacteria invading the intestinal lining than did the healthy subjects. A normal, healthy intestinal lining has the ability to act as a barrier to bowel bacteria; this ability has been compromised in patients with inflammatory bowel disease.

The *Scandinavian Journal of Gastroenterology* article mentions that taking probiotics is sometimes helpful; patients with Crohn's disease tend to have less *Bifidobacteria*, and more *Bacteroides*, *Eubacteria* and *Peptostreptococcus*. Probiotics are supplements composed of living bacteria that, when taken, can be beneficial to the digestive tract. Generally these are lactic acid bacteria, like *Lactobacilli*, *Bifidobacteria* (the species found to be in short supply in patients with Crohn's disease), and *Streptococci*. These bacteria can release antibiotic-like substances, reduce the pH in the intestine, improve the absorption of nutrients and help stimulate the immune system.

