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## REPORT



There are several new scientific studies on treating ulcerative colitis. Here, the Foundation publishes its new protocol for the treatment of the disease.

Ulcerative colitis is a chronic disease in which the large intestine becomes inflamed and ulcerated, leading to episodes of bloody diarrhea, abdominal cramps and fever. Unlike Crohn's disease, ulcerative colitis usually doesn't affect the thickness of the intestine and never affects the small intestine. The disease usually begins in the rectum or sigmoid colon and spreads through the large intestine. The cause of ulcerative colitis is not known, but heredity and an overactive immune response may be factors.

Conventional treatment aims to reduce inflammation and symptoms, and to replace any lost fluid or nutrients. While symptoms can be alleviated by dietary changes and drug therapies, there are specific nutritional therapies that have been shown to be effective without inducing side effects.

Fish oil may be a useful therapeutic agent in the management of colitis. Studies on the use of dietary supplements of fish oil-derived fatty acids have indicated a beneficial effect in inflammatory bowel disease. Recent studies suggest that marine fish-oil supplements, which are rich in omega-3 fatty acids, may reduce the inflammation associated with ulcerative colitis. Fish oils may exert their anti-inflammatory effects by modulating tissue levels of certain immune factors that promote inflammation. In prospective, randomized and controlled studies, omega-3 fatty acids have been shown to be therapeutically useful. These studies also show that fish oil reduces the needed doses of toxic steroid drugs.

There is evidence to suggest that the metabolism of butyrate—the major fatty acid fuel source for the epithelial cells lining the colon—is impaired in ulcerative colitis. Studies on humans suggests that topical treatment using sodium butyrate may reverse symptoms in ulcerative colitis. Several reports on the use of butyrate enemas for the treatment of distal ulcerative colitis have appeared in the literature. One study showed a striking increase in colon cell mucin synthesis when butyrate was added to standard nutrient medium. The therapeutic effect of butyrate on colitis may be due to its ability to boost the rate of mucin synthesis and restore the colon's mucous lining. Butyrate enemas are prescribed by alternative doctors for the treatment Crohn's disease and colitis.

Colitis can enable toxins to be absorbed into the blood from the intestines. The effect of oral glutamine was studied in a guinea pig model of experimentally induced colitis. The mean endotoxin level in the blood of guinea-pigs fed a glutamine-enriched elemental diet was 64 percent lower than controls. The conclusion: a glutamine-enriched diet may be beneficial in patients with inflammatory bowel disease.

A study showed that dietary supplementation of RNA and arginine promoted healing of small bowel ulcers in experimental ulcerative ileitis. Rats with experimental ileitis who received yeast RNA and/or arginine showed a significant decrease in ulcer number, compared with controls. The scientists concluded that yeast RNA- and/or arginine-supplemented diets accelerated ulcer healing by promoting increased cell proliferation.

Additional research has shown that arginine suppresses the growth of some strains of unfavorable bacteria and inhibits bacterial toxin release, a common problem in those suffering from chronic colitis.

Other studies, however, contraindicate the use of arginine for some models of colitis. Arginine promotes nitric oxide synthesis, and several

### A Colitis Treatment Protocol

Here is a protocol of nutritional therapies for the ulcerative colitis patient to consider:

studies have found excess nitric oxide production to be detrimental to colitis patients. Most people benefit from the health benefits of arginine-induced nitric oxide synthesis, but some colitis patients may not.

Fiber is an important component of the diet. Dietary fiber contains soluble and insoluble substrates. Soluble fiber components are fermented by colonic micro flora, with the resultant production of short-chain fatty acids and gas. Short-chain fatty acids (such as butyric acid) are important fuels, not only for colonic mucosa, but also for the small intestine through secondary metabolism to glutamine and ketone bodies. Soluble fibers include apple pectin, guar gum and psyllium.

The clinical importance of dietary fiber and its metabolic products for good gastrointestinal and non-gastrointestinal functions has yet to be fully realized. During the past decade it has become evident that colonic mucosal metabolism is more complex than previously suspected.

Luminal short-chain fatty acids are an essential fuel source for colonocytes, particularly in the distal colon. The histologic, endoscopic, and metabolic observations of ulcerative colitis suggest that a nutritional short-chain fatty acid deficiency (such as butyric acid) may play a role in the pathogenesis of this disorder. This can be confirmed by observations in experimental models of enterocolitis demonstrating enhancement of gut growth and function in response to intestinal nutrients such as glutamine for the small intestine and short-chain fatty acids (butyric, capric and caprylic acid) for the colon.

Scientists have evaluated the influence of stress on experimental colitis in rats, and found stress may worsen the condition.

Osteoporosis is a serious complication of inflammatory bowel disease that has not received adequate recognition despite its high prevalence and potentially devastating clinical effects. Data derived from a retrospective survey of 245 patients with inflammatory bowel disease suggest that the prevalence of bone fractures is unexpectedly high, particularly in patients with a long duration of disease, frequent active phases, and high cumulative doses of corticosteroid intake.

Recent advances in the diagnosis and management of osteoporosis have facilitated early detection of bone loss and identified means by which this may be prevented. Bone density measurements to predict fracture risk and define thresholds for prevention and treatment should be performed routinely in patients with inflammatory disease. Those with colitis should consider following the Life Extension Foundation's Osteoporosis Protocol to reduce the risk of incurring bone fractures.

Colitis patients often suffer from multiple nutrient deficiencies. Supplementation with an all-around multi-nutrient formula like Life Extension Mix could prevent complications of long-term nutritional deficiencies. Studies have shown potentially lethal effects caused by colitis-induced nutritional deficiencies. Free radicals have been implicated in the colitis inflammatory process. Vitamin E and selenium are two nutrients that appear especially effective in suppressing free radical-generated inflammation.

Two case-control studies have shown that folate may protect against the development of colon cancer caused by ulcerative colitis. The most recent study showed that folate use of at least six months reduced the risk of colon cancer by 28 percent in 98 patients who had ulcerative colitis for at least eight years. Of the ulcerative colitis patients, 29.6 percent developed cancerous lesions, indicating the high risk for colon cancer in colitis patients. However, the greater the dose of supplemental folate consumed, the lower the rate of colon cancer. The scientists concluded that "daily folate supplementation may protect against the development of neoplasia in ulcerative colitis."

Colitis patients should avoid raw fruits and vegetables to reduce physical injury to the inflamed lining of the large intestine. A diet free of dairy products and refined sugar may decrease symptoms and is worth trying.

The gut's chief purpose is to digest and absorb nutrients. Studies show that colitis is often associated with a reduction in pancreatic enzyme secretion. Supplementation with pancreatic enzymes could enable better absorption of many critical nutrients.

Successful conventional drug treatments for inflammatory bowel disease include topically active or rapidly metabolized steroids that have fewer long-term side effects than standard steroid drugs. The cancer chemotherapy drug methotrexate can promote remission in approximately 50 percent of patients, but is less effective in maintaining remission. Cyclosporin is valuable for treating patients with severe ulcerative colitis, but is less valuable for patients with Crohn's disease. In patients with distal colitis, lignocaine appears to be effective.

1. Glutamine-Four to six 500-mg capsules a day
2. RNA-Four to six 500-mg capsules a day
3. Fish Oil-Eight to 10 capsules a day of the Mega EPA supplement
4. Life Extension Mix-Three tablets, three times a day, of this basic multi-nutrient formula
5. Life Extension Booster-One capsule a day for extra folate, selenium and vitamin E
6. Butyrate enemas-Two a day are suggested
7. Soluble fiber-One to three tablespoons a day of the Fiber Food powder supplement
8. Pancreatin-Take one to two 500-mg capsules before each meal
9. Follow the Life Extension Foundation's Osteoporosis Prevention and Anxiety Reduction Protocols

Mega EPA is a free fatty acid form of fish oil that is absorbed better than standard Max EPA supplements. Each Mega EPA capsule equals more than two standard Max EPA capsules. This is important because some people experience digestive problems with fish oil, and are unable to take the dose required to achieve therapeutic results.

The major news recently, however, is the effect of nutrients, particularly fish oils and glutamine, on gut inflammation and permeability, bacterial translocation, and immune cell profiles. The major nutrients for the large bowel and small bowel mucosa are, respectively, butyrate and glutamine. The use of butyrate enemas, along with yeast-derived RNA, the amino acid glutamine, and fish oil capsules represent novel nutritional therapies for patients suffering from chronic inflammatory bowel disease.

Butyrate enemas can be ordered from the following pharmacies: Lloyd Center Pharmacy 800-358-8974 Lloyd's butyrate enema kit includes two reusable enema bottles and 200 ml of concentrated butyrate, which makes 2,800 ml of reconstituted butyrate (a two-week supply). The patient supplies distilled water. The kit includes directions. Key Pharmacy 800-878-1322 Key's butyrate enema kit includes 28 disposable, single-use enema bottles with tops, 12 oz. of concentrated butyrate which when reconstituted is a two-week supply, a funnel, and a measuring cup. The patient supplies distilled water. The kit includes directions. A prescription from your doctor is needed when ordering butyrate enemas.

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