



# Benfotiamine

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Benfotiamine is a lipid soluble form of thiamine (Vitamin B-1). The great advantage of benfotiamine comes from its lipid soluble state, which improves its absorption (bioavailability), making plasma levels of thiamine rise five times higher than when giving regular thiamine. Clinical trials have shown that despite the improved bioavailability, benfotiamine is significantly less toxic than common thiamine (which has no significant toxicity). This basically means you can't develop benfotiamine toxicity. There are no drug interactions to be concerned about, and there are no known side-effects to this supplement. Furthermore, anyone taking a diuretic, birth control pills, or tricyclic antidepressants, should consider this supplement, as these drugs deplete B-1 from the body. Regular thiamine (B-1) has such limited bioavailability that many conditions keep our body from absorbing enough B-1 to adequately replete itself. This is where benfotiamine has its clinical utility.

Most of the clinical research involved with benfotiamine focuses on its utility in preventing the complications of diabetes. But you could also consider benfotiamine important in anyone with insulin resistance or generally concerned about the aging process. You have heard me mention many times before the damage caused by advanced glycation end products (AGE). Succinctly, AGE's are formed when blood sugar elevates. Abnormal elevations of blood sugar cause sugar to stick to proteins, causing them to malfunction (AGE). This is the primary cause of diabetic complications, especially in the eyes (retinopathy), kidneys (nephropathy), and nerves (neuropathy). It is also one of the primary causes of aging in general and even in non-diabetics associated with the age related changes involved in high blood pressure, vascular aging and Alzheimer's.

This paragraph is for the science buffs. Doctor's have been looking for ways of preventing the complications of an elevated blood sugar. Of course, lifestyle and blood sugar control is the best way to do this. However, one specific thiamine-dependent enzyme system known as transketolase (TK) can be induced (activated) and help the body deal with extra glucose by shuttling glucose down the pentose phosphate pathway, thereby reducing AGE's. Benfotiamine is the most potent inducer of this enzyme system ever found, and multiple double blind placebo controlled randomized clinical trials (DBPCRCT) have documented the efficacy of benfotiamine in preventing the effects of elevated blood sugar on vascular and nerve health.

In terms of clinical relevance, benfotiamine has proven in DBPCRCT's to successfully treat diabetic neuropathy and alcoholic neuropathy, making it the treatment of choice in these conditions along with our previously mentioned supplements Alpha Lipoic Acid and Acetyl L Carnitine (previous "Supplements of the

Week”). Furthermore, convincing scientific evidence shows that benfotiamine can prevent and treat other diabetic related conditions such as retinopathy and nephropathy. I strongly suggest to anyone with insulin resistance, known as the metabolic syndrome, or diabetes to supplement with benfotiamine to help prevent these conditions.

The next class of patients to most strongly consider benfotiamine as a required supplement include the elderly (over 65), those who drink more than 10 alcoholic drinks per week, and anyone who takes a diuretic (water pill). All of these groups, especially those who take the loop diuretic known as furosemide (Lasix), have been shown to have a high risk of B-1 deficiency. Diuretics cause significant urinary thiamine (B-1) loss and several clinical trials have shown that repleting thiamine through the use of benfotiamine can cause a profound increase in heart function.

Other clinical conditions which anecdotal evidence suggests that benfotiamine benefits, and therefore deserves a clinical trial include: Sciatica, High Blood Pressure, Fibromyalgia, and Alzheimer’s Disease.

A personal clinical trial of benfotiamine is 150mg, 2 capsules twice per day (600mg per day) for 21 days. Whether treating neuropathy, sciatica, congestive heart failure or diabetes, most experience a clinical benefit at this dosage, and by this time. Dosages up to 1,200mg per day have been used successfully, without side-effects. I only recommend increasing the dosage if you notice a graded improved response as you increase the dosage. Lower dosages of benfotiamine at 150mg once or twice per day can be used for those who wish to include this supplement as part of an anti-aging or memory enhancing program. I of course recommend being on a good multi-vitamin with high dose B-complex and a high quality fish oil supplement as a foundation prior to using a personal trial of benfotiamine.

Your Journey to Health and Healing,  
Gary E. Foresman, MD

## References:

1. [www.benfotiamine.org](http://www.benfotiamine.org) (A Great overview)
2. Pharmacokinetics of Thiamine... *Int J Clin Pharmacol Ther.* 1996 Feb; 34 (2): 47-50.
3. Inhibitors of Advanced Glycation End Product Formation... *Ann N Y Acad Sci.* 2005 Jun; 1043: 784-92.
4. Benfotiamine Prevents Macro-and Microvascular Endothelial Dysfunction and Oxidative Stress... *Diabetes Care,* 2006 Sep; 29 (9): 2064-71.
5. Improved Left Ventricular Function After Thiamine Supplementation... *Am J Med.* 1995 May; 98 (5): 485-90.
6. Diuretic Use: A Risk for Subclinical Thiamine Deficiency in Elderly Patients. *J Nutr Health Aging.* 2000; 4 (2): 69-71.
7. Vitamin B-1 Blocks Damage Caused by Hyperglycemia. *Sci Aging Knowledge Environ.* 2003 Mar 12; 2003 (10): PE6.
8. A Benfotiamine-Vitamin B Combination in the Treatment of Diabetic Polyneuropathy. *Exp Clin Endocrinol Diabetes.* 1996; 104 (4): 311-6.

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