

# Balanced-B8™

Inositol is a pseudo vitamin often referred to as vitamin B8. Inositol aids in the metabolism of fats, and assists in the production of healthy cells in the bone marrow, intestines and ocular membranes. It also assists in the transportation of fats throughout the body and in neural communication. Inositol also functions to support vascular health, and is important in hair growth. It is present in all body tissues, but the highest concentrations are found in the brain, heart and lens of the eye.

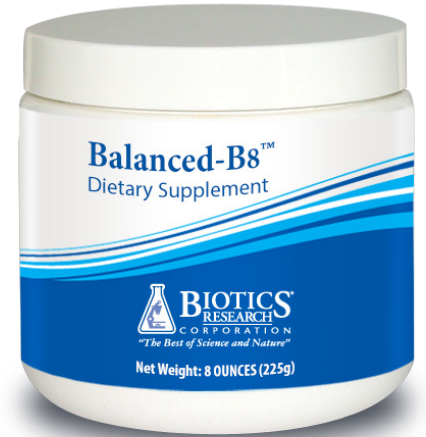
The term "inositol" typically refers to a specific isomer, "Myo-inositol" (MI). It is the most prominent form and occurs widely in nature. MI not only serves as a precursor molecule for inositol lipid synthesis, but also serves as a physiologically important osmolyte.<sup>(1)</sup> Two inositol isomers have insulin-sensitizing capabilities: MI and D-chiro-inositol (DCI). These isomers are involved in many cellular functions, therefore abnormalities in their metabolism have been shown to be involved in the development of various health challenges, with a particular association with insulin resistance and associated health complications.<sup>(2)</sup> While MI acts as a precursor to a number of signaling molecules which direct cellular activity, DCI is known to be an

important secondary messenger in insulin signal transduction.

Both MI and DCI have been demonstrated to improve androgen levels, increase the

action of insulin, and to be supportive of healthy systolic blood pressure.<sup>(3)</sup> Specifically, DCI functions to accelerate the dephosphorylation of glycogen and pyruvate dehydrogenase, rate limiting enzymes of non-oxidative and oxidative glucose disposal.<sup>(4)</sup> Interestingly, a decrease in the urine excretion rate of DCI was shown to be linearly related to decreased insulin sensitivity.<sup>(4,5)</sup>

The combination of MI and DCI in the plasma at a physiological ratio of 40:1 is believed to be most advantageous clinically.<sup>(6)</sup> In both animal and human models, an associated depletion of inositol and an accumulation of intracellular sorbitol is commonly observed in the primary sites for the development of diabetic microvascular complications such as kidney, sciatic nerve, retinal and lens tissues.<sup>(7,8)</sup> Also, an excessive amount of MI and a decreased amount of DCI is excreted in the urine of T2 diabetic



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human subjects, as well as experimental models,<sup>(9,10)</sup> a phenomenon termed “Ostituria”, resulting in a decrease DCI to MI urinary ratio. This abnormal pattern is seen in insulin sensitive tissue (liver, kidney, fat, muscle) in human and animal diabetic subjects.<sup>(10,11)</sup> In comparing the glucose disposal rate (GDR) and non-oxidative GDR, it has been noted that both levels were significantly lower in T2 diabetes mellitus (DM) subjects compared to non-DM subjects, and that a reduction of non-oxidative glucose disposal may contribute to decreased whole-body glucose utilization.<sup>(12)</sup> Interestingly, it has been demonstrated that the urinary clearance of DCI was increased almost six fold in PCOS women compared with normal women, but not MI clearance. Again, the urinary clearance of DCI correlated inversely with insulin sensitivity,<sup>(4)</sup> and administration of DCI accelerated glucose disposal and sensitized insulin action.

The 2013 International Consensus Conference on MI and DCI in Obstetrics and Gynecology examined seminal experimental papers and randomized clinical trials reporting the role and use of inositol(s) in clinical practice.<sup>(13)</sup> Based on the existence of tissue-specific ratios, they recommended supplementing inositol in a 40 (MI) to 1 (DCI) ratio, as it has been demonstrated that inositol(s) supplementation could fruitfully affect different pathophysiological aspects pertaining Obstetrics and Gynecology.

While most commercially available inositol in the US is produced from corn, the inositol isomers utilized by Biotics Research are derived from rice, a gluten free source.

**Balanced-B8™** is a pleasant tasting (semi-sweet) powder that blends/disperses well in water. Each serving supplies 5 grams of inositol as Myo-inositol and D-chiro-inositol in a 40:1 ratio. Each 8 ounce container of **Balanced-B8™** provides 45 servings.

#### References

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