

Inositol for Mental Health Conditions



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Summary: Inositol is a type of sugar that may possibly be helpful for various conditions such as mood and anxiety conditions, along with polycystic ovarian syndrome (PCOS) and related metabolic conditions. Evidence is limited however, and thus it is important to always consult with a health care provider first.

What is Inositol?

Inositol is a type of sugar with several important functions:

- It is a major component of cell membranes
- It influences insulin, a hormone essential for blood sugar control.
- It affects brain chemicals such as serotonin and dopamine.

Inositol naturally occurs in certain foods **and** your body can also produce inositol from glucose.

Also Known As

Inositol is also known as d-chiro-inositol; inositol hexaphosphate (or "IP6"); myo-inositol; biotin. Inositol used to be included in the Vitamin B family of vitamins and was often called vitamin B8. However it is not considered a true vitamin and more closely related to glucose.

Where Can You Get Inositol?

It has been estimated that a typical North American diet has around 1 gram of inositol per day.

Foods that are a good source include (Clements, 1980):

- Fruits (such as oranges, cantaloupe, peaches, pears, bananas)
- Vegetables such as bell peppers, tomatoes, potatoes, asparagus, and green leafy vegetables
- Dairy (milk, yoghurt).
- Eggs

- Whole grains and cereals (as opposed to processed, refined grains)
- Beans, legumes and sprouts
- Nuts and seeds, including peanut butter.
- Brewer's yeast.

What are Signs of Inositol Deficiency?

Signs / symptoms may include:

- Hair loss (alopecia)
- Skin problems such as eczema (extremely dry, itchy skin)
- Mental health symptoms such as troubles with sleep, mood, anxiety.
- Constipation
- Hyperlipidemia (too many fats such as cholesterol or triglycerides in the blood).
- Muscle weakness
- Lethargy, lack of appetite.

What Causes Inositol Deficiency?

Although inositol is readily available in the diet:

- Poor absorption can lead to inositol deficiency, i.e. when your body is unable to absorb nutrients from the diet.
- High glucose levels in the Western diet can hinder inositol availability by increasing its degradation and by inhibiting both myo-Ins biosynthesis and absorption (Dinicola, 2017).

When to Consider Inositol?

Research shows that inositol may possibly be helpful for a variety of conditions, such as:

- Depression
 - Early study showed promise (Levine, 1995).
 - Later meta-analyses appear to indicate that inositol is more effective when there are symptoms of premenstrual dysphoric disorder (PMDD) (Mukai, 2014). In other words, if patients do not have PMDD or metabolic issues, inositol may be less likely to be effective.
- Bipolar disorder (Wozniak, 2015)
- Obsessive compulsive disorder (Fux, 1996)
- Polycystic ovarian syndrome (PCOS) (Unfer, 2017) and related metabolic conditions
- Sleep (Mashayekh-Amiri, 2020)

It appears to be helpful in conditions where serotonin and medications such as serotonin selective reuptake inhibitors (SSRIs) play a role.

It is not felt helpful in other conditions such as schizophrenia, Alzheimer's, ADHD, autism or ECT-induced cognitive impairment -- which are conditions where serotonin medications play less a role.

Note that it is not a panacea or a cure-all.

Availability

Inositol is available over the counter, from some drug stores but also from stores selling nutritional supplements.

Dosage

Studies have used the following ranges of dosages:

Condition	Dosage	Study
<i>Adults</i>		
• Depression in adults	6-12 g daily	Levine, 1995
• Obsessive compulsive disorder in adults	Up to 18 g daily	Fux, 1996
• Panic disorder in adults	Up to 18 g daily	Palatnik, 2001
• Bulimia nervosa and binge eating	18 g daily	Gelber, 2001
• Sleep in pregnant women	2 g daily (along with 200 mcg folic acid)	Mashayekh-Amiri, 2020
<i>Children/youth</i>		
• Bipolar disorder in children aged 5-12	Up to 2 g daily	Wozniak, 2015

There are no official guidelines for the dosage of inositol.

However, Dr. Harold Pupko, psychiatrist in Toronto recommends the following:

- Start at a low dosage (e.g. 500 mg daily)
- Increase dosage every 3-4 days
- When you notice improvement, keep that dosage (and stop increasing).
- Maximum dosage of 12-18 g daily
- For example
 - Day 1,2,3: 500 mg (0.5 g) daily
 - Day 4,5,6: 1000 mg (1 g) daily
 - Day 7,8,9: 1500 mg (1.5 g) daily
 - Day 10,11,12: 2000 mg (2 g) daily

When to take it?

- It can be taken once daily, at any time.

Formulations

Inositol is available as capsules (such as 500 mg capsules) and also as a powder. As it is a sugar, it tastes sweet. Side Effects As a nutritional supplement, inositol is very safe. Side effects include nausea, stomach pains, fatigue, headache, dizziness. Most side effects happen at higher doses over 12 g daily.

Where to Find Inositol

Inositol can be found in many pharmacies, health food stores, and online retailers.

For More Information

Dr. Harold Pupko is a psychiatrist in Toronto who has written about inositol in the Medical Post and other sources. Website: <http://www.inositolpage.blogspot.com>

References

Chengappa et al.: Inositol as an add-on treatment for bipolar depression, *Bipolar Disorders* 2001; 2(1): 47-55. *Pilot study showing inositol 12 g/day helpful as adjunctive treatment.*
 Clements R et al.: Inositol content of common foods: development of a high-myo-inositol diet. *The American Journal of Clinical Nutrition*. 33 (9): 1954-1967. doi:10.1093/ajcn/33.9.1954. PMID 7416064. S2CID 4442333.

Dinicola S, Minini M, Unfer V, Verna R, Cucina A, Bizzarri M. Nutritional and Acquired Deficiencies in Inositol Bioavailability. Correlations with Metabolic Disorders. *Int J Mol Sci.* 2017 Oct 20;18(10):2187. doi: 10.3390/ijms18102187. PMID: 29053604; PMCID: PMC5666868.

Fux et al.: Inositol treatment of obsessive-compulsive disorder, *Am. J. Psychiatry* 1996 ; 153:1219-1221. <https://www.ncbi.nlm.nih.gov/pubmed/8780431>

Double-blind, controlled crossover trial of 18 g/day of inositol or placebo for 6-weeks, with those on inositol showing significant improvement compared to placebo.

Gelber D et al.: Effect of inositol on bulimia nervosa and binge eating. *Int. J. Eat Disord.* 2001 Apr; 29(3): 345-8. <https://www.ncbi.nlm.nih.gov/pubmed/11262515>

"Inositol is as therapeutic in patients with bulimia nervosa and binge eating as it is in patients with depression and panic and obsessive-compulsive disorders. This increases its parallelism with serotonin selective reuptake inhibitors."

luorno MJ, Jakubowicz DJ, Baillargeon JP, et al. Effects of d-chiro-inositol in lean women with the polycystic ovary syndrome. *Endocrine Practice.* 2002;8(6):417-423. doi:10.4158/EP.8.6.417

Levine et al.: Double-blind, controlled trial of inositol treatment of depression, *Am. J. Psychiatry*, 1995; 152: 792-794.

Trial involving 12 g/day of inositol, with 13 patients receiving inositol, and 13 receiving placebo, showing significant improvement for inositol compared to placebo.

Levine et al.: Combination of inositol and serotonin reuptake inhibitors in the treatment of depression, *Biological Psychiatry* 45(3): 270-273.

Study with 27 patients on inositol or inositol + SRI showed no additional benefit from combination treatment.

Mashayekh-Amiri S et al.: The impact of myo-inositol supplementation on sleep quality in pregnant women: a randomized, double-blind, placebo-controlled study, 2020 Sep 20. <https://doi.org/10.1080/147670...>

Study showed that pregnant women who were given inositol 2 g daily (plus folic acid 200 mcg) had improved sleep.

Nemets et al.: Inositol does not improve depression in SSRI treatment failures. *J. Neural Transmission* 1999; 106(7): 1435-63. In patients who did not respond to SSRI, inositol does not offer additional benefit.

Palatnik A et al.: *J Clin Psychopharmacol.* 2001 Jun;21(3):335-9. Double-blind, controlled, crossover trial of inositol versus fluvoxamine for the treatment of panic disorder. <https://www.ncbi.nlm.nih.gov/pubmed/11386498>

Inositol (dosages of up to 18 g /day) was more effective than fluvoxamine (up to 150 mg daily) for panic symptoms in adults with panic disorder.

Wozniak J et al.: A randomized clinical trial of high eicosapentaenoic acid omega-3 fatty acids and inositol as monotherapy and in combination in the treatment of pediatric bipolar spectrum disorders: a pilot study. *J Clin Psychiatry.* 2015 Nov;76(11):1548-55. doi: 10.4088/JCP.14m09267.

<https://www.ncbi.nlm.nih.gov/pubmed/26646031>

Dosages used were 3 grams of omega-fatty acids, and 2 grams inositol.

Review Articles and Meta-Analyses

Mukai T et al.: A meta-analysis of inositol for depression and anxiety disorders, *Human Psychopharmacol Clin Exp* 2014; 29:55-63.

<https://www.ncbi.nlm.nih.gov/pubmed/24424706>

Our results suggest that inositol may be beneficial for depressed patients, especially those with PMDD. The main limitation of this report is that a small number of studies were included in this meta-analysis.

Unfer V et al.: Myo-inositol effects in women with PCOS: a meta-analysis of randomized controlled trials, *Endocrine Connections*, 6(8): 647-658.

<https://ec.bioscientifica.com/view/journals/ec/6/8/EC-17-0243.xml>

Results highlight the beneficial effect of MI in improving the metabolic profile of women with PCOS, concomitantly reducing their hyperandrogenism.

About this Document

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