

Doctor Pamphlet



DCI
d-chiro-inositol

D-Chiro-Inositol and PCOS

D-chiro-inositol (DCI) is a natural human metabolite used in insulin signal transduction, making DCI necessary for healthy blood sugar regulation. In principle, DCI can be made from myo-inositol or pinitol, both of which are abundant in typical diets. However, the enzyme responsible for making DCI does not always work.¹ DCI appears to be deficient in women with Polycystic Ovary Syndrome (PCOS), and many women with PCOS have symptoms of insulin resistance and elevated blood sugar, suggesting DCI deficiency plays a role in PCOS.^{2,3} As a result, DCI has been evaluated as a supplement for helping alleviate symptoms of PCOS, and it has been found to be effective in two clinical trials.^{4,5}

Clinical Results

Clinical results suggest 10-20 mg of DCI/kg of body weight is an effective daily dose of DCI. One 600 mg capsule of DCI daily is appropriate for women under 130 pounds, and two 600 mg capsules daily for women weighing more than 130 pounds.

Statistically significant (95% confidence interval) improvements in symptoms of PCOS seen in studies with DCI included the following results:⁴

Hyperandrogenism - both free and total serum testosterone levels were decreased in the DCI group relative to the control (placebo) group.

Metabolic Syndrome Risk Factors – both systolic and diastolic blood pressure as well as plasma triglyceride levels were decreased in the DCI group relative to the control group.

Anovulation – women taking DCI were as much as three times as likely to ovulate (as measured by serum progesterone) as women in the control group.

Improvements that did not achieve statistical significance with a 95% confidence interval included:⁴

Hyperinsulinemia - insulin levels (measured by AUC) decreased in the DCI group relative to the control group. This result achieved 93% confidence (P=0.07).

Related, Pre-Clinical Studies

There is some early evidence that DCI's insulin sensitizing (possibly insulin mimetic) effects may help Type II diabetics as well. This possibility has yet to be evaluated in a human clinical trial, although studies with streptozotocin-induced diabetic rats are promising.

1 Sun TH, Heimark DB, Nguyen T, Nadler JL, Larner J (2002). "Both myo-inositol to chiro-inositol epimerase activities and chiro-inositol to myo-inositol ratios are decreased in tissues of GK type 2 diabetic rats compared to Wistar controls". *Biochem. Biophys. Res. Commun.* 293 (3): 1092-8. PMID 12051772.

2 Nestler JE, Jakubowicz DJ, Luorno MJ (2000). "Role of inositolphosphoglycan mediators of insulin action in the polycystic ovary syndrome". *J. Pediatr. Endocrinol. Metab.* 13 Suppl 5: 1295-8. PMID 11117673.

3 Larner J (2002). "D-chiro-inositol--its functional role in insulin action and its deficit in insulin resistance". *Int. J. Exp. Diabetes Res.* 3 (1): 47-60. PMID 11900279.

4 Nestler JE, Jakubowicz DJ, Reamer P, Gunn RD, Allan G (1999). "Ovulatory and metabolic effects of D-chiro-inositol in the polycystic ovary syndrome". *N. Engl. J. Med.* 340 (17): 1314-20. PMID 10219066.

5 Luorno MJ, Jakubowicz DJ, Baillargeon JP, et al (2002). "Effects of d-chiro-inositol in lean women with the polycystic ovary syndrome". *Endocrine practice* 8 (6): 417-23. PMID 15251831.