

# CME: Poly Cystic Ovarian Syndrome – Understanding One Dietary Supplement



Eva Schofield, MPH (c), MMS (c)  
Faculty Advisor: Kim Erikson, PA-C  
Department of Medical Science

## Background :

- PCOS is the most common condition affecting women of reproductive age <sup>1, 2</sup>.
- PCOS is a multifactorial condition, affecting **reproductive, metabolic, and psychological** aspects of health <sup>1, 2, 3, 4</sup>.
- Diagnosis of PCOS is often difficult and often result in diagnosis delays; 70% of women with PCOS are thought to be undiagnosed <sup>1, 2, 3</sup>.
- Many women who do receive a diagnosis of PCOS feel unsatisfied with their diagnosis experience and education <sup>3, 7</sup>.
- Early diagnosis with a thorough and comprehensive review of the patient is essential for mitigating many of the comorbidities associated with PCOS <sup>4, 5</sup>.
- It is thought that metabolic disturbances, primarily insulin resistance and compensatory hyperinsulinemia, play a key role in the pathogenesis and progression of PCOS <sup>4, 6</sup>.
- Development of a safe empiric treatment for suspected PCOS could be very beneficial.
- Inositols are organic chemicals mainly found in muscle cells, Myo-inositol (MYO) and D-chiro-inositol (DCI) are the most common isomers of inositol <sup>8, 9</sup>.
- Inositols can be produced by our bodies, chiefly from the kidneys, liver, and brain <sup>8, 6</sup>. However, the consumption of exogenous MYO through dietary intake (fruit, beans, corn and nuts<sup>13</sup>) is still necessary, especially if individuals are not producing enough MYO on their own <sup>8, 6</sup>.
- MYO/DCI supplements are easily accessible, relatively inexpensive, and already popular among the public.

## CME Objective :

- Understand MYO/DCI as a potential treatment for PCOS.
- How the supplement works
  - Why women may choose to use it
  - What to educate PCOS patients about regarding the use of MYO/DCI

Myo-Inositol & D-Chiro Inositol Blend | 30-Day Supply | Most Beneficial 40:1 Ratio | Hormonal Balance & Healthy Ovarian Function Support for Women | Vitamin B8 | Made in USA (120 Capsules)

|                             |                             |
|-----------------------------|-----------------------------|
| 120 Count<br>(Pack of 1)    | 360 Count<br>(Pack of 1)    |
| \$25.95<br>(\$0.22 / Count) | \$64.95<br>(\$0.18 / Count) |

### Customer reviews



## Inositols :

- MYO and DCI work in combination in the body to increase insulin sensitivity via second messenger systems in the cell membrane <sup>6, 8, 9</sup>.
- Reproductive:** MYO may aid in fertility treatment, and MYO/DCI with dietary changes may restore menstrual cycles in patients with PCOS <sup>13, 14</sup>.
- Metabolic:** MYO may have a similar effect on metabolic profile as metformin and may be particularly beneficial in reducing hyperandrogenism in patients with PCOS <sup>10</sup>.
- Psychological:** It is unclear how MYO/DCI affects psychological health in PCOS patients.
- Further confirmatory research is needed and must utilize: larger sample sizes, longer follow-up periods, clear randomization/blinding procedures, mitigation of biases, and clear outcome measures including reproductive, metabolic, and psychological aspects of patients with PCOS, as well as side effects of MYO/DCI.

## Conclusions :

- PCOS is a common condition with a variety of symptoms, low rates of diagnosis, and low satisfaction from health care providers by women who are diagnosed.
- MYO/DCI inositols are supplements that are available over the counter and have been purchased by many women looking for an alternative way of treating their symptoms.
- The use of this supplement is promising but unfortunately remains disorganized and ultimately experimental for now.

## Recommendations :

Given the dissatisfaction with treatment and education in relation to women receiving a PCOS diagnosis, it would be extremely beneficial to direct patients to further educational resources.

If patients are already using MYO/DCI as a supplement for their PCOS, most evidence points to a dose of 2–4 g/day, with a ratio of 40 MYO to 1 DCI <sup>8, 9, 12</sup>.

### References:

- Teede HJ, Misso ML, Costello MF, et al. Recommendations from the international evidence-based guideline for the assessment and management of polycystic ovary syndrome. *Fertil Steril*. 2018;110(3):364-379. doi:10.1016/j.fertnstert.2018.05.004
- Conway G, Dewailly D, Diamanti-Kandaraki E et al (2014) The polycystic ovary syndrome: a position statement from the European Society of Endocrinology. *Eur J Endocrinol* 171:P1-29. <https://doi.org/10.1530/EJE-14-0253>
- Gibson-Helm, M., et al., Delayed diagnosis and a lack of information associated with dissatisfaction in women with polycystic ovary syndrome. *Journal of Clinical Endocrinology and Metabolism*, 2017. 102(2): p. 604-612.
- Dumesic DA, Oberfield SE, Stener-Victorin E, Marshall JC, Laven JS, Legro RS. Scientific Statement on the Diagnostic Criteria, Epidemiology, Pathophysiology, and Molecular Genetics of Polycystic Ovary Syndrome. *Endocr Rev*. 2015;36(5):487-525. doi:10.1210/er.2015-1018
- Kim KW. Unravelling Polycystic Ovary Syndrome and Its Comorbidities. *J Obes Metab Syndr*. 2021;30(3):209-221. doi:10.7570/jomes21043
- Kamenov Z, Gateva A. Inositols in PCOS. *Molecules*. 2020;25(23):5566. Published 2020 Nov 27. doi:10.3390/molecules25235566
- Ye C, Pirodda S, Mousa A, Moran L, Lim S. Providing lifestyle advice to women with PCOS: an overview of practical issues affecting success. *BMC Endocr Disord*. 2021;21(1):234. Published 2021 Nov 23. doi:10.1186/s12902-021-00890-8
- Dinicola S, Unfer V, Facchinetti F, et al. Inositols: From Established Knowledge to Novel Approaches. *Int J Mol Sci*. 2021;22(19):10575. Published 2021 Sep 30. doi:10.3390/ijms221910575
- Abdalla MA, Deshmukh H, Atkin S, Sathyapalan T. A review of therapeutic options for managing the metabolic aspects of polycystic ovary syndrome. *Ther Adv Endocrinol Metab*. 2020;11:2042018820938305. Published 2020 Jul 6. doi:10.1177/2042018820938305
- Kuteneai MA, Teshnizi SH, Ghaemmaghani P, Eini F, Roozbeh N. The effects of myo-inositol vs. metformin on the ovarian function in the polycystic ovary syndrome: a systematic review and meta-analysis. *Eur Rev Med Pharmacol Sci*. 2021;25(7):3105-3115. doi:10.26355/eurrev\_202104\_25565
- Vitek W, Alur S, Hoeger KM. Off-label drug use in the treatment of polycystic ovary syndrome. *Fertil Steril*. 2015;103(3):605-611. doi:10.1016/j.fertnstert.2015.01.019
- Roseff S, Montenegro M. Inositol Treatment for PCOS Should Be Science-Based and Not Arbitrary. *Int J Endocrinol*. 2020;2020:6461254. Published 2020 Mar 27. doi:10.1155/2020/6461254
- Merviel, P., James, P., Bouée, S. et al. Impact of myo-inositol treatment in women with polycystic ovary syndrome in assisted reproductive technologies. *Reprod Health* 18, 13 (2021). <https://doi.org/10.1186/s12978-021-01073-3>
- Le Donne M, Metro D, Alibrandi A, Papa M, Benvenega S. Effects of three treatment modalities (diet, myo-inositol or myoinositol associated with D-chiro-inositol) on clinical and body composition outcomes in women with polycystic ovary syndrome. *Eur Rev Med Pharmacol Sci*. 2019;23(5):2293-2301. doi:10.26355/eurrev\_201903\_17278
- Cantelmi T, Lambiase E, Unfer VR, Gambioli R, Unfer V. Inositol treatment for psychological symptoms in Polycystic Ovary Syndrome women. *Eur Rev Med Pharmacol Sci*. 2021;25(5):2383-2389. doi:10.26355/eurrev\_202103\_25278

### Image:

Amazon.com: Myo-Inositol & D-Chiro inositol blend | 30-day ... Amazon.com. <https://www.amazon.com/Myo-Inositol-D-Chiro-Inositol-Blend-Beneficial/dp/B07HX2DMY8>. Accessed April 27, 2022.