

Male Infertility

[En Español \(Spanish Version\)](#)

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Related Terms

- Sperm Motility

Principal Proposed Natural Treatments

- None

Other Proposed Natural Treatments

• [Antioxidants](#); [Astaxanthin](#); [Carnitine](#); [Coenzyme Q₁₀\(CoQ₁₀\)](#); [Lycopene](#); [Maca \(Lepidium meyenii\)](#); [Panax ginseng](#); [Selenium](#); [Vitamin B₁₂](#); [Vitamin C](#); [Vitamin E](#); [Zinc Plus Folate](#)

Herbs and Supplements to Use Only With Caution

- [Andrographis](#); [Licorice](#); [Melatonin](#); [Soy](#); [Stevia](#)

Male infertility, the inability of a man to produce a pregnancy in a woman, is often caused by measurable deficits in sperm function or sperm count. In about half of all cases, however, the source of the problem is never discovered.

The good news is that, without any treatment at all, about 25% of supposedly infertile men bring about a pregnancy within a year of the time they first visit a physician for treatment. In other words, infertility is often only low fertility in disguise.

Proposed Treatments for Male Infertility

Carnitine

Growing, if not entirely consistent evidence, suggests that various forms of the supplement [L-carnitine](#) may improve sperm function and thereby provide benefit in male infertility.^{12-20,27,32,33,44-45,52}

For example, in one double-blind study, 60 men with abnormal sperm function were given either carnitine (as L-carnitine 2 g/day and acetyl-L-carnitine 1 g/day) or placebo for 6 months.³⁴ The results showed significant improvement in sperm function in the treated group as compared to the placebo group.

A similarly sized 6-month, double-blind, placebo-controlled study, which involved men with low sperm counts, found benefits with carnitine (again as L-carnitine 2 g/day and acetyl-L-carnitine at 1 g/day) taken alone or carnitine combined with the anti-inflammatory drug cinnoxicam.³⁵

In addition, a 2-month, double-blind, placebo-controlled, crossover study of 100 men with various forms of infertility found probable benefits with 2 g daily of L-carnitine.³⁶

Zinc Plus Folate

A 26-week, [double-blind, placebo-controlled](#) trial compared the effects of treatment with zinc (66 mg of zinc sulfate, supplying 15 mg of zinc), folate (5 mg), and zinc plus folate against placebo.²² A total of 108 fertile men and 103 men with impaired fertility (“subfertile men”) participated in the study. The two supplements combined

significantly improved the sperm count and the percentage of healthy sperm in the subfertile men; neither supplement alone produced this effect, and there was little effect of the combined therapy on fertile men.

Another study also found potential benefit with zinc plus folate.⁴⁶

For more information on dosage and safety issues, see the full articles on [folate](#) and [zinc](#).

Vitamin B₁₂

Mild vitamin B₁₂ deficiencies are relatively common in people over 60.^{1,2} Such deficiencies lead to reduced sperm counts and lowered sperm mobility. Thus vitamin B₁₂ supplementation has been tried for improving fertility in men with abnormal sperm production.

In one double-blind study of 375 infertile men, supplementation with vitamin B₁₂ produced no benefits on average in the group as a whole.³ However, in a particular subgroup of men with sufficiently low sperm count and sperm motility, B₁₂ appeared to be helpful. Such "dredging" of the data is suspect from a scientific point of view, however, and this study cannot be taken as proof of effectiveness.

For more information, including dosage and safety issues, see the full [Vitamin B₁₂](#) article.

Antioxidants

Free radicals, dangerous chemicals found naturally in the body, may damage sperm. For this reason, a number of studies have evaluated the benefits of [antioxidants](#) for male infertility.

In a double-blind, placebo-controlled study of 110 men whose sperm showed subnormal activity, daily treatment with 100 IU of [vitamin E](#) resulted in improved sperm activity and increased rate of pregnancy in their partners.⁶

Preliminary studies suggest that [vitamin C](#) may improve sperm count and function.⁷ However, a recent double-blind study of 31 individuals that tested both vitamin C and vitamin E found no benefit.⁸ The dosages studied ranged from 200 mg to 1,000 mg daily.

According to one small double-blind study, the antioxidant carotenoid [astaxanthin](#) might enhance male fertility.³⁷ Other antioxidants that have shown at least a bit of promise include [lycopene](#),²¹ [coenzyme Q₁₀](#),²⁴ and [selenium](#).²⁵

Researchers reviewed 34 randomized trials involving 2,876 couples experiencing unexplained male infertility, as well as sperm-related problems.⁵⁴ The couples in the oral antioxidant groups had increased pregnancy rates. Despite these favorable findings, the researchers concluded that these studies alone do not conclusively show that antioxidants are beneficial for male infertility.

A major pharmaceutical company has reported success for male infertility using a miscellaneous mixture of antioxidants.⁵³ However, there is no reason to believe that the exact mixture of substances contained in this product were chosen with any particular insight; any such insight regarding the optimum formulation does not as yet exist.

Other Herbs and Supplements

Highly preliminary evidence suggests improvements in sperm function or pregnancy rates with [Panax ginseng](#).¹¹

The herb *Lepidium meyenii* ([maca](#)) is claimed to enhance fertility, but the supporting evidence is limited to animal studies and one tiny [uncontrolled study](#) in humans conducted by a single research group.^{38,47-50} Contrary to what is stated on numerous websites, maca does not appear to raise testosterone levels.²⁸

In a double-blind trial of 28 men with impaired sperm activity, use of docosahexaenoic acid (DHA), a component

of fish oil, failed to improve sperm health. Another double-blind study failed to find L-arginine effective for improving pregnancy rates.²⁶

One very small study failed to find magnesium helpful for infertility.³⁹

Many other substances have been suggested as treatments for poor sperm function and infertility, including the herbs ashwagandha, Eleutherococcus, pygeum, saw palmetto, and suma, as well as the supplements SAMe and calcium, but there is no meaningful supporting evidence for these treatments.

In addition, all of the treatments listed in the article on Impotence have also been proposed as treatments for male infertility, though not necessarily with any supporting evidence.

Herbs and Supplements to Use Only With Caution

Soy or soy isoflavones,²⁹ as well as the herb licorice,¹⁰ may reduce testosterone levels in men. For this reason, men with impotence, infertility, or decreased libido may want to avoid these natural products.

One report claims that both tea tree oil and lavender oil have estrogenic (estrogen-like) and antiandrogenic (testosterone-blocking) effects.⁵¹ If this were true, men with infertility should avoid use of these herbs. However, a literature search failed to find any other published reports that corroborate this claim.

According to a preliminary double-blind study, the supplement melatonin affects testosterone and estrogen metabolism in men, and when taken at a dose of 3 mg daily for 6 months may impair sperm function.²³

Preliminary evidence from animal studies hints that use of some forms of peppermint at high doses might impair fertility.⁴⁰

There is contradictory evidence from animal studies on whether the herb andrographis may impair fertility.^{30,31} The same is true of the herb stevia.⁴¹⁻⁴³

References [+]

1. Werbach MR. *Nutritional Influences on Illness: A Sourcebook of Clinical Research*. 2nd ed. Tarzana, CA: Third Line Press; 1993:628-629.
2. Saltzman JR, Kemp JA, Golner BB, et al. Effect of hypochlorhydria due to omeprazole treatment or atrophic gastritis on protein-bound vitamin B12 absorption. *J Am Coll Nutr*. 1994;13:584-591.
3. Kumamoto Y, Maruta H, Ishigami J, et al. Clinical efficacy of mecobalamin in treatment of oligozoospermia: results of double-blind comparative clinical study [in Japanese; English abstract]. *Hinyokika Kyo*. 1988;34:1109-1132.
4. Bedwal RS, Bahuguna A. Zinc, copper and selenium in reproduction. *Experientia*. 1994;50:626-640.
5. Netter A, Hartoma R, Nahoul K. Effect of zinc administration on plasma testosterone, dihydrotestosterone, and sperm count. *Arch Androl*. 1981;7:69-73.
6. Suleiman SA, Elamin Ali M, Zaki ZMS, et al. Lipid peroxidation and human sperm motility: protective role of vitamin E. *J Androl*. 1996;17:530-537.
7. Dawson EB, Harris WA, Rankin WE, et al. Effect of ascorbic acid on male fertility. *Ann N Y Acad Sci*. 1987;498:312-323.
8. Rolf C, Cooper TG, Yeung CH, et al. Antioxidant treatment of patients with asthenozoospermia or moderate oligoasthenozoospermia with high-dose vitamin C and vitamin E: a randomized, placebo-controlled, double-blind

study. *Hum Reprod.* 1999;14:1028-1033.

9. Conquer JA, Martin JB, Tummon I, et al. Effect of DHA supplementation on DHA status and sperm motility in asthenozoospermic males. *Lipids.* 2000;35:149-154.

10. Armanini D, Palermo M. Reduction of serum testosterone in men by licorice. *N Engl J Med.* 1999;341:1158.

11. Salvati G, Genovesi G, Marcellini L, et al. Effects of *Panax ginseng* C.A. Meyer saponins on male fertility. *Panminerva Med.* 1996;38:249-254.

12. Loumbakis P, Anezinis P, Evangelidou A, et al. Effect of L-carnitine in patients with asthenospermia [abstract]. *Eur Urol.* 1996;30(suppl 2):255.

13. Muller-Tyl E, Lohninger A, Fischl F, et al. The effect of carnitine on sperm count and sperm motility [translated from German]. *Fertilitat.* 1988;4:1-4.

14. Micic S, Lalic N, Nale DJ, et al. Effects of L-carnitine on sperm motility and number in infertile men [abstract]. *Fertil Steril.* 1998;70(3 suppl 1):S12.

15. Vicari E. Effectiveness of a short-term anti-oxidative high-dose therapy on IVF program outcome in infertile male patients with previous excessive sperm Radical Oxygen Species production persistent even following antimicrobials administered for epididymitis: preliminary results. In: International Meeting on Infertility and Assisted Reproductive Technology; June 11-14, 1997; Porto Cervo, Italy.

16. Vicari E, Cerri L, Cataldo T, et al. Effectiveness of single and combined antioxidant therapy in patients with astheno-necrozoospermia from non-bacterial epididymitis: effects after acetyl-carnitine or carnitine-acetyl-carnitine. Presented at: 12th National Conference, Italian Andrology Association; June 9-12, 1999; Copanello, Italy.

17. Campaniello E, Petrarolo N, Meriggiola MC, et al. Carnitine administration in asthenospermia. Presented at: 4th International Congress of Andrology; May 14-18, 1989; Florence, Italy.

18. Costa M, Canale D, Filicori M, et al. L-carnitine in idiopathic asthenozoospermia: a multicenter study. *Andrologia.* 1994;26:155-159.

19. Vitali G, Parente R, Melotti C. Carnitine supplementation in human idiopathic asthenospermia: clinical results. *Drugs Exp Clin Res.* 1995;21:157-159.

20. Moncada ML, Vicari E, Cimino C, et al. Effect of acetylcarnitine treatment in oligoasthenospermic patients. *Acta Eur Fertil.* 1992;23:221-224.

21. Kumar R, Gupta NP. Lycopene therapy in idiopathic male infertility: results of a clinical trial [abstract]. Presented at: 34th Annual Conference of the Urological Society of India; January 18-21, 2001; Nagpur, India.

22. Wong WY, Merkus HM, Thomas CM, et al. Effects of folic acid and zinc sulfate on male factor subfertility: a double-blind, randomized, placebo-controlled trial. *Fertil Steril.* 2002;77:491-498.

23. Luboshitzky R, Shen-Orr Z, Nave R, et al. Melatonin administration alters semen quality in healthy men. *J Androl.* 2002;23:572-578.

24. Lewin A, Lavon H. The effect of coenzyme Q10 on sperm motility and function. *Mol Aspects Med.* 1997;18(suppl):S213-S219.

25. Scott R, MacPherson A, Yates RWS, et al. The effect of oral selenium supplementation on human sperm motility. *Br J Urol.* 1998;82:76-80.

26. Pryor JP, Blandy JP, Evans P, et al. Controlled clinical trial of arginine for infertile men with

oligozoospermia. *Br J Urol.* 1978;50:47-50.

27. Lenzi A, Lombardo F, Sgro P, et al. Use of carnitine therapy in selected cases of male factor infertility: a double-blind crossover trial. *Fertil Steril.* 2003;79:292-300.
28. Gonzales GF, Cordova A, Vega K. Effect of *Lepidium meyenii* (Maca), a root with aphrodisiac and fertility-enhancing properties, on serum reproductive hormone levels in adult healthy men. *J Endocrinol.* 2003;176:163-168.
29. Gardner-Thorpe D, O'Hagen C, Young I, et al. Dietary supplements of soya flour lower serum testosterone concentrations and improve markers of oxidative stress in men. *Eur J Clin Nutr.* 2003;57:100-106.
30. Akbarsha MA, Manivannan B, Shahul Hamid K, et al. Antifertility effect of *Andrographis paniculata* (Nees) in male albino rat. *Indian J Exp Biol.* 1990;28:421-426.
31. Burgos RA, Caballero EE, Sanchez NS, et al. Testicular toxicity assessment of *Andrographis paniculata* dried extract in rats. *J Ethnopharmacol.* 1997;58:219-224.
32. Lenzi A, Sgro P, Salacone P, et al. A placebo-controlled double-blind randomized trial of the use of combined l-carnitine and l-acetyl-carnitine treatment in men with asthenozoospermia. *Fertil Steril.* 2004;81:1578-1584.
33. Cavallini G, Ferraretti AP, Gianaroli L, et al. Cinnoxicam and L-carnitine/acetyl-L-carnitine treatment for idiopathic and varicocele-associated oligoasthenospermia. *J Androl.* 2004;25:761-770; discussion 771-772.
34. Lenzi A, Sgro P, Salacone P, et al. A placebo-controlled double-blind randomized trial of the use of combined l-carnitine and l-acetyl-carnitine treatment in men with asthenozoospermia. *Fertil Steril.* 2004;81:1578-1584.
35. Cavallini G, Ferraretti AP, Gianaroli L, et al. Cinnoxicam and L-carnitine/acetyl-L-carnitine treatment for idiopathic and varicocele-associated oligoasthenospermia. *J Androl.* 2004;25:761-770; discussion 771-772.
36. Lenzi A, Lombardo F, Sgro P, et al. Use of carnitine therapy in selected cases of male factor infertility: a double-blind crossover trial. *Fertil Steril.* 2003;79:292-300.
37. Comhaire FH, El Garem Y, Mahmoud A, et al. Combined conventional/antioxidant "Astaxanthin" treatment for male infertility: a double blind, randomized trial. *Asian J Androl.* 2005;7:257-262.
38. Gonzales GF, Cordova A, Gonzales C, et al. *Lepidium meyenii* (Maca) improved semen parameters in adult men. *Asian J Androl.* 2002;3:301-303.
39. Zavaczki Z, Szollosi J, Kiss SA, et al. Magnesium-OROTATE supplementation for idiopathic infertile male patients: a randomized, placebo-controlled clinical pilot study. *Magnes Res.* 2003;16:131-136.
40. Akdogan M, Ozguner M, Kocak A, et al. Effects of peppermint teas on plasma testosterone, follicle-stimulating hormone, and luteinizing hormone levels and testicular tissue in rats. *Urology.* 2004;64:394-398.
41. Melis MS. Effects of chronic administration of *Stevia rebaudiana* on fertility in rats. *J Ethnopharm.* 1999;167:157-161.
42. Oliveira-Filho RM, Uehara OA, Minetti CA, et al. Chronic administration of aqueous extract of *Stevia rebaudiana* (Bert.) Bertonii in rats: endocrine effects. *Gen Pharmacol.* 1989;20:187-191.
43. Yodyingyud V, Bunyawong S. Effect of stevioside on growth and reproduction. *Hum Reprod.* 1991;6:158-165.
44. Garolla A, Maiorino M, Roverato A, et al. Oral carnitine supplementation increases sperm motility in asthenozoospermic men with normal sperm phospholipid hydroperoxide glutathione peroxidase levels. *Fertil*

Steril. 2005;83:355-361.

45. Balercia G, Regoli F, Armeni T, et al. Placebo-controlled double-blind randomized trial on the use of L-carnitine, L-acetylcarnitine, or combined L-carnitine and L-acetylcarnitine in men with idiopathic asthenozoospermia. *Fertil Steril.* 2005;84:662-671.
46. Ebisch IM, Pierik FH, DE Jong FH, et al. Does folic acid and zinc sulphate intervention affect endocrine parameters and sperm characteristics in men? *Int J Androl.* 2006;29:339-345.
47. Chung F, Rubio J, Gonzales C, et al. Dose-response effects of *Lepidium meyenii* (Maca) aqueous extract on testicular function and weight of different organs in adult rats. *J Ethnopharmacol.* 2005;98:143-147.
48. Gonzales GF, Rubio J, Chung A, et al. Effect of alcoholic extract of *Lepidium meyenii* (Maca) on testicular function in male rats. *Asian J Androl.* 2003;5:349-352.
49. Bustos-Obregon E, Yucra S, Gonzales GF, et al. *Lepidium meyenii* (Maca) reduces spermatogenic damage induced by a single dose of malathion in mice. *Asian J Androl.* 2005;7:71-76.
50. Gonzales GF, Gasco M, Cordova A, et al. Effect of *Lepidium meyenii* (Maca) on spermatogenesis in male rats acutely exposed to high altitude (4340 m). *J Endocrinol.* 2004;180:87-95.
51. Henley DV, Lipson N, Korach KS, Bloch CA. Prepubertal gynecomastia linked to lavender and tea tree oils. *N Engl J Med.* 2007;356:479-485.
52. Zhou X, Liu F, Zhai S. Effect of L-carnitine and/or L-acetyl-carnitine in nutrition treatment for male infertility: a systematic review. *Asia Pac J Clin Nutr.* 2007;16(suppl):383-390.
53. Tremellen K, Miari G, Froiland D, et al. A randomised control trial examining the effect of an antioxidant (Menevit) on pregnancy outcome during IVF-ICSI treatment. *Aust N Z J Obstet Gynaecol.* 2007;47:216-221.
54. Showell M, Brown J, Yasdani A, Stankiewicz M, Hart R. Antioxidants for male subfertility. *Cochrane Database Syst Rev.* 2011;(1):CD007411.

Last reviewed August 2011 by EBSCO CAM Review Board
Last Updated: 8/1/2011