

High Absorption CoQ10

USP Verified, Naturally Fermented CoQ10

**Doctor's
BEST**
Science-Based Nutrition™



INGREDIENTS

High Absorption CoQ10 products contain pure Coenzyme Q10. BioPerine®, a natural extract derived from black pepper, is included in High Absorption CoQ10 as an evidence-based means of increasing nutrient absorption.¹ Doctor's Best High Absorption CoQ10 products with BioPerine® are designed to help restore the body's depleted CoQ10 stores quickly and efficiently. CoQ10 taken with BioPerine® enhances nutrient absorption in the gastrointestinal tract, achieving a 30% increase in CoQ10 blood levels versus CoQ10 taken with placebo.²

Coenzyme Q10 is a vitamin-like nutrient central to energy production at the cellular level, essential for generating metabolic energy in the form of ATP. CoQ10 is also a versatile antioxidant, stabilizing cell membranes (helping to protect them from free radical damage) and contributing to their fluidity.³ Coenzyme Q10 levels decrease with age, a factor that may actually contribute to the aging process.^{*4} Since food content of CoQ10 can be very low, many healthcare providers recommend supplementing with Coenzyme Q10.

BENEFITS

- Helps enhance cardiovascular health and supports endothelial function*
- Helps provide potent antioxidant protection in tissues and cells*
- Helps replenish CoQ10 losses from statins*
- Helps replenish CoQ10 losses due to aging*
- Helps enhancing male and female reproductive health*

EXTENDED BENEFITS

Due to the extraordinary energy requirements of our hardworking heart, the highest concentration of CoQ10 is found in heart muscle tissue. CoQ10 is known to support the heart through mitochondrial bioenergetics, the process of cellular energy transformation. Several studies have highlighted the efficacy of oral CoQ10 in improving functional capacity, endothelial function, and myocardial ventricular contractility in individuals with heart problems.⁵ On top of this, CoQ10 helps to promote overall cardiovascular health by confronting oxidative

100mg,
60 & 120 Softgel

Supplement Facts

Serving Size 1 Softgel
Servings Per Container 60 & 120 Servings

	Amount Per Serving	% Daily Value
Coenzyme Q10 (Ubiquinone)	100 mg	†
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg	†

† Daily Value not established.

Other Ingredients: Extra virgin olive oil (non-GMO), softgel capsule (gelatin, glycerin, purified water), beeswax, soy lecithin, rosemary extract.

Contains Soy

Suggested Adult Use: Take 1 softgel daily preferably with food for maximum absorption, or as recommended by a nutritionally-informed physician.

USP Verified, Naturally Fermented CoQ10

Gluten Free

Store in a cool dry place.

100 mg,
30, 60, 120, & 360 Veggie Caps

Supplement Facts

Serving Size 1 Veggie Capsule
Servings Per Container 30, 60, 120 & 360

	Amount Per Serving	% Daily Value
Coenzyme Q10 (Ubiquinone)	100 mg	†
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg	†

† Daily Value not established.

Other Ingredients: Rice powder, hypromellose (vegetarian capsule), magnesium stearate (vegetable source), silicon dioxide.

Suggested Adult Use: Take 1 capsule daily preferably with food for maximum absorption, or as recommended by a nutritionally-informed physician.

USP Verified, Naturally Fermented CoQ10

Non-GMO / Gluten Free / Soy Free / Vegan

Store in a cool dry place.

BioPerine® is a registered trademark of Sabinsa Corporation.

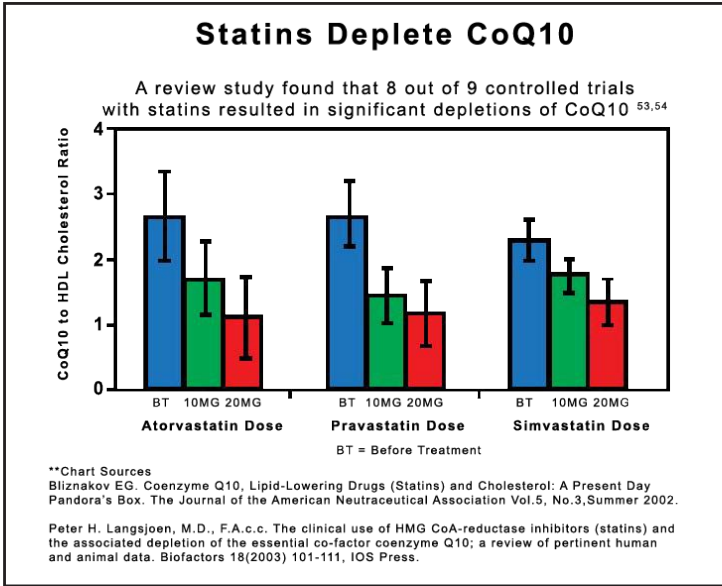
* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

stress in heart and endothelial (blood vessel wall) cells.^{*6-9} CoQ10 has also been shown to modulate oxidation rates of key lipids during supplementation. This type of antioxidant activity may enhance the structural integrity of lipids and supporting healthy blood vessels and circulation, potentially creating a more favorable cardiovascular environment.¹⁰

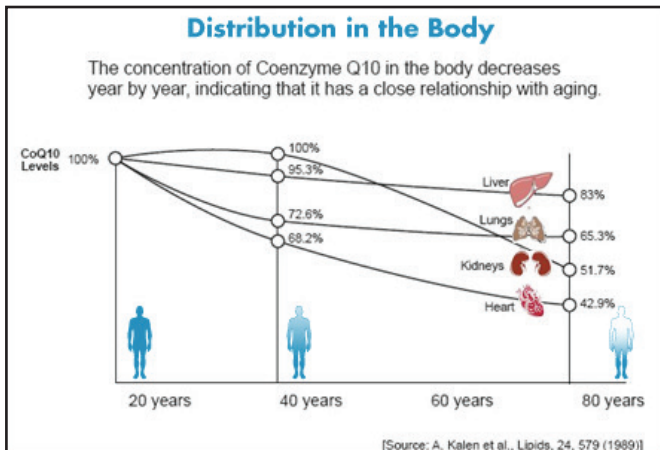
Statins are a class of lipid-lowering medications widely used in modern medicine to reduce cholesterol levels and improve cardiovascular health. Studies have demonstrated that one of the side effects of statins was the lowering body's levels of endogenous CoQ10.¹¹⁻¹⁴ Several studies have demonstrated statin-induced CoQ10 loss may be reversed with CoQ10 supplementation without having an adverse impact on the cholesterol-lowering property of statin drugs.^{11,15} More, the oral supplementation of CoQ10 could be beneficial in lessening some side effects of statins.^{*11,16-18}



200mg,
60 & 180 Veggie Caps



In terms of bioenergetics, CoQ10 supplementation acts to preserve energy turnover in mitochondria—our cellular powerhouses—by keeping ATP synthesis at optimal levels.¹⁹ Maintenance of normal energy utilization and supply is crucial for maintaining the cell's ideal biochemical state. However, this ideal biochemical state may be compromised during the natural course of aging. Although the exact mechanism of the aging process is still unclear, several studies have come to the conclusion that CoQ10 may be involved in age-related alterations of membrane cells and tissues because of its key roles as an electron carrier in mitochondrial bioenergetics and lipophilic antioxidant. CoQ10 deficiency may impair mitochondrial energy production and increase production of reactive oxygen species.²⁰⁻²² Based on several studies, its natural decline in the aging population may expose individuals to several human ailments.^{*23}



Many studies have suggested CoQ10 supplementation could help preserving energy turnover in mitochondria and consequently maintaining optimum vital functions. CoQ10 oral supplementation is therefore beneficial in supporting healthy aging.^{*24,25}

Supplement Facts

Serving Size 1 Veggie Capsule
Servings Per Container 60 & 180 Servings

	Amount Per Serving	% Daily Value
Coenzyme Q10 (Ubiquinone)	200 mg	†
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg	†

† Daily Value not established.

Other Ingredients: Rice powder, modified cellulose (vegetarian capsule), silicon dioxide, magnesium stearate (vegetable source).

Suggested Adult Use: Take 1 capsule daily preferably with food for maximum absorption, or as recommended by a nutritionally-informed physician.

USP Verified, Naturally Fermented CoQ10
Non-GMO / Gluten Free / Soy Free / Vegan
Store in a cool dry place.

200 mg,
60 Veggie Softgels

Supplement Facts

Serving Size 1 Veggie Softgel
Servings Per Container 60

	Amount Per Serving	% Daily Value
Coenzyme Q10 (Ubiquinone)	200 mg	†
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg	†

† Daily Value not established.

Other Ingredients: Sunflower oil, vegetarian softgel (food starch modified, glycerin, carrageenan, purified water), yellow beeswax, sunflower lecithin.

Suggested Adult Use: Take 1 softgel daily preferably with food for maximum absorption, or as recommended by a nutritionally-informed physician.

USP Verified, Naturally Fermented CoQ10
Non-GMO / Gluten Free / Soy Free / Vegetarian
Store in a cool dry place.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

Human reproductive capacity also declines with age. Several research studies have been conducted to study the connection between oxidative stress and human reproductive health system.²⁶ Male reproductive health is associated with the antioxidant capacity of seminal plasma and the potent antioxidant activity of CoQ10.²⁷⁻²⁹ The biosynthesis of CoQ10 in testis leads to high levels of its reduced form QH2 (ubiquinol) in semen which indicates a protective role as a scavenger of reactive oxygen species known to impair sperm cell function.^{*30} In the same way, female reproductive health depends on CoQ10 content in follicular fluid and its relationship with oocyte fertilization.^{31,32}



PHARMACOLOGICAL AND CLINICAL STUDIES

A prospective randomized double-blind placebo-controlled trial was conducted in 443 participants. The controlled group received a combined oral supplementation of selenium and CoQ10. Results showed that supplementation of selenium/CoQ10 reduced cardiovascular mortality therefore highlighting the positive effect of CoQ10 on cardiovascular health.^{*33,34} Similar results were obtained from other clinical trials which led also to the conclusion that CoQ10 could potentially enhance cardiovascular health.^{*35-37}

A clinical study investigated the effects of CoQ10 in patients who were on statin therapy. Results showed CoQ10 daily supplementation significantly enhanced antioxidant enzymes activities and lowered inflammatory markers. The research concluded that patients with cardiovascular problems could benefit from CoQ10 supplementation to increase their antioxidation capacity during statin therapy.^{*38} CoQ10 supplementation could lead to higher compliance for individuals under statin treatment and consequently provide better quality of life.^{*39,40}

A randomized, placebo-controlled study was conducted to evaluate the impact of CoQ10 on oxidative stress and inflammatory markers in patients who had surgery. Results showed that the oxidative stress and some inflammatory markers levels were significantly decreased and the antioxidant enzymes activity was significantly increased after 12 weeks of CoQ10 supplementation. The study concluded that daily intake of CoQ10 could provide potent antioxidant protection in patients who had surgery.^{*41}

Several studies have been conducted to evaluate whether diets with different fat quality and supplementation with CoQ10 could be beneficial for healthy aging. Results from those studies showed that diets combined with CoQ10 supplementation improved endothelial function and antioxidant enzyme activities while decreasing plasma lipid peroxidation products and DNA damage. These results led to the conclusion that consumption of certain diets combined with CoQ10 could be beneficial for healthy aging.^{*24,25}

In an open, uncontrolled pilot study, young participants with male reproductive problems were given CoQ10 for 6 months. Concentration of CoQ10 in seminal plasma and sperm cells was increased. A direct correlation between CoQ10 concentrations and sperm motility was found and strongly supported a cause/effect relationship. The study concluded CoQ10 could play a positive role in improving sperm motility.^{*42} Similar results were found from other studies where CoQ10 supplementation improved semen quality but also had beneficial effect on pregnancy rate.^{*43,44}

A pilot study was conducted to evaluate the antioxidant capacity of seminal plasma of men with reproductive health problems before and after an oral supplementation with CoQ10. Results showed CoQ10 therapy improved semen parameters and antioxidant status. This study highlighted the importance of oxidative stress in male reproductive health and the possibility of the usefulness of CoQ10 supplementation.^{*45} Similar results were obtained in another uncontrolled male study that resulted in 45% pregnancies of their women.^{*46}

300mg,
30 & 90 Veggie Caps

Supplement Facts

Serving Size 1 Veggie Softgel
Servings Per Container 30 & 90 Servings

Amount Per Serving	% Daily Value
Coenzyme Q10 (Ubiquinone)	300 mg †
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg †

† Daily Value not established.

Other Ingredients: Sunflower oil, vegetarian softgel (food starch modified, carrageenan, glycerin, sorbitol, purified water), yellow beeswax, sunflower lecithin.

Suggested Adult Use: Take 1 softgel daily with food for maximum absorption, or as recommended by a nutritionally informed physician.

USP Verified, Naturally Fermented CoQ10

Non-GMO / Gluten Free / Soy Free / Vegetarian

Store in a cool dry place.

400mg,
60 & 180 Veggie Caps

Supplement Facts

Serving Size 1 Veggie Capsule
Servings Per Container 60

Amount Per Serving	% Daily Value
Coenzyme Q10 (Ubiquinone)	400 mg †
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg †

† Daily Value not established.

Other Ingredients: Rice powder, modified cellulose (vegetarian capsule), magnesium stearate (vegetable source), silicon dioxide.

Suggested Adult Use: Take 1 capsule daily preferably with food for maximum absorption, or as recommended by a nutritionally-informed physician.

USP Verified, Naturally Fermented CoQ10

Non-GMO / Gluten Free / Vegan

Store in a cool dry place.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

A couple of randomized clinical trials evaluated the effect of CoQ10 on female reproductive health. Results from these studies highlighted the positive effect of CoQ10 on ovulation induction and serum reproductive hormones. They concluded oral CoQ10 supplementation was safe and effective in enhancing female reproductive health.*47,48



600 mg,
60 Veggie Caps

Supplement Facts

Serving Size 1 Veggie Capsule

Servings Per Container 60

Amount Per Serving %Daily Value		
Coenzyme Q10 (Ubiquinone)	600 mg	†
Black Pepper Ext. (<i>Piper nigrum</i>)(fruit) (standardized to contain 95% Piperine)(BioPerine®)	5 mg	†

† Daily Value not established.

Other Ingredients: Modified cellulose (vegetarian capsule), tricalcium phosphate, silicon dioxide, magnesium stearate (vegetable source).

Suggested Adult Use: Take 1 capsule daily preferably with food for maximum absorption, or as recommended by a nutritionally-informed physician.

USP Verified, Naturally Fermented CoQ10

Non-GMO/Gluten Free/Soy Free/Vegan

Store in a cool dry place.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

SCIENTIFIC REFERENCES

1. Khajuria A, Thusu N, Zutshi U. Piperine modulates permeability characteristics of intestine by inducing alterations in membrane dynamics: influence on brush border membrane fluidity, ultrastructure and enzyme kinetics. *Phytomed*. 2002; 9:224-31.
2. Badmaev V, Majeed M, Prakash L. Piperine derived from black pepper increases the plasma levels of coenzyme Q10 following oral supplementation. *J Nutr Bio-chem*. 2000;11:109-13.
3. Langsjoen PH, Langsjoen AM. Overview of the use of CoQ10 in cardiovascular disease. *Biofactors*. 1999;9:273-84.
4. Coenzyme Q10. Monograph. *Altern Med Rev*. 2007;2:159-68.
5. Fotino AD, Thompson-Paul AM and Bazzano LA. Effect of coenzyme Q10 supplementation on heart failure: a meta-analysis. *Am J Clin Nutr*. 2013;97:268-75.
6. Littarru GP and Tiano L. Clinical aspects of coenzyme Q10: an update. *Nutrition*. 2010; 26 (3): 250-4.
7. Dhanasekaran M, Ren J. The emerging role of coenzyme Q-10 in aging, neurodegeneration, cardiovascular disease, cancer and diabetes mellitus. *Curr Neurovasc Res*. 2005;2:447-59.
8. Rosenfeldt F, Hilton D. Systematic review of effect of coenzyme Q10 in physical exercise, hypertension and heart failure. *Biofactors*. 2003;18:91-100.
9. Hoppel CL, Tandler B. Dynamic organization of mitochondria in human heart and in myocardial disease. *Int J Biochem Cell Biol*. 2009;41:1949-56.
10. Littarru GP and Tiano L. Bioenergetic and antioxidant properties of coenzyme Q10: recent developments. *Mol Biotechnol*. 2007;37: 31-7.
11. Ghirlanda G, Oradei A, Manto A, et al. Evidence of plasma CoQ10-lowering effect by HMG-CoA reductase inhibitors: a double-blind, placebo-controlled study. *J Clin Pharmacol*. 1993; 33 (3):226-9.
12. Langsjoen PH and Langsjoen AM. The clinical use of HMG CoA-reductase inhibitors and the associated depletion of coenzyme Q10. A review of animal and human publications. *Biofactors*. 2003;18: 101-11.
13. Hargreaves IP, Duncan AJ, et al. The effect of HMG-CoA reductase inhibitors on coenzyme Q10: possible biochemical/clinical implications. *Drug Saf*. 2005;28: 659-76.
14. Banach M, Serban C, Ursoniu S et al. Statin therapy and plasma coenzyme Q10 concentrations-A systemic review and meta-analysis of placebo-controlled trials. *Pharmacol Res*. 2015;99:329-336.
15. Saha SP, Whyne J, Thomas F. Coenzyme Q-10 in human health: Supporting evidence? *Southern Med J*. 2016;109:17-21.
16. Littlefield N, Beckstrand RL, and Luthy KE. Statins' effect on plasma levels of coenzyme Q10 and improvement in myopathy with supplementation. *J Am Ass Nurse Pract*. 2014;26:85-90.
17. Marcoff L. and Thompson PD. The role of coenzyme Q10 in statin-associated myopathy. *J Am College of Cardiol*. 2007;49:2231-2237.
18. Fedacko J, Pella D, Fedackova P et al. Coenzyme Q10 and selenium in statin-associated myopathy treatment. *Can J Physiol Pharmacol*. 2013;91:165-170.
19. Sinatra ST. Metabolic cardiology: the missing link in cardiovascular disease. *Al-tern Ther Health Med*. 2009;15: 48-50.
20. Corbi G, Conti V, Russomanno G et al. Is physical activity able to modify oxidative damage in cardiovascular aging? *Oxidative Med Cellular Longev*. 2012;2012:doi/728547
21. Del Pozo-Cruz J, Rodriguez-Bies E, Ballesteros-Simarro M et al. Physical activity affects plasma coenzyme Q10 levels differently in young and old humans. *Biogerontology*. 2014;15:199-211.
22. Chistiakov DA, Sobenin IA, Revin VV et al. Mitochondrial aging and age-related dysfunction of mitochondria. *BioMed Res Int*. 2014;2014:doi/238463
23. Lopez-Lluch G, Rhodriguez-Aguilera JC, Santos-Ocana C et al. Is coenzyme Q a key factor in aging? *Mechanism of Aging and Dev*. 2010;131:225-235.
24. González-Guardia L, Yubero-Serrano EM, Delgado-Lista J, et al. Effects of the Mediterranean diet supplemented with coenzyme q10 on metabolomic profiles in elderly men and women. *The Journals of Gerontology. Series A, Biological sciences and medical sciences*. 2015;70:78-84.
25. Gutierrez-Mariscal FM, Yubero-Serrano EM, Rangel-Zúñiga OA, et al. Postprandial activation of p53-dependent DNA repair is modified by Mediterranean diet supplemented with coenzyme Q10 in elderly subjects. *The Journals of Gerontology. Series A, Biological sciences and medical sciences*. 2014;69:886-893
26. Piomboni P, Focarelli R, Stendardi A et al. The role of mitochondria in energy production for human sperm motility. *Inter J Androl*. 2012;35:109-124.

27. Lewis SEM, Boyle PM, McKinney KA et al. Total antioxidant capacity of seminal plasma is different in fertile and infertile men. *Fertility & Sterility*. 1995;64:868-870.28.

28. Balercia G, Mancini A, Paggi F, et al. Coenzyme Q10 and male infertility. *J Endocrinol Inv*. 2009;32:626-632.

29. Lafuente R, González-Comadrán M, Solà I, et al. Coenzyme Q10 and male infertility: a meta-analysis. *Journal of Assisted Reproduction and Genetics*. 2013;30:1147-1156.

30. Balercia G, Mancini A, Paggi F, et al. Coenzyme Q10 and male infertility. *J Endocrinol Inv*. 2009;32:626-632.

31. Lafuente R, González-Comadrán M, Solà I, et al. Coenzyme Q10 and male infertility: a meta-analysis. *Journal of Assisted Reproduction and Genetics*. 2013;30:1147-1156.

32. Mancini A, Conte G, Milardi D, et al. Relationship between sperm cell ubiquinone and seminal parameters in subjects with and without varicocele. *Andrologia*. 1998;30:1-4.

33. Turi A, Giannubilo SR, Brugè F, et al. Coenzyme Q10 content in follicular fluid and its relationship with oocyte fertilization and embryo grading. *Arch Gynecol Obstetrics*. 2012;285:1173-1176.

34. Ben-Meir A, Burstein E, Borrego-Alvarez A, et al. Coenzyme Q10 restores oocyte mitochondrial function and fertility during reproductive aging. *Aging Cell*. 2015;14:887-895.

35. Alehagen U, Johansson P, Björnstedt M, et al. Cardiovascular mortality and N-terminal-proBNP reduced after combined selenium and coenzyme Q10 supplementation: a 5-year prospective randomized double-blind placebo-controlled trial among elderly Swedish citizens. *Inter J Cardiol*. 2013;167:1860.

36. Alehagen U, Lindahl TL, Aaseth J et al. Levels of sP-selectin and hs-CRP Decrease with Dietary Intervention with Selenium and Coenzyme Q10 Combined: A Secondary Analysis of a Randomized Clinical Trial: e0137680. *PLoS One*. 2015;10.

37. Aslanabadi N, Safaie N, Asgharzadeh Y, et al. The randomized clinical trial of co-enzyme Q10 for the prevention of periprocedural myocardial injury following elective percutaneous coronary intervention. *Cardiovascular Ther*. 2016;34:254-260.

38. Zhao Q, Kebbati AH, Zhang Y et al. Effect of coenzyme Q10 on the incidence of atrial fibrillation in patients with heart failure. *J Invest Med: the official publication of the American Federation for Clinical Research*. 2015;63:735-739.

39. Mohseni M, Vafa M, Zarrati M et al. Beneficial effects of Coenzyme Q10 supplementation on lipid profile and Intereukin-6 and Intercellular adhesion Molecule-1 reduction, preliminary results of a double-blind trial in Acute Myocardial Infarction. *Int J Prev Med*. 2015;6:73.

40. Lee B, Tseng Y, Yen C et al. Effects of coenzyme Q10 supplementation (300 mg/day) on antioxidation and anti-inflammation in coronary artery disease patients during statins therapy: a randomized, placebo-controlled trial. *Nutr J*. 2013;12:142.

41. Skarlovnik A et al. Coenzyme Q10 supplementation decreases statin-related muscle symptoms. *Med Sci Monit*. 2014;20:2183-2188.

42. Latkovskis G, Saripo V, Sokolova E et al. Pilot study of safety and efficacy of polyphenols in combination with coenzyme Q10 in patients with statin-induced myopathy. *Medicina*. 2016;52:171-179.

43. Liu H, Huang Y, Cheng S et al. Effects of coenzyme Q10 supplementation on antioxidant capacity and inflammation in hepatocellular carcinoma patients after surgery: a randomized, placebo-controlled trial. *Nutr J*. 2015;2016:15.

44. Balercia G. Coenzyme q10 supplementation in infertile men with idiopathic asthenozoospermia: an open, uncontrolled pilot study. *Fertility and Sterility*. 2004;81:93-98.

45. Safarinejad MR. The effect of coenzyme Q10 supplementation on partner pregnancy rate in infertile men with idiopathic oligoasthenoteratozoospermia: an open-label prospective study. *Inter Urol Nephrol*. 2012;44:689-700.

46. Safarinejad MR. Efficacy of coenzyme Q10 on semen parameters, sperm function and reproductive hormones in infertile men. *J Urol*. 2009;182:237-248.

47. Festa R, Giacchi E, Raimondo S, et al. Coenzyme Q10 supplementation in infertile men with low-grade varicocele: an open, uncontrolled pilot study. *Andrologia*. 2014;46:805-807.

48. Gvozdjaková A, Kucharská J, Dubravicky J et al. Coenzyme Q10, α -Tocopherol, and Oxidative Stress Could Be Important Metabolic Biomarkers of Male Infertility. *Disease Markers*. 2015;2015:1-6.

49. El Refaey A, Selem A, Badawy A. Combined coenzyme Q10 and clomiphene citrate for ovulation induction in clomiphene-citrate-resistant polycystic ovary syndrome. *Reproductive biomedicine online*. 2014;29:119.

50. Thakur AS, Littarru GP, Funahashi I et al. Effect of Ubiquinol on Serum Reproductive Hormones of Amenorrhic Patients. *Indian J Clin Biochem*. 2016;31:342-348.



* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

© Doctor's Best, Inc.

phone: 800-333-6977 • fax: 949-498-3952 • www.drbitamins.com