



KANEKA UBIQUINOL™

100+
STUDIES

80+
PATENTS

45+
YEARS OF
RESEARCH

Ubiquinol fertility research in male and female

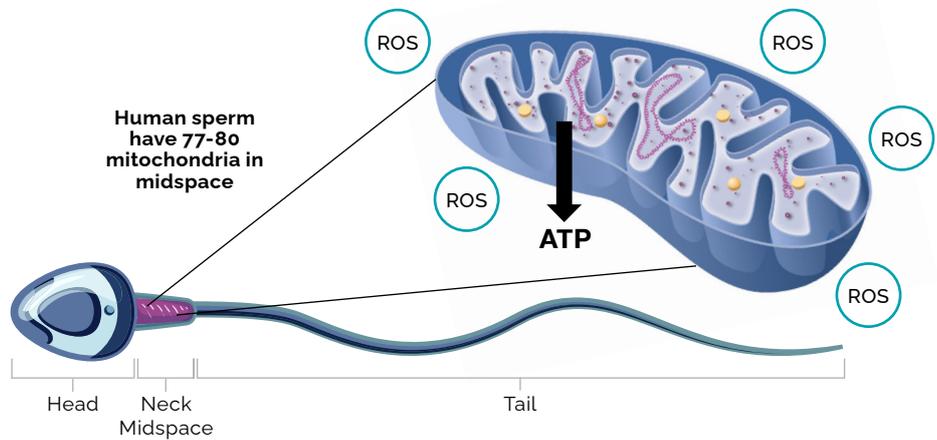
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Ubiquinol is a vital component present in human sperm cells. This lipid-soluble compound is primarily located within the mitochondria, which are the powerhouses of cells. In the context of sperm cells, ubiquinol plays a crucial role in energy generation. The processes of sperm production and their respective functions requires a constant and efficient energy supply.

Ubiquinol has a powerful antioxidant and bioenergetics role. It results in positive changes in the male's seminal fluid, sperm count, and motility. Ubiquinol deficiency could presumably be a contributing factor of infertility in men. In female studies, the ubiquinol oral supplementation as a support to the specific endocrine therapy has already been demonstrated in many cases.

Sperm Composition

| | |
|--------------|--|
| Head | Ubiquinol , Alpha Lipoic Acid, Vitamin A, Vitamin C, Vitamin D, Vitamin E, Vitamin B, Zinc, Selenium, Vitamin B9, Vitamin B12 |
| Head to Neck | Zinc |
| Neck | Ubiquinol , Vitamin D, Zinc |
| Tail | Selenium |



Hechman, L. in Textbook of Natural Medicine, 5th Edition, 2021

Ubiquinol supplement improves fertility parameters in infertile idiopathic oligoasthenoteratospermia (OAT) men by reducing oxygen species and sperm DNA fragmentation.

Alahmar AT et al., Clin exp reprod med, 48(2), 150-155, 2021

- This study was undertaken to investigate the effect of Ubiquinol on oxidative stress markers and sperm DNA damage in infertile patients with idiopathic oligoasthenoteratospermia (OAT).
- 50 infertile males with idiopathic OAT.
- Receive an oral supplement of 200 Ubiquinol daily for 3 months.
- After the treatment, seminal CoQ10 levels, reactive oxygen species (ROS) levels, total antioxidant capacity, catalase, sperm DNA fragmentation are significantly improved.

Table 1. Seminal plasma CoQ10 levels, oxidative stress markers, and sperm DNA fragmentation in infertile patients before and after the administration of CoQ10 (Ubiquinol).

| Variable | Infertile patients (n=50) | |
|--|---------------------------|------------------------------------|
| | Baseline | Ubiquinol treatment after 3 months |
| CoQ10 level (ng/ml) | 41.4 ± 29.3 | 76.2 ± 26.7*** |
| ROS (x 104 RLU/min/20 million spermatozoa) | 4.3 ± 1.6 | 3.3 ± 1.5** |
| TAC (mmol/L) | 0.9 ± 0.44 | 1.2 ± 0.51*** |
| Catalase (U/mL) | 10.6 ± 2.8 | 12.4 ± 2.61** |
| Sperm DNA fragmentation (%) | 38.6 ± 7.9 | 34.5 ± 9.3** |

Values are presented as mean ± standard deviation.

ROS, reactive oxygen species; TAC, total antioxidant capacity. **Significant difference from baseline, p<0.01; ***Significant difference from baseline, p<0.001.

Ubiquinol supplement is effective in men with unexplained infertility for improving sperm count, sperm density, sperm motility, and sperm morphology in 26 weeks.

Safarinejad MR et al., The Journal of Urology, 188, 526-531, 2012

PURPOSE:

We investigated the effects of the administration of ubiquinol (a reduced form of coenzyme Q10) on semen parameters and seminal plasma antioxidant capacity in infertile men with idiopathic oligoasthenoteratozoospermia. Materials and Methods: A total of 228 men with unexplained infertility were randomly assigned 1:1 into 2 groups. Group 1 (114) received 200 mg ubiquinol daily by mouth for 26 weeks and group 2 (114) received a similar regimen of placebo. After completion of the 26-week treatment phase, all participants were followed for another 12-week off-drug period. Primary outcomes were improvement in sperm density, sperm motility and sperm strict morphology.

- Double-blind, placebo control 228 infertile men with idiopathic infertility.
- 26 weeks treatment with 200mg Ubiquinol or placebo capsule.
- Sperm count, sperm density, sperm motility, sperm morphology is significantly improve in Ubiquinol treatment group.

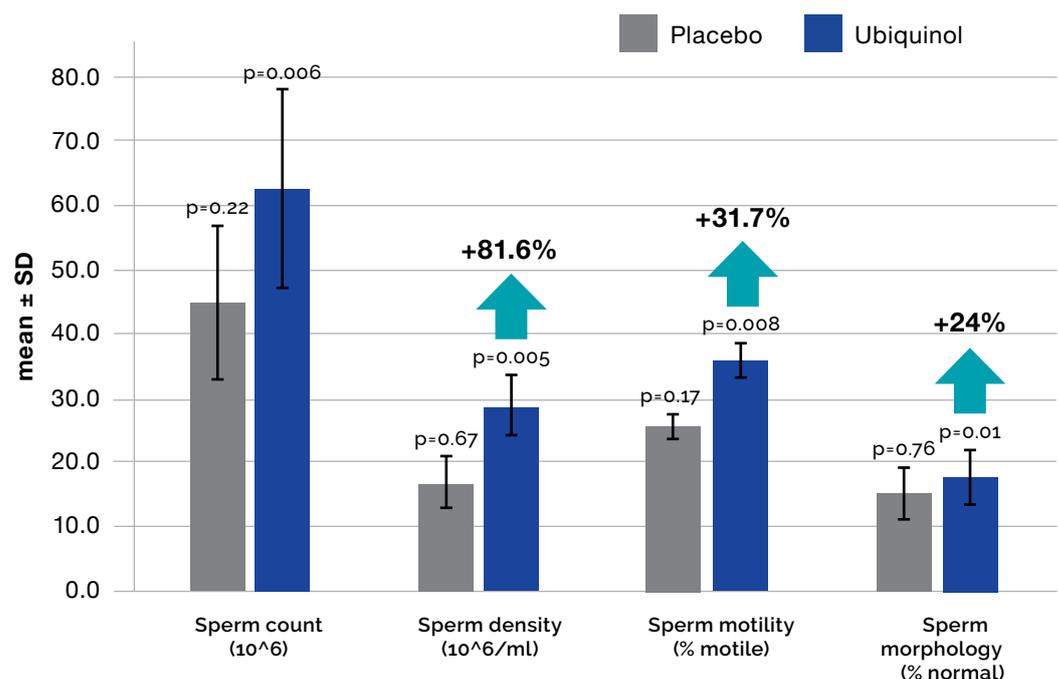


Figure 1. The semen parameters after 26 weeks treatment of by orally taking placebo or ubiquinol capsules. *p value versus baseline.

Ubiquinol added to Clomiphene Citrate improves the ovarian function in Clomiphene Citrate resistant patients

Ammar and Abdou, Middle East Fertility Society Journal. 26:22, 2021

RESULTS:

At the end of the 26-week treatment period mean D sperm density in the ubiquinol and placebo groups was $28.7 \pm 4.6 \times 10^6$ /ml and $16.8 \pm 4.4 \times 10^6$ /ml ($p = 0.005$), sperm motility was $35.8\% \pm 2.7\%$ and $25.4\% \pm 2.1\%$ ($p = 0.008$), and sperm strict morphology was $17.6\% \pm 4.4\%$ and $14.8\% \pm 4.1\%$ ($p = 0.01$) of normal sperm, respectively. During the treatment period serum follicle-stimulating hormone levels decreased significantly ($p = 0.02$) and serum inhibin B concentrations increased significantly ($p = 0.01$). During the off-drug period semen parameters gradually returned to baseline values but the differences were still significant for sperm density ($p = 0.03$) and sperm motility ($p = 0.03$). The correlation coefficients analysis revealed a positive association between the duration of treatment with ubiquinol and sperm density ($r = 0.74$, $p = 0.017$), sperm motility ($r = 0.66$, $p = 0.024$) and sperm morphology ($r = 0.57$, $p = 0.027$).

CONCLUSIONS:

Ubiquinol was significantly effective in men with unexplained oligoasthenoteratozoospermia for improving sperm density, sperm motility and sperm morphology.

BACKGROUND:

Clomiphene Citrate is considered the gold-standard for induction of ovulation and has been used for several years to treat PCOS related infertility. Unfortunately, 15-40% of women with PCOS are resistant to Clomiphene Citrate. The study aimed to evaluate potential benefits of adding the active form of Coenzyme Q10 (Ubiquinol) to Clomiphene Citrate compared with Human Menopausal Gonadotropins (hMG) in Clomiphene Citrate resistant PCOS patients. 148 PCOS Patients with Clomiphene Citrate resistance were randomized into two groups (A and B). In group A, controlled ovarian stimulation was done by Clomiphene Citrate 150 mg daily (from 2nd till 6th day of cycle) together with Ubiquinol starting from 2nd day till day of hCG triggering in a dose of 100 mg orally once daily. In group B, hMG was given from 2nd day of the cycle in a dose ranging from 75 to 225 IU. Serial transvaginal ultrasonography was done starting on cycle day 8 and continued till size of leading follicle reaches 18 mm or more then ovulation triggering was

done. Thereafter, patients were advised for a timed intercourse (TI) after 36 hours. A blood sample was withdrawn seven days after hCG triggering, for measurement of serum progesterone. If the Patient presented with a missed period for one week, a serum sample was sent for -hCG.

RESULTS:

There were no statistically significant differences ($P > 0.05$) between studied groups regarding; number of cases reaching mature

follicular size, number of stimulated cycles, endometrial thickness on the day of hCG triggering, mid-luteal serum progesterone, positive serum pregnancy test and clinical pregnancy rate.

CONCLUSIONS:

Addition of Ubiquinol to Clomiphene Citrate improved ovarian responsiveness in Clomiphene Citrate resistant patients with results comparable to conventional hMG stimulation protocol.

- 148 PCOS patients with CC resistance.
- Divided into 2 groups: (1) 100mg Ubiquinol/day added to CC treatment compared; (2) hMG therapy group.
- The addition of Ubiquinol to CC improved the ovarian responsiveness in CC-resistant patients in terms of follicular growth to the size of the mature follicle, number of stimulated cycles, the endometrial thickness on the day of triggering, the luteal function and consecutively the pregnancy rate with results comparable to the conventional hMG stimulation protocol.

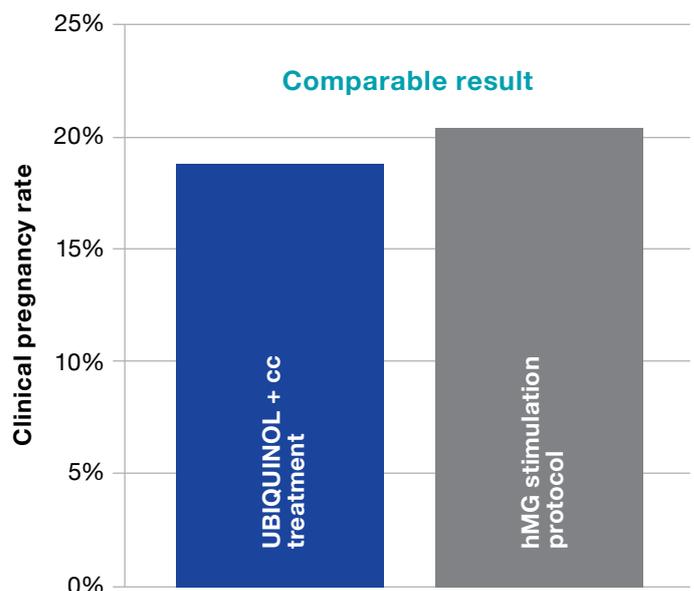


Figure 2. The clinical pregnancy rates of PCOS patents with CC resistance in two treatment groups. $p=0.77$

Ubiquinol supplementation increase FSH and LH levels among infertile females

Thakur et al., Ind J Clin Biochem, 31(3): 342–348, 2016

- 50 functional hypothalamic amenorrhea (FHA) infertile female patients, taken 150mg Ubiquinol daily for 4 months.
- After Ubiquinol treatment, the FSH level increased up to 3 times, and the LH level increased 2 times.
- This result might be due to reduced oxidative stress by Ubiquinol.

In neuroendocrine system the increase in oxidative status is produced by a glucocorticoid—dependent and transcriptional increase in pro-oxidative drive, with concurrent inhibition of the antioxidant defense system, ultimately leading to increased neuronal cell death. Functional hypothalamic disturbances and neuroendocrine aberrations have both short and long term consequences for reproductive health. Understandably, an impaired or diminished hypothalamic–pituitary–ovarian axis leads to anovulation and hypoestrogenism. Anovulation is directly linked to the neurohormonal and hormonal background of Functional Hypothalamic Amenorrhea. Impairment of pulsatile Gonadotropin Releasing Hormone secretion causes the impairment of pulsatile

Luteinizing Hormone (LH) and Follicle Stimulating Hormone (FSH) secretion. The importance of oxidative stress in various pituitary disorders suggesting a possible clinical usefulness of antioxidant molecules like the lipophilic antioxidant Ubiquinol. Coenzyme Q10 or Ubiquinol is an essential part of the cell energy-producing system of mitochondria. However, it is also a powerful lipophilic antioxidant, protecting lipoproteins and cell membranes from autooxidation. Due to these unique actions Ubiquinol is used in clinical

practice as an antioxidants for neurodegenerative diseases. So to identify the role of Ubiquinol on reproductive hormones FSH and LH, we have included 50 infertile patients of age group of 20–40, which are mostly amenorrhic. Out of 50 only 30 patients were in continuous follow up after supplementing them with 150 mg of Ubiquinol every day for 4 months. The hormonal levels were estimated by Enzyme Linked Immuno Sorbent Assay technique at follicular phase. The result suggests that FSH concentration is increased

up to three times (from 3.10 ± 2.70 to 10.09 ± 6.93) but remains within the normal limit ($P < 0.05$). LH values were found doubled ($P < 0.05$) than its normal range (from 14.83 ± 10.48 to 27.85 ± 22.30). The Prolactin values were decreased while Progesterone values were high but not in the significant range ($P > 0.05$). The supplementation of 150 mg of Ubiquinol may reduce the oxidative stress in neuroendocrine system which further improves the function of diminished HPA axis. Hence increased level of FSH and LH may be due to reduced oxidative stress by Ubiquinol.

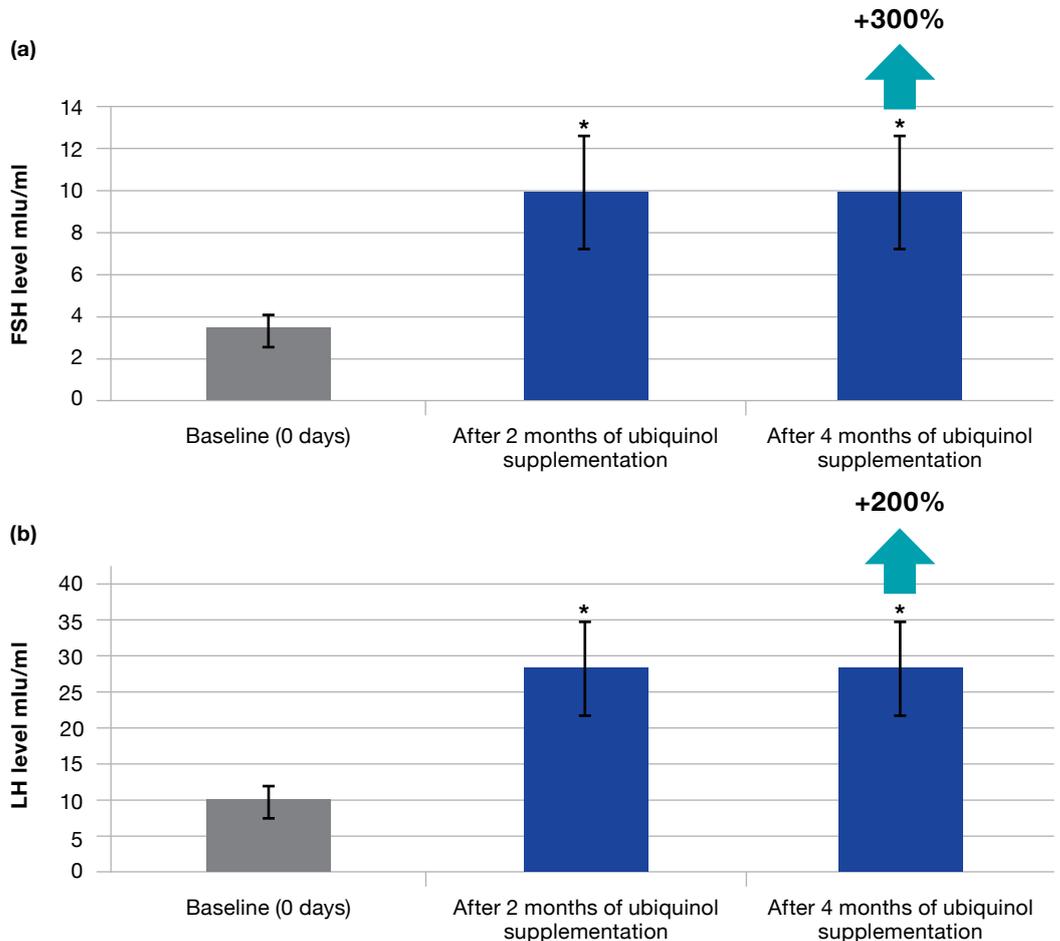


Figure 3. Showing the statistically significant levels of serum FSH (a) and LH (b) after Ubiquinol supplementation. * $p < 0.05$ vs baseline.

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To speak with one of our scientists or consulting healthcare professionals about how to best incorporate Ubiquinol in health protocols including fertility, heart health and energy production, email us via www.ubiquinol.net.au or hello@ubiquinol.net.au