

Does CoQ10 Improve Egg Quality & Age-Related Infertility?

by Kathryn Moloney ND. - Qualified Naturopathic Physician - Friday, February 17, 2017

<https://natural-fertility-prescription.com/egg-quality-coq10/>

Do [egg quality](#) CoQ10 go hand in hand? As any woman in their 30s or early 40s who wants to have a baby will know, your fertility and your egg quality gradually start to decline after about the age of 35. While you may have the best of intentions to conceive well before this happens, a busy life often gets in the way, and things don't always go to plan. So what happens when you find yourself in your late 30s or early 40s, wanting to conceive? Is it too late? Have you run out of eggs? And if not, are your eggs too old? For Natural Fertility specialists, the question isn't, 'Is it too late for you to conceive?' but rather, 'What can we do to support you to improve the quality of your eggs?' Our goal is to support women and couples by providing information and supplements to keep your eggs healthy. In this article, we'll explore egg quality, what CoQ10 is and how it can help you improve egg quality.

Egg Quality and Age-Related Fertility Decline

Theories that egg quality is the major issue in age-related fertility decline is backed up by recent data showing that egg donation significantly improves fertility rates. Research also shows that your uterus can adequately sustain pregnancies even when your reproductive potential is artificially prolonged into your late 40s.^[1] What does this mean for you? This means that more than age, your egg quality plays a big role in your fertility. As long as you have healthy eggs, you are more likely to become fertile! Why? because your egg quality correlates to its ability to get fertilized, implant and develop in the uterus.

What Do We Mean by the Quality or Health of Your Eggs?

The 'Quality' of an Egg Refers To:

1. Whether it has the correct number of chromosomes
2. Whether it has the potential to divide and develop into a fetus.

If an Egg Is of Poor Quality, It May:

1. Not fertilize
2. Fertilize, but not develop to the stage where it can implant in the uterus
3. Fertilize and implant, but still not be 'healthy and normal' enough to develop properly – [resulting in a miscarriage](#).

Mitochondrial Function and How Egg Health Decreases With Age

Science has given us some insights into why and how egg quality decreases as you age. If you stick with me for a few seconds, I'll give you a quick biology recap that will explain everything! Our bodies are all made up of tiny little cells. Muscle cells, nerve cells, skin cells, brain cells, kidney cells ... you get the picture. All the cells in your body contain **mitochondria**^[2]. Mitochondria are your cells 'source of power

– their ‘batteries’. They provide your cells with the energy they need to function. Mitochondria provide your body with energy by converting the food you eat into a form of energy (known as ATP) that your cells can use.

Egg Quality and Mitochondrial Function—How Are These Two Connected?

Your egg cells (also known as oocytes) have far more mitochondria in them than any other cells in the body. Oocytes contain 10-100 times more mitochondria than high-energy requirement cells like muscles and nerves^[3].

Why Does the Egg Have Far More Mitochondria Than Other Cells in the Body?

Oocytes have more mitochondria because, after a sperm fertilizes your egg, a significant amount of energy is required for the cells to divide and to support the critical events^[4] that are required to form an embryo.^[5] And the more energy, the better — in fact, studies have clearly shown there is a positive correlation between ATP levels in newly-formed embryos and successful embryo development.^[5]

Age-related Decline

What causes poor egg quality? Because mitochondrial function directly relates to egg quality, you can expect that an age-related decline in the mitochondrial function will also negatively affect your egg quality. Recent research indicates that the decline in **mitochondrial function** in the egg cell may be responsible for this age-related decline in egg quality.^[3]

Egg Quality & CoQ10

First of all, what is CoQ10? CoQ10 is a naturally occurring substance in the body. Considered a powerful antioxidant, CoQ10 plays an important function in the body, especially in the heart, pancreas, kidneys and liver. Low levels of CoQ10 in these body organs are linked to a number of chronic diseases^[6].

Types of CoQ10 in the Body

Two types of CoQ10 exist in the body. They are:

- Ubiquinone
- Ubiquinol

For the body to be able to use CoQ10, CoQ10 or ubiquinone is converted by the body to ubiquinol. Because of the link between chronic diseases, egg quality CoQ10, Coenzyme Q10 is now commercially available as a supplement. However, when it comes to supplementing with CoQ10 to 'treat' chronic medical conditions, experts believe that more research is needed.

Where Can You Get CoQ10?

The substance CoQ10 is naturally manufactured by your body, but it is also available in supplement form. Apart from the body and supplementation, CoQ10 can also be obtained through diet (although CoQ10 in

foods is much lower). Here are some of the foods which naturally contain CoQ10:

- meat (organ meats)
- fatty fish (tuna, mackerel, sardines, and salmon)
- vegetable oils
- eggs
- poultry

How Does CoQ10 Get Depleted in the Body?

Although CoQ10 is manufactured by the body, there are several factors which can lead to its depletion. Age, for instance, is one of the main contributors to CoQ10 decline in the body. Other things that may lower your CoQ10 levels include the following:

- heart disease
- cancer
- oxidative stress
- statin medication use (for heart disease)
- nutrient deficiencies
- genetic mutations

Coenzyme Q10 (CoQ10) Supplements to Improve Egg Health

Thankfully, we have tools in our belt to be able to support your mitochondria to improve their functioning and therefore improve your egg quality. Remember how I said that mitochondria convert the food you eat into ATP? During this process, it largely relies on Coenzyme Q10 (CoQ10), a very important piece of the puzzle. So, does CoQ10 help egg quality? Yes, it does!

Egg quality CoQ10: Benefits of CoQ10

There is an age-related decline in CoQ10 (it is also blocked by cholesterol-lowering medication) and researchers have worked out that CoQ10 supplements can restore energy production in your cells. Studies on animals show that mice of advanced maternal age who are treated with CoQ10 have:

- a significant increase in ovulated eggs after stimulation,
- as well as a significantly increased litter size.^[3]
- CoQ10 supplementation also decreases chromosomal abnormalities in embryos and increases pregnancy rate.^[7]

CoQ10 Dose for Fertility

If you've done any research on egg quality, you'll have probably heard about CoQ10 supplements (also known as ubiquinone or ubiquinol) and you might even take it – so now you know why. The current recommendation for CoQ10 intake is 90 to 200 mg of CoQ10 per day. However, depending on your individual condition, you may be prescribed up to 600 mg of CoQ10 per day for egg health. You will

need to speak with your fertility doctor about this.

Here Are 3 Factors to Consider When Taking CoQ10:

There are three important factors to consider when taking CoQ10 and other nutrients to improve fertility.

1. Can it help our case and condition(s)?
2. Is it a high-quality supplement?
3. Is it an appropriate/therapeutic dose?

There is little point in taking the wrong supplement, a poor-quality supplement or the wrong dose; you will just be wasting your money. Have a chat with your Naturopath, to ask about practitioner-grade supplements, which CoQ10 is best for fertility and the dose that is right for you and your individual situation. There is a range of other nutrients that may also improve your egg quality, so please speak to your Natural Fertility specialist about what specific nutrients will be most beneficial for you.

Another Piece to the Puzzle: Oxidation

Oxidative stress (OS) is another piece of the egg quality puzzle. OS is the name for the damage caused to your cells when there are not enough antioxidants in your body to mop up excess free radicals. Scientists have found that OS can damage the egg cells in developing follicles.

Free Radicals and Oxidative Stress

As part of the mitochondrial energy production process we spoke of before, free radicals form naturally. Free radicals also come from external sources, such as drinking alcohol and coffee, smoking cigarettes, and exposure to environmental pollutants^[8] (air pollution, chemicals in cleaning products and personal care products, radiation from electronic devices, solar radiation from the sun, and so on).^[9]

OS and Antioxidants

Antioxidants are nutrients that mop up excess free radicals in the body, therefore decreasing oxidative stress. Such antioxidants are Vitamin C & E, selenium and zinc (and CoQ10) and can be found in fruit, vegetables and wholefoods. **How about melatonin? Does melatonin help egg quality?** Research into melatonin (another antioxidant) has found that it mops up OS damage and therefore improves egg quality and increases fertilization rates.^[10] Research suggests that [eating a varied diet](#) (supplemented with multivitamins), [limiting your consumption of caffeine](#) and [alcohol](#), and maintaining a healthy body weight may help improve your fertility.^[8]

4 Tips: How to Boost Egg Quality Through Fertility Diet and Lifestyle Changes

Given the link between oxidative stress and poor egg quality, improving egg health includes diet and lifestyle changes that help in decreasing oxidative stress in your body.

1. Reduce Your Exposure to Free Radicals

- Limit your intake of caffeine and alcohol
- [Avoid sugar](#)
- [Change your personal care and cleaning products](#) to natural brands
- Invest in a good quality water filter
- Stay away from fried food
- Be safe in the sun – moderate amounts of sun exposure are important for Vitamin D, but don't let yourself fry
- Avoid smoking – cigarettes cause damage to ovarian function^[8]
- [Reduce stress](#)
- If you live in the city, spend some time outside in nature – [air pollution](#) is a major source of free radicals, so do yourself a favor and head to the bush and breathe in some clean fresh air once in a while

2. Increase Your Intake of Antioxidants

- Try to eat some high-antioxidant foods every day. Doctors recommend two fruit and five vegetables daily. Flavonoids are antioxidants and are found in the skin of brightly colored fruit and vegetables such as berries, cherries, carrots, tomatoes and green leafy vegetables.
- Switch your coffee and black tea for healthy drinks such as herbal teas, fresh juices and smoothies.
- Use fresh herbs and spices in your cooking. If your food smells good and fragrant, it's more likely that it will be high in antioxidants, too. Try herbs and spices like turmeric, cinnamon, basil, oregano, parsley and ginger.
- Take high-quality supplements – speak to your Naturopath about the specific antioxidants that will work best for your case
- Doesn't red wine contain antioxidants? Well yes, it contains resveratrol – but unfortunately, not in quantities high enough to outweigh the negative impacts of the alcohol. Sorry!

3. Sleep Soundly

Aim for 8-9 hours of good quality sleep per night. Remember the research about Melatonin being a powerful antioxidant? Melatonin is released in the body in peak amounts at night, when it's dark. That's right – hit the sack early and your free radicals will be mopped up while you sleep!

4. Use Your Energy Wisely

- It's important not to use up all of your energy reserves each day so that you still have some left for repairing your body at night. A useful rule of thumb is to try and only use up 75% of your energy each day.
- Exercise. [Regular exercise has so many benefits](#) – stress management, increased circulation, better moods, better blood-sugar regulation and muscle toning. Try to get active for 30 minutes most days of the week.

What are your thoughts about these strategies to improve egg quality? What has been your experience? We'd love to hear from you.

References

- [1]Navot, D., Bergh, R. A., Williams, M. A., Garrisi, G. J., Guzman, I., Sandler, B. E. N. J. A. M. I. N., & Grunfeld, L. A. W. R. E. N. C. E. (1991). Poor oocyte quality rather than implantation failure as a cause of age-related decline in female fertility. *The Lancet*, 337(8754), 1375-1377. Retrieved from: <https://www.ncbi.nlm.nih.gov/pubmed/1674764>
- [2]Vidyasagar, A. (2015, April 30). What Are Mitochondria?. In *Live Science*. Retrieved from: <https://www.livescience.com/50679-mitochondria.html>
- [3]Bentov, Y., & Casper, R. F. (2013). The aging oocyte—can mitochondrial function be improved?. *Fertility and sterility*, 99(1), 18-22. Retrieved from: [https://www.fertstert.org/article/S0015-0282\(12\)02443-0/fulltext](https://www.fertstert.org/article/S0015-0282(12)02443-0/fulltext)
- [4]Hill, M.A. (2020, January 26). Embryology Embryonic Development. Retrieved from https://embryology.med.unsw.edu.au/embryology/index.php/Embryonic_Development?
- [5]Chappel, S. (2013). The role of mitochondria from mature oocyte to viable blastocyst. *Obstetrics and gynecology international*, 2013. Retrieved from: https://www.researchgate.net/publication/237824055_The_Role_of_Mitochondria_from_Mature_Oocyte_to_Viable_Blastocyst
- [6]Hernández-Camacho, J. D., Bernier, M., López-Lluch, G., & Navas, P. (2018). Coenzyme Q10 supplementation in aging and disease. *Frontiers in physiology*, 9, 44. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5807419/>
- [7]Bentov, Y., Hannam, T., Jurisicova, A., Esfandiari, N., & Casper, R. F. (2014). Coenzyme Q10 supplementation and oocyte aneuploidy in women undergoing IVF-ICSI treatment. *Clinical Medicine Insights: Reproductive Health*, 8, CMRH-S14681. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4071761/#>
- [8]Ruder, E. H., Hartman, T. J., & Goldman, M. B. (2009). Impact of oxidative stress on female fertility. *Current opinion in obstetrics & gynecology*, 21(3), 219. Retrieved from: <https://insights.ovid.com/pubmed?pmid=19469044>
- [9]Agarwal, A., Gupta, S., & Sharma, R. K. (2005). Role of oxidative stress in female reproduction. *Reproductive biology and endocrinology*, 3(1), 28. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1215514/>
- [10]Tamura, H., Takasaki, A., Miwa, I., Taniguchi, K., Maekawa, R., Asada, H., ... & Morioka, H. (2008). Oxidative stress impairs oocyte quality and melatonin protects oocytes from free radical damage and improves fertilization rate. *Journal of pineal research*, 44(3), 280-287. Retrieved from: <https://onlinelibrary.wiley.com/doi/10.1111/j.1600-079X.2007.00524.x>

Does CoQ10 Improve Egg Quality & Age-Related Infertility? - 02-17-2017

by Kathryn Moloney ND. - Qualified Naturopathic Physician - Natural Fertility Prescription - <https://natural-fertility-prescription.com>

Related Articles

- [6 Tips on How to Improve Egg Quality](#)
- [Improve Egg Quality: Is What You Are Eating Making Your Eggs Old?](#)
- [Phthalates and Fertility = Poor Egg Quality and Early Menopause?](#)
- [EM Radiation and Fertility – 10 Steps to Protect Your Eggs and Sperm](#)