

Supplements: How to Maximize Your Egg Quality

LIFESTYLE MATTERS: Sleep well, quit smoking, and minimize caffeine to one cup of coffee a day.

DIETARY SUPPLEMENTS: Take them for 2-6 months to be effective. (If they're going to work, pregnancy should happen quickly, so six months is a reasonable trial period.) Though we remain hopeful that taking these supplements will maximize your eggs' quality, please be aware that none have been proven in scientific randomized controlled trials to be effective.

Discontinue these supplements if any side effects occur, as none are expected. No prescriptions are required.

The supplements are:

- CoEnzyme Q10 up to 800mg/d
- Myo inositol 2g twice a day
- Melatonin up to 3mg at bedtime...
unless you are taking thyroid medication
- Omega 3 fatty acid 1000mg once a day
- Vitamin C 500mg once a day, in the morning
- Vitamin E 200IU once a day
- Pycnogenol 100mg once a day
- L'arginine 1000mg twice a day

In our opinion, CoEnzyme Q10 is the most important of the supplements. If you're only going to take one, take this one.

We didn't include the androgen DHEA 75mg/d on the list, as the side effect profile includes acne and male pattern hair loss, and the efficacy is in doubt.

Patients may consider acupuncture and traditional Chinese medicine. Again, we suggest a minimum of two months but maximum of six.

A final supplement to maximize egg quality, Saizen, is taken as a series of injections during a stimulation cycle. Ask your nurse if you need to know more.

Discontinue all supplements with a positive pregnancy test. Always take a daily prenatal vitamin with 1mg folate.

LIFESTYLE

To some degree, maximizing egg quality is based on maximizing your overall health. The quickest and surest route for most of us to improve our health is to improve our sleep hygiene. That might be as simple as going to bed on time. But, for others, it might be more complicated: including minimizing screen time before we go to bed, and other rituals to help us get sufficient sleep.

That idea that cutting all caffeine will specifically increase egg quality isn't really backed up by science. That said, most research suggests minor amounts of caffeine are safe, but fertility decreases with significantly higher doses. Certainly four cups per day of coffee would be too much. We encourage people to consider limiting themselves to one cup per day, with decaffeinated drinks to follow.

Of all lifestyle changes, quitting smoking is by far the most helpful choice, well beyond any of the supplements we've mentioned.

The relationship of alcohol to egg quality is somewhat controversial. We know that drinks per day is too much, for example, but we aren't certain if there is a minimum "safe" amount.¹ Fertility can be stressful; if you find yourself frequently tempted to drink or smoke, please ask for help.

COENZYME Q10 UP TO 800mg DAILY

Coenzyme Q10 (also distributed in the form Ubiquinone) is part of a family of mitochondrial nutrients that protect us from the oxidative damage that occurs with time. Mitochondria are energy-producing organelles that are critical to healthy functioning of your developing eggs. So we hope that Coenzyme Q10 will increase both ovarian reserve and egg quality.²

The side effect profile should be negligible, though this increased energy activity can promote gastrointestinal upset. Try taking the vitamin on a full stomach. Others will find that a reduced dose will minimize the side-effect profile. As the suggestion of 800mg daily has not come from randomized control trials, but rather animal studies, it is reasonable to expect that different women will do better with

different doses. Consider 800mg daily a maximum; 200mg would be a reasonable minimum.

Coenzyme Q10 can be found at many pharmacies and health food stores.

MYO-INOSITOL 2 GRAMS TWICE A DAY

Inositol was first suggested for women with polycystic ovaries—a condition that may be associated with lower egg quality. It is thought that Myo-Inositol increases the action of insulin, and insulin may have substantial effects on ovulation. A single study suggests that women who take 2g of Myo-Inositol twice a day had better quality eggs, more mature eggs, and more pregnancies than the control group. (The other version of Inositol, D-Chiro-Inositol, is significantly less effective.)³

Myo-Inositol appears to be difficult to source in the GTA, though some of our patients have had success ordering it through iherb.com.

MELATONIN UP TO 3mg AT NIGHT

Melatonin promotes good sleep hygiene. Sleep may be more difficult to achieve if Coenzyme Q10 is having a significant effect late at night. **PLEASE NOTE:** *melatonin will interfere with thyroid medications and thus should not be taken by women who are taking thyroid supplements. Most women can take less than 3mg every evening.*

OMEGA-3 FATTY ACID 1000mg ONCE DAILY

Omega-3 fatty acids are one of the key ingredients in fish oil. Some research suggests that Omega-3s could help women through pregnancy, with a lower rate of premature births. It may also be associated with a reduced chance for pregnancy-induced hypertension (PIH).

VITAMIN C 500mg, VITAMIN E 200 IU, AND PYCNOGENOL 100mg ONCE DAILY

These are all antioxidants, the strongest of which is Pycnogenol—by some accounts, twenty times stronger than Vitamin C and fifty times stronger than Vitamin E.

Antioxidants may help diminish the toxic effects

of oxygen-free radicals that can accumulate in the follicular fluids surrounding eggs.

Pycnogenol can be difficult to source. For most women, Vitamin C and E will be sufficient.

L-ARGININE 500mg – 1000mg TWICE DAILY

L-Arginine is an amino acid that may help maximize pelvic blood flow.

Amino acids are found in red meat, and if your diet includes red meat up to two times a week, then this supplement shouldn't be necessary.

ANDROGENS

Current research (www.pubmed.gov) is quite supportive of supplemental androgens. Higher androgen levels may help to maximize follicular health and thus the quality of eggs.⁴

Many people have suggested the androgen DHEA, up to 75mg. However, in our practice, we did not see results so much as side effects, acne being the earliest physical change noted. As none of the above supplements have been sufficiently proven in rigorous randomized control trials to be effective, we don't think side effects are worth it. In other words, we do not suggest DHEA on a regular basis. However, if it's a supplement you wish to try, we're willing to write the prescription for you.

For our patients who are doing in vitro fertilization, there are some protocols that involve taking testosterone gels in the month leading up to treatment. Again, we are cautious about this approach, but in select circumstances we may suggest "estrogen/testosterone priming".

GROWTH HORMONE

Research in favour of growth hormone is limited, but the few papers that do exist point to a potential benefit associated with supplementation throughout the stimulation in an IVF cycle. If this is of interest to you, let us know, and we can forward you a separate paper describing the efficacy and limitations of the Saizen protocols.

TWO MORE SUPPLEMENTS OF NOTE

Historically, we have turned to Folate to promote cell development. Folate 1mg daily is the current mini-

mum recommended by the Society of Obstetrics and Gynaecology of Canada, and some doctors suggest 5mg daily. Because of the presumed beneficial effect for eggs, we looked seriously at 5mg of Folate for the majority of our patients. However, extended high-dose Folate may promote other cellular growth that is not desirable, such as early cancer cells. Please be aware, it is a theoretical risk only! It's not proven; but we prefer to be cautious.

We now do a serum Folate level for all of our new patients. The vast majority of our patients, on 1mg of Folate daily, will have Folate levels well above serum norms. If you deviate from that pattern, we will encourage you to take higher doses of prenatal vitamins.

Historically, women were also encouraged to take ASA 81mg per day to maximize blood flow and egg quality. The more recent literature suggests that ASA is ineffectual under all circumstances with regards to fertility.⁵

ACUPUNCTURE AND TRADITIONAL CHINESE MEDICINE

We aren't able to differentiate the "best" practitioners of acupuncture. We do not know who has good quality control mechanisms in place, best practices for minimizing cross contamination, or who provides the most efficacious treatments.

However, we have had the opportunity to meet with a number of practitioners in the field, all with a special interest in fertility. The following list includes practitioners and clinics that we have met personally.

¹ Rossi BV, et al *Obstet Gynecol.* 2011 Jan;117(1):136-42

² Bentov, Y, et al *Fertil Steril.* 2010 Jan;93(1):272-5. Epub 2009 Sep 3

³ Unfer V., et al, *Eur Rev Med Pharmacol Sci* 2011; Apr. 15(4):452-7

⁴ Bosdou, JK et al. *Hum Repro Update.* 2012 Feb 3. [Epub ahead of print]

⁵ Kaandorp Spn *Engl J Med* 2010 Apr. 29; 362(17): 1586-96