



What is egg quality?

Egg quality refers to the health and developmental potential of an egg. Good egg quality is essential for successful fertilization, implantation, and pregnancy. A healthy egg contains all the necessary genetic information and nutrients required for a fertilized egg to divide and develop into an embryo. As women age, the number of eggs they have and the quality of those eggs decline. This decline in egg quality can increase the risk of chromosomal abnormalities, and can lead to lower pregnancy rates and a higher risk of miscarriage.

How can I know if I have poor egg quality ?

There is no validated scientific method to accurately measure egg quality prior to conception or prior to a fertility treatment cycle. Your doctor might express concerns with your egg quality if you have done an IVF cycle that resulted in poor blastocyst development. Women over age 35 years old are generally suspected to have decreased egg quality given their age.

How long does it take to improve egg quality?

Improving egg quality is a gradual process, and the time it takes to see improvements can vary depending on several factors, including the individual's age, overall health, and the cause of the egg quality issue.

It typically takes around 90 days for eggs to mature and be released for ovulation.

Therefore, it's generally recommended to give yourself at least 3-4 months to make lifestyle changes and implement dietary and supplement strategies to improve egg quality.

It's important to note that while improving egg quality is possible, it may not be possible to completely reverse age-related decline in egg quality. Therefore, it's important to speak with your MFC fertility specialist for personalized advice and recommendations.

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What factors can affect egg quality ?

Factors that affect egg quality include age, genetics, lifestyle, and underlying medical conditions.

Other factors that can affect egg quality include smoking, excessive alcohol consumption, poor nutrition, exposure to toxins.

How does smoking affect egg quality?

Smoking can have a negative impact on overall fertility and potentially affect egg quality. Smoking can cause damage to DNA and cells in the body, including the ovaries and eggs, which can lead to decreased egg quality and quantity.

However, the good news is that quitting smoking can potentially improve egg quality and overall fertility. Studies have shown that women who quit smoking may experience improved fertility within months, and the risk of infertility and miscarriage decreases over time.

Additionally, quitting smoking can have numerous other health benefits, including reducing the risk of cancer, heart disease, and other health issues.

What can I do to maximize my egg quality ?

While egg quality is mostly determined by the age of the patient producing the eggs, there are some things you can do that can have a positive impact on your egg quality such as sleep, nutrition, taking fertility vitamins and supplements.

How does sleep affect egg quality?

Sleep can have a significant impact on egg quality as it is essential for the body to repair and regenerate cells, including the cells that make up eggs. Lack of sleep, on the other hand, can lead to oxidative stress and inflammation, which can damage the DNA of the egg and lead to poor egg quality.

What can I do to improve my sleep to support my fertility journey?

Here are 7 tips on how to improve your sleep:

1. Stick to a regular sleep schedule: Try to go to bed and wake up at the same time every day, even on weekends.
2. Create a relaxing bedtime routine: Develop a soothing routine to help you wind down before bedtime, such as taking a warm bath, reading a book, or listening to calming music.
3. Make your bedroom comfortable: Keep your bedroom cool, dark, and quiet, and invest in a comfortable mattress and pillows.
4. Limit exposure to screens before bed: The blue light emitted by electronic devices can interfere with your sleep. Try to avoid using screens for at least an hour before bedtime.
5. Avoid caffeine and alcohol: Caffeine can keep you awake, while alcohol can disrupt your sleep cycle. Try to avoid consuming either of these substances close to bedtime.
6. Exercise regularly: Exercise can improve the quality of your sleep, but try to avoid vigorous exercise close to bedtime.
7. Manage stress: Stress can make it difficult to fall asleep and stay asleep. Try relaxation techniques such as deep breathing, meditation, or yoga to manage stress.

Can diet affect egg quality?

Absolutely! Your diet can play a crucial role in improving egg quality. A healthy and balanced diet can provide the necessary nutrients and vitamins to support healthy ovulation and egg development.

Here are some best dietary practices to support egg quality:

- **Eat a balanced diet:** A balanced diet that includes a variety of fruits, vegetables, whole grains, lean protein, and healthy fats can provide the nutrients needed for optimal fertility.
- **Consume folate-rich foods:** Folate is important for healthy fetal development, and deficiency can increase the risk of birth defects. Foods high in folate include leafy green vegetables, beans, and fortified cereals.
- **Increase intake of omega-3 fatty acids:** Omega-3 fatty acids can have a positive impact on egg quality. Good sources of omega-3s include fatty fish such as salmon, walnuts, and chia seeds.
- **Limit intake of processed foods and sugar:** Processed foods and sugar can lead to inflammation and insulin resistance, which can negatively impact fertility. Choose whole foods instead.
- **Drink plenty of water:** Staying hydrated is important for overall health, including reproductive health.
- **Limit caffeine and alcohol intake:** High caffeine and alcohol intake have been linked to decreased fertility. It is recommended to limit caffeine to 200mg per day and to avoid alcohol altogether when trying to conceive or have 1-2 glasses of wine a week if not pregnant.
- **There is no evidence to avoid gluten or dairy unless you know you have celiac disease or have lactose intolerance.**

The Mediterranean Diet and fertility

The Mediterranean diet is the only dietary regimen that has been studied in the context of improving fertility and reproductive outcomes. The diet emphasizes whole foods such as fruits, vegetables, whole grains, legumes, nuts, and seeds, as well as healthy fats such as olive oil and fatty fish. Here are some ways that the Mediterranean diet may improve fertility:

1. **Reduced inflammation:** The Mediterranean diet is rich in anti-inflammatory foods such as fruits, vegetables, and fatty fish, which can help reduce inflammation in the body. Chronic inflammation has been linked to decreased fertility.
2. **Improved insulin sensitivity:** The Mediterranean diet is also low in processed foods and refined sugars, which can help improve insulin sensitivity. Insulin resistance has been linked to decreased fertility and an increased risk of conditions such as PCOS.
3. **Increased intake of antioxidants:** The Mediterranean diet is high in antioxidant-rich foods such as fruits, vegetables, and nuts, which can help protect against oxidative stress. Oxidative stress can damage reproductive cells and decrease fertility.



What are endocrine disruptors and how do they affect egg quality ?

Endocrine disruptors are chemicals that interfere with the normal function of hormones, potentially leading to adverse health effects. Exposure to certain endocrine disruptors has been linked to a negative impact on egg quality, which can affect fertility and pregnancy outcomes. Bisphenol A (BPA) and phthalates are two endocrine disruptors that have been shown to impact fertility and increase the risk of miscarriage.

BPA is commonly used in plastic containers and some forms of paper, such as receipts. Phthalates are commonly found in personal care products, fragrances, and plastics. It's important to note that these chemicals are prevalent in North America and measurable levels of BPA and phthalates are present in almost all adults. However, high levels of exposure have been associated with adverse effects on fertility.

What can I do decrease my exposure to BPA and phthalates?

1. Replace plastic kitchenware that comes into contact with hot food or drinks, such as plastic blenders used for hot soups, plastic tea kettles, and plastic microwave-safe bowls.
2. Use a stainless steel water bottle instead of a plastic one.
3. Decrease consumption of canned and highly processed foods, as these can be a source of BPA.
4. Use phthalate-free nail polish.
5. Replace hair and skin care products, as well as cleaning products, with fragrance-free or phthalate-free alternatives.

It's important to note that both men and women should take steps to reduce their exposure to BPA and phthalates, as these chemicals can affect the function of both human eggs and sperm.

Additionally, it's recommended to continue minimizing BPA exposure during pregnancy to protect the developing fetus.

Can I take supplements to improve egg quality ?

Supplements can be a helpful tool for improving egg quality. Below you will find a list of supplements that have been studied to improve egg quality in human studies.

It is essential to exercise caution when taking supplements, as they are not regulated like prescription medications. To ensure that you take high-quality and effective supplements, choose reputable brands independently certified by third-party organizations such as NSF International, United States Pharmacopeia (USP), or ConsumerLab.com. These certifications ensure that the supplement has been independently tested for purity, potency, and quality.

Always read the ingredients label carefully and look for high-quality, pure ingredients free from contaminants. It's important to remember that supplements should not be relied upon as a replacement for a healthy diet and lifestyle, and should always be taken under the guidance of a physician or healthcare provider.

All women trying to conceive should take prenatal vitamin daily containing at least 800mcg of folic acid, Vitamin D 2000 IU a day and omega 3 1500 mg a day. These three micronutrients should continue in pregnancy.

Supplements that have been shown to have a positive impact on egg quality :

1. Coenzyme Q10

- CoQ10 has been shown increase energy production in the mitochondria and improve egg quality
- Fat soluble and best absorbed with meals
- Divide in 200 mg doses for better absorption.
- Dose is 400 of ubiquinol or 600 mg of ubiquinone (Ubiquinone has to be converted to biologically active ubiquinol)
- Some people might experience trouble sleeping when taking CoQ10 at night.
- Start CoQ10 when you start trying to conceive and stop when pregnant or stop at time of embryo transfer while waiting for beta. If beta positive, discontinue use. If beta negative, resume use of CoQ10.

Supplements continued...

1. Vitamin E

- Fat-soluble antioxidant and best taken with meals to improve absorption
- Dose of 200 IU a day
- Do not take if also taking ASA since it adds to the anti-clotting effect
- It has also been shown to help in the development of uterine lining in preparation for embryo transfer

2. Alpha-lipoic acid

- It is found naturally in mitochondria, where it assists with the energy production of the cell
- Caution: might lower thyroid hormone and might lower BS in diabetics
- 400-600 mg a day
- Excellent for patients with PCOS in combination with myo-inositol
- Take on an empty stomach, 30 min before or 2 hrs after eating

3. N-acetylcysteine

- Thought to help improve egg quality in women with PCOS
- Dose of 600 mg to 1200 mg a day

4. Myo-inositol

- For women with PCOS, it can restore ovulation, improve the proportion of mature eggs in IVF
- 4 g a day divided, 2 g in the am and 2 g in pm
- Take with caution if also taking metformin as it can cause blood sugar to be low

5. Melatonin

- 1.5 mg or 3 mg qhs.
- Only if not taking thyroid meds
- Take 1 to 3 months before IVF, do not take routinely.
- Recommended for women with known egg quality issues who have failed IVF or had poor fertilization rates.
- May cause daytime drowsiness or irritability.

6. Tru niagen (NAD) (nicotinamide adenine dinucleotide)

- NAD+ helps create cellular energy and support cellular repair
- 300 mg a day
- Can cause insomnia, better to take with food in the am
- Start 1-3 months before IVF and stop when pregnant.

All supplements above can be discontinued if you did an IVF cycle and are satisfied with the number of healthy embryos created or when pregnancy has been established. If you are considering doing more IVF cycles, you should stay on the supplements if you are able to tolerate them well.