

# Contraceptive Options for Women with Migraine

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Migraine is very common in women of child-bearing age. Many of those same women need or want contraception, or may have other conditions, such as irregular menstrual cycles, severe dysmenorrhea, ovarian cysts, or polycystic ovarian syndrome, that are commonly treated with estrogen-containing contraception. Is it safe for women with migraine to take an estrogen-containing form of contraception? Are there certain dosages or formulations that may be preferable for women with migraine? Lastly, should we be managing women who have migraine with aura differently than women without aura?

The combined hormonal oral contraceptive (COC) pill is the most common form of oral contraception. The pill contains ethinyl estradiol (EE) and a progestin, which are both synthetic hormones that are better absorbed and slower metabolized than their naturally occurring versions, estradiol and progesterone. The progestin-only pill commonly referred to as the “mini-pill” is less commonly used.

Hormonal contraceptives differ from menopausal hormone therapy (MHT), which was previously called

hormone therapy (HT). Contraceptives work by blocking ovulation and changing the cervical mucus and lining of the uterus. MHT contains a lower dose of estrogen and progesterone, which is not sufficient to block ovulation and prevent pregnancy. This difference needs to be taken into account when making treatment decisions, especially in women who are still menstruating and at risk of pregnancy.

Studies and medical literature do not clearly support the use of contraceptives to prevent migraine. Non-hormonal preventive agents such as the anti-epileptic drugs, beta-blockers, antidepressants and the new calcitonin gene-related peptide monoclonal antibodies (CGRP mABs) should be the mainstay of treatment for women needing a daily preventive for migraine. However, for women who need or want contraception, using a monophasic low-dose COC continuously could help the migraine condition by keeping estradiol levels relatively steady. Monophasic refers to COCs which have the same amount of ethinyl estradiol and progestin in each active pill in the pack. Preparations where hormone levels vary throughout the month, called biphasic and triphasic, are best avoided in the woman with migraine.



An effective method is to take a monophasic COC pill with a low dose of ethinyl estradiol daily and use packs back-to-back, skipping the placebo pills. This presents a relatively stable source of ethinyl estradiol daily to the brain. Better yet is the combined hormonal vaginal ring that releases an even lower dose of estrogen consistently over the three-week period. With pills, on the other hand, plasma levels fluctuate over the course of the day, going up when a patient takes a pill and down again. Pills are also best used continuously, skipping the placebo days.

The only risk to continuous back-to-back pills or rings is the risk of uterine spotting. When the lining is not regularly sloughed it becomes unstable. What is typically recommended is to encourage women to tolerate the irregular spotting/bleeding until it becomes too much of a burden. Then she should go off for 4-7 days (shorter times are preferred), let the uterus bleed, and then get back on the continuous pills or ring. Although the ring is good for 21 days—even when it's been removed briefly—it's probably better to time the break in between rings.

**Increasingly lower dosages of ethinyl estradiol containing contraception have become available, including 10-20 mcg as oral preparations and the vaginal ring, which releases 15 mcg of ethinyl estradiol daily. There is also a new vaginal ring that releases only 13 mcg of ethinyl estradiol daily. These lower preparations come with a lower risk of ischemic stroke. A review paper published in Headache 2018 [1] found that the odds ratio (OR) for ischemic stroke in women with migraine to be as follows:**

1. OR ischemic stroke 50 mcg ethinyl estradiol 2.9-4.8
2. OR ischemic stroke 30-40 mcg ethinyl estradiol 1.6-2.7
3. OR ischemic stroke 20 mcg ethinyl estradiol 1.7
4. OR ischemic stroke progestin-only pills .9-1.0

Significantly, ischemic stroke is much higher in women with aura (OR 6.1) if using COC compared only 1.8 OR for women without aura who used COCs within 90 days prior to the first diagnosis of stroke. [1] The risk is even higher in women with aura who smoke and use COC.

Unfortunately, there is no uniform consensus on this issue when comparing recommendations from the World Health Organization (WHO), The American College of Obstetricians & Gynecologists (ACOG), and The International Headache Society (IHS). The WHO recommends that women with migraine with aura avoid combination contraceptive use [2]. The ACOG recommends using alternative forms of contraception in certain populations of women, including women over 35 years who smoke and women with migraine headaches. In addition, ACOG considers migraine with aura to be a complete contraindication for the use of COC [3]. The IHS advises that low-dose estrogen may be prescribed in women who have simple visual aura [4]



Women with migraine with aura who desire contraception have the option of a progestin-only pill and non-pill contraception: the progestin implant or Depo medroxyprogesterone acetate (DMPA) injectables, which suppress ovulation without the ethinyl estradiol exposure. In addition, there are four intrauterine devices (IUDs) that release daily amounts of levonorgestrel, a progestin, without ethinyl estradiol, as well as a non-hormonal IUD called ParaGard (U.S. model) that contains copper.

**Screening questions for women with migraine wanting contraception may include:**

1. Is there a clotting disorder or a history of deep venous thrombosis (DVT)?
2. Are there risk factors for a stroke or DVT such as smoking, obesity, low high density lipoprotein (HDL) level, family history (FH) of heart or stroke at less than 60 years old, high blood pressure?
3. Does the woman ever experience aura; if so, how often, for how long, and what type of aura.

In clinical practice, low dose COCs are appropriate in the majority of women with migraine without aura who do not smoke and have no major stroke risk factors. However, COCs should be used for medical reasons and not initiated purely for potential migraine prevention. Once a woman with migraine is on a COC, appropriate follow-up is important to monitor the pattern of migraine attack. Also, the patient should be counseled to report any new onset aura symptoms or changes in her cardiovascular risk. If a woman with uncomplicated visual aura is put on COCs, she needs to be advised to report any worsening of her auras. New-onset aura or worsening of an underlying aura condition may necessitate stopping the COC and instituting appropriate evaluation.

Close collaboration among all healthcare providers is essential in caring for this large population of women with migraine who need or want contraception.

**References**

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