

What do you say about caffeine, conception, and pregnancy?

Do you tell patients to cut out the caffeine when they're pregnant or attempting to conceive? Take the INSTANT POLL on page 15 and at www.obgmanagement.com



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She's hypercaffeinated, and she's planning to conceive!

Is the patient placing herself at increased risk of miscarriage? The TV tells her that she is.

A 35-year-old woman, gravida 0, has come in for an appointment with you for her annual exam. She is getting married in 6 months and plans to attempt to conceive immediately afterward. Her body mass index (BMI) is 27. She reports that she neither smokes cigarettes nor drinks alcohol, but she does drink four approximately 8-oz cups of caffeinated coffee a day.

"Will my coffee consumption hurt my chances of getting pregnant," she asks, "or harm my baby while I'm pregnant?"

The patient consumes no other caffeinated foods or drinks. What do you tell her?

Every week, patients and clinicians are bombarded by television news reports about the risk of various environmental exposures to the developing fetus. These 15- to 60-second "science" reports are usually based on recently published research studies, but they tend to simplify vastly more complex stories. These days, caffeine is in the public spotlight as a risk to pregnancy.

Study: Miscarriage rate rises with caffeine intake

Recently, news media reported that consuming caffeine, even in a small amount (e.g., from 1 to 2 cups of coffee a day) may increase a woman's risk of miscarriage (spontaneous abortion). This announcement in the press was based on a published study by Weng and colleagues¹ of 1,063 women who had a positive pregnancy test and who were interviewed at

approximately 10 weeks' gestation about their exposures—including coffee intake, a major dietary source of caffeine (TABLE 1).

The researchers reported that, after accounting for many potential confounding variables, the subgroup of women whose caffeine intake was as high as 200 mg/day had a 42% increase in the risk of miscarriage compared with a control group of women who did not consume caffeine. Women whose intake was greater than 200 mg/day had a 123% increase in the risk of miscarriage—again, compared with women who did not consume caffeine.

What news reports did not mention were several methodologic issues that might have tempered interpretation and news reporting of the results:

TABLE 1

How much caffeine is in it? A sampling

BEVERAGE	CAFFEINE CONTENT*
Brewed coffee (8 oz)	130 mg
Instant coffee (8 oz)	75 mg
Brewed tea (8 oz)	50 mg
Cola beverage (12 oz)	40 mg
Hot cocoa (12 oz)	10 mg
FOOD	
Dark chocolate (1.5 oz)	30 mg

*Approximate.

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FAST TRACK

The group of women who ingested as much as 200 mg/day of caffeine had a 42% higher risk of miscarriage than did women who stayed caffeine-free

- Overall, women who reported daily intake of caffeine above 200 mg were significantly older than women who did not consume caffeine; advancing maternal age is, of course, a major correlate of increased risk of miscarriage.
- Women in the study who had a miscarriage before their interview were not excluded from the study. These women might be exhibiting reporting bias and over-report their exposure to coffee.
- Only 40% of eligible women agreed to participate in the study.

But a second study got little attention from the media

At the same time that Weng's newsworthy investigation was published, Savitz and colleagues reported on their study of 2,407 women who had a positive pregnancy test and who were interviewed about their exposures, including coffee consumption.² In this study, the researchers observed *no increased risk* of miscarriage related to caffeine exposure. The study was limited by the fact that few subjects consumed caffeine in the range of 500 mg/day, which limited investigators' ability to assess the impact of a very high level of caffeine consumption on miscarriage.

The point, however, is that this study, which shows that modest caffeine intake is not a major modifier of miscarriage risk, wasn't widely reported in the lay press.

With reports in conflict, what should you tell her?

One option is to gather more information. We should take into account, for example, a review of 15 major studies of the impact of caffeine intake on miscarriage,³ which found that

- the data from those 15 studies were of poor quality
- consequently, no definitive conclusion could be reached about caffeine and miscarriage.

Based on available data, however, it is *likely* that moderate intake of caf-

Fertility may take a hit from caffeine, too

In addition to the potential for a modest increase in pregnancy loss, a high level of caffeine intake may also have a modest effect on extending the number of months a couple must try to conceive before the woman becomes pregnant. In a study of 3,187 couples in Europe who were attempting conception, researchers noted the following 9.5 months into their attempt: 16% of women who did not drink coffee were not yet pregnant and 25% of women who drank more than 5 cups of coffee a day were not yet pregnant.¹

Reference

1. Bolumar F, Olsen J, Rebagliato M, Bisanti L. Caffeine intake and delayed conception: a European multicenter study on infertility and subfecundity. *Am J Epidemiol.* 1997;145:324-334.

TABLE 2

“Avoidance” advice for women who want to optimize fertility and pregnancy outcome

HARMFUL EXPOSURE OR LIFESTYLE CHOICE	ADVICE FOR THE FEMALE PARTNER
Cigarette smoking	Stop smoking
Elevated (>25) body mass index (BMI)	Achieve optimal BMI (18 to 25)
Alcohol	Minimize alcohol intake
Caffeine	Limit caffeine intake to 250 mg/day or less (approximately)
Excessive exercise	For a woman who has an optimal BMI, limiting exercise may improve fertility

Source: Barbieri RL. The initial fertility consultation: recommendations concerning cigarette smoking, body mass index and alcohol and caffeine consumption. *Am J Obstet Gynecol.* 2001;185:1168-1173.

feine—in the range of, say, one or two 8-oz cups of coffee a day—doesn't markedly increase the risk of miscarriage. But caffeine intake in the range of 500 mg/day, or more, may be associated with an increased risk of miscarriage.

Advice for the patient considering child-bearing. What about the hypothetical patient whose case began this Editorial? I think it's reasonable to advise her to moderate her consumption of caffeine. Specifically, I might recommend that she **1)** limit daily caffeine to the equivalent of 1 or 2 cups (8 oz each) of coffee a day—roughly, no more than 250 mg—or **2)** “cut out the caffeine” altogether.

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Self-policing may be at work, too

It's interesting that many pregnant women appear to "spontaneously" reduce their intake of caffeine from coffee as they advance through the first trimester. In a study of women at 4 weeks of pregnancy, median caffeine consumption was 350 mg/day; as the women advanced through the first trimester, median caffeine consumption decreased to approximately 200 mg/day.²

In addition, although 33% of women reported drinking coffee before they became pregnant, only 15% were still drinking coffee near the end of the first trimester.

Take pregnancy planning beyond caffeine, of course

For women who are planning a pregnancy in the near future, moderating caffeine consumption is just one, relatively small, aspect of a multifaceted strategy to best plan their pregnancy. When one of your patients tells you that she is preparing to become pregnant, keep in mind for discussion the broader list of key areas that you can tell her to focus on (TABLE 2, page 11). That list includes

- achieving BMI in the normal range
- ensuring adequate intake of folic acid
- updating immunizations as appropriate
- testing for HIV infection
- assessing the effects of current prescription medications on a pregnancy
- reducing alcohol intake
- stopping cigarette smoking and recreational psychoactive drugs.

Every pregnancy—and every child—is precious. Thoughtful preparation to enhance the outcome of pregnancy is an effort well spent.

To that end, "all things in moderation" remains a useful adage.

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INSTANT POLL

Coffee and conception—what's your counsel?

The woman whose case opens the Editorial in this issue (page 8) drinks 4 cups of caffeinated coffee daily but reports no other source of caffeine, which means that she consumes about 500 mg of caffeine a day. She tells you that she's concerned about the impact of caffeine on a future pregnancy.

What would you say to this patient about her consumption of caffeine when she begins to try to conceive and, later, while she is pregnant?

- "You can keep drinking 4 cups of coffee a day"
- "You should cut back to 2 cups a day, at most"
- "Stop drinking caffeinated coffee—completely"
- "Whether you cut back or keep drinking coffee is up to you. The scientific data aren't conclusive."

Provide your advice to this patient

by taking the **INSTANT POLL** at www.obgmanagement.com

Read what other ObGyns would say to her when **INSTANT POLL RESULTS** are published in an upcoming issue

References

1. Weng X, Odouli R, Li DK. Maternal caffeine consumption during pregnancy and the risk of miscarriage: a prospective cohort study. *Am J Obstet Gynecol*. 2008 Jan 24 [Epub ahead of print].
2. Savitz DA, Chan RL, Herring AH, Howards PP, Hartmann KE. Caffeine and miscarriage risk. *Epidemiology*. 2008;19:55–62.
3. Signorello LB, McLaughlin JK. Maternal caffeine consumption and spontaneous abortion. *Epidemiology*. 2008;2004;15:229–239.