# When it Comes to Pregnant Women Sleeping, Is Left Right?

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## Abstract

Pregnant women who lie in a supine position may develop syncopal symptoms. However, of those women who become symptomatic, only 2% to 4% have significant aortocaval compression. Even in this small minority of symptomatic women, there is no evidence of fetal compromise. The advice often given to pregnant women to lie on the left side is therefore not relevant. In some women, experiencing a pre-syncopal episode will cause them to avoid lying in the supine position.

## Résumé

Les femmes enceintes qui reposent en décubitus dorsal peuvent en venir à présenter des symptômes syncopaux. Cependant, seulement de 2 % à 4 % des femmes qui deviennent symptomatiques présentent une compression aorto-cave significative. Et même chez cette faible minorité de femmes symptomatiques, aucun signe de danger grave pour le fœtus n'a été constaté. Il n'est donc pas pertinent de conseiller aux femmes enceintes de s'allonger sur le côté gauche (ce que les cliniciens font souvent). Certaines femmes qui connaissent un épisode pré-syncopal évitent par la suite de s'allonger en décubitus dorsal.

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## THE CONCERN

Recently, many of our patients have asked whether it is better for a pregnant woman to sleep on her left side. First, we tell them that remaining in one position throughout the night results in pressure sores but that we all move naturally in our sleep to prevent this. Then we point out that if lying prone had been detrimental to a normal pregnancy, the species would long ago have ceased to exist. The underlying rationale for any advice on sleep position is that the gravid uterus may compress the inferior vena cava and, to a lesser extent, the aorta and cause a decrease in the blood return to the heart, with a decrease in cardiac output. On rare occasions this may result in a feeling of faintness (and consequently a quick change in position); even more rarely, fainting may actually occur.

**Key Words:** Pregnancy, pregnancy complications, syncope, sleep, supine

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## RESPONSE

Finding that this relatively unimportant topic was increasingly encroaching upon our time with patients, we did some research. Most patients had found this advice on the Internet, and a minority had read it in pregnancy books. A Google search with the terms "pregnancy," "lying," and "left" resulted in a plethora of hits on sites suggesting that a woman should lie on her left side (29 sites in the first six pages of the search). Few of the sites limited the advice to late pregnancy or suggested that lying for some time on the back or the right side was acceptable. Only one site[1] suggested there was no need to sleep on the left side.

Neither the Society of Obstetricians and Gynaecologists of Canada nor the American College of Obstetricians and Gynecologists recommends any pattern or position for sleep. Neither the Cochrane database nor the major obstetrics textbooks, such as Williams, Gabbe, and Creasy and Resnik address this issue. Kerr et al.[2] showed that the gravid uterus partially occludes the inferior vena cava. In two later studies, Bieniartz et al.[3,4] showed that the aorta, too, was partially occluded.

In any discussion of patient position, there is a need to distinguish between women with regional analgesia, who may benefit from a tilted position, and those who have normal pregnancies.[5] The most recent paper on healthy subjects, by Bamber et al.,[6] found that there was no significant effect on either cardiac output or pulse of adopting a variety of positions ranging from a left tilt to a right one. Clark et al.[7] assessed 10 normotensive primiparous patients between 36 and 38 weeks' gestation. Compared with the left lateral position, they observed a mean 9% fall in cardiac output in

the supine position and an 18% fall when patients were standing, along with a 30% increase in pulse and a 21% fall in the left ventricular stroke work index. In these cases, the supine position was superior to standing.

Kauppila et al.[8] investigated the effect of position on uteroplacental blood flow. Twenty-two women with a normal (n = 12) or hypertensive (n = 10) pregnancy were examined using the intravenous 133Xe washout method, in both the supine and left-tilted (45°) lateral positions. The intervillous blood flow was lower in the supine position than in the left-tilted position ($P < 0.01$), while the myometrial blood flow was similar. The results suggested that the autoregulation system for uteroplacental circulation is operative only in the nonplacental component of the pregnant uterus. In view of the lack of any ill effect on the mother, this effect is probably of limited clinical significance.

Ellington et al.[9] measured maternal blood pressure and heart rate, fetal heart rate, and umbilical artery velocity waveforms in 25 healthy women placed in the supine and in both right and left 5° and 10° lateral tilt positions. Although there was no significant difference among these variables in the various positions, two women became hypotensive and symptomatic in the supine and 5° tilt positions. The authors recommended lateral tilt of all pregnant women during operative procedures beyond 20 weeks' gestation, including vaginal delivery. An alternative recommendation would be to prevent symptomatic women from adopting this position, including during labour and surgery. Chen et al.[10] studied the effect of supine position late in pregnancy on autonomic activities. They found an increase in sympathetic activity and decrease in the vagal tonus. Two of the 32 patients had a pre-syncopal attack.

Only 4% of patients (4/109) in the five studies cited had pre-syncopal symptoms related to aortocaval occlusion secondary to a supine position. None of the studies predicted who would become symptomatic. Furthermore, all these patients recovered once the position was corrected. In a larger study (N = 573) on the effect of aortocaval occlusion on non stress test (NST), only 2% had presyncopal symptoms lying on their backs and the position did not affect the NST, either in terms of reactivity or any pathological findings.[11]

Mills and Chaffe[12] compared 52 pregnant women with non-pregnant women. They found that most pregnant women adopted a left tilt position (77% vs. 26% in non-pregnant controls). The frequency of right tilt was 21% versus 32%, and only one patient (2%) preferred the supine position (vs. 39% of controls). One control group patient slept in the prone position.

In conclusion, advising women to sleep or lie exclusively on the left side is not practical and is irrelevant to the vast majority of patients. Instead, women should be told that a small minority of pregnant women feel faint when lying flat. Women can easily determine whether lying flat has this effect on them, and most will adopt a comfortable position that is likely to be a left supine position or variant thereof. Since healthy pregnant women often require more pillows than non-pregnant cardiac patients, and since finding a comfortable position in bed in late pregnancy is not easy, physicians should refrain from providing impractical advice.

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