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# Sexual Behaviour of Women With Twin Pregnancies

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It has been assumed that sexual activity during pregnancy would lead to an increased risk for miscarriage and other complications of pregnancy. Various studies showed no association of sexual behavior and pregnancy complications in single pregnancies. The aim of our study was to evaluate changes in sexual activity in women with twin pregnancies and whether a higher frequency of sexual intercourse was associated with an increased risk for pregnancy complications. We report on 50 women with twin pregnancies who answered a questionnaire on sexual behavior during pregnancy. At the time of delivery, patients were aged  $31.0 \pm 4.8$  years. All women reported to have had sexual intercourse during pregnancy. In contrast to the first trimester in the vast majority of patients (41/50, 82.0%) the coital frequency decreased in the last month of pregnancy. Patients who had become pregnant after in-vitro fertilization were significantly less likely to have regular sexual intercourse than patients after spontaneous conception during early pregnancy ( $p = .002$ ). No statistical significances were found when the rates of preterm delivery before the 37th gestational week were compared to the frequencies of sexual intercourse during early pregnancy and during late pregnancy ( $p > .05$ ). In conclusion, our study demonstrates a decrease in frequency of sexual intercourse from early to late pregnancy in the specific collective of women with twin pregnancies, especially in women after in-vitro fertilization. There was no association between sexual activity and preterm delivery.

**Keywords:** twin pregnancy, preterm labour, sexual behavior

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Sexuality during pregnancy is quite a taboo issue. Even in the ancient world sexual activity was considered a potential risk for the fetus and a possible cause for preterm labour. Various religions disapprove of sexual intercourse during pregnancy. Hints can be found in the Koran, the Talmud and in Hindu scriptures (Andersen & Fuchs, 1993; Limner, 1969).

Sexual activity is known to decline during the first trimester of pregnancy and to continue to decrease in frequency as pregnancy advances (Haines et al., 1996; Holtzman, 1976; Lumley, 1978; Morris, 1975; Pepe et al., 1987; Robson et al., 1981). On the one hand, patients fear it may cause miscarriage; on the other

hand, the pregnancy itself is associated with a loss of sexual interest (Solberg et al., 1973).

The hypothesis that sexual activity during pregnancy would lead to an increased risk for miscarriage or other complications of pregnancy is based on various pathophysiologic considerations: the Ferguson reflex triggered when the penis contacts the uterine cervix, a release of oxytocine due to the female orgasm, induction of labour by prostaglandins in the sperm, and genital infections (Andersen & Fuchs, 1993). However, various studies showed no association of sexual behavior with length of gestation at delivery, pregnancy complications, or the condition of the newborn (Neilson & Mutambira, 1989; Perkins, 1979; Zlatnik & Burmeister, 1982).

The risk for a preterm delivery is higher in twins than in single pregnancies. The majority of women with twin pregnancies deliver between the 34th and the 36th gestational week. In general, about 18–25% of preterm deliveries are due to twin pregnancies (Blondel et al., 2006). So far only one study has dealt with sexual behavior and preterm labour in twin pregnancies (Neilson & Mutambira, 1989). The authors concluded that coitus was not an important precipitant of preterm labour in women with twin pregnancies.

The aim of our study was to evaluate (a) changes in sexual activity in women with twin pregnancies and (b) whether a higher frequency of sexual intercourse was associated with an increased risk for preterm labour and other complications of pregnancy.

## Materials and Methods

### Patient Selection

Within a period of one year (May 2006 to June 2007) patients were recruited at a specialized outpatient clinic for multiple pregnancies at the Department of Gynecology and Obstetrics of the Medical University of Vienna, Vienna, Austria (tertiary care centre). Patients were included at one of the routine visits from the 20th gestational weeks onwards.

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All patients gave written informed consent. The study was approved by the ethics committee of the Medical University of Vienna, Vienna, Austria (Institutional Review Board number: 272/2006).

Inclusion criteria were as follows: twin gestation, maternal age between 15 and 50 years, and ability to give informed consent. Exclusion criteria were: higher order multiple pregnancies, twin-to-twin-transfusion syndrome (TTTS), cervical incompetence treated by surgical intervention (Shirodkar's operation, cerclage), pre-eclampsia, placental insufficiency, or maternal morbidity being the reason for delivery.

In case a patient developed one of the above named complications (TTTS, placental insufficiency, pre-eclampsia or maternal morbidity leading to preterm delivery) after having been included into the study already, she was excluded and not handed out the questionnaire.

Over the study period 180 twin deliveries were recorded at our department. One hundred and three cases were excluded from the study due to the presence of exclusion criteria. Seventy-seven women (42.8%) met the inclusion criteria. However, 27 of them (35.1%) refused to answer the questionnaire: 3 patients considered the questions to be too indiscreet, whereas 24 patients who had consented to answer the questions returned blank questionnaires, without giving reasons.

The remaining 50 patients were included into our study.

**Questionnaire**

Study participants answered the questionnaire during the post-partum hospital stay. In order to preserve the patients' intimacy patients were asked to complete the questionnaire by themselves.

The questionnaire included questions about demographic data, previous obstetrical history, morbidity during pregnancy, and sexual habits throughout gestation such as frequency of sexual intercourse, use of condoms, vaginal ejaculation, female orgasms, and the time period between last sexual intercourse and the onset of labour (which was defined as rupture of membranes or the beginning of regular contractions). The main part of the questionnaire (without demographic data) is provided as a supplementary file.

The following data were collected by a retrospective chart review: gravidity and parity, mode of conception, gestational age at delivery, delivery mode, complications during pregnancy such as hospitalization, vaginal infection requiring treatment and exclusion criteria.

**Statistical Analyses**

Variables were described by frequencies and the mean ± standard deviation. Differences between two groups were analyzed using unpaired *t* test, the chi-square and Fisher's exact test. *P* values < .05 were considered statistically significant. Statistical analysis was performed in SPSS 15.0 (SPSS Inc., 1989–2006).

**Results**

**Patient Characteristics**

At the time of delivery patients were aged 31.0 ± 4.8 years. 58.0% of patients (29/50) were multiparous. 68.0% of pregnancies resulted from spontaneous conception, 32.0% from in vitro fertilisation, 2.0% from clomiphene stimulation.

**Courses of Pregnancy and Delivery**

An uncomplicated course of pregnancy was found for 21/50 patients (42.0%). Details on complications during pregnancy are listed in Table 1.

All 50 women were delivered by caesarean section. However, only 21 women (42.0%) underwent scheduled caesarean. In the remaining 29 patients (58.0%) preterm rupture of membranes (14/29, 48.3%) or preterm labour (15/29, 51.7%) preceded delivery. The mean gestational age at delivery was 35.1 ± 2.3 weeks. 12 women (24.0%) had a preterm delivery before they completed 34th gestational week; the remaining 38 women (76.0%) delivered afterwards.

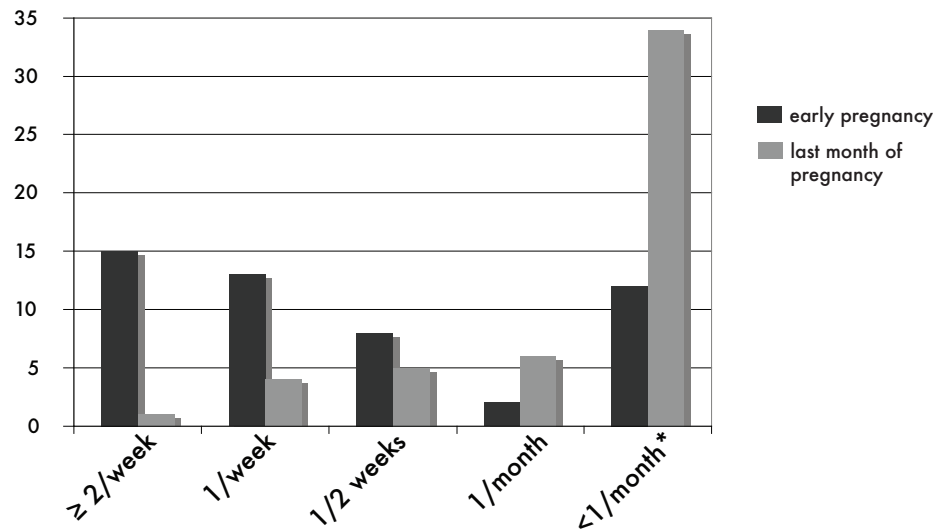
**Sexual Intercourse During Twin Pregnancy**

All study participants reported to have had sexual intercourse during pregnancy. Five women (10.0%) reported use of condoms. In the vast majority of women (39/50, 78.0%) the coital frequency changed during pregnancy. In 74.0% the changes in sexual behavior originated from both partners, whereas it was related to the female or the male partner only in 20.0% and 6.0%, respectively. Details on frequency of sexual intercourse during pregnancy can be seen in Figure 1. In contrast to the first trimester in the vast majority of patients (41/50, 82.0%) the coital frequency decreased in the last month of pregnancy. Sixteen patients (32.0%) reported no change in sexual behavior, in one woman the frequency increased.

When asked whether changes of the sexual behavior would be medically advisable during pregnancy, the majority of patients (35/50, 70.0%) expressed the opinion that this would only be of importance when pregnancy was somehow complicated. Eight patients (16.0%) said that a change should be done after

**Table 1**  
Courses of Pregnancy Before Delivery

	<i>n</i>	%
Uneventful pregnancy	21	42.0
Patients with complications	29	58.0
Vaginal infection	17	34.0
Bacterial infection	14	82.4
Mycotic infection	3	17.6
Pregnancy-induced arterial hypertension	2	4.0
Cervical insufficiency	8	16.0
Vaginal bleeding	11	22.0
Cervical shortening with hospitalization	7	14.0
Preterm labour with hospitalization	12	24.0



**Figure 1**

Frequency of sexual intercourse during early pregnancy and last month of pregnancy.

Note: \* includes women who had no sexual intercourse.

beginning of pregnancy, and seven patients (14.0%) stated that no change at all would be necessary.

Only 13 women (26.0%) answered the question on the reasons for a change in frequency of sexual intercourse, all of them patients who had reduced the frequency of sexual intercourse. Four patients were afraid of doing harm to the fetus, and a further four patients considered sexual intercourse as a risk for preterm labour or vaginal bleeding. Three patients with a complicated course of pregnancy were worried about worsening their situation. The remaining two patients had reduced their sexual behavior in order to support their pregnancies in general.

74.0% (37/50) of women reported vaginal ejaculation. 40 patients (80.0%) stated to have had an orgasm during pregnancy. Pain after sexual intercourse or vaginal bleeding was noted by seven (14.0%) and five women (10.0%), respectively.

Patients who had become pregnant after in-vitro fertilization were significantly less likely to have regular sexual intercourse (2 times/week–1 time/2 weeks) than patients after spontaneous conception during early

pregnancy ( $p = .002$ ). In late pregnancy the result was not significant ( $p = .095$ ). For details see Table 2.

#### Sexual Intercourse as a Possible Risk Factor for Pregnancy Outcome

When women with and without preterm delivery before the 34th gestational week were compared, risk factors for preterm delivery were found to be equally distributed between the groups (see Table 3).

A time period between the last sexual intercourse and the beginning of labour of less than 6 hours, 24–48 hours and more than 48 hours were found in one (2.0%), three (6.0%) and 46 patients (92.0%), respectively.

No statistical significances were found when the rates of preterm delivery before the 34th gestational week were compared to the frequencies of sexual intercourse during early pregnancy and during late pregnancy. Details are listed in Table 4.

#### Discussion

In the vast majority of our patients the coital frequency declined during pregnancy, whereby significantly fewer

**Table 2**

Sexual Activity After In-Vitro Fertilization and After Spontaneous Conception

		In-vitro fertilization	Spontaneous conception	Total	<i>p</i>
Frequency of sexual intercourse during early pregnancy	2 × /week – 1 × /2 weeks	7	29	36	.002
	1 × /month or less	9	5	14	
	Total	16	34	50	
Frequency of sexual intercourse in the last month before delivery	2 × /week – 1 × /2 weeks	1	9	10	.095
	1 × /month or less	15	25	40	
	Total	16	34	50	

**Table 3**  
Possible Risk Factors for Preterm Delivery

	Preterm delivery < 34th gestational week (n = 12)		Term delivery > 34th gestational (n = 38)		p
	n	%	n	%	
SI* within 48 hours before delivery	1	8.3	3	7.9	1.000
SI* within the last month before delivery	3	25.0	13	34.2	0.728
Previous preterm deliveries	2	16.7	4	10.5	.621
In-vitro fertilization	4	33.3	12	31.6	1.000
Vaginal ejaculation	9	75.0	28	73.7	1.000
Orgasm	9	75.0	30	78.9	1.000
Genital infection	3	25.0	14	36.8	.510
Mother's age (mean ± SD <sup>†</sup> )	30.5 ± 12.7	—	31.2 ± 16.4	—	.690

Note: \*SI = sexual intercourse; †SD = standard deviation.

patients had regular sexual intercourse after in-vitro fertilization than after spontaneous conception. We found no correlation between sexual behavior and the risk for preterm delivery.

In the majority of our patients the frequency of sexual intercourse decreased from early to late pregnancy. This is in accordance with various previous studies, all of them except one in single pregnancies (Haines et al., 1996; Holtzman, 1976; Lumley, 1978; Morris, 1975; Pepe et al. 1987; Robson et al., 1981). However, these results conflict with the statement of the vast majority of our patients (70.0%) that a reduction in sexual activity would only be necessary in case of any pregnancy complications. Only 26% of our patients answered the questions on the reasons for a change in sexual habits during pregnancy. One of the main reasons for the decrease in sexual activity seems to be the worry of doing any harm to the fetus, either directly or indirectly by causing preterm delivery. However, it may be assumed that other factors than the fear of doing harm to the fetus may be involved in the actual reduction of a woman's interest in sexual activity: Pregnancy itself is associated with a loss of sexual interest (Solberg et al., 1973). Sex steroids and neurosteroids such as progesterone, allopregnenolone and estradiol are increased to very high levels during pregnancy and have been mentioned to influence sexual behavior (Cameron et al., 2008; Frye et al., 2006).

In our study, no association between the frequency of sexual intercourse and preterm delivery was found.

Many studies have dealt with the question whether sexual intercourse during pregnancy was associated with preterm delivery. However, the literature is controversial. Some authors have concluded that sexual activity may lower the risk of a preterm delivery (Klebanoff et al., 1987; Sayle, 2001); in the large study of Sayle (Sayle, 2001) including 187 women with preterm deliveries and 409 controls an odds ratio of .43 (.23–.51, 95% confidence interval) was found for preterm delivery within two weeks of intercourse. A few studies could demonstrate an adverse effect of sexual intercourse during the third trimester on preterm delivery (Rayburn & Wilson, 1980; Schaffir, 2006; von Sydow, 1999). However, the majority of studies did not find any association between preterm delivery and sexual behavior during pregnancy (Kurki & Ylikorkala, 1993; von Sydow, 1999; Yost & Owen, 2006).

To our knowledge, only one study on sexual activity and preterm labour in twin pregnancies has been conducted so far (Neilson & Mutambira, 1989). It prospectively included 126 women and was published in 1989. The authors concluded that coitus need not be discouraged in women with twin pregnancies. However, diagnostic and therapeutic regimens have changed a lot since then.

About 20% of twin pregnancies result from in-vitro fertilization nowadays. Sexuality in infertile couples with a long-lasting wish for a child certainly undergoes a process of instrumentalization, possibly leading to decreased interest in sexual activity, espe-

**Table 4**  
Preterm Delivery and Sexual Activity

		Preterm delivery	Term delivery	Total	p
		< 34th gestational week	> 34th gestational week		
Frequency of sexual intercourse during early pregnancy	2 × /week – 1 × /2 weeks	9	27	36	1.000
	1 × /month or less	3	11	14	
	Total	12	38	50	
Frequency of sexual intercourse in the last month before delivery	2 × /week – 1 × /2 weeks	2	8	10	1.000
	1 × /month or less	10	30	40	
	Total	12	38	50	

cially if a pregnancy is achieved finally. Furthermore, the worry to do harm to such a precious baby by having sexual intercourse might be even more intense in IVF couples. It has been demonstrated that pregnancies after in-vitro fertilization are indeed associated with an increased risk for obstetrical complications such as vaginal bleeding and preterm labour, and a lower average birth weight (Ochsenkühn et al., 2003).

There are some limitations to our study: The relatively high percentage of women refusing to answer the questionnaire (35%) may have introduced some kind of bias and it raises the question whether asking pregnant women about sexual life is too embarrassing or whether the post partum period is an inappropriate time for such questions, since the women's focus after delivery is definitely on the babies. Furthermore, the sample size may be too low in order to evaluate the influence of rare risk factors for preterm delivery such as previous preterm deliveries or sexual intercourse within 48 hours before the delivery.

In conclusion, our study demonstrates a decrease in the frequency of sexual intercourse from early to late pregnancy in the specific collective of women with twin pregnancies, especially in women after in-vitro fertilization. However, there was no association between sexual activity and preterm delivery before the 34th week of gestation.

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**APPENDIX A**

**Questionnaire — Sexual Activity During Pregnancy**

1. Did the frequency of sexual intercourse change with the beginning of pregnancy?

- yes  no

If yes, did the change arise from

- you  your partner  both of you

2. Did the frequency of sexual intercourse change during the last months of pregnancy? Please compare the last month to the first months of pregnancy:

- less frequent  same frequency  more frequent

3. How often did you have sexual intercourse during the first months of pregnancy?

- once a week  twice a week or more often  once every two weeks  
 once a month  less than once a month

4. How often did you have sexual intercourse during the last month of pregnancy?

- once a week  twice a week or more often  once every two weeks  
 once a month  less than once a month

5. Did you use condoms when having intercourse during pregnancy?

- yes  no

6. Was there normally ejaculation into the vagina?

- yes  no

7. Did you have an orgasm?

- never or almost never  rarely (less than half of times)  
 sometimes (about half of times)  mostly (more than half of times)  
 always or almost always

8. Did you feel pain after sexual intercourse?

- yes  no

9. Did you have vaginal bleeding after sexual intercourse?

- yes  no

10. How much time passed between the last intercourse and the onset of labor?

- 1 to 6 hours  6 to 24 hours  more than 24 hours  
 24 to 48 hours  more than 48 hours

11. Did you talk to your gynecologist about sexual intercourse during pregnancy?

- yes  no

If you did not — please give us your reasons:

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12. Should sexual behavior change with the onset of pregnancy in your opinion?

- in any case  only in case of complications  no

If 'yes' — how should sexual behavior change?

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If 'yes' — why should sexual behavior change?

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