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Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial

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KEY WORDS
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Health problems
Satisfaction

Objective: This study was undertaken to compare maternal outcomes at 2 years postpartum after planned cesarean section and planned vaginal birth for the singleton fetus in breech presentation at term.

Study design: In selected centers in the Term Breech Trial, mothers completed a structured questionnaire at 2 or more years postpartum to determine their health in the previous 3 to 6 months.

Results: A total of 917 of 1159 (79.1%) mothers from 85 centers completed a follow-up questionnaire at 2 years postpartum. There were no differences between groups in breast feeding, relationship with child or partner, pain, subsequent pregnancy, incontinence, depression, urinary, menstrual or sexual problems, fatigue, or distressing memories of the birth experience. Planned cesarean section was associated with a higher risk of constipation ($P = .02$).

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Conclusion: Maternal outcomes at 2 years postpartum are similar after planned cesarean section and planned vaginal birth for the singleton breech fetus at term.

Most pregnant women at term are encouraged to undergo a trial of labor in anticipation of a vaginal birth, as the risks for the woman are generally lower with a vaginal delivery than if delivery is by cesarean section.[1,2] However, if the fetus is in a breech presentation a planned cesarean section is usually recommended.[3]

The Term Breech Trial, a multicenter international randomized controlled trial of 2088 women, found no increased risk of maternal mortality or serious maternal morbidity during the first 6 weeks postpartum after planned cesarean section versus planned vaginal birth for the singleton breech fetus at term (3.9% vs 3.2%, $P = .35$), and at 3 months postpartum, women in the planned cesarean section group were less likely to report urinary incontinence.[3,4] To date, no randomized study of planned method of delivery has followed mothers beyond the early postpartum period. The Term Breech Trial, which avoided selection bias because of randomization, provided a unique opportunity to assess the effects of planned method of delivery on maternal outcomes 2 years after the birth.

Materials and methods

Eligibility and randomization

Women were eligible for the trial if they had a singleton live fetus in a frank or complete breech presentation at term (≥37 weeks' gestation). Women were excluded if there was evidence of fetopelvic disproportion, if the fetus was judged to be clinically large or to weigh 4000g or more, if there was hyperextension of the fetal head, if there was a lethal anomaly or a condition that might cause a mechanical problem at delivery, or if there was a contraindication to labor or vaginal delivery. The study was approved by the research ethics committees at participating centers and women gave informed consent before being enrolled in the study. Eligible and consenting women were then randomly allocated, using a centralized randomization service, to the planned cesarean section or vaginal birth groups. Infants in breech presentation, who were delivered vaginally, were attended by a clinician experienced in vaginal breech delivery. The details of the eligibility criteria and treatment protocol have been published previously.[3] Centers that were confident in their ability to trace more than 80% of randomized women, monitored the women to 2 or more years postpartum.

Follow-up and outcomes

Mothers completed a structured questionnaire at 2 years postpartum to determine duration of breast feeding, relationship with the infant and husband/partner, and the existence of health problems, during the previous 3 to 6 months. For every health problem, women indicated how much of a problem this had been for them, that is, no problem at all, a little problem, or a big problem. Depression was defined as a score greater than 12 on the Edinburgh Postnatal Depression Scale (EPDS)[5] that was revised to ask women how they had felt in the previous 3 to 6 months, rather than within the previous 7 days.

Aside from the EPDS, all questions were formulated after a review of the literature and discussions among members of the Steering Committee, and the questionnaire was pretested before use. The questionnaires were either translated (and back translated to ensure accuracy of the translation) into the mother's language or were administered by someone who could translate the questions for the woman. We used previously published translations of the EPDS when available.[6]

Statistical analysis

The results were analyzed according to intention to treat as we wished to determine the effect of the approach to delivery rather than the effect of the actual method of delivery. All women who delivered at centers participating in the follow-up, for whom we had completed questionnaires, were included in the analysis. Participating centers were categorized according to whether they were in a country with a low (≤20/1000) or high (>20/1000) national perinatal mortality rate as defined by the World Health Organization in 1996.[7] Countries with low national perinatal mortality rates were Australia, Canada, Chile, Denmark, Germany, Israel, The Netherlands, New Zealand, Poland, Portugal, Romania, Switzerland, the United Kingdom, and the United States. Countries with high national perinatal mortality rates were Argentina, Brazil, Jordan, and Pakistan.

The randomized groups were compared with the use of Fisher exact test for the analysis of binary outcomes, Wilcoxon's rank sum test for the analysis of continuous variables that were not normally distributed, and the generalized Fisher exact test or the χ^2 test for linear trend for the analysis of ordered categorical outcomes. A 2-sided P-value of less than .05 indicated statistical significance. Relative risks and 95% CIs were also calculated. The analyses were undertaken using SAS System version 8.0 (SAS Institute Inc, Cary, NC). The

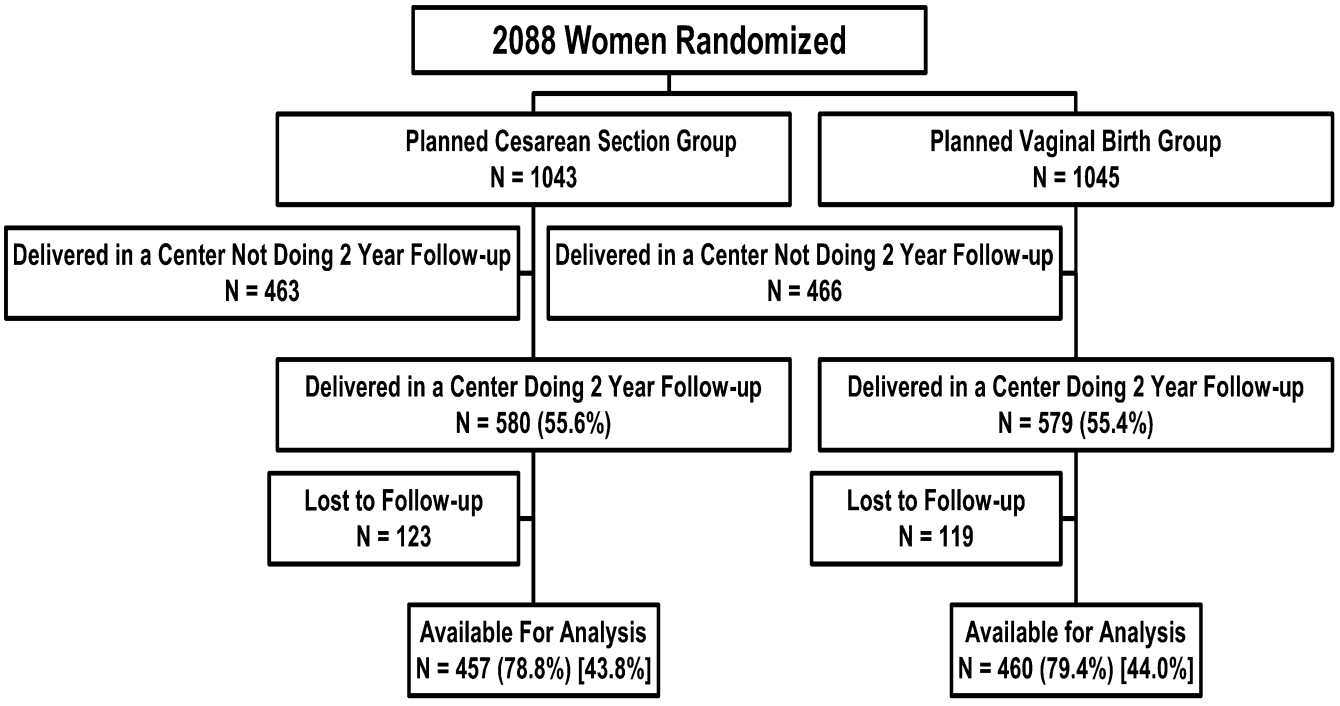

Figure 1 Trial profile

P-values reported should be considered descriptive as we made no adjustments for multiple tests.

Data in each table are presented so that interested readers may also know the rates of morbidity according to the actual rather than planned mode of delivery.

Results

The Term Breech Trial enrolled 2088 women between January 9, 1997, and April 21, 2000, at 121 centers in 26 countries. The outcomes occurring within 6 weeks and at 3 months after birth have been previously published.[3,4] In 85 centers in 18 countries, 1159 (55.5%) women participated in the 2-year follow-up, of which 580 were assigned planned cesarean section, and 579 were assigned planned vaginal birth (Figure 1). We received follow-up information for 917 women (79.1%), 457 in the planned cesarean section group and 460 in the planned vaginal birth group (Figure 1).

Baseline characteristics and mode of delivery

Those who delivered in centers that participated in the 2-year follow-up were somewhat more likely to have been 30 years or older, to have been born in a country with a low national perinatal mortality rate, and were somewhat less likely to have been nulliparous than the women originally enrolled in the Term Breech Trial (Table I).

The rate of cesarean section in the planned cesarean section group was similar for women who were followed up (89.3%) compared with all those enrolled in the Term Breech Trial (90.4%). The rate of vaginal delivery in the planned vaginal birth group was also similar for women who were followed up (55.9%) compared with all those enrolled in the Term Breech Trial (56.7%).

Women in the planned cesarean section group were somewhat less likely to have been nulliparous (43.3% vs 48.0%) or to have been in labor at the time of randomization (37.2% vs 42.6%) than those in the planned vaginal birth group. Otherwise, baseline characteristics were fairly similar in the 2 randomized groups (Table I).

Breast feeding and relationship with the child and husband/partner

The likelihood of a woman breast feeding her child at 2 years postpartum was similar for both groups and if breast feeding was initiated, the median duration was 8.0 months (Table II). Most women reported that caring for their child and being a mother was very easy or easy. For women with a husband or partner, most reported that their relationship was very happy or somewhat happy and about the same or better than before the child was born (Table II).

Sex, pain, subsequent pregnancies, incontinence, and depression

Few women in either group reported not having had sex in the previous 3 to 6 months (7.0% in the planned cesarean section group, 8.9% in the planned vaginal birth group) (Table III). Among those having had sex,

Table I Characteristics at randomization and timing of completion of the questionnaire for women in both groups and for those followed up

Characteristic	Both groups all women n = 2083* n (%)	Planned CS women followed n = 457 n (%)	Planned VB women followed n = 460 n (%)
Maternal age ≥30 y	670 (32.2)	184 (40.3)	181 (39.3)
Nulliparity	1092 (52.4)	198 (43.3)	221 (48.0)
Type of breech presentation			
Frank	1292 (62.0)	305 (66.7)	292 (63.5)
Complete	702 (33.7)	129 (28.2)	152 (33.0)
Uncertain	89 (4.3)	23 (5.0)	16 (3.5)
In labor at randomization	890 (42.7)	170 (37.2)	196 (42.6)
Membranes ruptured at randomization	486 (23.3)	89 (19.5)	95 (20.7)
Previous cesarean	54 (2.6)	13 (2.8)	8 (1.7)
PMR in country†			
Low (≤20/1000)	1027 (49.3)	270 (59.1)	262 (57.0)
High (>20/1000)	1056 (50.7)	187 (40.9)	198 (43.0)
Married or stable relationship	1943 (93.3)	439 (96.1)	441 (95.9)
Planning to breast feed			
Yes	1848 (88.7)	398 (87.1)	402 (87.4)
No	107 (5.1)	25 (5.5)	31 (6.7)
Unknown or undecided	128 (6.1)	34 (7.4)	27 (5.9)
Median time (months) from delivery to completion of questionnaire (5th, 95th percentile)	N/A	24.3 (23.0, 30.8)	24.2 (23.0, 29.9)
Method of completion of questionnaire			
Mail	N/A	190 (41.6)	189 (41.1)
Telephone or personal interview		263 (57.5)	267 (58.0)
Unknown		4 (0.9)	4 (0.9)
Help with the completion of the questionnaire			
Yes	N/A	240 (52.5)	263 (57.2)
No		214 (46.8)	194 (42.2)
Unknown		3 (0.7)	3 (0.7)

CS, Cesarean section; *VB*, vaginal birth; *N/A*, not applicable.

* Five women were lost to follow-up in the main trial, 1 of these women was enrolled in a center doing the 2-year follow-up.

† National perinatal mortality rate (*PMR*) reported by the World Health Organization.[7] Countries with a low PMR were Australia, Canada, Chile, Denmark, Germany, Israel, The Netherlands, New Zealand, Poland, Portugal, Romania, Switzerland, the United Kingdom, and the United States; countries with a high PMR were Argentina, Brazil, Jordan, and Pakistan.

most reported no pain during sex and indicated they were very happy or somewhat happy with their sexual relations (Table III).

The reporting of frequent pain or a lot of pain in the same place was similar for both groups (21.0% in the planned cesarean section group, 22.2% in the planned vaginal birth group). There were no differences between groups in the reporting of pain in the back, head, on the outside of the abdomen, deep inside the abdomen, in the bottom or genital area, or in another place (Table III).

In the planned cesarean section and planned vaginal birth groups 19.3% and 22.9%, respectively, reported that they had tried to become pregnant since the birth of their child in the Term Breech Trial. The likelihood of a subsequent pregnancy did not differ between groups and few women reported having had a subsequent delivery by cesarean section (Table III).

There were no differences between groups in risk of urinary incontinence (17.8% in the planned cesarean section group and 21.8% in the planned vaginal birth group), fecal incontinence (2.4% in the planned cesarean section group, 2.2% in the planned vaginal birth group), or incontinence of flatus (13.1% in the planned cesarean section group, 11.5% in the planned vaginal birth group), or in how much of a problem women found the incontinence to be if they reported incontinence (Table III).

The risk of depression did not differ between groups (10.5% in the planned cesarean section group, 11.6% in the planned vaginal birth group).

Menstrual problems and other health problems

There were no differences between groups in the likelihood of having painful menstrual periods (24.7% in the

Table II Breast feeding, ease of caring for child, experience of being a mother, and relationship with husband/partner

	Planned CS n = 457 n (%)			Planned VB n = 460 n (%)			
Event	CS n = 408	VB n = 49	Total n = 457	CS n = 203	VB n = 257	Total n = 460	*P*
Breast feeding at time of completion of questionnaire *†	29 (7.2)	6 (12.2)	35 (7.7)	10 (5.0)	14 (5.5)	24 (5.3)	.14
Median duration (mon) of breast feeding (5th, 95th percentile)‡	8.0 (1.0, 23.9)	12.0 (1.0, 24.6)	8.0 (1.0, 24.1)	7.0 (1.0, 23.0)	8.0 (1.0, 22.9)	8.0 (1.0, 23.0)	.57
Ease of caring for child*§¶	n = 384	n = 46	n = 430	n = 193	n = 250	n = 443	.78
Very easy	91 (23.7)	9 (19.6)	100 (23.3)	33 (17.1)	62 (24.8)	95 (21.4)	
Easy	226 (58.9)	31 (67.4)	257 (59.8)	121 (62.7)	149 (59.6)	270 (60.9)	
A little difficult	62 (16.1)	6 (13.0)	68 (15.8)	39 (20.2)	36 (14.4)	75 (16.9)	
Very difficult	5 (1.3)	0 (0)	5 (1.2)	0 (0)	3 (1.2)	3 (0.7)	
Experience of being a mother*§¶	n = 382	n = 46	n = 428	n = 195	n = 251	n = 446	.41
Very easy	57 (14.9)	8 (17.4)	65 (15.2)	30 (15.4)	44 (17.5)	74 (16.6)	
Easy	271 (70.9)	35 (76.1)	306 (71.5)	133 (68.2)	177 (70.5)	310 (69.5)	
Difficult	48 (12.6)	3 (6.5)	51 (11.9)	31 (15.9)	29 (11.6)	60 (13.5)	
Very difficult	6 (1.6)	0 (0)	6 (1.4)	1 (0.5)	1 (0.4)	2 (0.4)	
Relationship with husband/partner*¶‖	n = 382	n = 48	n = 430	n = 187	n = 239	n = 426	.62
Very happy	221 (57.9)	26 (54.2)	247 (57.4)	104 (55.6)	145 (60.7)	249 (58.5)	
Somewhat happy	132 (34.6)	20 (41.7)	152 (35.3)	66 (35.3)	81 (33.9)	147 (34.5)	
Somewhat unhappy	19 (5.0)	2 (4.2)	21 (4.9)	16 (8.6)	9 (3.8)	25 (5.9)	
Very unhappy	10 (2.6)	0 (0)	10 (2.3)	1 (0.5)	4 (1.7)	5 (1.2)	
Relationship with husband/partner now compared to before child was born*¶‖	n = 381	n = 47	n = 428	n = 185	n = 239	n = 424	.39
Better	87 (22.8)	5 (10.6)	92 (21.5)	43 (23.2)	36 (15.1)	79 (18.6)	
About the same	270 (70.9)	40 (85.1)	310 (72.4)	131 (70.8)	188 (78.7)	319 (75.2)	
Worse	24 (6.3)	2 (4.3)	26 (6.1)	11 (5.9)	15 (6.3)	26 (6.1)	

* A few women did not respond to this question.
† Relative risk (95% CI): 1.47 (0.89- 2.43).
‡ among women who had initiated breast feeding.
§ 16 mothers in the planned cesarean section group and 5 in the planned vaginal birth group were not living with their child at the time the questionnaire was completed.
¶ mothers were asked to describe their experience over the previous 3 to 6 months.
‖ 27 women in the planned cesarean section group and 33 women in the planned vaginal birth group did not have a husband or partner.

planned cesarean section group, 28.0% in the planned vaginal birth group), irregular menstrual periods (11.0% in the planned cesarean section group, 15.0% in the planned vaginal birth group) or heavy menstrual periods (18.4% in the planned cesarean section group, 16.8% in the planned vaginal birth group) (Table IV), or in how much of a problem women found the periods to be if they were painful, irregular, or heavy (Table IV).

The likelihood of fatigue or tiredness, breast problems, headache, backache, painful perineum, hemorrhoids or piles, difficulty or pain on urination, vaginal discharge, sexual problems, or frequent distressing memories or dreams of the birth experience, and how much of a problem women found the problem to be, if this had occurred, did not differ between groups (Table IV). There was a higher likelihood of constipation in the planned cesarean section group (124/456 [27.2%] vs 93/460 [20.2%], relative risk [95% CI]: 1.35 [1.06-1.70], $P = .02$).

Comment

Over the past 30 years, rates of cesarean section have escalated from around 5% to well over 20% in North

Table III Sex, pain, subsequent pregnancies, incontinence, and depression

	Planned CS n = 457 n (%)			Planned VB n = 460 n (%)				
Outcome	CS n = 408	VB n = 49	Total n = 457	CS n = 203	VB n = 257	Total n = 460	Relative risk (95% CI)	*P*
No sex*†	32 (7.9)	0 (0)	32 (7.0)	19 (9.4)	22 (8.6)	41 (8.9)	0.79 (0.50-1.22)	.33
Pain during sex*†‡	n = 369	N = 49	n = 418	n = 177	n = 235	n = 412		.84
No pain	329 (89.2)	47 (95.9)	376 (90.0)	159 (89.8)	210 (89.4)	369 (89.6)		
Almost no pain	5 (1.4)	0 (0)	5 (1.2)	4 (2.3)	4 (1.7)	8 (1.9)		
Mild or small amount of pain	26 (7.0)	2 (4.1)	28 (6.7)	11 (6.2)	18 (7.7)	29 (7.0)		
Quite a lot of pain	8 (2.2)	0 (0)	8 (1.9)	3 (1.7)	3 (1.3)	6 (1.5)		
Severe or excruciating/ terrible pain	1 (0.3)	0 (0)	1 (0.2)	0 (0)	0 (0)	0 (0)		
Happiness with sexual relations*†‡	n = 316	n = 37	n = 353	n = 141	n = 208	n = 349		.72
Very happy	161 (50.9)	20 (54.1)	181 (51.3)	61 (43.3)	111 (53.4)	172 (49.3)		
Somewhat happy	133 (42.1)	16 (43.2)	149 (42.2)	65 (46.1)	86 (41.3)	151 (43.3)		
Somewhat unhappy	18 (5.7)	0 (0)	18 (5.1)	13 (9.2)	10 (4.8)	23 (6.6)		
Very unhappy	4 (1.3)	1 (2.7)	5 (1.4)	2 (1.4)	1 (0.5)	3 (0.9)		
Pain in back*†§	53 (13.0)	5 (10.2)	58 (12.7)	27 (13.3)	30 (11.7)	57 (12.4)	1.02 (0.73-1.44)	.92
Pain in head*†§	38 (9.3)	2 (4.1)	40 (8.8)	20 (9.9)	13 (5.1)	33 (7.2)	1.22 (0.78-1.89)	.40
Pain on outside of abdomen*†§	20 (4.9)	0 (0)	20 (4.4)	9 (4.4)	5 (2.0)	14 (3.1)	1.43 (0.73-2.81)	.30
Pain deep inside abdomen*†§	22 (5.4)	1 (2.0)	23 (5.0)	16 (7.9)	11 (4.3)	27 (5.9)	0.86 (0.50-1.47)	.66
Pain in bottom or genital area*†§	15 (3.7)	0 (0)	15 (3.3)	4 (2.0)	16 (6.3)	20 (4.4)	0.75 (0.39-1.45)	.49
Other pain*†§	11 (2.7)	2 (4.1)	13 (2.8)	10 (4.9)	7 (2.7)	17 (3.7)	0.77 (0.38-1.56)	.58
Any pain*†§	88 (21.6)	8 (16.3)	96 (21.0)	49 (24.1)	53 (20.7)	102 (22.2)	0.95 (0.74-1.21)	.69
Severity of worst pain*†§								.73
No pain	320 (78.8)	41 (83.7)	361 (79.3)	154 (76.2)	203 (79.6)	357 (78.1)		
Almost no pain	2 (0.5)	1 (2.0)	3 (0.7)	2 (1.0)	1 (0.4)	3 (0.7)		
Mild or small amount of pain	49 (12.1)	4 (8.2)	53 (11.6)	23 (11.4)	32 (12.5)	55 (12.0)		
Quite a lot of pain	26 (6.4)	2 (4.1)	28 (6.2)	19 (9.4)	17 (6.7)	36 (7.9)		
Severe or excruciating/ terrible pain	9 (2.2)	1 (2.0)	10 (2.2)	4 (2.0)	2 (0.8)	6 (1.3)		
Took pills or medicine for pain*†§	53 (13.0)	2 (4.1)	55 (12.1)	34 (16.8)	27 (10.6)	61 (13.3)	0.90 (0.64-1.27)	.62
Tried to become pregnant since the birth of the child*	82 (20.1)	6 (12.2)	88 (19.3)	56 (27.7)	49 (19.1)	105 (22.9)	0.84 (0.66-1.09)	.20
Number of pregnancies after the birth in the Term Breech Trial*								
1 or more	86 (21.3)	9 (18.4)	95 (21.0)	53 (26.2)	49 (19.1)	102 (22.3)	0.94 (0.74-1.21)	.69
0	318 (78.7)	40 (81.6)	358 (79.0)	149 (73.8)	207 (80.9)	356 (77.7)		
Currently pregnant or one or more infants born after the birth in the Term Breech Trial*	71 (17.6)	7 (14.3)	78 (17.2)	44 (21.8)	40 (15.6)	84 (18.3)	0.94 (0.71-1.24)	.67

Table III Continued

Outcome	Planned CS n = 457 n (%) CS n = 408	VB n = 49	Total n = 457	Planned VB n = 460 n (%) CS n = 203	VB n = 257	Total n = 460	Relative risk (95% CI)	*P*
Cesarean for one or more infants born after the birth in the Term Breech Trial*	15 (3.8)	1 (2.0)	16 (3.6)	12 (6.0)	1 (0.4)	13 (2.9)	1.24 (0.60-2.55)	.58
Urinary incontinence*†¶	65 (16.0)	16 (32.7)	81 (17.8)	37 (18.4)	63 (24.5)	100 (21.8)	0.81 (0.63-1.06)	.14
Problem caused by urinary incontinence*†¶	n = 65	n = 16	n = 81	n = 37	n = 63	n = 100		.46
No problem at all	26 (40.0)	5 (31.3)	31 (38.3)	17 (45.9)	20 (31.7)	37 (37.0)		
A little problem	36 (55.4)	11 (68.8)	47 (58.0)	15 (40.5)	39 (61.9)	54 (54.0)		
A big problem	3 (4.6)	0 (0)	3 (3.7)	5 (13.5)	4 (6.3)	9 (9.0)		
Fecal incontinence*†¶	10 (2.5)	1 (2.0)	11 (2.4)	8 (4.0)	2 (0.8)	10 (2.2)	1.10 (0.47-2.58)	.83
Problem caused by fecal incontinence*†¶	n = 10	n = 1	n = 11	n = 7	n = 2	n = 9		.41
No problem at all	3 (30.0)	0 (0)	3 (27.3)	1 (14.3)	1 (50.0)	2 (22.2)		
A little problem	6 (60.0)	1 (100)	7 (63.6)	4 (57.1)	0 (0)	4 (44.4)		
A big problem	1 (10.0)	0 (0)	1 (9.1)	2 (28.6)	1 (50.0)	3 (33.3)		
Incontinence of flatus*†¶	53 (13.0)	7 (14.3)	60 (13.1)	29 (14.4)	24 (9.3)	53 (11.5)	1.14 (0.80-1.61)	.48
Problem caused by incontinence of flatus*†¶	n = 53	n = 7	n = 60	n = 29	n = 24	n = 53		.50
No problem at all	29 (54.7)	4 (57.1)	33 (55.0)	19 (65.5)	15 (62.5)	34 (64.2)		
A little problem	19 (35.8)	3 (42.9)	22 (36.7)	10 (34.5)	7 (29.2)	17 (32.1)		
A big problem	5 (9.4)	0 (0)	5 (8.3)	0 (0)	2 (8.3)	2 (3.8)		
Postpartum depression*‖	43 (10.8)	4 (8.2)	47 (10.5)	24 (11.9)	29 (11.4)	53 (11.6)	0.90 (0.62-1.30)	.60

* There were a few women that did not respond to this question.

† Mothers were asked to describe their experience over the previous 3 to 6 months;

‡ 32 women in the planned cesarean section group and 41 in the planned vaginal birth group had not had sex in the previous 3 to 6 months;

§ respondents were asked to indicate frequent pain or a lot of pain in the same place;

¶ urinary incontinence was described as losing or leaking urine when coughing, laughing, or sneezing; fecal incontinence was described as losing or leaking feces/stool, fluid or mucous unexpectedly from the bowels; incontinence of flatus was described as passing gas/wind unexpectedly;

‖ defined as a score of >12 on the EPDS, revised to ask how women felt in the previous 3 to 6 months, rather than just in the previous 7 days.[5]

America and other countries, despite limited information as to the maternal consequences of the procedure.[8-10]

The Term Breech Trial offered a unique opportunity to evaluate planned method of delivery in terms of maternal risks and benefits at 2 years postpartum. The randomization, the high follow-up rate (almost 80% among centers participating in this), and the intention to treat analysis, should avoid the problems of selection bias present in nonrandomized studies.

Observational studies have previously found a lower risk of urinary or fecal incontinence but a higher risk of other adverse maternal outcomes after cesarean section.[11-20] In the Term Breech Trial, we found a lower rate of urinary incontinence at 3 months postpartum among women randomly assigned to planned cesarean section compared with planned vaginal delivery (4.5% vs 7.3%, $P = .02$),[4] but at 2 years postpartum, the rates of urinary incontinence, although higher, were not significantly different between groups (17.8% in the planned cesarean section group, 21.8% in the planned vaginal delivery group). It is possible that the benefits of planned cesarean section on urinary incontinence are limited to the first few months after delivery, although our sample size for the 2-year follow-up was too small to assess clinically important effects. The rates of incontinence were generally higher at 2 years than at 3 months postpartum. This may be because the rates genuinely increased over time or because at 2 years we asked about incontinence during the previous 3 to 6 months rather than just during the previous 7 days. Because urinary and fecal incontinence can have a major impact on a woman's quality of life, we hope that future randomized controlled trials of planned method of delivery will continue to address these outcomes.

Table IV Menstrual problems and other health problems

	Planned CS n = 457 n (%)			Planned VB n = 460 n (%)				
Outcome	CS n = 408	VB n = 49	Total n = 457	CS n = 203	VB n = 257	Total n = 460	Relative risk (95% CI)	*P*
Painful menstrual periods*†‡	85 (24.7)	10 (24.4)	95 (24.7)	50 (30.9)	56 (25.8)	106 (28.0)	0.88 (0.70-1.12)	.32
Problem caused by painful menstrual periods*†‡	n = 81	n = 8	n = 89	n = 49	n = 55	n = 104		.46
No problem at all	10 (12.3)	3 (37.5)	13 (14.6)	13 (26.5)	13 (23.6)	26 (25.0)		
A little problem	63 (77.8)	4 (50.0)	67 (75.3)	30 (61.2)	33 (60.0)	63 (60.6)		
A big problem	8 (9.9)	1 (12.5)	9 (10.1)	6 (12.2)	9 (16.4)	15 (14.4)		
Irregular menstrual periods*†‡§	36 (11.4)	3 (8.1)	39 (11.0)	24 (16.4)	29 (14.0)	53 (15.0)	0.73 (0.50-1.08)	.12
Problem caused by irregular menstrual periods*†‡§	n = 34	n = 3	n = 37	n = 23	n = 29	n = 52		.83
No problem at all	13 (38.2)	2 (66.7)	15 (40.5)	10 (43.5)	11 (37.9)	21 (40.4)		
A little problem	15 (44.1)	0 (0)	15 (40.5)	9 (39.1)	14 (48.3)	23 (44.2)		
A big problem	6 (17.6)	1 (33.3)	7 (18.9)	4 (17.4)	4 (13.8)	8 (15.4)		
Heavy menstrual periods*†‡§	61 (19.9)	2 (5.6)	63 (18.4)	32 (22.4)	26 (12.8)	58 (16.8)	1.10 (0.79-1.51)	.62
Problem caused by heavy menstrual periods*†‡§	n = 60	n = 2	n = 62	n = 30	n = 26	n = 56		.35
No problem at all	14 (23.3)	1 (50.0)	15 (24.2)	8 (26.7)	5 (19.2)	13 (23.2)		
A little problem	38 (63.3)	0 (0)	38 (61.3)	15 (50.0)	14 (53.8)	29 (51.8)		
A big problem	8 (13.3)	1 (50.0)	9 (14.5)	7 (23.3)	7 (26.9)	14 (25.0)		
Fatigue/tiredness*†	227 (55.8)	22 (44.9)	249 (54.6)	121 (59.6)	117 (45.5)	238 (51.7)	1.06 (0.93-1.19)	.39
Problem caused by fatigue/tiredness*†	n = 219	n = 21	n = 240	n = 119	n = 113	n = 232		.99
No problem at all	53 (24.2)	8 (38.1)	61 (25.4)	24 (20.2)	33 (29.2)	57 (24.6)		
A little problem	134 (61.2)	11 (52.4)	145 (60.4)	74 (62.2)	70 (61.9)	144 (62.1)		
A big problem	32 (14.6)	2 (9.5)	34 (14.2)	21 (17.6)	10 (8.8)	31 (13.4)		
Breast problems*†	23 (5.7)	2 (4.1)	25 (5.5)	12 (5.9)	9 (3.5)	21 (4.6)	1.20 (0.68-2.11)	.55
Problem caused by breast problems†	N = 22	N = 2	N = 24	N = 12	N = 9	N = 21		.89
No problem at all	6 (27.3)	0 (0)	6 (25.0)	4 (33.3)	3 (33.3)	7 (33.3)		
A little problem	14 (63.6)	2 (100)	16 (66.7)	8 (66.7)	5 (55.6)	13 (61.9)		
A big problem	2 (9.1)	0 (0)	2 (8.3)	0 (0)	1 (11.1)	1 (4.8)		
Constipation*†	112 (27.5)	12 (24.5)	124 (27.2)	37 (18.2)	56 (21.8)	93 (20.2)	1.35 (1.06-1.70)	.02
Problem caused by constipation†	n = 110	n = 12	n = 122	n = 37	n = 56	n = 93		.32
No problem at all	21 (19.1)	4 (33.3)	25 (20.5)	12 (32.4)	12 (21.4)	24 (25.8)		
A little problem	71 (64.5)	8 (66.7)	79 (64.8)	21 (56.8)	37 (66.1)	58 (62.4)		
A big problem	18 (16.4)	0 (0)	18 (14.8)	4 (10.8)	7 (12.5)	11 (11.8)		
Headache*†	150 (36.9)	13 (26.5)	163 (35.7)	79 (38.9)	78 (30.4)	157 (34.1)	1.05 (0.88-1.25)	.63
Problem caused by headache†	n = 147	n = 13	n = 160	n = 79	n = 77	n = 156		.50
No problem at all	39 (26.5)	4 (30.8)	43 (26.9)	15 (19.0)	22 (28.6)	37 (23.7)		
A little problem	84 (57.1)	8 (61.5)	92 (57.5)	47 (59.5)	45 (58.4)	92 (59.0)		
A big problem	24 (16.3)	1 (7.7)	25 (15.6)	17 (21.5)	10 (13.0)	27 (17.3)		

Table IV Continued

Outcome	Planned CS n = 457 n (%) CS n = 408	VB n = 49	Total n = 457	Planned VB n = 460 n (%) CS n = 203	VB n = 257	Total n = 460	Relative risk (95% CI)	*P*
Backache*†	169 (41.5)	18 (36.7)	187 (41.0)	85 (41.9)	98 (38.1)	183 (39.8)	1.03 (0.88-1.21)	.74
Problem caused by backache†	n = 163	n = 18	n = 181	n = 83	n = 96	n = 179		.18
No problem at all	35 (21.5)	6 (33.3)	41 (22.7)	11 (13.3)	21 (21.9)	32 (17.9)		
A little problem	108 (66.3)	10 (55.6)	118 (65.2)	57 (68.7)	62 (64.6)	119 (66.5)		
A big problem	20 (12.3)	2 (11.1)	22 (12.2)	15 (18.1)	13 (13.5)	28 (15.6)		
Painful perineum*†	17 (4.3)	1 (2.1)	18 (4.0)	6 (3.0)	22 (8.6)	28 (6.2)	0.65 (0.37-1.16)	.17
Problem caused by painful perineum†	n = 17	n = 1	n = 18	n = 6	n = 22	n = 28		.03
No problem at all	4 (23.5)	1 (100)	5 (27.8)	1 (16.7)	2 (9.1)	3 (10.7)		
A little problem	7 (41.2)	0 (0)	7 (38.9)	5 (83.3)	17 (77.3)	22 (78.6)		
A big problem	6 (35.3)	0 (0)	6 (33.3)	0 (0)	3 (13.6)	3 (10.7)		
Hemorrhoids/piles*†	81 (19.9)	12 (25.0)	93 (20.4)	42 (20.7)	43 (16.7)	85 (18.5)	1.10 (0.85-1.44)	.50
Problem caused by hemorrhoids/piles†	n = 81	n = 12	n = 93	n = 41	n = 43	n = 84		.19
No problem at all	19 (23.5)	4 (33.3)	23 (24.7)	13 (31.7)	13 (30.2)	26 (31.0)		
A little problem	50 (61.7)	7 (58.3)	57 (61.3)	24 (58.5)	27 (62.8)	51 (60.7)		
A big problem	12 (14.8)	1 (8.3)	13 (14.0)	4 (9.8)	3 (7.0)	7 (8.3)		
Difficulty or pain voiding or passing urine†	16 (3.9)	1 (2.0)	17 (3.7)	8 (3.9)	14 (5.4)	22 (4.8)	0.78 (0.42-1.45)	.51
Problem caused by difficulty or pain voiding or passing urine†	n = 16	n = 1	n = 17	n = 8	n = 14	= 22		.90
No problem at all	4 (25.0)	0 (0)	4 (23.5)	2 (25.0)	2 (14.3)	4 (18.2)		
A little problem	10 (62.5)	1 (100)	11 (64.7)	5 (62.5)	9 (64.3)	14 (63.6)		
A big problem	2 (12.5)	0 (0)	2 (11.8)	1 (12.5)	3 (21.4)	4 (18.2)		
Vaginal discharge*†	106 (26.0)	17 (35.4)	123 (27.0)	67 (33.0)	81 (31.5)	148 (32.2)	0.84 (0.69-1.03)	.10
Problem caused by vaginal discharge†	n = 106	n = 17	n = 123	n = 67	n = 81	n = 148		.84
No problem at all	45 (42.5)	9 (52.9)	54 (43.9)	31 (46.3)	28 (34.6)	59 (39.9)		
A little problem	51 (48.1)	5 (29.4)	56 (45.5)	29 (43.3)	48 (59.3)	77 (52.0)		
A big problem	10 (9.4)	3 (17.6)	13 (10.6)	7 (10.4)	5 (6.2)	12 (8.1)		
Sexual problems*†	36 (8.9)	0 (0)	36 (7.9)	15 (7.4)	23 (8.9)	38 (8.3)	0.96 (0.62-1.49)	.90
Problem caused by sexual problems†	n = 36	n = 0	n = 36	n = 15	n = 23	n = 38		.73
No problem at all	2 (5.6)	0 (0)	2 (5.6)	2 (13.3)	2 (8.7)	4 (10.5)		
A little problem	20 (55.6)	0 (0)	20 (55.6)	6 (40.0)	16 (69.6)	22 (57.9)		
A big problem	14 (38.9)	0 (0)	14 (38.9)	7 (46.7)	5 (21.7)	12 (31.6)		
Frequent distressing memories or dreams of the birth experience in the Term Breech Trial*†	17 (4.2)	1 (2.0)	18 (3.9)	16 (7.9)	10 (3.9)	26 (5.7)	0.7 (0.39-1.26)	.28
Problem caused by the frequent distressing memories or dreams of the birth experience in the Term Breech Trial†	n = 17	n = 1	n = 18	n = 16	n = 10	n = 26		.49

Table IV Continued

Outcome	Planned CS n = 457 n (%) CS n = 408	VB n = 49	Total n = 457	Planned VB n = 460 n (%) CS n = 203	VB n = 257	Total n = 460	Relative risk (95% CI)	P
No problem at all	5 (29.4)	1 (100)	6 (33.3)	6 (37.5)	1 (10.0)	7 (26.9)		
A little problem	8 (47.1)	0 (0)	8 (44.4)	9 (56.3)	7 (70.0)	16 (61.5)		
A big problem	4 (23.5)	0 (0)	4 (22.2)	1 (6.3)	2 (20.0)	3 (11.5)		

* There were a few women that did not respond to this question;

† women were asked to describe their experience over the previous 3 to 6 months;

‡ 67 women in the planned cesarean section group and 78 women in the planned vaginal birth group had not had menstrual periods within the previous 3 to 6 months;

§ irregular menstrual periods were ones that were generally more frequent or less frequent than once a month; heavy menstrual periods were ones in which bleeding occurred for more than 4 to 5 days or where one had to change pads or tampons more than every 2 hours.

Planned cesarean section did not increase the risk of most common health problems at 2 years after the delivery. Constipation was increased with planned cesarean section, but this association has not been previously reported and could be due to chance, as we assessed numerous maternal outcomes.

However, immediate postpartum maternal morbidity is somewhat higher with planned cesarean section[21] and the risk of problems in subsequent pregnancies, which our study was not able to address, may be increased. Observational studies have found that delivery by cesarean section increases the risk of placenta praevia, placenta accreta, uterine rupture, and the need for a repeat cesarean section in subsequent pregnancies.[22,23] The maternal risks associated with elective prelabor cesarean section, however, are likely lower than those with a cesarean section undertaken during active labor.[1,24,25]

Lastly, among the women who were monitored to 2 years postpartum in the Term Breech Trial, only 56% of those in the planned vaginal birth group actually delivered vaginally. Thus, the findings of no major reductions or increases in risk with planned cesarean section are only generalizable to women who would have a high likelihood of emergency cesarean section if a vaginal birth was planned. For other women who would have a lower likelihood of needing an emergency cesarean section, such as those with a fetus in cephalic presentation, planned cesarean section may be associated with greater benefits, as well as greater risks than we found in this study.

In summary, planned cesarean section is not associated with substantially better or worse outcomes for women 2 years after the birth compared with planned vaginal birth, if the fetus is in breech presentation at term.

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