

Outcomes of Routine Episiotomy

A Systematic Review

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EPISIOTOMY IS AMONG THE MOST common surgical procedures experienced by women in the United States.¹ Thirty percent to 35% of vaginal births include episiotomy.^{2,3} Episiotomy became routine practice well before emphasis on using outcomes research to inform practice. In seeking to establish an evidence base to support or refute the use of episiotomy, randomized clinical trials in the mid and late 1980s found that routine episiotomy compared with restrictive use was associated with higher risk of anal sphincter and rectal injuries and precluded a woman from giving birth with an intact or minimally damaged perineum.⁴⁻⁷ Larger trials in more varied populations followed in the 1990s, with similar results. Investigators also began to assess longer-term outcomes such as persistent pain, pelvic floor defects, urinary and rectal continence, and sexual function and satisfaction.

Despite decades of research, which many interpret as definitive evidence against routine use of episiotomy, little professional consensus has developed about the appropriateness of routine use. Lack of consensus is illustrated by

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Context Episiotomy at the time of vaginal birth is common. Practice patterns vary widely, as do professional opinions about maternal risks and benefits associated with routine use.

Objective To systematically review the best evidence available about maternal outcomes of routine vs restrictive use of episiotomy.

Evidence Acquisition We searched MEDLINE, Cumulative Index to Nursing and Allied Health Literature, and Cochrane Collaboration resources and performed a hand search for English-language articles from 1950 to 2004. We included randomized controlled trials of routine episiotomy or type of episiotomy that assessed outcomes in the first 3 postpartum months, along with trials and prospective studies that assessed longer-term outcomes. Twenty-six of 986 screened articles provided relevant data. We entered data into abstraction forms and conducted a second review for accuracy. Each article was also scored for research quality.

Evidence Synthesis Fair to good evidence from clinical trials suggests that immediate maternal outcomes of routine episiotomy, including severity of perineal laceration, pain, and pain medication use, are not better than those with restrictive use. Evidence is insufficient to provide guidance on choice of midline vs mediolateral episiotomy. Evidence regarding long-term sequelae is fair to poor. Incontinence and pelvic floor outcomes have not been followed up into the age range in which women are most likely to have sequelae. With this caveat, relevant studies are consistent in demonstrating no benefit from episiotomy for prevention of fecal and urinary incontinence or pelvic floor relaxation. Likewise, no evidence suggests that episiotomy reduces impaired sexual function—pain with intercourse was more common among women with episiotomy.

Conclusions Evidence does not support maternal benefits traditionally ascribed to routine episiotomy. In fact, outcomes with episiotomy can be considered worse since some proportion of women who would have had lesser injury instead had a surgical incision.

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variation in use. At 18 Philadelphia hospitals studied in the mid 1990s, 42% of women overall had an episiotomy, while hospital averages ranged from 20% to 73%.⁸ From 1987 to 1992, Low and colleagues⁹ documented clinician-level variation from 13.3% to 84.6%, with an average of 51% among spontaneous term births in a prospectively enrolled population of uncomplicated births. Wide variation existed among both midwives and physicians. Variation has also been reported by time of day¹⁰ and by facility type, size, and location.¹¹ Obstetric health care practitioners who view episiotomy favorably endorse survey items that state that

episiotomy should be used to “prevent perineal trauma and to prevent pelvic floor relaxation and the conse-

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quences of pelvic floor relaxation, such as bladder prolapse and urinary incontinence.” Furthermore, they agree with the statement that they “prefer to employ episiotomy frequently because it is easier to repair than the laceration that results when episiotomy is not used.”¹² Simultaneous belief in prevention of future sequelae and ease of repair creates potential for misattributed motivations.

National data on use of episiotomy show a consistent decline over the prior 2 decades.^{1,2} However, persistent wide practice variation suggests that episiotomy use is heavily driven by local professional norms, experiences in training, and individual practitioner preference rather than variation in the needs of individual women at the time of vaginal birth. Our goal was to refocus attention on routine episiotomy by systematically reviewing the best evidence available about the maternal outcomes of routine vs restrictive use of episiotomy, including type of episiotomy. Specifically, we sought to describe maternal outcomes such as degree of perineal injury and pain close to the time of birth, as well as longer-term outcomes such as urinary and fecal incontinence, pelvic floor defects, and sexual dysfunction.

EVIDENCE ACQUISITION

We sought studies that (1) reported outcomes related to episiotomy and perineal injury at the time of vaginal birth; (2) were published in English; (3) had more than 40 participants; and (4) reported original research.¹³ For summary of short-term maternal outcomes of routine vs restrictive use of episiotomy or of episiotomy type, we limited searches to randomized clinical trials. For longer-term outcomes, such as incontinence, pelvic floor defects, and sexual function, we included both trials and prospective cohorts.

In collaboration with a research librarian, we searched MEDLINE, Cochrane Collaboration resources, and the Cumulative Index to Nursing and Allied Health Literature using the search terms *episiotomy* and *labor stage, sec-*

ond. We then hand-searched reference lists of research articles, reviews, and texts and consulted with our advisory group to ensure full identification of relevant articles from 1950 through May 2004. We conducted dual independent reviews of abstracts and a single review of full articles to apply the inclusion criteria. Initial data abstraction was done by K.H., M.V., R.P., G.G., and J.T. and a second team member assessed initial entries for accuracy, completeness, and consistency. The 2 abstractors, with the full team as needed, reconciled discrepancies.

To rate quality of individual articles, 2 authors independently rated each article. A third author reviewed scores and flagged differences. We reconciled any differences in component or overall quality classification by consensus. To grade the global strength of evidence relevant to specific outcomes, we used the approach described by West and colleagues.¹⁴ That system encompasses 3 domains: (1) quality of the individual studies as assessed by examination of a checklist of specific elements of study design and conduct; (2) quantity of relevant studies identified (including number of studies and adequacy of the sample size); and (3) consistency of findings. Grades for strength of evidence were assigned by consensus.¹³

Although meta-analysis was not the primary goal, we calculated summary measures when possible. Variation between studies was assessed using tests of homogeneity, including exact tests as required. Scarcity of studies with similar exposure categories, outcome measures, and timing of measurement often prohibited calculation of summary measures and examination of sources of heterogeneity. For summary estimates, we required similar measures in the same time frame. When heterogeneity was observed ($P < .10$), we used DerSimonian and Laird random-effects models to generate summary measures.¹⁵ If no meaningful heterogeneity was found, we applied Mantel-Haenszel fixed-effects models to estimate summary measures.

EVIDENCE SYNTHESIS

Our search identified 986 articles; 659 were excluded after reviewing the abstract. We reviewed the full texts of 327 articles. Twenty-six met inclusion criteria.

Maternal Postpartum Outcomes

Seven randomized trials, with a total of 5001 participants, compared restrictive vs routine use of episiotomy.¹⁶⁻²² Six of the 7 trials used mediolateral episiotomy. The only North American trial, conducted in Canada, used midline episiotomy, which is more conventional in the United States.¹⁹ Each trial compared 2 groups: a group in which the obstetric health care practitioner was to restrict use of episiotomy and a group with a liberal use policy that endorsed routine use. The strictest definition of restrictive use was to avoid episiotomy unless indicated for fetal well-being.^{16,22} Other definitions pivoted on instructions to “avoid episiotomy,” use only when “medically necessary,” or not perform episiotomy for the purpose of avoiding a laceration.^{17-19,21} The largest trial defined restrictive use as only for fetal indications or to avoid severe lacerations.²⁰ Routine use groups were defined in terms such as “routinely conducted,” “usual care,” and “elective.”¹⁷⁻²¹ Two studies described routine as use to preempt a tear.^{16,22}

Overall, inclusion criteria for these studies were poorly specified. Generally, participants had term births of singletons with vertex presentation. Three studies enrolled only women having a first birth, which eliminates influence of prior perineal trauma on trial outcomes.^{17,21,22} In studies without parity restrictions, the proportion of women who were primiparous ranged from 40% to 68%, with good balance between study groups.^{16,18-20} In 1 exception, multiparous women were somewhat more likely to be in the restrictive use group.¹⁸

Each study focused on normal spontaneous vaginal births. To reduce the number of operative vaginal deliveries or cesarean births, most trials allocated women as close to birth as feasible. The

Table 1. Perineal Injury Outcomes of Clinical Trials of Routine vs Restrictive Episiotomy Use

Source	Total No. of Participants	Group	No.	Intact Perineum, %	Episiotomy Performed, %	Third- or Fourth-Degree Tear, %	Anterior Tears, %	Any Use of Suturing, %
Sleep et al, ¹⁶ 1984	1000	Routine	502	24.3	51.4	0.2	17.3	78.0
		Restrictive	498	33.9	10.2	0.8	26.3	69.0
Harrison et al, ¹⁷ 1984	181	Routine	89	...	44.9	5.6
		Restrictive	92	20.6	7.6	0.0
House et al, ¹⁸ 1986	165	Routine	71	11.3	69.0	1.4
		Restrictive	94	42.6	18.1	0.0
Klein et al, ¹⁹ 1992	703	Routine	350	12.6	93.7	7.4	10.6	...
		Restrictive	353	19.2	43.8	7.7	14.9	...
Argentine Episiotomy Trial Collaborative Group, ²⁰ 1993	2606	Routine	1298	...	82.6	1.5	8.1	88.1
		Restrictive	1308	...	30.1	1.1	19.2	63.0
Eltorkey and Nuaim, ²¹ 1994	200	Routine	100	7.0	83.0	0.0	18.0	85.0
		Restrictive	100	28.0	53.0	0.0	12.0	67.0
Dannecker et al, ²² 2004	146	Routine	76	10.0	76.7	8.3	41.7	...
		Restrictive	70	28.6	40.8	4.1	55.1	...

Abbreviation: Ellipses indicate data not reported.

proportion of assisted vaginal births ranged from 0 to 5%^{16,19-21} up to 15%.^{17,18,22} In 2 cases, authors noted the number of cesarean births and exclusion from further analyses.^{19,22} Both of these studies enrolled women during prenatal care, an approach that improved representativeness of the population, making exclusion from analysis logical.

Perineal Outcomes. The strongest trial (good quality) was the first conducted,¹⁶ which achieved a wide gradient of episiotomy use: 10.2% in the restrictive use group and 51.4% in the routine use group. Women in the restrictive use group were more likely to have an intact perineum; 33.9% in the restrictive use group had neither posterior perineal lacerations nor episiotomy compared with 24.3% in the routine use group. Third- and fourth-degree lacerations were rare (0.5% overall) and did not differ by group. Among nulliparous women, 74% of the restrictive use group compared with 89% of the routine use group required any suturing, including for anterior or labial lacerations. For multiparous women, 66% of the restrictive use group and 69% of the routine use group required sutures.¹⁶

The largest trial was a multisite Argentine study of fair quality, with 2606 participants.²⁰ This study docu-

mented decreased risk of posterior perineal surgical repair (relative risk [RR], 0.72; 95% confidence interval [CI], 0.68-0.75) and a 2.4-fold increase in risk of anterior tears among women in the restrictive use group (95% CI, 1.89-2.94) compared with routine use. Sixty-three percent of women in the restrictive use group had a surgical repair compared with 88% in the routine use group. Pain and healing complications were less frequent in the restrictive use group.

Results of the remaining trials were compatible with these findings (TABLE 1): intact perineum was uniformly less common in the routine compared with the restrictive use group (RR, 0.46; 95% CI, 0.30-0.70).^{16,18,19,21,22} With 2 exceptions,^{16,19} studies reported more third- and fourth-degree lacerations in the routine use group. All trials were underpowered to distinguish differences, with a total of 105 rectal injuries among 5001 participants (RR for routine vs restrictive use, 1.13; 95% CI, 0.78-1.65).¹⁶⁻²² Anterior lacerations, including anterior labial lacerations, were more common in the restrictive use groups in 4 studies^{16,19,20,22} and in the routine use group in 1 study.²¹ Anterior lacerations did not contribute to overall higher use of suturing, suggesting that these tears were less severe than posterior tears. Need for any suturing was 26% higher

in the routine use groups (RR, 1.26; 95% CI, 1.08-1.48).^{16,20,21}

Pain Outcomes. Five studies assessed pain outcomes (TABLE 2).^{16,18-20,22} Sleep and colleagues used midwives masked to group to assess pain at 10 postpartum days.¹⁶ Participants reported their pain severity in the prior 24 hours. Severity was virtually identical between groups: in the routine use group, 14.6% had mild pain, 7.8% had moderate pain, and 0.2% had severe pain; respective proportions for the restrictive use group were 14.1%, 7.5%, and 0.9%. Use of oral analgesics by postpartum day 10 was rare and comparable at 2% and 3%, respectively. Pain outcomes were also comparable at 3 months.

House and colleagues reported that level of pain was more severe on the third postpartum day in the routine use group.¹⁸ They assessed pain using a visual analog scale during an interview conducted by an author (masking was not noted). On day 3 in the routine use group, 11% had severe pain, 34% had moderate pain, and 55% had mild pain; respective categories for the restrictive use group were 10%, 22%, and 68%. The restrictive use group had less tenderness on examination on the third postpartum day: 79% had mild or minimal pain, 18% had moderate pain, and 3% had severe pain compared with 51%, 39%, and 10% in the routine use group,

Table 2. Perineal Pain Outcomes of Clinical Trials of Routine vs Restrictive Episiotomy Use

Source	No./Total Participants	Assessment	Timing of Assessment	Outcome Group	Study Group	
					Routine	Restrictive
Sleep et al, ¹⁶ 1984	885/1000	Pain severity in prior 24 h, %	10 d	Mild Moderate Severe	14.6 7.8 0.2	14.1 7.5 0.9
House et al, ¹⁸ 1986	165/165	Pain severity using VAS (1-3, minimal; 4-6, moderate; 7-10, severe), %	3 d	Minimal Moderate Severe	54.9 33.8 11.3	68.1 22.3 9.6
Klein et al, ¹⁹ 1992	703/703	Mean perineal pain severity score using 6-point McGill Pain Scale*	1 d 2 d 10 d		1.56 1.10 0.40	1.50 1.16 0.40
Argentine Episiotomy Trial Collaborative Group, ²⁰ 1993	2422/2606	Any perineal pain (not defined), %	Discharge		42.5	30.7
Dannecker et al, ²² 2004	53/146	Mean (SD) maximum pain score using 100-mm VAS scale (0 = "not at all"; 100 = "very much")	1-5 d	Bed rest Sitting Walking Defecation	39 (28) 69 (23) 56 (24) 36 (30)	22 (21) 51 (25) 37 (24) 21 (21)

Abbreviation: VAS, visual analog scale.

*Mean perineal pain scores were calculated from stratified numbers in the original article and weighted by parity (primiparous = 359; multiparous = 344).

respectively. These differences were statistically significant and likely to be clinically relevant. Differences in pain by group were resolved by 6 weeks and 3 months.

The only trial using midline episiotomy found no difference in McGill Pain Scale scores for perineal pain or pain with urination on days 1, 2, and 10.¹⁹ The Argentine study²⁰ did not adequately define how they measured pain and reported "pain on the day of discharge." The routine use group was described as 42.5% with pain and the restrictive use group as 30.7% with pain.

The most recent study provided the most nuanced approach to pain assessment.²² The investigators used a 100-mm visual analog scale to assess pain with 4 activities. During bed rest, women in the routine use group reported mean scores of 39 mm (SD, 28 mm) compared with 22 mm (SD, 21 mm) in the restrictive use group; during sitting, 69 mm (SD, 23 mm) compared with 51 mm (SD, 25 mm); during walking, 56 mm (SD, 24 mm) vs 37 mm (SD, 24 mm); and during defecation, 36 mm (SD, 30 mm) vs 21 mm (SD, 21 mm). Across all activities the restrictive use group experienced less perineal pain ($P = .005-.048$), with differences likely to be clinically significant.

None of the 5 studies found pain to be lessened by routine episiotomy. No

summary measures were appropriate given the variety of methods and timing of pain measurement.

Healing Outcomes. Two trials reported physical examinations. The Argentine trial reported no differences in hematoma prior to discharge and, at 7 days, infection, healing complications, or dehiscence. Only 44% of the women were evaluated at 7 postpartum days.²⁰ House and colleagues¹⁸ examined participants at 3 days and at 6 weeks. Risk of infection was assessed for all participants on day 3. Poor wound apposition and granulation tissue, indicating secondary healing, were assessed at the later visit, which included 53% of participants. Each adverse outcome was equivalent.

Other Outcomes. Two studies estimated maternal blood loss. One found no difference in change in maternal hemoglobin.²² The other found that estimated blood loss (method not defined) was 58 mL greater in the routine use group, a statistically but not clinically relevant difference.¹⁸

Incision Type

Only 1 trial and no prospective cohorts compared midline and mediolateral episiotomy.²³ The trial allocated women having a first birth to midline episiotomy ("incisions divided 2 cm to 3 cm of the perineal tissue in the mid-

line") or mediolateral incisions ("made from the midline and carried to the right of the anal sphincter for about 3 cm to 4 cm").²³ This study received a poor quality rating. We noted an inadequate randomization method, lack of allocation concealment, and failure to mask outcome assessors as potential sources of bias.

More complications occurred in the midline group ($P < .001$). Twenty-four percent of the midline group had an extension of the episiotomy into or through the sphincter compared with 9% of the mediolateral group. The midline group had less bruising of the perineum ($P < .001$). The investigators did not find differences in pain. Of participants, 76% attended 3-month follow-up. Women in the midline group began sexual intercourse earlier ($P < .01$) and had a better cosmetic appearance of the scar ($P < .02$) than the mediolateral group. No differences in pain or satisfaction from sexual intercourse were identified.

Urinary Incontinence, Fecal Incontinence, and Pelvic Floor Defects

Sixteen publications prospectively collected data about continence or pelvic floor muscle function (TABLE 3). These publications include 4 reports from 2 trials of restrictive vs routine epis-

otomy^{16,19,24,25} and 12 additional prospective cohorts.²⁶⁻³⁷

Neither trial found meaningful differences in measures of urinary incontinence, including perineometry, and self-report of involuntary loss of urine, use of a pad, and loss of urine with coughing, sneezing, and laughing at 3 months^{16,19} or 3 years.²⁴ Among pro-

spective studies, Sartore and colleagues²⁹ conducted the most global assessment of continence and pelvic floor function. At 3 months, women who had episiotomy had reduced pelvic floor muscle strength as assessed by perineometry compared with women with spontaneous tears. The clinical significance of this finding is unclear be-

cause all self-reported symptoms of urinary and anal incontinence and degree of prolapse on physical examination were equivalent.

In addition to trials, 6 studies (5 study populations) evaluated self-reports of urinary continence.^{26-29,32,33} Episiotomy and spontaneous-tear groups had the same frequency of in-

Table 3. Urinary and Rectal Continence Outcomes*

Source	No./Total Participants	Timing of Assessment	Self-reported Symptoms	Outcome Group	Study Group	
					Routine	Restrictive
Urinary Incontinence: Clinical Trials of Routine vs Restrictive Episiotomy Use						
Sleep et al, ¹⁶ 1984	895/1000 Routine, n = 457 Restrictive, n = 438	3 mo	Involuntary loss of urine, % Pad use for loss of urine, %		19.0 5.9	18.9 5.9
Sleep and Grant, ²⁴ 1987	643/1000 Routine, n = 333 Restrictive, n = 310	3 y	Involuntary loss of urine, % Pad use, %	Less than once per wk 1-2 times in prior wk ≥3 times in prior wk Sometimes Daily	24.6 10.5 2.1 7.2 1.2	22.3 11.9 1.9 8.4 1.6
Klein et al, ¹⁹ 1992	674/703 Routine, n = 337 Restrictive, n = 337	3 mo	Involuntary loss of urine, %	Primiparous Multiparous	14.5 21.5	21.1 12.9
Urinary Incontinence: Prospective Cohorts Comparing Women With vs Without Episiotomy†						
Rockner, ²⁶ 1990	182/205 Episiotomy, n = 140 No episiotomy, n = 42	4 y	Involuntary loss of urine, %	Occasionally Once per wk 2-3 times per wk >3 times per wk	26.4 7.1 1.4 0.7	No Episiotomy‡ 28.6 2.4 2.4 2.4
Karacam and Eroglu, ²⁷ 2003	100/100 Episiotomy, n = 50 No episiotomy, n = 50	3 mo	Stress incontinence (not defined), %		24.0	30.0
Eason et al, ²⁸ 2004	835/949 Episiotomy, n = 223 No episiotomy, n = 612	3 mo	Involuntary loss of urine, %	Any	29.1	35.0
Sartore et al, ²⁹ 2004	519/519 Episiotomy, n = 254 No episiotomy, n = 265	3 mo	Stress incontinence (not defined), %		13.0	12.1
Rectal Incontinence: Prospective Cohorts Comparing Women With vs Without Episiotomy†						
Eason et al, ³¹ 2002	834/1198 Episiotomy, n = 223 No episiotomy, n = 611	3 mo	Involuntary loss of stool or flatus, %	Stool Flatus	5.4 29.1	No Episiotomy 2.5 24.4
Sartore et al, ²⁹ 2004	519/519 Episiotomy, n = 254 No episiotomy, n = 265	3 mo	Anal incontinence (not defined), %		2.8	1.9
MacArthur et al, ³⁰ 1997	879/906 Episiotomy, n = 188 No episiotomy, intact, n = 391; ST, n = 300	10 mo	Loss of bowel control, soiling or staining, %	Primiparous Multiparous	4.6 8.8	Intact ST 5.2 2.9 5.1 2.7

Abbreviation: ST, spontaneous tear.

*Data exclude intermediate measures such as perineometry and physical examination of rectal sphincter disruption and prolapse.

†Two publications for urinary incontinence^{31,32} and 1 publication for rectal incontinence³³ did not provide data by study group.

‡Only those with spontaneous tears in comparison group.

continence symptoms (RR for trials, 1.02; 95% CI, 0.83-1.26; RR for cohorts, 0.88; 95% CI, 0.72-1.07).^{16,19,27-29} No evidence supports episiotomy to prevent pelvic floor damage. Four cohort studies asked women about rectal incontinence, including 1 that also conducted physical examinations.^{29-31,34} None found episiotomy to be statisti-

cally associated with reduced risk of incontinence of stool or flatus. Indeed, in aggregate the 2 studies with comparable measures suggest an almost 2-fold increase in risk (RR, 1.91; 95% CI, 1.03-3.56).^{29,31}

Five studies included physiologic measures of pelvic floor muscle function. None found an advantage for epi-

siotomy^{25,35-37} and 1 identified a decrease in muscle strength.²⁹ These muscle function measures concur with self-report and clinical examination findings of other studies. Episiotomy confers no benefits with respect to preserving continence or pelvic floor muscle function within months or years of birth. Longer-term data are absent.

Table 4. Sexual Function Outcomes

Source	No. of Participants at Follow-Up	Timing of Assessment	Self-reported Symptoms	Outcome Group		Study Group		
				Routine	Restrictive			
Clinical Trials of Routine vs Restrictive Episiotomy Use								
Sleep et al, ¹⁶ 1984	895/1000 Routine, n = 457 Restrictive, n = 438	3 mo	Resumption of intercourse, %	89.9	90.0			
			Current pain with intercourse, %	18.0	21.8			
			Pain with intercourse in prior 3 mo, %	51.1	52.0			
Sleep and Grant, ²⁴ 1987	674/1000 Routine, n = 329 Restrictive, n = 345	3 y	Any painful intercourse since birth, %	16	13			
Klein et al, ¹⁹ 1992	612/703 Routine, n = 303 Restrictive, n = 309*	3 mo	Time to resumption of intercourse, mean (SD), wk	Primiparous	5.8 (2.1)	5.9 (2.5)		
				Multiparous	5.8 (2.6)	5.4 (2.3)		
			Pain at first postpartum intercourse (6-point McGill Pain Scale), mean (SD)	Primiparous	2.2 (1.3)	2.2 (1.3)		
				Multiparous	1.3 (1.1)	1.2 (1.0)		
			Sexual satisfaction scale (items not provided), mean (SD)	Primiparous	3.1 (0.7)	3.0 (0.8)		
				Multiparous	3.3 (0.7)	3.3 (0.6)		
Prospective Cohorts Comparing Women With vs Without Episiotomy†								
Rockner et al, ³⁸ 1988	200/205 Episiotomy, n = 154 No Episiotomy, n = 46	3 mo	Resumption of intercourse, %	92.2	92.0			
			Current pain with intercourse, %	20.1	19.6			
			Any painful intercourse since birth, %	44.2	43.5			
Karacam and Eroglu, ²⁷ 2003	96/100 Episiotomy, n = 48 No episiotomy, n = 48	3 mo	Any pain with intercourse (not defined), %	64.6	54.2			
Sartore et al, ²⁹ 2004	519/519 Episiotomy, n = 48 No episiotomy, n = 265	3 mo	Current pain with intercourse, %	7.9	3.4			
Larsson et al, ³⁹ 1991	1037/1889 Episiotomy, n = 410 No Episiotomy, ST, n = 627; intact, n = 852	2-3 mo	Pain with intercourse (not defined), %	16.1	11.0	ST	Intact	
				...				
Klein et al, ²⁵ 1994	607/697 Episiotomy, n = 300 No Episiotomy, ST, n = 200; intact, n = 107§	3 mo	Resumption of intercourse by 6 wk, %	61.7	62.5	76.6		
			Pain at first postpartum intercourse, %	Mild	22.7	27.3	37.6	
				Discomforting	34.1	27.3	22.8	
				Distressing	28.8	24.6	6.9	
			Sexual satisfaction scale (items not provided), %	Not satisfied	16.7	15.8	5.0	

Abbreviation: ST, spontaneous tear. Ellipses indicate data not reported.

*Information not available for all respondents: n = 301 to 303 for routine use group; n = 306 to 309 for restrictive use group.

†One publication did not provide data by study group.⁴⁰

‡Spontaneous tear comparison group.

§Information not available for all respondents: n = 263 to 300 for episiotomy group; n = 183 to 200 for ST group; n = 100 to 107 for intact group.

Episiotomy and Sexual Function

Nine studies (10 publications) prospectively collected data about sexual function: 3 trials of restrictive vs routine use of episiotomy,^{16,19,24} 1 trial of mediolateral vs midline episiotomy,²³ and 5 prospective cohorts.^{25,27,29,38,39} One study described by the authors as retrospective included a time point at 6 months with current rather than recalled data about sexual function.⁴⁰

Two trials of restrictive vs routine episiotomy reported intention-to-treat analyses of long-term sexual outcomes (TABLE 4). In the first trial,¹⁶ 37% of the restrictive use group and 27% of the routine use group had resumed sexual intercourse by 1 month after the birth ($P < .01$). The proportions of women with resumption of intercourse by 3 months, dyspareunia at 3 months, or any dyspareunia within 3 months did not differ by group. By the third year of follow-up, likelihood of “ever suffering painful intercourse” remained comparable.²⁴

Klein and colleagues¹⁹ reported that women in the restrictive use group resumed intercourse an average of 1 week earlier than those in the routine use group. All measures of sexual function were equivalent by 3 months. This team conducted a separate analysis of type of perineal trauma and sexual function using 3-month interviews. Women with episiotomy had the slowest return to intercourse ($P = .02$). Pain with first postpartum intercourse was also most common and severe among women with episiotomy ($P < .001$).²⁵

Prospective cohort studies did not find differences in sexual function (Table 4). Only 1 study identified differences in dyspareunia at 3 months.²⁹ However, pooled estimates of prevalence at 3 months can be estimated from 2 cohorts.^{29,38} The summary estimate suggests that women with episiotomy tend to be more likely to report pain with intercourse 3 months after delivery (RR, 1.53; 95% CI, 0.93-2.51).^{29,38} The 2 studies that assessed any dyspareunia during the first 3 months after childbirth also found no difference in probability of having had painful intercourse.

CONCLUSIONS

Our systematic review finds no benefits from episiotomy. We identified fair to good evidence suggesting that immediate outcomes following routine use of episiotomy are no better than those of restrictive use. Indeed, routine use is harmful to the degree that some proportion of women who would have had lesser injury instead had a surgical incision.

Weak evidence from a single trial suggests that harms of midline episiotomy are greater than mediolateral episiotomy due to greater risk of rectal injury. Multiple retrospective cohort studies also document higher sphincter injury rates with midline episiotomy.⁴¹⁻⁴⁷ Health care practitioners attending births in the United States are likely to have greater experience performing midline than mediolateral episiotomy. We caution against a shift to an unfamiliar technique; suggesting more restrictive use of episiotomy will avert a larger number of all types of perineal injuries than change in technique.

The overall level of evidence on long-term sequelae—specifically, fecal and urinary incontinence, pelvic floor function, and future sexual function—is fair to poor. With regard to incontinence, the research is consistent in demonstrating lack of benefit in a comparatively early time frame. For women in later adult life, when morbidity is most likely to occur as severe and persistent incontinence or pelvic organ prolapse, the expected results of routine episiotomy are unknown. No evidence suggests that sexual function is improved by episiotomy; those who have episiotomy may be more likely to have pain with intercourse in the months after pregnancy and are slower to resume having intercourse.

While trials with strong definitions restricting use to fetal indications have achieved use as low as 8% to 10% (along with high proportions of births with an intact perineum),^{16,17} in contemporary practice episiotomy use remains more than 3-fold higher. In the absence of benefit and with a potential for harm, a procedure should be abandoned. The ma-

jority of the data we have reviewed have been available for decades and thoughtfully reviewed by others. As in many discretionary procedures, practice patterns have been slow to change. However, in this instance, clinicians have been the primary agents to exercise choice to conduct or not conduct an episiotomy, rather than patients.

The time has come to take on the professional responsibility of setting and achieving goals for reducing episiotomy use. Much as surgical specialists have reduced use of procedures like knee surgery for arthritis and tonsillectomy in children, clinicians must attend to aligning research evidence and episiotomy use. Rates of episiotomy of less than 15% of spontaneous vaginal births should be immediately within reach. Clinicians need to work within hospitals, practices, and birthing centers to better track the prevalence of circumstances that likely warrant use, such as fetal distress, to refine target rates that fit the characteristics and labor experiences of the populations. In doing so, clinicians must acknowledge that little, if any, evidence is available to define indications for use; however, it is clear that maternal benefit is not an indication. Investigators need to study barriers to decreased use, including the influence of case-mix on use, and to investigate approaches to promoting change in clinician behavior. As episiotomy is used less, opportunities will be gained to better study other techniques intended to prevent or reduce perineal injury. The goals for quality of care must remain focused on both optimizing safety for the infant and minimizing harm to the mother. Given that focus, clinicians have the opportunity to forestall approximately 1 million episiotomies each year that are not improving outcomes for mothers.

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Also Available: A more detailed systematic evidence review of episiotomy in obstetrical care will be available at <http://www.ahcpr.gov/clinic/epcix.htm>.

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