

The effect of male circumcision on the sexual enjoyment of the female partner

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Introduction

Male circumcision, the most commonly performed surgery in the USA, removes 33–50% of the penile skin, as well as nearly all of the penile fine-touch neuroreceptors [1]. To date no study has investigated whether this dramatic alteration in the male genitalia affects the sexual pleasure experienced by the female partner or whether women can physically discern the difference between a penis with or without a foreskin. The impact that male circumcision has on the overall sexual experience for either partner is unknown.

Just as female circumcision was advocated in some Muslim and African countries to control women's sexuality, so too was male circumcision introduced into English-speaking countries in the late 1800s as a method of treating and preventing masturbation [2]. While there has been debate over whether circumcision affects the sexual sensations of the penis, there have been few relevant studies. Four men circumcised in adulthood reported decreased sensitivity [3]. Writing under a pseudonym, a physician circumcised as an adult argued that the loss of sensitivity he experienced was favourable, as it gave him more control over his orgasms [4]. Another man, circumcised as an adult, lamented that the decrease in sensation could be equated with seeing in monochrome rather than colour.

Laumann *et al.* [5] found that circumcised men had different sexual practices from genitally unaltered men. Circumcised men were more likely to masturbate, to engage in heterosexual anal and oral sex, and to engage in homosexual anal sex. In the male rat, removal of the penile sheath markedly interferes with normal penile reflexes and copulation. When circumcised rats were paired with sexually experienced females, they had more difficulty obtaining an erection, more difficulty inserting the penis into the vagina, and required more mounts to inseminate than did unaltered males [6]. Preputial secretions in mice and rats are a strong attractant for female mice and rats [7–11], and may provoke the onset of oestrus in mature females [12].

There may be a histological explanation for these findings. The tip of the foreskin, and some or all of the frenulum, are routinely removed as part of circumcision. This tissue contains a high concentration of the nerve endings that sense fine touch [1]. After circumcision,

the surface of the glans thickens like a callus. The glans is innervated by free nerve endings that can only sense deep pressure and pain [13]. Over 30 years ago, Masters and Johnson, using undocumented methodology, tested the sensitivity of the glans in men with and without foreskins and found no difference [14]. The absence of fine-touch receptors in the glans could explain their findings, as Masters and Johnson may have been measuring the wrong variable. Without knowing what was measured or how, these results constitute little more than anecdotal evidence. A study from Iowa in the late 1980s [15] found that young mothers (who had recently given birth to sons) preferred intercourse with a circumcised man; however, the importance of this study is compromised, as only 16.5% of the women surveyed had sexual experience with both circumcised and intact men. The study results may reflect the tendency of people to choose the familiar and shun the unfamiliar. In a survey conducted on the Internet, circumcised men were significantly more likely to use additional artificial lubricants during sexual activity (odds ratio, OR = 5.64, 95% CI = 3.65–8.71) [16].

The 12th century physician and rabbi Moses Maimonides advocated male circumcision for its ability to curb a man's sexual appetite [17]. Further, he implied that it could also affect a woman's sexuality, indicating that once a woman had taken a lover who was not circumcised, it was very hard for her to give him up. The impact of male circumcision on the sexual pleasure experienced by both males and females is largely unstudied. While the brain is often cited as the primary 'sexual' organ, what impact does surgical alteration of the male genitalia have for both partners? Based on anecdotal reports, a survey was developed to determine the effect of male circumcision on a woman's ability to achieve vaginal orgasm (both single and multiple), to maintain adequate vaginal secretions, to develop vaginal discomfort, to enjoy coitus and to develop an intimate relationship with her partner. This review presents the findings of a survey of women who have had sexual partners both with and without foreskins, and reports their experiences.

Methods

Women having sexual experience with both circumcised and anatomically complete partners were recruited

through classified advertisements in magazines and an announcement in an anti-circumcision newsletter. Respondents to the advertisements were mailed a survey to complete and return, the comments then compiled and the responses analysed statistically. The survey is continuing and this article reports the preliminary results.

Of the 284 surveys, 139 were completed and returned; no attempts were made to characterize the demographic details of those who did not respond. The women completing the surveys were aware that their responses and comments could later be published anonymously in a forthcoming book. The survey included over 40 questions; the results were analysed for age, number of lifetime partners, preputial status of the most recent partner, preference for vaginal orgasms (as defined below) and their preference for a circumcised or intact penis. Multiple choice answers were assigned numeric values, i.e. 'increased', 'stayed about the same' and 'lessened' of 1, 0, and -1, respectively. Likewise, questions with answers of 'mostly yes', 'mostly no', 'rarely' and 'never' were assigned values of 3, 2, 1 and 0.

The survey defined 'vaginal orgasm' as 'an orgasm that occurs during intercourse, brought about by your partner's penis and pelvic movements and body contact, along with your own body's pelvic movements, with no simultaneous stimulation of the clitoris by the hands'. Premature ejaculation was defined as the man 'usually (50–100% of the time) has his orgasm within 2–3 min after insertion'. The survey included three sets of responses for the respondents to rate their sexual experiences with their circumcised and unaltered male partners; the questions and possible responses are listed in Appendix 1. Comparisons between responses are expressed as the OR and 95% CI.

Results

Of the 139 surveys returned, one considered a man who was undergoing foreskin restoration as having a foreskin; this survey was excluded from analysis. Not all questions were answered by all respondents. Contradictory answers to questions showed that not all respondents understood the questions; these responses and unanswered questions were excluded from the analysis. The demographic profile of the respondents is shown in Table 1.

Comparisons of experiences with circumcised or intact partners are shown in Tables 2 and 3. With their circumcised partners, women were more likely not to have a vaginal orgasm (4.62, 3.69–5.80). Conversely, women were more likely to have a vaginal orgasm with an unaltered partner. Their circumcised partners were more likely to have premature ejaculation

Table 1 The demographics of the respondents

<i>Variable</i>	<i>Mean/median/number</i>
Mean (sd) age (years)	37.3 (9.2)
<i>Number of partners;</i>	
Mean (sd)	14.7 (11.2)
Median	10
Preferred vaginal orgasm	71
<i>Preferred position for attaining vaginal orgasm;</i>	
woman on top	54
man on top	57
side to side	12
rear entry	4
no preference	9

(1.82, 1.45–2.27). Women were also more likely to state that they had vaginal discomfort with a circumcised partner either often (19.89, 5.98–66.22) or occasionally (7.00, 3.83–12.79) as opposed to rarely or never. More women reported that they never achieved vaginal orgasm with their circumcised partners (2.25, 1.13–4.50) than with their unaltered partners. Also, they were more likely to report never having had a multiple orgasm with their circumcised partners (2.22, 1.36–3.63). They were also more likely to report that vaginal secretions lessened as coitus progressed with their circumcised partners (16.75, 6.88–40.77).

During prolonged intercourse with their circumcised partners, women were less likely to 'really get into it' and more likely to 'want to get it over with' (23.32, 11.24–48.39). On the other hand, with their unaltered partners, the reverse was true; they were less likely to 'want to get it over with' and considerably more likely to 'really get into it.'

When the women were divided into those older or younger than 40 years, the older women were more likely to rate the frequency of orgasm as higher with an unaltered partner ($Z=2.04$, $P=0.02$). Women 29 years and younger were more likely to prefer orally induced orgasms (2.61, 1.14–5.97), while women over 40 years preferred vaginally induced orgasms more than those aged ≤ 29 years (3.00, 1.16–7.32). The older women also had more lifetime unaltered partners ($Z=2.95$, $P=0.002$). This may reflect the decreased availability of unaltered men of similar age for the younger women.

When the women were divided into those with more or fewer than 10 lifetime partners, those with >10 were more likely to have orgasms with their circumcised partners than those with fewer partners, but still less frequent orgasms than they had with their unaltered partners. Women who preferred a circumcised partner

Table 2 Ratings of experiences with circumcised men compared with experiences with normal men (uncircumcised). All difference were significant at $P < 0.001$

Item	Mean (SD) rating		
	Circumcised	Intact	Z value
Number of partners	10.36 (11.21)	3.61 (5.81)	6.16
Vaginal fluid secretions*	-0.23 (0.79)	0.60 (0.58)	-9.47
Vaginal discomfort†	2.01 (0.87)	0.85 (0.83)	10.93
Likelihood of vaginal orgasm (%)	34.7 (35.2)	60.6 (36.2)	6.16
Orgasm frequency rating‡	1.68 (1.13)	2.39 (1.02)	-5.39
Multiple orgasm frequency rating‡	0.96 (1.11)	1.59 (1.27)	-4.32
Duration of coitus (min)	10.72 (9.55)	14.85 (10.46)	-3.36
Number of responses to;			
not irritable‡	5.99 (4.73)	1.31 (2.54)	10.04
not distanced¶	5.10 (3.75)	0.84 (1.11)	10.81
Positive postcoital feelings§	1.95 (2.88)	5.01 (2.88)	-9.05
Overall rating (range -10 to +10)	1.81 (6.17)	8.03 (3.17)	10.33

* The responses were scored as 'increased' = 1, 'stayed about the same' = 0, 'lessened' = -1.

† The responses were scored as 'mostly yes' = 3, 'mostly no' = 2, 'rarely' = 1, 'never' = 0.

‡ Positive responses from 14 possibilities.

¶ Positive responses from 13 possibilities.

§ Positive responses from 8 possibilities.

overall were more likely to have had ≥ 10 partners (3.52, 0.92-13.50).

When women who preferred vaginal orgasm were compared with those preferring orally or manually induced orgasm, the former rated unaltered men higher ($Z = 2.12$, $P = 0.016$), had more positive postcoital feelings (Set 3; $Z = 2.68$, $P = 0.003$) with their unaltered partners, and rated these men higher overall ($Z = 2.12$, $P = 0.016$). These women were more likely to prefer being on top during coitus to achieve vaginal orgasm (2.46, 1.21-4.98). They were also more likely to have an unaltered man as their most recent partner (1.74, 0.87-3.47).

The women who preferred circumcised partners (as elicited in one of three questions, $n = 20$) were more likely to have had their first orgasm with a circumcised partner (3.10, 1.09-8.79) (when they often had not yet experienced an unaltered partner), and more likely to enjoy prolonged intercourse with a circumcised partner (8.38, 2.88-24.35) than those who preferred unaltered partners. Although these women preferred circumcised partners, they still found unaltered partners to evoke more vaginal fluid production, a lower vaginal discomfort rating and fewer complaints (Sets 1 and 2, Table 3) during intercourse than their circumcised partners. In women who preferred circumcised men, there was no difference in their comparison of circumcised and unaltered men other than overall rating and a higher rate of premature ejaculation in their unaltered partners (4.63, 2.36-9.07). These women had fewer unaltered partners (2.47 vs 3.78, $Z = -1.68$, $P = 0.045$), which suggests that their limited exposure to unaltered men

may have been a consequence of 'premature ejaculation'. The inability to detect a difference in orgasm frequency, coital duration, coital complaints or satisfaction, and 'yet to formulate a preference', suggests that factors of conformity may be influential.

When women were grouped based on the preputial status of their most recent partner, women with unaltered partners had a higher rate of orgasms with them, at a mean (SEM) of 70 (31)% vs 56 (40)% ($Z = 2.28$, $P = 0.01$). They were more likely to rate circumcised partners lower ($Z = -2.61$, $P = 0.0047$) and unaltered partners higher ($Z = 2.83$, $P = 0.002$). When only women whose most recent partner was circumcised were considered, the results were consistent with the results from the entire study population.

Discussion

These results show clearly that women preferred vaginal intercourse with an anatomically complete penis over that with a circumcised penis; there may be many reasons for this. When the anatomically complete penis thrusts in the vagina, it does not slide, but rather glides on its own 'bedding' of movable skin, in much the same way that a turtle's neck glides in and out on the folded layers of skin surrounding it. The underlying corpus cavernosa and corpus spongiosum slide within the penile skin, while the skin juxtaposed against the vaginal wall moves very little. This sheath-within-a-sheath alignment allows penile movement, and vaginal and penile stimulation, with minimal friction or loss of secretions. When the penile shaft is withdrawn slightly from the vagina,

Table 3 Comparison of the responses for circumcised partners with normal partners

Item	Odds ratio (95% CI)
<i>Set 1;</i>	
Irritability	9.39 (4.65–18.95)
Unappreciated	9.06 (4.67–17.57)
Sexually violated	5.57 (2.80–11.10)
Aggravated	7.51 (3.55–16.30)
Out of sync	13.12 (6.17–27.90)
Partner cared little about me	10.05 (5.33–18.94)
Other than my vagina	
partner wouldn't know I was there	10.10 (4.57–22.30)
'Bitchy'	4.16 (1.96–8.82)
'Guilty'	4.52 (2.20–9.29)
Having separate experiences	8.67 (4.76–15.80)
Thrusting out of sync	7.31 (3.98–13.44)
'I was a masturbating object'	4.16 (2.36–7.33)
Incomplete as a woman	7.07 (3.03–16.51)
Glad it's over	10.53 (5.65–19.62)
<i>Set 2;</i>	
distanced	10.22 (4.62–22.58)
my mind wanders	7.21 (3.92–13.26)
he's working awfully hard	34.19 (13.15–88.89)
he's concentrating on his needs	13.01 (5.90–28.68)
he's working hard for an orgasm	7.68 (3.88–15.21)
disinterested	23.10 (8.07–66.13)
my vagina doesn't like this	7.68 (3.88–15.21)
pumping until it hurts me	17.62 (7.27–42.72)
we're having separate experiences	4.08 (2.07–8.05)
wide awake 'on alert'	2.87 (1.28–6.46)
frustrated	10.15 (3.86–26.76)
discomfort	11.41 (4.95–26.31)
discontent	8.45 (3.81–18.75)
<i>Set 3;</i>	
relaxed	0.19 (0.11–0.32)
peace	0.22 (0.13–0.38)
warmth	0.19 (0.11–0.32)
mutual satisfaction	0.18 (0.11–0.31)
complete as a woman	0.25 (0.15–0.42)
afterglow	0.24 (0.12–0.34)
'gee that was great'	0.25 (0.15–0.42)
'what a lover'	0.10 (0.05–0.19)

the foreskin bunches up behind the corona in a manner that allows the tip of the foreskin, which contains the highest density of fine-touch neuroreceptors in the penis [1], to contact the corona of the glans, which has the highest concentration of fine-touch neuroreceptors on the glans [18]. This intense stimulation discourages the penile shaft from further withdrawal, explaining the short-thrusting style that women noted in their unaltered partners. This juxtaposition of sensitive neuroreceptors is also seen in the clitoris and clitoral hood of the Rhesus monkey [19] and in the human clitoris [18].

As stated, circumcision removes 33–50% of the penile skin. With this skin missing, there is less tissue for the

swollen corpus cavernosa and corpus spongiosum to slide against. Instead, the skin of the circumcised penis rubs against the vaginal wall, increasing friction, abrasion and the need for artificial lubrication. Because of the tight penile skin, the corona of the glans, which is configured as a one-way valve, pulls the vaginal secretions out of the vagina when the shaft is withdrawn. Unlike the anatomically complete penis, there is no sensory input to limit withdrawal. Because the vast majority of the fine-touch receptors are missing from the circumcised penis, their role as ejaculatory triggers is also absent. The loss of these receptors creates an imbalance between the deep pressure sensed in the glans, corpus cavernosa and corpus spongiosum and the missing fine-touch [20]. To compensate for this imbalance, to achieve orgasm, the circumcised man must stimulate the glans, corpus cavernosa and corpus spongiosum by thrusting deeply in and out of the vagina. As a result, coitus with a circumcised partner reduces the amount of vaginal secretions in the vagina, and decreases continual stimulation of the mons pubis and clitoris.

Respondents overwhelmingly concurred that the mechanics of coitus were different for the two groups of men. Of the women, 73% reported that circumcised men tended to thrust harder and deeper, using elongated strokes, while unaltered men by comparison tended to thrust more gently, to have shorter thrusts, and tended to be in contact with the mons pubis and clitoris more, according to 71% of the respondents.

The responses in Sets 1, 2 and 3 (Table 3) are more a measure of intimacy than physical differences in thrusting patterns. While some of the respondents commented that they thought the differences were in the men, not the type of penis, the consistency with which women felt more intimate with their unaltered partners is striking. Some respondents reported that the foreskin improved their sexual satisfaction, which improved the quality of the relationship. In addition to the observations of Maimonides in the 12th century, one survey found that marital longevity was increased when the male had a foreskin [21]. Why the presence of a foreskin enhances intimacy needs further exploration.

When this information is compared with that collected by Laumann *et al.* [22] during the same period, the women in the present survey had more lifetime partners (a median of 2 and 10, respectively). When the women with one partner in the former study were excluded (because having sexual experience with both a circumcised and unaltered partner necessitates at least two partners), the women in the present survey were more likely to have had >4 partners (7.26, 4.46–11.83), >10 partners (5.83, 4.02–8.48), and >20 partners (4.16, 2.48–6.98). The high number of lifetime partners is a consequence of the inclusion criteria for the present

study. If a woman were to randomly find partners among American sexually active males, 70–90% of whom are circumcised, 3–7 partners would be needed for a woman to have an even chance of having had both a circumcised and unaltered male partner. However, women do not procure their sexual partners randomly. Most sexual partners are found within a fairly close social network [22]. Likewise, circumcision does not occur randomly; within some of these networks, circumcision rates can approach 100%. For a woman to have a sexual partner with an anatomically complete penis involves having partners outside her immediate social network, which is uncommon. For these reasons, a median number of partners of 10 is not unexpected.

While this study shows clearly that women prefer the surgically unaltered penis, it does have shortcomings. The respondents were not selected randomly and several were recruited using a newsletter of an anti-circumcision organization. However, when the responses from respondents gathered from the mailing list of the anti-circumcision organization were compared with those of the other respondents, there were no differences. This selection bias may be compensated to the degree that each respondent acted as her own control, using her subjective criteria on both types of penises. The findings cannot be completely attributed to selection bias.

In asking women to evaluate their experience based on all of their lifetime sexual partners, there may be an element of recall bias, but the circumcision status of the most current sexual partner did not significantly alter the findings. Because the surveys were not completed 'face-to-face', not all questions were completed by all respondents. There were also several questions that were misunderstood by the respondents, but these were only a very small proportion of the respondents. Women who preferred vaginal orgasms had a strong preference for unaltered partners. Women who preferred circumcised partners were half as likely to prefer vaginal orgasms, but there were too few women preferring circumcised partners to make any valid statistical claims. This would suggest that the foreskin makes the most positive impact during vaginal intercourse.

Another weakness of the survey is its preoccupation with vaginal intercourse. Several respondents commented that the foreskin also makes a difference in foreplay and fellatio. Although this was not directly measured, some respondents commented that unaltered men appeared to enjoy coitus more than their circumcised counterparts. The lower rates of fellatio, masturbation and anal sex among unaltered men [5] suggests that unaltered men may find coitus more satisfying [20].

Clearly, the anatomically complete penis offers a more rewarding experience for the female partner

during coitus. While this study has some obvious methodological flaws, all the differences cannot be attributed to them. It is important that these findings be confirmed by a prospective survey of a randomly selected population of women with experience with both types of men. It would be useful to examine the role of the foreskin in other sexual activities. Because these findings are of interest, the negative effect of circumcision on the sexual enjoyment of the female partner needs to be part of any discussions providing 'informed consent' before circumcision.

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Appendix 1

Questions asked in the survey to assess the level of intimacy.

Set 1

During or after most intercourse, have you noticed yourself having any of the feelings listed below?

irritability
 unappreciated
 sexually violated
 emotionally aggravated
 a general 'out of sync' feeling
 he cared very little about my sexual satisfaction
 except for my vagina, he didn't seem to know I was there
 bitchy, argumentative
 we had two separate experiences (no feeling of sexual unison)
 our thrusting rhythms were 'out of sync'

felt like I was being used as a masturbating object
 incomplete as a woman
 I'm glad it's over
 None of the above

Set 2

During intercourse with most (circumcised/natural) men, do any of these thoughts generally cross your mind?
 he seems to be distanced from what I'm feeling
 my mind wanders to other things
 he seems to be working too hard at it
 he seems to be concentrated on his sexual needs more than mine
 he seems to have to work too hard at achieving his orgasm
 I seem to be becoming disinterested
 my vagina doesn't seem to be enjoying this
 sometimes when he really get pumping, I'm afraid it's going to start hurting me
 we seem to be engaging in two separate experiences
 I feel wide awake, 'on alert'
 frustration
 discomfort
 a general feeling of discontentment
 None of the above

Set 3

How would you describe your general feelings after having sex with most (circumcised/natural) men?
 a feeling of relaxation
 a feeling of being at peace with myself and my surroundings
 a sense of human warmth and closeness to my partner
 a sense of completeness and wholeness as a woman
 a wonderful positive-feeling afterglow
 'gee, that was really great'
 'what a lover'
 None of the above