

## **UCLA**

### **Journal of Evolution and Health: A joint publication of the Ancestral Health Society and the Society for Evolutionary Medicine and Health**

#### **Title**

The “Benefits,” Risks, and Costs of Routine Infant Circumcision

#### **Permalink**

<https://escholarship.org/uc/item/5dz8k30j>

#### **Journal**

Journal of Evolution and Health: A joint publication of the Ancestral Health Society and the Society for Evolutionary Medicine and Health, 3(1)

#### **Author**

Welch, Stephanie

#### **Publication Date**

2018

#### **DOI**

10.15310/2334-3591.1102

Peer reviewed

## The “Benefits,” Risks, and Costs of Routine Infant Circumcision

Routine infant circumcision is a common practice in the US today. Opinions on the practice are highly polarized, from those who advocate it as merely cosmetic and a parent’s choice to those who see it as a human rights violation and an assault against bodily integrity and healthy sexuality. Rationales culturally used to justify the procedure include “medical benefits” and “low risks;” these arguments disregard foreskin as a functionless, vestigial remnant of our primitive past. An ancestral perspective, on the other hand, suggests that we should give nature the benefit of the doubt: first, we should consider the possibility that foreskin serves valuable functions and that its loss may be felt not only in the short term, but also the long term, before we assume that no essential harm is done in removing it.

Circumcision, as a US cultural phenomenon, is not primarily Jewish in origin but traces back to the late 19th century. Medical theories of the time credited excessive levels of bodily “irritation” with producing countless ailments: from paralysis to kidney dysfunction to epilepsy. Removal of the foreskin (as the object of irritation) was deemed a cure. [1] In addition, during late Victorian times when masturbation and sexual excitement were given similar attribution for illnesses of all sorts, foreskin removal was recommended as a preventative measure [2]. The crusade against sexual excitement applied to women as well as men; only in 1996 did it first become illegal to excise portions of the genitals of female minors [3] (before which, many American women were subjected to the such excisions [4]).

Male foreskin, like female foreskin (the latter more familiarly known as the clitoral hood), is highly specialized tissue which cannot be interpreted simply as an excess of skin. [5] At birth, male foreskin is fused to the penile glans by the balanopreputial membrane to barricade against foreign bodies and to resist infection. [6] Infant circumcision destroys this membrane, leaving the glans a large, open wound. Left intact, the membrane dissolves naturally by adolescence, facilitated by the boy’s natural exploration of his own genitals without any caregiver intervention [7].

Circumcision is cogently described by one internet meme as “the only surgery where amputation is performed before treatment, for a problem that hasn’t even arisen.” There is no extant medical parallel. Each time a supposed medical benefit has been disproven, another has been suggested in its place. The American Academy of Pediatrics currently cites “benefits” as reduced rates of three medical pathologies: urinary tract infections (UTIs), penile cancer, and sexually transmitted disease (STD) transmissions (specifically including HIV) [8]. With regard to these supposed benefits:

- UTI risk is very low for boys overall (between 1-2% by age 10 [9], compared to as many as 1 in 3 women by age 24 [10]). UTIs are readily treatable through less invasive means. Because reduction in male UTI rates is confined to the first year of life, it is worth considering the possibility (and perhaps likelihood) that the higher rates of UTIs in intact boys aged less than one year could result from caregiver errors, such as misguided attempts to prematurely retract and clean under the foreskin (which is painful, unnecessary, and damages the balanopreputial membrane) or from the introduction of soap under the foreskin which becomes trapped and disrupts the natural microbiome of the penis.
- Penile cancer is extremely rare, affecting as few as 0.58 in 100,000 men per year (and declining) as of 2002. [11] While evidence has shown that penile cancer appears more frequently in uncircumcised men, a 2005 study reported that “When we restricted our analysis to men who did not have phimosis, the risk of invasive penile cancer associated with not having been circumcised in childhood was not elevated.” [12] This again suggests that considering circumcision status alone may not be as pertinent as to consider the factors surrounding and contributing to phimosis -- such as forcible retraction of the foreskin before it is fully retractable and the long-term damage that such improper care may inflict.
- Questions of sexually transmitted infections are both irrelevant to infants and highly speculative about an individual’s future adult sex life. Given that safe sex practices such as condom usage are known to be highly effective against STDs (more so than circumcision status) and that any STD protection inherent in circumcision can be achieved when the individual is an adult (studies which have suggested circumcision efficacy have primarily been performed on adults), the only rationale for promoting infant circumcision for this purpose relies on the dual assumptions of being able to predict the child’s future preferences and the idea that a neonatal circumcision is substantially preferable to one elected as an adult.

All of these benefits are of very limited application and none justify a non-therapeutic procedure which inflicts extreme pain, carries risks (which, even if “rare,” can be extreme in their outcomes), permanently impedes function, and unnecessarily denies the individual the right to their whole body. A standard of “first, do[ing] no harm” requires taking these factors into consideration.

With regard to pain, when anesthesia is used at all (many physicians regard it as unwarranted), infant circumcision is performed only with local anaesthetic, not general. [13] The dorsal penile nerve block is seen as most effective, though not fully effective (and does not last

during the days or weeks of subsequent healing for a procedure that inherently creates an open wound over the entire glans surface). [14] This may represent an underestimated infant trauma (a risk factor for many future adverse conditions) on the part of a high percentage of American males.

While the medical community describes the risks of circumcision as low, these risks do include death, bleeding, suture sinus tracts, infections, phimosis, concealed penis, adhesions, meatitis, meatal stenosis, fistulas, necrosis, and amputation of the glans or entire penis. [15] Even if rare, serious risks such as these are never justified for a non-therapeutic procedure.

Besides benefits and risks, however, entirely absent from informed consent discussions are the inherent costs to the male from removal of the foreskin. The following seven functions are permanently inhibited:

- **Protection:** Intact, the foreskin is attached to the shaft by the sensitive frenulum while the dartos fascia provides tension to keep the opening closed to prevent introduction of microorganisms and debris. [16] The Langerhans cells and microbiome of the penis provide immune function help to combat infections. [17] [18] Removal of these leaves the glans and the urethral opening exposed and more vulnerable.
- **Sensation:** Removal of the foreskin fully eliminates the “ridged band” at the distal tip of the (flaccid) foreskin, along the mucocutaneous junction. This area is populated by Meissner’s corpuscles, the fine touch sensors found in only specialized places such as the lips and fingertips. With their loss, sexual sensory input from the penis relies on free nerve endings found in the glans, which predominantly register sensations of pain and irritation. [19] As a result, sexual sensations can feel uncomfortable and excessively intense rather than being co-mitigated by the combination of these two types of sensations. [20]
- **Lubrication:** Becoming an external structure causes the glans to become keratinized rather than maintaining its natural state as an internal, lubricated, mucosal structure. [21] This leaves it up to the female partner to provide 100% of lubrication, which is further challenged by the alteration in mechanical action (next).
- **Mechanical action:** The retraction of the foreskin allows the penis to function as a rolling bearing in which the male and female mucosal tissue can come in direct contact while the epithelial tissue remains outside (and lubrication stays inside). This reduces the force needed for intromission by 90%. [22] Loss of this function also leads to every stroke drawing moisture out of the vagina, contributing to dryness and friction during sex

(often then attributed to dysfunction in the female partner). [23]

- **Partner stimulation:** The ridged band provides texture; the additional tissue of the foreskin increases the contact area between partners. Additionally, the male's stimulation along the foreskin as it rolls back and forth encourages a shorter thrust length than when the glans is the primary locus of stimulation. [24] This shorter thrust style maximizes contact and pressure which stimulates a greater percentage of the female erogenous area.
- **Erectile stimulation:** The foreskin contains stretch receptors whose function is to help maintain erections during stimulation and intercourse. Loss of these receptors likely contributes to reduced erectile function later in life as hormonal contributions decrease. [25]
- **Penis size:** As the corpus cavernosa engorge, the penile tissue stretches out to accommodate the erection. If there is insufficient capacity, the skin surrounding the base of the penis will be pulled up onto the shaft (evidenced by hair appearing to reside on the shaft) or the erection will be compressed into the abdomen. Both reduce the effective external volume of the penis. Taylor (1996) notes that "The amount of tissue loss estimated in the present study is more than most parents envisage from pre-operative counselling." [26]

Ultimately, the human right to bodily integrity, especially such that would promote the celebration of full sexual expression, should be enough on its own to discourage the practice of infant circumcision. In the meantime, we can hope that better education about the true costs associated with loss of one's foreskin will encourage more doctors and parents to resist this unnecessary and detrimental practice.

## References:

[1] Gollaher, D.L., 2000. [Circumcision: A History Of The World's Most Controversial Surgery](#). Basic Books, New York, NY, pp. 73-101.

[2] Wallerstein, E., 1985. [Circumcision: the uniquely American medical enigma](#). *Urol Clin North Am*, 12(1), pp.123-132.

[3] Legal Information Institute. 1996. [18 U.S. Code § 116 - Female genital mutilation](#). Accessed December 6, 2016.

[4] Webber, S. and Schonfeld, T., 2003. [Cutting History, Cutting Culture: Female Circumcision in the United States](#). *The American Journal of Bioethics*, 3(2), pp. 65-66.

[5] Cold, C.J. and Taylor, J.R., 1999. [The prepuce](#). *BJU international*, 83(S1), pp.34-44.

- [6] Denniston, G.C., Hodges, F.M. and Milos, M.F. eds., 1999. [Male and Female Circumcision: Medical, Legal, and Ethical Considerations in Pediatric Practice](#). Springer Science & Business Media pp. 11-12.
- [7] Agarwal, A., Mohta, A. and Anand, R.K., 2005. [Preputial retraction in children](#). Journal of Indian Association of Pediatric Surgeons, 10(2), p.89.
- [8] American Academy of Pediatrics Task Force on Circumcision, 2012. [Circumcision Policy Statement](#). Pediatrics. September 2012, 130(3).
- [9] Singh-Grewal, D., Macdessi, J. and Craig, J., 2005. [Circumcision for the prevention of urinary tract infection in boys: a systematic review of randomised trials and observational studies](#). Archives of Disease in Childhood, 90(8), pp.853-858.
- [10] Foxman, B., 2002. [Epidemiology of urinary tract infections: incidence, morbidity, and economic costs](#). The American Journal of Medicine, 113(1), pp.5-13.
- [11] Barnholtz-Sloan, J.S., Maldonado, J.L., Pow-Sang, J. and Guiliano, A.R., 2007, September. [Incidence trends in primary malignant penile cancer](#). In Urologic Oncology: Seminars and Original Investigations (Vol. 25, No. 5, pp. 361-367). Elsevier.
- [12] Daling, J.R., Madeleine, M.M., Johnson, L.G., Schwartz, S.M., Shera, K.A., Wurscher, M.A., Carter, J.J., Porter, P.L., Galloway, D.A., McDougall, J.K. and Krieger, J.N., 2005. [Penile cancer: importance of circumcision, human papillomavirus and smoking in in situ and invasive disease](#). International Journal of Cancer, 116(4), pp.606-616.
- [13] Stang, H.J. and Snellman, L.W., 1998. [Circumcision practice patterns in the United States](#). Pediatrics, 101(6), pp.e5-e5.
- [14] Brady-Fryer, B., Wiebe, N. and Lander, J.A., 2004. [Pain relief for neonatal circumcision](#). Cochrane Database of Systematic Reviews, (3).
- [15] Hutcheson, Joel C., 2004. [Male neonatal circumcision: indications, controversies and complications](#). Urologic Clinics, 31(3), pp.461-467.
- [16] Denniston, G.C., Hodges, F.M. and Milos, M.F. eds., 1999. [Male and Female Circumcision: Medical, Legal, and Ethical Considerations in Pediatric Practice](#). Springer Science & Business Media, p.12.
- [17] de Witte, L., Nabatov, A., Pion, M., Fluitsma, D., De Jong, M.A., de Gruijl, T., Piguet, V., van Kooyk, Y. and Geijtenbeek, T.B., 2007. [Langerin is a natural barrier to HIV-1 transmission by Langerhans cells](#). Nature medicine, 13(3), p.367.
- [18] Cold, C.J. and McGrath, K.A., 1999. [Anatomy and histology of the penile and clitoral prepuce in primates](#). In Male and female circumcision (pp. 19-29). Springer, Boston, MA.
- [19] Ibid.
- [20] Bonobo3D, 2011. [Interview with Dr. Ken McGrath on Anatomy of the Penis: Penile and Foreskin Neurology](#).

[online video] Available at: <https://www.youtube.com/watch?v=DD2yW7AaZFW> [Accessed Jan 26, 2019]

[21] Cold, C.J. and Taylor, J.R., 1999. [The prepuce](#). BJU international, 83(S1), pp.34-44.

[22] Taves, D.R., 2002. [The intromission function of the foreskin](#). Medical Hypotheses, 59(2), pp.180-182.

[23] O'Hara, K. and O'Hara, J., 1999. [The effect of male circumcision on the sexual enjoyment of the female partner](#). BJU International, 83(S1), pp.79-84.

[24] Ibid.

[25] Fink, K.S., Carson, C.C. and DeVellis, R.F., 2002. [Adult circumcision outcomes study: effect on erectile function, penile sensitivity, sexual activity and satisfaction](#). The Journal of urology, 167(5), pp.2113-2116.

[26] Taylor, J.R., Lockwood, A.P. and Taylor, A.J., 1996. [The prepuce: specialized mucosa of the penis and its loss to circumcision](#). British Journal of Urology, 77(2), pp.291-295.

### **For Further Reading:**

Boyle, G.J., Goldman, R., Svoboda, J.S. and Fernandez, E., 2002. [Male circumcision: pain, trauma and psychosexual sequelae](#). Journal of Health Psychology, 7(3), pp.329-343.

DeMaria, J., Abdulla, A., Pemberton, J., Raees, A. and Braga, L.H., 2013. [Are Physicians Performing Neonatal Circumcisions Well Trained?](#) Canadian Urological Association Journal, 7(7-8), pp.260-4.

Favorito, L.A., Balassiano, C.M., Costa, W.S. and Sampaio, F.J.B., 2012. [Development of the human foreskin during the fetal period](#). Histology and histopathology, 27(7), p.1041.

Gairdner, D., 1949. [Fate of the Foreskin](#). British Medical Journal, 2(4642), pp.1433-1437.

Halata, Z. and Spaethe, A., 1997. [Sensory innervation of the human penis](#). In The Fate of the Male Germ Cell (pp. 265-266). Springer, Boston, MA.

Hammond, T., 1999. [A preliminary poll of men circumcised in infancy or childhood](#). BJU international, 83(S1), pp.85-92.

Harryman, G.L., 2004. [An analysis of the accuracy of the presentation of the human penis in anatomical source materials](#). In Flesh and Blood (pp. 17-26). Springer, Boston, MA.