What Is Lost Due to Circumcision?
The Lost List

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Thanks to Gary Harryman for putting this together

Many people think circumcision removes nothing more than a little extra skin. The truth is that circumcision removes several critical components of male sexual anatomy. This list enumerates everything currently known to be lost when one is circumcised. Included are notes on whether these losses can or cannot be amended by foreskin restoration.

The information contained in this list may be upsetting to some, but we feel it is important and necessary for those considering restoration to understand as fully as possible the anatomy/biology/neurology of what has been removed and/or destroyed.

It should be pointed out that circumcisions performed in North America may be more severe than those done elsewhere. In the United States, most hospital circumcisions are done to the Bris Periah standard of removing every ounce of foreskin and, in a large percentage of cases, some shaft skin.

Although several of the items in this list are not restorable, there are many significant gains to be realized by restoring one's foreskin. For information on these gains, please see the Benefits page.

Please note that although circumcision and foreskin restoration involve issues of physical health and well-being, nothing appearing on this website is intended to be medical advice. If you want medical advice or have a medical problem, contact a doctor.

Foreskin - Restorable

The foreskin comprises roughly 50% (and sometimes more) of the mobile skin system of the penis. If unfolded and spread out flat, the average adult foreskin would measure about 15 square inches - the size of a three-by-five index card. This highly specialized tissue normally covers the glans and protects it from abrasion, drying, callusing (also called keratinization), and contaminants of all kinds.

We refer to the process we undergo as foreskin restoration but we don't actually grow new foreskins. What we do instead is to extend the remaining skin on the shaft of the penis. The non-surgical techniques we use induce the skin to grow additional cells, and over a period of time the shaft skin will gradually extend to cover the glans. The extended skin looks and behaves and functions much like a natural foreskin.

[Sources: 1. M. M. Lander, "The Human Prepuce," in G. C. Denniston and M. F. Milos, eds., Sexual Mutilations: A Human Tragedy (New York: Plenum Press, 1997), 79-81. 2. M. Davenport, "Problems with the Penis and Prepuce: Natural History of the Foreskin," British Medical Journal 312 (1996): 299-301.]

Frenar Band or Ridged Band - Lost

The frenar band is a group of soft ridges near the junction of the inner and outer foreskin. This region is the primary erogenous zone of the intact male body. Loss of this delicate belt of densely innervated, sexually responsive tissue reduces the fullness and intensity of sexual response.

There is no known method of restoring the frenar band.

[Source: Taylor, J. R. et al., "The Prepuce: Specialized Mucosa of the Penis and Its Loss to Circumcision," British Journal of Urology 77 (1996): 291-295.]

Gliding Action - Restorable

The foreskin's gliding action is a hallmark feature of the normal, natural, intact penis. This non-abrasive gliding of the penis in and out of its own shaft skin facilitates smooth, comfortable, pleasurable intercourse for both partners. Without this gliding action, the corona of the circumcised penis can function as a one-way valve, making artificial lubricants necessary for comfortable intercourse.

The return of this natural gliding action is one of the primary benefits of foreskin restoration. In many cases, wives of restoring men were initially doubtful about restoration but came to value it highly when their husbands had grown enough new skin to effect greater levels of comfort and pleasure during intercourse.

[Source: P. M. Fleiss, MD, MPH, "The Case Against Circumcision," Mothering: The Magazine of Natural Family Living (Winter 1997): 36-45.]

Meissner's Corpuscles - Lost

Circumcision removes the most important sensory component of the foreskin - thousands of coiled fine-touch receptors called Meissner's corpuscles. Also lost are branches of the dorsal nerve, and between 10,000 and 20,000 specialized erotogenic nerve endings of several types. Together these detect subtle changes in motion and temperature, as well as fine gradations in texture.

There is no known method of restoring Meissner's corpuscles or other specialized sensory nerve cells. However, restoring and restored men almost universally experience tremendous increases in sensitivity, in part because the highly sensitive nerve cells in the glans are no longer buried under several layers of keratinized skin.

[Sources: 1. R. K. Winkelmann, "The Erogenous Zones: Their Nerve Supply and Its Significance," Proceedings of the Staff Meetings of the Mayo Clinic 34 (1959): 39-47. 2. R. K. Winkelmann, "The Cutaneous Innervation of Human Newborn Prepuce," Journal of Investigative Dermatology 26 (1956): 53-67.]

Frenulum - Lost

The frenulum is a highly erogenous V-shaped structure on the underside of the glans that tethers the foreskin. During circumcision it is frequently either amputated with the foreskin or severed, which destroys or diminishes its sexual and physiological functions.

If the frenulum is amputated, there is no known method of replacing it. If only a small portion of the frenulum is left, it is probably no longer functional as a tethering structure. There is no known method of attaching it to a restored foreskin, but some men have reported stretching the frenulum remnant as they stretched their foreskin.

[Sources: 1. Cold, C, Taylor, J, "The Prepuce," BJU International 83, Suppl. 1, (1999): 34-44. 2. Kaplan, G.W., "Complications of Circumcision," Urologic Clinics of North America 10, 1983.]

Dartos Fascia - Lost

Circumcision removes approximately half of this temperature-sensitive smooth muscle sheath which lies between the outer layer of skin and the corpus cavernosa.

There is no known method of restoring amputated portions of the dartos fascia. However, the new skin may duplicate dartos fascia muscle tissue if it is present in the remnant skin that is being stretched.

[Source: Netter, F.H., "Atlas of Human Anatomy," Second Edition (Novartis, 1997): Plates 234, 329, 338, 354, 355.]

Immunological System - Lost

The soft mucosa (inner foreskin) contains its own immunological defense system which produces plasma cells. These cells secrete immunoglobulin antibodies as well as antibacterial and antiviral proteins, including the pathogen killing enzyme lysozyme.

Once removed with the foreskin, there is no known method of restoring this immunological defense system.

[Sources: 1. A. Ahmed and A. W. Jones, "Apocrine Cystadenoma: A Report of Two Cases Occurring on the Prepuce," British Journal of Dermatology 81 (1969): 899-901. 2. P. J. Flower et al., "An Immunopathologic Study of the Bovine Prepuce," Veterinary Pathology 20 (1983):189-202.]

Lymphatic Vessels - Lost

The loss of these vessels due to circumcision reduces the lymph flow within that part of the body's immune system.

While some lymphatic vessels remain, there is no known method of restoring those that were removed during circumcision.

[Source: Netter, F.H., "Atlas of Human Anatomy," Second Edition (Novartis, 1997): plate 379.]

Estrogen Receptors - Lost

The presence of estrogen receptors within the foreskin has only recently been discovered. Their purpose is not yet understood and needs further study.

There is no known method of restoring the foreskin's estrogen receptors.
[Source: R. Hausmann et al., "The Forensic Value of the Immunohistochemical Detection of Oestrogen Receptors in Vaginal Epithelium," International Journal of Legal Medicine 109 (1996): 10-30.]

Apocrine Glands - Lost
These glands of the inner foreskin produce pheromones - nature's powerful, silent, invisible behavioral signals to potential sexual partners. The effect of their absence on human sexuality has never been studied.

There is no known method of restoring apocrine glands to the penis.
[Source: A. Ahmed and A. W. Jones, "Apocrine Cystadenoma: A Report of Two Cases Occurring on the Prepuce," British Journal of Dermatology 81 (1969): 899-901.]

Sebaceous Glands - Lost
The sebaceous glands may lubricate and moisturize the foreskin and glans, which is normally a protected internal organ. Not all men have sebaceous glands on their inner foreskin.

There is no known method of restoring sebaceous glands if they were present..
[Source: A. B. Hyman and M. H. Brownstein, "Tyson's Glands: Ectopic Sebaceous Glands and Papillomatosis Penis," Archives of Dermatology 99 (1969): 31-37.]

Langerhans Cells - Lost
These specialized epithelial cells are a component of the immune system in the penis.

There is no known method of restoring Langerhans cells to the penis.
[Source: G. N. Weiss et al., "The Distribution and Density of Langerhans Cells in the Human Prepuce: Site of a Diminished Immune Response?" Israel Journal of Medical Sciences 29 (1993): 42-43.]

Natural Glans Coloration - Restorable
The natural coloration of the glans and inner foreskin (usually hidden and only visible to others when sexually aroused) is considerably more intense than the permanently exposed and keratinized coloration of a circumcised penis. The socio-biological function of this visual stimulus has never been studied.

The glans ranges from pink to red to dark purple among intact men of Northern European ancestry, and from pinkish to mahagony to dark brown among intact men of Color. If circumcision is performed on an infant or young boy, the connective tissue which protectively fuses the foreskin and glans together is ripped apart. This leaves the glans raw and subject to infection, scarring, pitting, shrinkage, and eventual discoloration. Over a period of years the glans becomes keratinized, adding additional layers of tissue in order to adequately protect itself, which further contributes to discoloration.

Many restoring men report dramatic changes in glans color and appearance, and that these changes closely mirror the natural coloration and smooth, glossy appearance of the glans seen in intact men.
[Source: P. M. Fleiss, MD, MPH, "The Case Against Circumcision," Mothering: The Magazine of Natural Family Living (Winter 1997): 36-45.]

Length and Circumference - Restorable
Circumcision removes some of the length and girth of the penis - its double-layered wrapping of loose and usually overhanging foreskin is removed. A circumcised penis is truncated and thinner than it would have been if left intact.

Many men have kept detailed records of their measurements before, during, and after restoration. There is an increasing consensus that foreskin restoration enhances penile length and circumference.
[Source: R. D. Talarico and J. E. Jasaitis, "Concealed Penis: A Complication of Neonatal Circumcision," Journal of Urology 110 (1973): 732-733.]

Blood Vessels - Lost

Several feet of blood vessels, including the frenular artery and branches of the dorsal artery, are removed in circumcision. The loss of this rich vascularization interrupts normal blood flow to the shaft and glans of the penis, damaging the natural function of the penis and altering its development.

There is no known method of restoring arteries and vessels that were removed during circumcision. However, many restoring men have noticed that the new skin is more richly vascularized than the older skin of their penis. We have no medical explanation for this phenomenon.

[Sources: 1. H. C. Bazett et al., "Depth, Distribution and Probable Identification in the Prepuce of Sensory End-Organs Concerned in Sensations of Temperature and Touch; Thermometric Conductivity," Archives of Neurology and Psychiatry 27 (1932): 489-517. 2. Netter, F.H., "Atlas of Human Anatomy," Second Edition (Novartis, 1997): plates 238, 239.]

Dorsal Nerves - Lost

The terminal branch of the pudendal nerve connects to the skin of the penis, the prepuce, the corpora cavernosa, and the glans. Destruction of these nerves is a rare but devastating complication of circumcision. If cut during circumcision, the top two-thirds of the penis will be almost completely without sensation.

There is no known method of restoring dorsal nerves.

[Sources: 1. Agur, A.M.R. ed., "Grant's Atlas of Anatomy," Ninth Edition (Williams and Wilkins, 1991): 188-190. 2. Netter, F.H., "Atlas of Human Anatomy," Second Edition (Novartis, 1997): plate 380, 387.]

Other Losses

• Circumcision performed during infancy disrupts the bonding process between child and mother. There are indications that the innate sense of trust in intimate human contact is inhibited or lost. It can also have significant adverse effects on neurological development. Additionally, an infant's self-confidence and hardiness is diminished by forcing the newborn victim into a defensive psychological state of "learned helplessness" or "acquired passivity" to cope with the excruciating pain which he can neither fight nor flee. The trauma of this early pain lowers a circumcised boy's pain threshold below that of intact boys and girls

[Sources: 1. R. Goldman, Circumcision: The Hidden Trauma (Boston: Vanguard Publications, 1997), 139-175. 2. A. Taddio et al., "Effect of Neonatal Circumcision on Pain Responses during Vaccination in Boys," Lancet 345 (1995): 291-292.]

• Every year some boys lose their entire penises from circumcision accidents and infections. They are then "sexually reassigned" by castration and transgender surgery, and are expected to live their lives as females.

[Sources: 1. J. P. Gearhart and J. A. Rock, "Total Ablation of the Penis after Circumcision with Electrocautery: A Method of Management and Long-Term Followup," Journal of Urology 142 (1989):799-801. 2. M. Diamond and H. K. Sigmundson, "Sex Reassignment at Birth: Long-Term Review and Clinical Implications," Archives of Pediatrics and Adolescent Medicine 151 (1997): 298-304.]

• Every year many boys in the United States and elsewhere lose their lives as a result of circumcision - a fact that is routinely ignored or obscured.

[Sources: 1. G. W. Kaplan, "Complications of Circumcision," Urologic Clinics of North America 10 (1983): 543-549. 2. R. S. Thompson, "Routine Circumcision in the Newborn: An Opposing View," Journal of Family Practice 31 (1990): 189-196.

The Fox who had Lost his Tail

A FOX, caught in a trap, escaped by tearing off his brushy tail.

After that, the other animals mocked him, making him feel so ashamed that his life was a burden to him. He therefore worked out a plan to make all the other foxes the same as him, so that in their common loss he might better conceal his own deprivation.

He called a meeting of foxes. A good many came to it, and he gave a speech, advising them all to cut off their tails. He said that they would not only look much better without them, but that they would get rid of the weight of the brush, which was a very great inconvenience.

But one of them interrupted his speech.

If you had not lost your own tail, my friend, that fox said, "you would not be giving us this advice."

- Æsop, 6th century BCE