

# Anatomical Characteristics of the Penis and Sexual Dysfunction

Subjects: Psychology

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Premature ejaculation and erectile dysfunction are common male sexual dysfunctions worldwide, causing substantial distress in men as well as their partners and decreasing the quality and stability of romantic relationships.

Keywords: premature ejaculation ; erectile dysfunction ; penis size ; foreskin

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## 1. Premature Ejaculation (PE) and Erectile Dysfunction (ED)

According to the Diagnostic and Statistical Manual of Mental Disorders <sup>[1]</sup>, PE was delineated as a persistent or recurring pattern characterized by the occurrence of ejaculation within approximately one minute following vaginal penetration during partnered sexual activity, occurring prior to the volitional desire of the individual. PE is characterized by a lack of control over the timing of ejaculation, a short intravaginal ejaculation latency time (i.e., one minute from the start of vaginal penetration to ejaculation), and subsequent sexual distress <sup>[2][3]</sup>. On the one hand, men with PE experience lower self-confidence and self-esteem <sup>[4][5]</sup>, more anxiety and depression <sup>[6]</sup>, and interpersonal difficulties <sup>[7][8]</sup>. On the other hand, PE is associated with less relationship and sexual satisfaction and an increased prevalence of sexual dysfunctions for female partners <sup>[9]</sup>. On a related vein, one in five women reported that they had broken up or divorced men because of early ejaculation problems in a large sample <sup>[10]</sup>.

ED is defined as the inability to attain or maintain an erection sufficient to obtain satisfaction from sexual intercourse <sup>[11]</sup>. Also, ED is associated with lower self-esteem and less sexual satisfaction <sup>[12]</sup>. Several studies have also found that ED is associated with an increased risk of PE <sup>[13][14]</sup>. A recent study found that one in four men with ED have PE symptoms <sup>[15]</sup>.

## 2. Penis Size and Sexual Dysfunction

Penis size is a specific concern related to body image among men as part of men's appearance-related self-esteem <sup>[16]</sup>. In a sample of 25,594 heterosexual men, 45% suffered from dissatisfaction and anxiety about their penis size, including men with an objectively normal size penis <sup>[17]</sup>.

So far, a little research into the connections between penis size and male sexual function has been conducted. Recently, men have started to seek surgical penile augmentation to increase their penile length or circumference <sup>[18][19]</sup>. The increases in penile length and circumference after penile augmentation (e.g., the use of allografts, specifically an acellular inert dermal matrix derived from donated human skin tissue, to enhance the circumference of the penis) have been found to improve the participants' sex-related self-esteem and satisfaction with their penis <sup>[18]</sup>. Further, an increased penile circumference after penile augmentation has been associated with longer ejaculation latency times and better erectile function, probably due to the reduction of penile sensation compared to the baseline data before the surgery <sup>[19]</sup>. In addition, a recent review indicated that glans penis augmentation reduced PE symptoms <sup>[20]</sup>. Although they are suggestive of a causal effect of penile length on sexual function, these findings may not be generalizable given that the men seeking surgery may be different from other men. A study of 1027 Egyptian men found that men with ED had shorter fully stretched penis lengths than the men without ED, but no connection between penile circumference and ED was found <sup>[21]</sup>. However, a study of 689 Brazilian men did not find any association between penile length and erectile function <sup>[22]</sup>.

## 3. Penile Circumcision and Sexual Dysfunction

The circumcision of the penis is one of the most common surgical procedures worldwide. The procedure involves the surgical removal of part or all of the foreskin from the penis for, among others, religious, cultural, and medical reasons. Approximately one in three men has been circumcised worldwide <sup>[23]</sup>. The foreskin is the double layer of skin that covers

the glans penis. The possible roles of the foreskin may include keeping the glans moist [24], protecting the developing penis in the womb [25], and enhancing sexual pleasure due to the presence of nerve receptors [26]. A tight foreskin (i.e., phimosis) may cause erectile problems and even pain during sexual intercourse [27], which is a common medical reason for circumcision.

The effect of penile circumcision on sexual function has been investigated for a long time, but remains controversial. The recent reviews indicate that penile circumcision may not have a robust effect on sexual function [28][29], penile sensitivity [28][29], or sexual pleasure [28][29]. Bronselaer et al. [30] found that male circumcision decreased men's sexual pleasure and orgasm intensity. However, some recent studies have found that circumcised men reported better erectile function and less penile pain at rest and during sex, which might be the reason for the observed improvements of erectile function [27], higher intravaginal ejaculatory latency times, better control over ejaculation, and more satisfaction with sexual intercourse compared to themselves before circumcision [31].

Bossio et al. [32] found that uncircumcised men's foreskin sensitivity to tactile stimulation was higher than that of other penile sites (glans penis, proximal-to-midline shaft of the penis, and midline shaft). Further, penile sensitivity was not different between circumcised and uncircumcised men among the latter penile sites [32]. In conclusion, the foreskin of the penis may be one of the most important sites for tactile stimulation during sex. One possibility is that the reason that circumcision can improve ejaculation control is because of reduced penile sensitivity via removing a part of the foreskin.

Scholars also looked at the differences between men who naturally had different degrees of foreskin covering the glans penis, while the penis had or did not have a full erection. In a flaccid state, a glans penis with less foreskin coverage is more likely to come into contact with undergarments, resulting in friction between the glans penis and the clothes leading to thicker skin, and thereby, the decreased sensitivity of the penis to stimulation, which, in turn, would lead to a higher threshold for ejaculation. Assuming a correlation between foreskin coverage in the flaccid and erect states, scholars expected the erect state coverage to have the same effect. Also, considering the difficulty with erection if the penis has an excessively tight foreskin [27][32], scholars expected that the men with less foreskin covering the glans when the penis was erect to have a less-tight foreskin, which would have a smaller impact on the erection, resulting in fewer erectile problems.

## **4. Age and Sexual Dysfunction**

The association between age and sexual function is still not fully understood. Although some previous research has found that older men have longer self-reported ejaculation latency times [9], age has not always been found to be associated with PE [33][34]. However, the previous studies have relatively consistently found that a higher age is associated with a higher risk of ED [14][35], particularly in men aged over 40 [36]. Also, on the one hand, the higher risk of ED with increased age might also drive an increased risk of PE, as PE and ED are positively associated [13][14][37]. On the other hand, more sexual experience as a function of increased age may lead to less sexual performance anxiety (especially within long-term relationships), which, in turn, might decrease the risk of PE and ED [38].

Interestingly, both cross-sectional and longitudinal studies have shown that testosterone levels decline gradually as men age from their 30s to their 90s [39][40][41]. Testosterone plays a role in every step of the male sexual response [42][43], with the previous research showing that lower testosterone levels are associated with reduced sexual desire [44] and a higher risk of ED [43][44]. In addition, testosterone replacement treatment can improve the latency times of men with acquired PE (PE appearing only after a man's first sexual experience) [45]. However, a recent review has indicated that the effectiveness of testosterone replacement treatment in improving sexual function is modest and inconsistent, comparable to that of lifestyle interventions [43]. On a similar vein, another contributing factor is cardiovascular disease, contributing to ED during aging [46].

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