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## Anomalies of the penis and scrotum in adults

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## **Penile enlargement: from medication to surgery**

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## INTRODUCTION

The penis is central to cultural concepts of masculinity; its length, shape, appearance, and performance are held to be indicators of masculinity.<sup>1</sup> Equating penis size to masculinity makes under endowed men worry about the size of their penis. They are vulnerable in their search for a cure, which will often lead them to explore penis-enhancing possibilities on the Internet and elsewhere. Penis-lengthening pills, stretch apparatus, vacuum pumps, silicone injections, and lengthening and thickening operations are widely available in this unregulated world of self-medication. Advertisements overtly imply that there is a direct relationship between penis size and masculinity and suggest that women's sexual satisfaction greatly depends on penis size.

In this commentary, we describe these penis-enhancing possibilities, a sequel on our case series about how to deal with the complaint of a small penis.

## NON-SURGICAL PENIS-ENHANCING METHODS

The Internet has a large market for penile/lengthening pills. The theory behind many of them is that the herbal blend will increase blood flow to the erect penis and therefore enhancing its size. The manufactures promise an increase in length of 2-10 cm. Many men believe and hope that this theory is true and are willing to pay a significant amount of money on such pills. There is, however, no evidence that this medication influences penis-size.

Penis-stretch apparatus and vacuum pumps are also popular choices for men wanting to enhance their penis size, sometimes in combination with aforementioned medication. Many types of penis-stretch apparatus are available nowadays. The Danish JES-Extender by DanaMedic Aps and the Spanish Andro-penis by Andromedical are best known. However, there is only poorly documented evidence to support the use of penile extenders or vacuum pumps.<sup>2</sup> It is, therefore, considered good advice to patients to neither purchase nor use such a device. However, should the patient undergo penis-lengthening surgery, the device may play a post-operative role.<sup>3</sup> This matter still remains unclear and may warrant research.

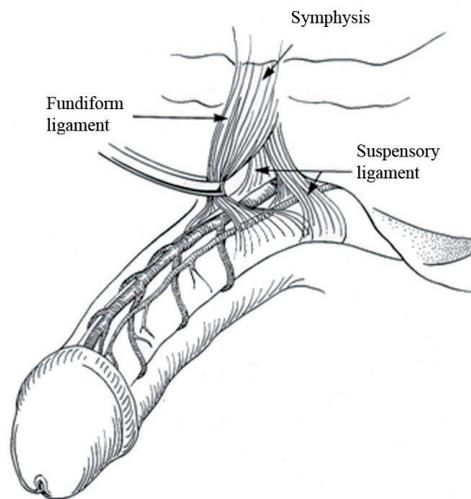
Liquid injectable silicone (LIS) can be used for penile augmentation. To broaden the penis, the silicone is injected into the subdermal plane. However, the use of this product is highly controversial because of the possible complications. Short-term reactions include pain, ecchymosis, pigment change or, if the silicone is injected in the vascular system, embolism or pneumonitis. Direct injection in the corpora cavernosa could result in embolic events, priapism, or impotence. Long-term reactions include migration of silicone and silicone granulomas.<sup>4</sup> Yacobi, Tsivian, Grinberg and Kessler (2007) reported their experience with 324 patients who received LIS to broaden the penis. They reported an increase in penile girth of 27% and only mild complications as bruising.<sup>5</sup> A major drawback of this study is the short period before follow-up; most complications of LIS have a latency period of years after treatment.

## SURGICAL PENIS-ENHANCING METHODS

When is it reasonable to consider surgery? Most urologists will draw the line at 7.5 cm in maximal extended condition, others will do so at 9 cm.<sup>6,7</sup> It is undoubtable that psychosexual findings are most significant in reaching this decision. For example, if a man has the *idée fixe* that women are particularly convinced that 'size matters' and hence will not proceed in a relationship unless the nuptial equipment is adequate, then extensive counseling is most appropriate. The psychologist-sexologist needs to explore how the patient experiences himself, and the part his penis plays in this role. Previous sexual relationships will be minutely explored. Men with psychiatric disorder who have a pattern of expectation which is difficult to adjust in their minds are the worst possible candidates for operational intervention. There is no standard questionnaire yet that could be used to filter men who may be eligible for operation. However, an attempt to this purpose has been made by Spyropoulos et al. (2005).<sup>8</sup>

The urologist is responsible for detailed explanation of risks and complications of any operation and for putting this to paper. In addition, we believe that using random pictures of previous operations and their complications is of considerable importance in informing the patient.

The most widely used technique for optical lengthening is cutting the ligaments, in combination with removal of suprapubic fat tissue and by creating increased length in the penis shaft by performing a (double) Z-plasty or a VY-plasty. The fundiform ligaments are in fact a continuation of Scarpa's fascia. The suspensory ligament lies posterior to the fundiform ligaments. It is chunkier and is triangular. It splits in two around the base of the penis (figure 1).<sup>9</sup> After cutting the ligaments, one can use fat tissue or a small silicone



**Figure 1.** Ligaments of the penis

testis prosthesis to fill the cavity between the pubic bone and the cavernous bodies. In this way, the penis is kept as distal as possible, but it also ensures there can be no retracting scarring between corpora and pubic bone. Furthermore, it is recommended to attach the corpora to the lower rim of the pubic bone using two stitches. The next step is to remove fatty tissue from the pubic area. Excision of fat tissue by scalpel is preferred over liposuction, because the aforementioned method allows the septa to be included until it has become smoothed out. Last, the Z or VY-plasty is closed, leaving a vacuum-drain, if necessary.<sup>6,10,11</sup>

A visual illusion of length gain of 2cm, in flaccid state, is considered an adequate result. However, men with body dysmorphic disorder (BDD) often have unrealistic expectations regarding the outcome of this surgical procedure.<sup>12</sup>

Complications in (double) Z-plasty and VY-plasty are scar-hypertrophy, an unstable, low hanging penis, reduced sensitivity in the shaft or in the glans, or – in the worst case – a shortening of the penis because of the forming of scar-tissue. Another complication is *scrotalization*, which occurs when scrotal skin with hair follicles changes position and becomes part of the shaft of the penis.<sup>10,13</sup> This complication, as well as necrotic wounds, seem to occur more often when performing the VY-plasty, making (double) Z-plasty the preferred technique.

One of the methods to broaden the penis is by injecting autologous fat tissue in between the superficial and deep fascia. This has the result of not only making the penis a little broader, but because of the increased weight, often also a bit longer.<sup>14</sup> Complication for this technique are the irregular shaft due to post necrotic fat lumps, reabsorption, edema of the corona, wound infection, and problems with intromission caused by excess fat deposits on the shaft.<sup>13,15</sup> Another possibility is transplanting deepithelialised skin with matching subcutaneous fat. These transplants are harvested from the groin area or from the buttock region and are inserted just above Buck's fascia. The next phase is to tuck both dartos fascia and the presenting skin over the transplanted area. This operation technique avoids necrosis and re-absorption, allowing symmetry.<sup>10</sup>

In the Netherlands it is, as a result of the aforementioned problems, considered good practice not to perform thickening operations.

New techniques are constantly being developed and refined. Perovic and Djordjevic (2000) used an extraordinary operation technique on experimental basis, whereby the penis is not only optionally lengthened, but is actually lengthened.<sup>11</sup> The entire penis becomes disassembled. The technique starts with the dissection of the corpus spongiosum (the spongy body around the urethra) on the ventral side as well as the neurovascular bundle at the dorsal side. Following this, the glans and the cavernous bodies are separated, leaving a small space between the glans and the ends of the corpora cavernosa. A small piece of rib cartilage is inserted inside this cavity. However, the achieved result largely depends on the flexibility of the neurovascular bundle. After this extension, the urethra, the spongy body and the nerve-bundle are reattached. A risk of

absorption remains, which is why Perovic et al. experimented with silicon extensions.<sup>16</sup> The disadvantage of using the latter is the enhanced risk of infection. This operation technique can be combined with the cleaving of the fundiform and suspensory ligaments. To avoid a curvature, it is important to optimize the stretching of the neurovascular bundle. Using penile stretch-apparatus during the first post-operative month can avoid this complication. According to Perovic et al., the aforementioned technique offered 13 men (out of 19) an enhanced penis-length by 2-3 cm. The remaining men achieved an additional 3-4 cm in length. The follow-up, after 3.3 years, indicated that not a single patient had suffered from erosion, inflammation, or infection in the operated area. Furthermore, the urethra and neurovascular bundle showed no signs of damage as a result of the operation technique. Last, none of the patients reported erectile dysfunction. It is unfortunate that the article does not indicate the reported level of satisfaction from a postoperative perspective.<sup>11</sup>

## CONCLUSIONS

There is a large market for penis-enhancing products. Penis lengthening pills, stretch apparatus, vacuum pumps, silicone injections, and lengthening and thickening operations are widely available. Research has shown that surgery is the only proven treatment, in which the division of the penile suspensory ligament is a simple and commonly used technique.

Before any operation is performed, the urologist and the psychologist-sexologist need to find out whether the patient is a suitable candidate for surgery. The urologist is also responsible for detailed explanation of risks and complications of any operation, preferably using random pictures of previous operations and the patients' complications.

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