A guide to lower surgery for those assigned female, identifying as men, trans masculine, non-binary or non-gender

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About this publication

This publication provides information about the various options for 'lower' surgery, including genital surgery, for trans men and trans masculine people[1]. These individuals have gender identities that are partially, or completely, at odds with the female sex assigned at birth. Those who experience a partial mismatch between gender identity and assigned sex, may describe themselves as non-binary, non-gender and/or many other terms. Pronouns, names and titles should be used in accordance with the wishes of the people concerned, regardless of their legal sex or gender status.

The aim of lower surgery is to improve their lives, both psychologically and physically, by achieving a closer match between their genital appearance, their sexual function, and their self- identification. It is a guide to what can, and what cannot, be achieved through surgery.

This information will also help sexual partners of trans men, by giving them an understanding of the range of possible outcomes, and the impact that these may have on their shared lives.

The information is not aimed at surgeons themselves, although it may be helpful to those medical staff who are providing other aspects of care for trans men.

The text also provides information and advice about sexual behaviours, and sexually transmitted diseases and how to avoid them.

This publication is written by the GIRES' team that includes doctors and trans people. All the team members have specialist knowledge and experience in the transgender field. The team preparing the text, and the group involved in the consultation process, included trans men.

Dr Richard Curtis, BSc, MB, BS, Dip BA
Professor Andrew Levy, PhD, FRCP
Dr Joyce Martin, MB, ChB, D Obst RCOG
Professor Kevan Wylie, MB, MMedSc, MD, FRCP, FRCPsych, DSM
Terry Reed, BA (Hons), MCSP, SRP, GradDipPhys
Bernard Reed, MA, MBA

Acknowledgements to the surgeons:
Mr David Ralph MBBS, BSC, FRCS, MS
Mr Nim Christopher MBBS, MPhil, FRCS
Professor Stan Monstrey MD, PhD, FCCP

Especial thanks to Joe Swift, Charlie Kiss and Simon Croft for their helpful comments and suggestions.

[1] Trans men is the term most often used in this booklet, but it should always be understood to cover the wide variety of people who are assigned female but do not identity as women.

Lower surgery for trans men

1 Introduction

Chest reconstruction surgery is almost always undertaken by trans men and some trans masculine, non-binary or non-gender individuals. However, many of those assigned female at birth do not undergo any 'lower' surgery at all. There is no requirement to have *any* of the available surgical options; full legal recognition by way of a Gender Recognition Certificate can be obtained without it. Protection of trans people under the 'gender reassignment' characteristic of the Equality Act 2010 does not require medical treatment, and exists from the moment of disclosure of the intention to undergo a process (or part of a process) of reassignment. This legislation guards against discrimination of trans people in all walks of life, including when accessing any healthcare, not only when the treatments sought are associated with gender. Regardless of their legal sex or gender status, in the delivery of medical treatment, trans people are protected by the Human Rights Act 1998 and the principles enshrined in the NHS Constitution. These combine to ensure privacy, dignity and personal autonomy. Neither the absence, nor presence, of a Gender Recognition Certificate may be used to impede treatment.

The desire to have a penis, and the decision to undergo complicated surgeries, are factors that are distinctly personal. Some trans men feel psychologically, as well as physically, incomplete without a phallus of masculine proportions.[2] However, you are no less of a man if you decide against having this surgery, or are unable to for health reasons. You may feel unable to undertake such major surgery, or that it is unnecessary to do so.

The context in which such decisions must be made, are both personal and social. In broad terms it is perfectly possible to live one's life as a man without a penis and to be recognised as a man, but issues such as use of men's locker rooms, use of urinals, and taking the kids swimming are all potentially public matters that make for difficulties for those who have not had phalloplasty. Clearly, and for some, more importantly, there is also an impact on intimate sexual relationships: what effect will surgery have on erotic possibilities? Issues include: adapting existing relationships; starting new relationships – how and when to you explain that you're not the same 'down there'; and has transition had any impact on your sexual orientation - are you attracted to men, to women, or both? You may have relationships with other trans people, so the possibilities are very varied. All these considerations may impact on your decision about whether or not to have surgery at all, and if so, what outcome you will be hoping for.

[2] Phallus is the generic term for either a penis or a clitoris. Male and female phalluses are made of the same basic tissue and, in the very early stages of development, the phallus is not differentiated into male and female. In later development, the difference is not only one of size, but also the positioning of the urethra (the tube you urinate through). In a (typical) penis, the urethra passes through to the tip, whereas it emerges below the clitoris.

2 How do I qualify for genital surgery?

In the UK irreversible genital surgeries are not usually undertaken until you are 18 years old, and have lived continuously in the gender role that reflects your gender identity for at least 12 months. This is in accordance with the World Professional Association for Transgender Health (2011)[3] and the UK Guidelines.[4] This length of time is arbitrary and represents the caution of clinicians who are concerned that irreversible surgery may be mistakenly undergone if there has been a shorter period of living full-time in the new role. Some studies indicate that compliance with minimum eligibility requirements for genital surgery specified in standards of care and other guidance is not necessarily associated with more favourable outcomes (Lawrence, 2001; 2003) [5, 6] Some individuals may feel ready for surgery in a shorter time, but this is a major and irrevocable step and many do not feel ready for two or three years. The benefit of spending time on testosterone during this period of living as a man, is that you should achieve the maximum effect of this hormone on the size of the phallus (see page 18).

Even if you meet the criteria for surgery, you may be held back by the surgical team if you are found to have health problems that increase the risk of any surgical procedures. For instance, if you are significantly overweight, or you are a smoker, you may be asked to lose weight and to stop smoking, sometimes for a year, before surgery will be scheduled. So, try to lead a healthy lifestyle, eat sensibly, take regular exercise, drink only modest amounts of alcohol and **do not smoke**. This will all help to avoid delay in accessing the surgery.

In view of the fact that many trans men and trans masculine individuals are youngish, fit and healthy with no pre-existing gynaecological illness, the risk of complications is, theoretically, small.

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[3] World Professional Association for Transgender health *The standards of care version 7 (2012)* http://www.wpath.org/site_page.cfm?pk_association_webpage_menu=1351&pk_association_webpage=3926

[4] UK Guidelines for the assessment and treatment of gender dysphoria in adults http://www.rcpsych.ac.uk/usefulresources/publications/collegereports/cr/cr181.aspx

[5] Lawrence, A.A. (2001). Sex Reassignment Surgery Without a One-Year Real Life Experience: Still No Regrets. Paper presented at the XVII Harry Benjamin International Gender Dysphoria Association' Symposium, Galveston, Texas, 31 October – November 4.

[6] Lawrence, A.A. (2003) Factors Associated with Satisfaction of Regret Following Male to Female Sex Reassignment Surgery. *Archives of Sexual Behavior* **32**,299-315.
N.b. The subjects of Dr Lawrence's studies were trans women, not trans men, but the principle regarding the timing of surgery holds good for both. In trans men, however, genital surgery should always be delayed until the maximum effect of testosterone has been reached.

3 Access to surgery

Hysterectomy, with or without salpingo-oöphorectomy usually precedes other genital surgeries, or may be done in conjunction with an early stage of phalloplasty. Two 'opinions' supporting your clinical need for any genital surgeries are usually required. These opinions may be from two members of the gender clinic team (one letter may have two signatories), or the second opinion may be from the GP (or GP with Special Interest). In all cases one of the opinions must be from a medical doctor. The 'opinions' will state that you are experiencing a degree of gender dysphoria[7] for which surgery is appropriate; that you are mentally strong enough to make informed choices and to give informed consent. As mentioned elsewhere in this document, such opinions may not be given until you have lived in the 'new' role for 12 months. The NHS rule that your initial surgery should be within 18 weeks of referral applies, but. waiting lists may grow longer as more people seek surgical intervention (2015).

Vaginectomy with metoidioplasty or phalloplasty – with or without urethroplasty, and scrotoplasty – with prostheses (see below), are complicated surgeries that may require several surgical interventions, often spread over a year to 18 months or more, depending on what outcomes you are seeking.

These surgeries are regarded as 'core' procedures for trans men, so funding is provided by NHS England (specialised services), and should not be problematic for those intending to have surgery in the UK.

4. What are my options?

You will need to be well-informed about the options, and have a good understanding of the variability and uncertainty surrounding outcomes. In light of that understanding, you should make a *realistic* appraisal of what is possible. Talking to other trans men about their surgeries or why they have chosen not to have surgery, are important factors in the learning and decision-making process, bearing in mind that it is still up to you to make up your own mind and not to be swayed by other people's views. The support of loved ones who are able to give you enough personal space to consider your options, but who will also accompany you on your journey, is enormously beneficial. These conversations will need to be continued with your surgical team.

In the box below, there is a list of possible surgeries, but you will need to look at the detail (later in this booklet) to be sure that you have really understood what is on offer. Your surgeon will help you weigh up your options and, as far as possible, tailor surgery to your specific

[7] Gender dysphoria is the discomfort experienced by an individual whose gender identity and associated social role are not completely aligned with the sex assigned at birth.

needs and circumstances. At the planning stage, an in-depth consultation with your surgeon will help you decide what you want, and what is possible in your case. Everyone is different, so the fact that you know someone who has undergone a particular procedure does not necessarily mean that it would be suitable for you.

Lower surgery options –

- **Hysterectomy** **('hysto' – removal of the uterus – womb)**
- **Salpingo-oöphorectomy** **(removal of the fallopian tubes and ovaries)**
- **Vaginectomy** **(removal of the vagina)**
- **Metoidioplasty** **(creates a micro-penis by bringing the clitoris forward)**
- **Urethroplasty** **(creates a repositioned, longer urethra – tube you urinate through. This is joined to your existing urethra – the 'hook-up')**
- **Scrotoplasty** **(creates a scrotum and generally includes testicular prostheses, often at a later stage)**
- **Phalloplasty** **(creates a penis)**
- **Erectile implants** **(creates erectile capability)**

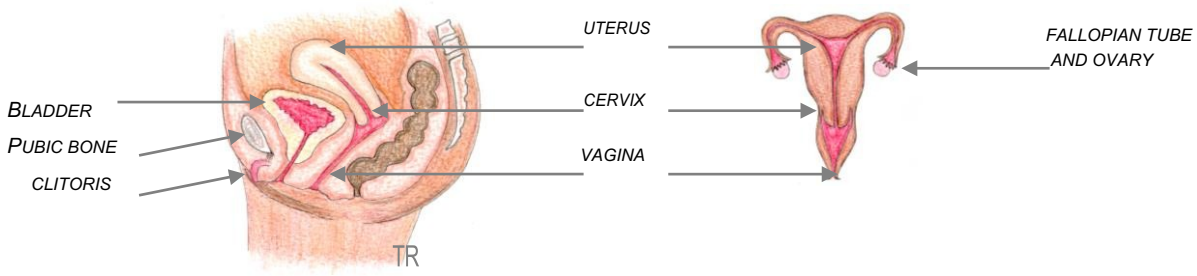
If you have started on a course towards surgery, you may still back out at any time. You may not feel ready now, or ever, to have surgery. You should not feel pressured to follow any particular pathway.

5 Hysterectomy and bilateral salpingo-oöphorectomy (usually combined)

Why do I need this surgery?

Many trans men will have the womb, ovaries and fallopian tubes removed, whether or not they plan to have further genital surgeries.

Diagram of pre-operative anatomy



The reasons for this surgery are:

- The lack of a uterus, fallopian tubes and ovaries may help you feel less female;
- The risk of cancer of the uterus, ovaries or cervix is overcome (the cervix protrudes into the top end of the vagina where the uterus opens into it);[8]
- Periods or breakthrough bleeding are not possible;
- There is no risk of pregnancy and hence no need for contraception but, where a vagina is still present, condoms should continue to be used to prevent sexually transmitted infections;[9]
- Smear testing to detect cervical cancer or screening processes to detect cancers of the uterus or ovaries need not be undertaken;
- There is no longer any conflict between the effects of oestrogen (from the ovaries) and the testosterone you are taking;
- The dosage of testosterone may be reduced thus minimising the potential for long term side effects due to prolonged high dose testosterone use;
- There may be pre-existing gynaecological problems for which the ideal treatment may be hysterectomy and salpingo-oophorectomy; and
- This paves the way for further surgery, should you wish to undertake it.

[8] It is thought that the risk of cancer of the uterus and ovaries may be raised in trans men where there has been long-term, high-dose testosterone use. Testosterone can cause cysts on the ovaries and endometrial hyperplasia (increased cell production of the lining of the uterus). It is not possible to define the level of risk as the study to prove this would be extremely difficult to do. If you are diagnosed with cancer, you should be referred directly to a gynaecologist/oncologist. It is completely **inappropriate** for you to be obliged to have a further psychiatric referral, or to be sent back to a Gender Identity Clinic.

[9] If you have had vaginal sex with a man without a condom, you are at risk of cervical cancer and should have regular smear tests. See also section 15 of this publication.

6 Choosing the surgeon for hysterectomy and salpingo-oöphorectomy

Gynaecologists are the experts in performing hysterectomies. However, not all of them have experience in undertaking the procedure in trans men. It is worth asking your GP (or gender specialist) to refer you to a local gynaecologist to see if they would be willing to do this, but the answer may be 'no'. Some surgeons may not be comfortable with removing healthy tissue. They may also be unwilling to operate on a non-binary or non-gender person who may wish to have neutral sex characteristics. You may have to search around for a sympathetic surgeon. However, there are surgeons willing to undertake this surgery. Your gender specialist team may be able to help you identify an appropriate person.

The implications of having a hysterectomy need to be considered in conjunction with your thoughts on any further genital surgery you may be planning because the choice of technique for the hysterectomy could reduce your options for the later surgery. So you need to discuss this with your surgeon. Some surgical teams may do chest reconstruction at the same time as hysterectomy and oöphorectomy, and then combine vaginectomy with phalloplasty at a later date. In the UK a hysterectomy may be combined with one or more stages of phalloplasty where the service user has decided that he wishes to have further genital surgery. Each surgical team will have its own preferred procedures and time-tabling.

Most surgical teams do not require you to stop taking testosterone before surgery, but some regard this as a safety measure. Stopping testosterone temporarily does not reverse the masculinising effects already induced.

7 Informed consent for hysterectomy and salpingo-oöphorectomy: reproductive options

The removal of the uterus and ovaries will make you infertile so, in some ways, it is the most important decision about surgery that you have to make. Some trans men choose to have babies before their uterus is removed.

If you wish to store ovarian tissue before having a hysterectomy and oöphorectomy, you will need to arrange this well ahead of surgery. You may obtain advice regarding this from your GP or from the surgeon.[10] If you are in a relationship, you may wish to discuss this with your partner and you may wish to have some counselling, together and/or separately. You should have access to this treatment on an equal footing with the non-trans population and the options are essentially the same as for women undergoing chemotherapy or radiotherapy.[11] Fertility centres

[10] Hamilton, M. (2007) Gamete Storage. Good Practice Guidelines for the assessment and treatment of gender dysphoria in adults, Appendix 1 www.rcpsych.ac.uk/usefulresources/publications/collegereports/cr/cr181.aspx

[11] De Sutter, P (2007) Reproduction and fertility issues for trans people. In R Ettner, S Monstrey, E Eyler (eds.) *Principles of Transgender Medicine and Surgery* , pp209–221. Haworth Press, New York.

offering licensed treatment in the UK can be found at the website of the Human Fertilisation and Embryology Authority (HFEA) www.hfea.gov.uk.

In addition, well in advance of surgery, all the factors such possible risks and complications must be discussed, so that you have time to consider the advantages and disadvantages. Make sure that you have learned as much as possible and that you ask your surgeon anything you are not sure about. You will need to discuss which of the techniques outlined below suits you best (especially in terms of the options with regard to the vagina). Although you have choices, you will also have to be guided by the surgeon, as to which is most suitable for you.

This consultation is a two-way process. Surgeons should satisfy themselves, on the basis of their own interview with you, that this surgery is suitable in your case.

You will be asked to sign an 'informed consent' form before undergoing surgery. If possible you should see a copy of this form a few weeks before the operation so that if it raises any queries in your mind you have time to ask the surgeon further questions.

Once you have seriously considered the issue of having children, you may decide to delay this surgery. There is no reason whatever why trans men should not become pregnant and give birth prior to transition or even later. Testosterone will not make you infertile. If you have been through puberty in adolescence, your periods will resume after a few months if you stop taking testosterone. You could become pregnant and give birth. In such a case, insemination may be by a sperm donor or male partner. You would need to check very carefully with a gynaecologist who is familiar with this situation, to be certain that there are no contra-indications (reasons why this would be dangerous for you and/or any baby that you were carrying). A few children have been born in this way and, although no long-term data are available, no problems have been identified in these children.

The father in this photo gave birth to all three children after some years on testosterone

The father in this photo gave birth to their daughter, before starting treatment

8. Hysterectomy (and salpingo-oöphorectomy) options

There are various methods of performing a hysterectomy. Each one removes the uterus including the cervix and, usually, ovaries and fallopian tubes; the vagina may be closed at the top but remain open at the lower end. There are different methods of doing this surgery, but laparoscopic hysterectomy is the preferred one, for trans men. Whatever method used, the possible next step of phalloplasty must be considered.

Laparoscopic hysterectomy

This 'key-hole' surgery involves the insertion of a camera and other instruments through four very small holes in the abdomen. This stage may include the first step towards lengthening the urethra. Key-hole surgery is now more common but not all surgeons are trained in this technique.

It takes one and a half hours to do this operation and involves a hospital stay of three days.

- The main advantage is the absence of an abdominal scar and thus reduced recovery time and, as above, it preserves the option of an abdominal phalloplasty at a later date.
- It avoids incisions in the vaginal wall which may be thin and unsuitable for such incisions owing to the effect of testosterone.[12]

Vaginal hysterectomy

The internal organs are removed through the vagina. There is no external scar but there needs to be a degree of vaginal wall laxity (looseness), such as typically occurs after childbearing. The surgeon needs to be able to reach the uterus via the vagina. In some cases the surgeon can use a laparoscope (key hole surgery), to assist the procedure, especially in the removal of the ovaries. It takes about an hour to do and involves a hospital stay of three days.

- It has a slightly quicker recovery time (by a few days) because there is no abdominal scar.
- The option of abdominal phalloplasty is still available.

[12] O'Hanlan, K, Dibble, SL, Young-Spint, M.(2007) Less invasive hysterectomy okay for transsexuals (sic) *Obstetrics and Gynecology*, 110:1096–1101. Scientific American Inc.

Abdominal hysterectomy

Abdominal hysterectomy is a well-established procedure and any competent gynaecologist is well trained to do it. It takes about one hour and involves a hospital stay of up to four days. Restricted activity is recommended for up to 6 weeks.

The most significant adverse outcome of this method is the six inch transverse scar across the lower abdomen.

The external scar affects –

- the ability to do an abdominal phalloplasty (i.e. using the abdomen as the donor site for constructing the new phallus) making it harder, or perhaps impossible in some cases; and
- the recovery time after the operation; this will be slightly longer; and
- it is also more painful than other procedures.

As mentioned above, the suitability of the individual to undergo the above options can only be determined by the surgeon after a consultation and examination. So the choice will have to be made by the surgeon and service user together, taking account of the service user's wishes and future intentions with regard to surgery.

Timing of procedures for hysterectomy and salpingo-oöphorectomy

Operation	Operation time	Hospital stay	Recovery
Laparoscopic	one and ½ hours	three days	three to four weeks
Vaginal	one hour	three days	five + weeks
Abdominal	one hour	four days	six weeks

Recovery times throughout this publication are given as minimum periods. Some people take much longer than the stated time. Some surgical teams perform chest reconstruction at the same time in which case recovery will probably take longer. A lot depends on how well you are when going into surgery.

Risks associated with hysterectomy with salpingo-oöphorectomy

The most serious risks are:

- significant bleeding;
- damage to the bowel and/or bladder and/or urethra;
- pulmonary embolus;
- deep vein thrombosis;
- wound breakdown;
- laparotomy (having to open up the abdomen); and
- anaesthetic problems.

Minor complications include:

- minor bleeding;
- infection;
- cervical stump problems (the tissue remaining where the cervix had been at the top of the vagina).

Removal of the vagina

Removal, or closing, of the vagina is not always the chosen option of trans men but is typically done as part of a phalloplasty. If you are planning to have phalloplasty later, you may need to retain the vagina until that surgery is done because the lining of the vagina (mucosa) may be used to extend the urethra (the tube you urinate through). The female urethra is short, so any extension of the phallus, either as part of a metoidioplasty or the larger phalloplasty, will require the urethra to be extended to reach the end of the phallus. Not all trans men choose to have the urethral extension. If you don't have it, it will not be possible to urinate standing up, except with a device such as a 'she-wee'.[13] This is an important consideration for some trans men.

[13] E.g. Freshette, at http://www.freshette.com/
See also: GoGirl, PStyle, SheWee, Whiz Freedom, and Urinelle. Products come in a variety of designs and materials such as plastic, rubber, silicone and paper. Some products are reusable and some are disposable. Several devices have been marketed for medical applications, and are sometimes available on prescription

Some trans men prefer to retain the vagina as it may still be utilised during sex. If you are having vaginal intercourse, your partner should use a condom to protect you against sexually transmitted diseases (see section 15 below).

There are several ways to remove the vaginal opening in order to create a more male genital appearance.

- colpoplasty (vaginoplasty) is a procedure that involves closure of the external opening of the vagina whilst opening the internal (cervical) end into the abdominal cavity. The operation is less risky than a vaginectomy but still preserves the vaginal mucosa. Vaginal cancer is therefore still possible. If such a cancer were to develop it would therefore go unnoticed and be difficult to get at. The risk of developing vaginal cancer is slight: one in a million.

- colpoclesis involves ablation (complete removal) of the vaginal mucosa and fusion of the muscular walls of the vagina. It is well tolerated with a low complication rate. Additionally since there is no vaginal mucosa, there is no risk of vaginal cancer.

- colpectomy (a full vaginectomy – removal of the vagina) is a risky procedure with a high, serious complication rate. The risk of haemorrhage, damage to the bladder and rectum are significant.

  The vaginal mucosa (lining of the vagina) is removed and the deep pelvic muscles are sewn together. Again, prior to having this procedure, consideration of the implications for future surgery should be discussed.

9 Will there be an impact on my sexual sensation?

During orgasm, the muscles of the uterus and the vagina contract (see diagram on page 41), so removal of the uterus will limit the spread of orgasm, and removal or closure of the vagina will restrict it further. The vagina and the nerves around it provide some erogenous (sexual) sensation so this will also be lost. However, the clitoris should be unaffected and you should have no difficulty in reaching orgasm. If you are on testosterone, the clitoris will enlarge and your experience of orgasm is likely to intensify which compensates for any diminished area of stimulation.

10 What next? Genital surgery?

The main things to consider when deciding upon genital surgery – in no particular order – are:

- aesthetic appearance – you may choose the simpler surgical process to achieve a micro-penis (up to 2”), or the more complex surgery to create a penis in the (extremely variable) adult male range?
- urinary function – do you want to urinate standing up or sitting down?
- sexual function – do you want to have penetrative sex with your penis?
- sexual function – is the site of sexual sensation important to you?
- appearance – are you happy to have visible scars?
- time – how many operations are you prepared to have?
- risk factors – what level of risk are you willing to accept?
- restrictions – do you have any health-related restrictions on your options?
- financial – if you are funding the surgery yourself, what can you afford to do?

11 Choosing a surgeon for genital surgery

There are only a few surgeons doing this surgery so choices are limited. Talking things through with a surgeon, face-to-face will help you to make up your mind about whether or not this is a surgeon with whom you feel comfortable, and who can provide a suitable solution for you. Do not be afraid to ask for a second opinion if you feel unsure about the first.

Metoidioplasty and phalloplasty are funded by NHS England (Specialised Services), and are undertaken in London at University College Hospital or St John and St Elizabeth Hospital, but if you wish to go outside the UK, the NHS will only fund this in very unusual circumstances. This surgery is extremely costly, and travelling costs add to the bill, so you need to do your homework before embarking on that course. If you are funding yourself, especially if this is abroad, you will need to take account of the costs that are additional to the surgeon’s fees, for instance: anaesthetists, hospital accommodation; preliminary tests, as well as travel expenses, probably on several occasions for appointments with a local mental health clinician and also with the surgeon. Estimates are £50,000 or more, because several stages of surgery are undertaken over a longish period of time – almost certainly more than a year.

You will have important choices and decisions to make about intended outcomes. Your wishes may have to be adjusted in light of the view of your surgeon about what is possible, or likely to be achievable, in your case. Everyone’s anatomy is slightly different, and your surgeon will take this into account. Every surgeon performs these operations slightly differently, but each will have a preferred technique which may be adapted if necessary. Some of the differences

between surgeons are significant, in regard to the preservation of sexual sensation and overall aesthetic result (that is, how it looks). The more complex the proposed surgery, the greater is the risk of complications.

In the UK, phalloplasty involves a series of operations.[14] However, some surgical teams outside the UK do fewer operations because they do several procedures in one operation (this does not include placing the testicular implants – see page 21, and erectile implants – see pages 32). If you have had metoidioplasty then your micro-penis will be incorporated in the new phallus.

Your meeting with the surgeon should occur some time before the actual surgery, that is, not on the same day, or the day before. You may be required to undergo an intimate examination. Although you may not be happy about this, it is necessary, as it is extremely important that the surgeon does not find some unexpected difficulties that affect what can be done. You may not be able to meet with your surgeon if you have chosen surgery outside Europe, so you will need to make sure that the techniques offered are appropriate for you. If possible you should organise post-surgical care in the UK, just in case there are any complications. Emergency care for major complications such as haemorrhaging would be available on the NHS, but 'corrections' would not be.

12 Informed consent for genital reconstruction surgery

It is important to be realistic about outcomes

You and your surgeon must be sure that you are in a position to give properly informed consent before surgery. The surgeon should explain the operative technique used; the likely beneficial result in terms of appearance and function (including sexual function and erotic sensation). Surgeons should be able to show you example pictures of their work and/or refer you to previous patients for a 'reference'. If such discussion is not forthcoming you may ask for this information, and if you are not satisfied, you may wish to seek an alternative surgeon.

You must also be made aware of any possible complications, and surgical risks. These will vary depending on the kind of surgery that you have chosen. Complications may arise, no matter how competent the surgeon. Even the more straightforward surgeries may require follow-up corrections, and some options require a series of surgeries. There will always have to be a balance between the risks and the expected benefits.

[14] www.andrology.co.uk/downloads/Patient-Guide-To-Phalloplasty.pdf

When you are confident that you have been as thorough as you can be in doing your research, and have discussed everything with your surgeon, and the day comes for surgery, you will be asked to read and sign an appropriate 'informed consent' form stating that you understand what is going to happen and the likely consequences of it.

You should also be made aware of the length of time that you will need to convalesce, any specific post-operative care, and instructions about how and when you might 'test drive' the new equipment! Depending on the complexity of the surgery planned, you may well be looking at a series of surgeries over time. As far as possible, you should think ahead about how to manage family and work commitments. You will need support for a while as you will not be able to shop or clean the house for a while post-operatively.

13 Option 1: metoidioplasty

> ***"I haven't made my mind up about phalloplasty. For the moment I am planning to have metoidioplasty done after I have finished my degree and before my first job so that I am not under pressure time-wise. I have been on testosterone for three years now and my clitoral enlargement is quite good. The more major surgery involved with phallo is a bit scary, because of the extra risk and the scarring to the arm (and I wouldn't want any other donor site used). Plus my sex life is good, and I just don't want to rock the boat! I also feel that having this done now, doesn't shut the door on having phalloplasty later, and I believe the surgery takes less time than when a phallo is done from scratch****". (anon).*

The genital organs in both men and women develop from the same structures at the embryonic stage (right at the beginning of your mother's pregnancy), so the clitoris is like a very small penis; it has similar erectile capacity. Under the influence of testosterone, the clitoris enlarges. In order to take advantage of this enlargement and ensure that the clitoris has reached its maximum size, it is recommended that you have been taking testosterone for many months; some centres advocate two years. The size varies from individual to individual but always remains smaller than the male phallus, reaching a final size of, on average, four centimetres when erect; you can't urinate through it.

Metoidioplasty (spelled in a variety of ways) is most suited to those who have developed a large clitoris. The procedure exposes the hidden part of the clitoris to make it more visible and thus appear longer (see 'clitoral release' below). The resulting structure is referred to as a micro-penis or micro-phallus. The technique has been available since the 1970s.

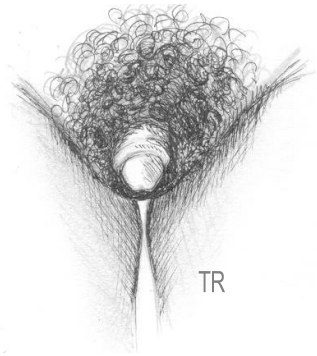
Metoidioplasty can include various options to enhance the functionality or aesthetic appearance of the micro-penis. There are several techniques, all of which start with 'clitoral release':

- Clitoral release and pubic liposuction option;
- Clitoral release and bulking (increasing girth of the micro-penis);
- Clitoral release and scrotoplasty (formation of a scrotum, with or without prostheses, i.e. implants); or
- Clitoral release and urethroplasty (lengthening of the urethra).

Clitoral release

The simplest operation involves detaching the clitoris from the pubic bone to which it is attached by a ligament (this bone forms the front of the pelvis. It can be felt just above the clitoris). The under-surface of the clitoris is then separated from the tissues holding it down. This allows the clitoris to be moved forward and to become more prominent, creating the appearance of a circumcised glans (the end of the male penis). It is important to continue stretching the micro-penis to maintain its length otherwise the ligament may reattach and the micro-penis will shrink back. You should get advice from your surgeon about this.

It is possible to do this under local anaesthetic.



The clitoris appears lengthened. There are few figures available as to the average size. The most often quoted is four to ten centimetres. The results will be more visible in slim individuals.

Clitoral release with pubic liposuction option

At the same time as the clitoral release, some of the fat over the pubic bone can be removed using liposuction, and the skin pulled upwards. This makes the micro-penis appear longer and more masculine, as men tend to have less fat in the pubic area compared to women. Depending on the surgeon's technique this may leave a small scar in the pubic hair area.

Clitoral release and bulking option

If desired, the girth of the micro-penis can be increased by using the labia minora (the inner lips around the entrance to the vagina) to bulk up the micro-penis.

There is also a variant of this called the Centurion procedure. This was developed in 2002 by a US surgeon and involves dissecting ligaments inside the labia majora (the outside, visible lips on either side of the micro-penis) bringing them together along its shaft to add bulk. This creates natural hollows in the labia which can be used for testicular implants (see below for implants).

Clitoral release and scrotoplasty option

It is entirely possible to stop after the above options. It is more common however to wish to create a scrotum with testicular implants. Different surgical teams have different approaches to creating the scrotal sac but all will use the skin of the labia majora that is expanded in one of the following ways.

- Silicone implants are inserted without prior expansion of the 'scrotal' skin. This is generally done as a separate procedure some months after the initial metoidioplasty but can also be done as part of the same operation.

  This option stretches the labial skin and is uncomfortable for a few days and more uncomfortable than the option below.

- The new scrotal skin is expanded gradually to accommodate the silicon implants at a later date.

Typically, at the same time as the clitoral release, the labia majora (outer lips) are descended from their natural position and fitted with tissue expanders. These are composed of small bags which have ports for the infusion of saline solution. The patient fills the bags every seven to ten days with five mls of fluid.

Clitoral release and scrotoplasty

To maximise the chance of healing a catheter is inserted at the time of the operation, and is left in place for 2 weeks (a catheter is a thin rubber tube that keeps the new urethra open, and carries the urine from the bladder and out through the micro-penis).

The risk of urethral problems is high. The most troublesome issues are:

- urinary tract infections;
- fistulae – small openings where joins have to be made in the urethra, especially where the new tissue joins with the original urethra. These openings allow leakages of urine along the length of the urethra;
- narrowing (stenosis) of the urethra causing difficulty urinating;
- poor stream causing the urine to spray in any direction;
- leaking of urine after you have finished urinating.

"After urinating and pulling my pants and trousers up, just as I was standing and washing my hands, a dribble of urine would run down my legs wetting my clothes. It wasn't a huge amount but it was uncomfortable and could have been embarrassing. My urologist explained that I probably had a diverticulum (small bulge creating a sac in the urethra) and that I could empty the urine collected in it, by squeezing the scrotum and forcing the urine out. Problem solved. I wish he had told me about this first" (anon).

The urethra can be made from several tissues. The commonest being the vaginal mucosa (inner lining of the vagina), buccal (mouth) mucosa and the labia minora (inner lips around the opening of the vagina). Some surgeons advise closing the vagina if vaginal mucosa is used for the urethroplasty. Operation and recovery times will vary depending on the complexity of the operation. Metoidioplasty with urethral extension will be at the upper end of the timing suggested in the table below.

Operation	Operation time	Hospital stay	Recovery time
Metoidioplasty	three to five hours	three to four days	two to four weeks

Advantages compared to phalloplasty:

- less risk of complications during and after surgery;
- one or two stage procedure (in the UK, phalloplasty can take five or more procedures although elsewhere phalloplasty may be done in two stages);
- the penis is natural looking (outcomes for phalloplasty, in terms of appearance, may be quite variable);
- procedure is cheaper;
- less time recuperating and off work;
- no scarring.

Disadvantages compared to phalloplasty:

- the penis is very small;
- penetrative sex is unlikely to be possible;.

Risks:

- some loss of sexual sensation;
- hypersensitivity;
- tissue necrosis (some tissue dies away) – this is rare;
- infections;
- bleeding;
- stenosis (narrowing) of the urethra;
- fistula (an opening of the lengthened urethra, usually where a join has been made);
- length shorter than anticipated;
- vaginal opening narrowed (this may be temporary or permanent).

What about sexual sensation now?

As mentioned above, if you have had a metoidioplasty you will not usually be able to achieve penetration (unless you use some other form of erectile aid).

Sexual sensation is preserved in the micro-penis so you will have erections as normal and there should be no difficulty in reaching orgasm. There will be a slight limitation in the spread of the sensation of orgasm if you have had a hysterectomy. Contractions during orgasm that would usually be felt in the vagina and the uterus will obviously be lost once these organs are removed.

Many women experience heightened sensation when the 'G' spot is stimulated; this is on the front wall of the vagina, a little way above its opening on the pelvic floor. The cervix is also particularly sensitive in some women and may be stimulated by the penis during vaginal intercourse.

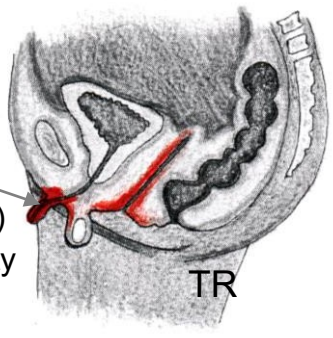
These sexual sensations in and around the vagina will more-or-less disappear if the vagina is removed altogether. If the vaginal walls remain, however, there may well be some residual sensation, especially in the vicinity of the G spot even though this cannot any longer be directly stimulated.

Some people experience sexual sensation from the vagina during anal penetration. If your sexual activity includes being penetrated via the anus, the removal of your vagina will limit the possibility of this sensation but, as above, if the walls of the vagina are still present, there may be some sexual sensation in that area.

Diagram to show the areas (coloured red) of sexual response following metoidioplasty with vaginal colpoclesis

The enlarged clitoris will still be available for direct stimulation

The tissue surrounding the vagina (shown in red) including some of the nerve endings in the vicinity of the G spot (see page 41), may still provide some of the wider sensation associated with female orgasm.



If penetration during intercourse is important to you (and to your partner) you may need to go for option 2, the phalloplasty. However, you will need to balance this against the small risk of losing some sexual sensation, the greater risk of complications, and the necessity of having to undergo more surgical procedures.

13 Option 2: Phalloplasty

> *"**I'm still in the middle of my surgeries but I want it all done. Every morning, in the few seconds before I am fully awake, I expect my body to look completely male – and then I realise as I get showered that it doesn't yet. That's difficult**" (James, as told to Sally Raikes, "Scotland on Sunday" on 26th August, 2006.)*

N.B. The following text should only be regarded as an introduction to the possible procedures that may be involved in phalloplasty. Techniques depend not only on your choices, but also on the practice and experience of your surgeon, and your own particular anatomy. It is not within the scope of this booklet to cover all these possibilities.

Even if you have already had a metoidioplasty, all the matters raised in the introduction will still be relevant if you later decide to have a phalloplasty. So, just to recap, you will need to have further discussions with significant others: family members – especially your partner, other trans men and your surgeon. You may also wish to have some (further) counselling.

What outcome am I looking for?

All phalloplasty options should provide you with a sensate penis, that is, one with ordinary skin sensation. However, it may not have the *sexual* sensation of a penis, but this depends on the surgical techniques used by your surgeon. Sensation will, in any case, be delayed for a few months.

Undergoing phalloplasty is a big step and your preparation needs to be extensive. You need to be really sure about what you want as well as realistic about what can be achieved. It is important that you understand, beforehand, that results are variable and may not quite live up to your expectations.

If you have not had any genital surgery so far, you will need two referrals, one of which is from a doctor who is a gender specialist and has knowledge of your trans history. If, however, you are seeking phalloplasty as part of an on-going process, for instance, following metoidioplasty, with the same surgical team, you may not need further referrals. If you have changed surgeons, the new surgeon might insist on a letter of referral.

It is not absolutely necessary to undergo hysterectomy or vaginectomy before or during a phalloplasty procedure although most surgeons insist upon this. If that is the case with your surgeon and you haven't yet had any surgery, you will need to have a hysterectomy, oöphorectomy and possibly a vaginectomy (see section 8 above). Some surgeons will perform these at the same time as the phalloplasty, but most prefer to take it a stage at a time. However, vaginectomy *must* be done simultaneously if your surgeon is planning to use vaginal mucosa (lining of the vagina) to create the urethra.

Phalloplasty itself involves several procedures. In the UK, these are done in a series of operations.[15] However, some surgical teams outside the UK do fewer operations because they do several procedures in one operation (this does not include placing the testicular implants – and erectile implants. If you have had metoidioplasty then your micro-penis will be incorporated in the new phallus.

Your penis will need to be created from your own tissue, as a graft, taken from a donor site. Some surgeons prefer one donor site rather than another – forearm rather than abdominal flap – for instance. The donor tissue is rolled into a basic penis shape and may be positioned slightly differently, depending on:

- whether the clitoris is to be buried under the penis or scrotum (if no metoidioplasty has taken place) or left visible and accessible between the testes;

- whether or not metoidioplasty has already been carried out; if it has, then the micro-penis will be incorporated into the penis by wrapping the donor tissue around it; and

- where the graft is taken from – an abdominal flap allows little choice of exact position, whereas the forearm flap is 'free' and positioning is a little more flexible.

You will also have to consider the various refinements that can be made on your phallus. Do you want a phallus that looks good but is not functional? Is it important to you to be able to urinate standing up? Are you hoping to be able to make the penis erect and have penetrative sex?

As with the metoidioplasty, your surgeon should be able to provide you with images, and may be able to refer you to other patients whom they have treated. You will need to understand the risks associated with this complex surgery, so that you are able to make joint decisions with the surgeon, and give properly informed consent to each of the procedures.

[15] http://transitionftmuk.co.uk/wp-content/uploads/2014/11/Patient-Guide-To-Phalloplasty.pdf

Hair removal from the donor site

Part of your preparation will be to undergo epilation of hair from the donor site providing the tissue to create the new phallus. This can take many months. Your surgeon will need to give explicit instructions about the area to be used. It's important that this is done really thoroughly otherwise your penis may be hairy and require shaving or, even more problematic, if you have a urethra created through the penis, using tissue from, for instance, the forearm, the tube may become blocked as the hair regrows.

How do I choose the donor site?

One of the first decisions to be made is about the donor site – the area of your body that will provide the tissue from which the phallus is to be made. The site will depend, partly, on your surgeon's view of what can be achieved in your particular case. Of course, it will also depend on what outcome you are hoping for, and where you are prepared to have the scar caused by the removal of a large area of skin.

Donor flaps may be described as 'pedicle or 'free'; a pedicle flap is initially only freed at one end, whilst the other end remains attached and retains some of its original blood supply; the 'free' flap has to be detached completely and moved to the new site, and blood vessels and nerves have to be re-attached to nerves and blood vessels at the new site.

Forearm flap

The most common donor site is the radial forearm flap although, in a very few cases, the arm may be too thin to provide enough skin. This is a 'free' flap although some of the refinements to the phallus may be done before the flap is detached from the arm. If you are right handed, the flap will be taken from the left forearm, and vice versa. For good results, hair removal from the site should be complete before surgery. It may take some months, possibly as long as a year to achieve complete removal of hair from your lower arm. It can be done with light based procedures such as laser or intense pulse light, or by electrolysis. The method of hair removal will depend on your skin and hair type. You should discuss this with the professional providing this service.

- Blood vessels are taken from the forearm and joined up with those in the pelvis, to ensure that the penis has an adequate blood supply. It is usual to take one artery (arteries carry oxygenated blood to the tissues), and two or three veins (veins carry the de-oxygenated blood back towards the heart).

- Nerves are also taken from the arm and are joined, at the base of the penis, to nerves in the abdomen. Unfortunately, the nerves do not function immediately. It takes many months – maybe up to a year – before the nerves regain function. It is, therefore, important to understand that during this time the penis will not have sensation. If you have this surgery, you will need to take care not to damage your penis while there is no feeling in it.

The advantage of the forearm flap:

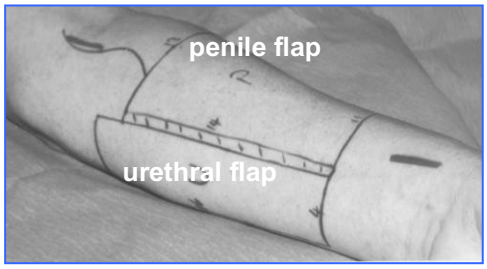
- the advantage of using the forearm flap is that the results usually look good. The urethra is created at the same time, also using skin from the forearm, is less problematic. There is one join at the base of the penis where the new urethra is hooked up with the existing urethra (that has been slightly extended with mucosal tissue). It is less prone to narrowing and blockage than a urethra that has several joins.

The disadvantages:

- If epilation from the donor site is insufficient, re-growth of hair may cause problems

- One disadvantage of the forearm flap is the visibility of the scar at the donor site that may create some self consciousness when wearing short sleeved garments.

- Also, the donor site will need a secondary skin graft to help the area heal. This may be full-skin thickness or, more usually, a very thin (split thickness) graft. It may be taken from the thigh or buttocks. The arm will be covered with a pressure garment for anything from six months to a year. You will probably need post-operative care for the donor site from your local practice nurse.



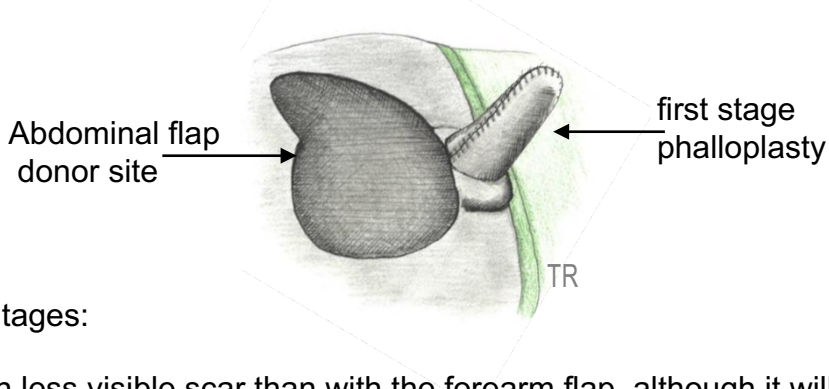
- Recovery time following surgery is longer when using this donor site than it is when the abdominal flap is used (see table below).

Abdominal flap

Alternatively, the lower abdomen may provide the donor skin. Again some hair removal is likely to be necessary before surgery is carried out. It should be noted that using the skin in the area usually covered by pubic hair means that the skin drawn down to cover the donor site will have little or no pubic hair.

If you are a lean individual you may need to put on a pound or two in weight in order to create some subcutaneous fat so that the phallus is bulky enough.

As this is a pedicle flap, arteries, veins and nerves will be in tact, but sensation may still be delayed for a while until the nerves have recovered from the surgery.



The advantages:

- a much less visible scar than with the forearm flap, although it will create a long scar across the abdomen;
- no secondary graft is required on the donor site.

The disadvantages:

- A urethra is not provided at the time of this surgery and is more suitable for those who do not necessarily wish to urinate standing up. If a urethra is required, it may by provided at a follow-up stage; the tissue used is usually a free-flap from the forearm which causes only a relatively small amount of scarring or, if you really do not want any scarring at all on the forearm, the urethra may be constructed in sections from other areas such as the mucous membrane lining the vagina or mouth. If sufficient tissue is not available the urethra may not extend to the tip of the penis and will end somewhere along the underside of the penis in the same manner as the condition called hypospadias. Also the joins between the sections can all give rise to fistulae formation (small gaps in the joins) and therefore leaks and possibly infections.

Alternative donor sites for phalloplasty preferred by some surgeons:

- skin from the front-side of the thigh (antero-lateral thigh flap – ALT). This site is being used increasingly. It may be used as a pedicle or a free flap. The donor site is less conspicuous and the blood supply is good; it may be preferred where urethroplasty is not required. Urethroplasty can be undertaken with the ALT flap, by using the forearm as the donor site for the urethral tube only. Compared with the technique that uses the forearm as the donor site for the outer tube as well, this approach obviously causes a much smaller area of scarring that is on the inside of the arm and is much less conspicuous; or

- a back flap using muscle from latissimus dorsi and its overlying skin. This does not usually necessitate hair removal, and the scarring is not visible when dressed. The muscle itself, once the nerve supply is established, can be voluntarily contracted.
- Additionally, a flap from the groin or buttocks may be used.

You may choose to have a basic penis without a urethral extension or erectile implants.

The advantages are:

- your surgery is more straightforward, it will take less time; and
- you will avoid the complications that are associated with lengthening the urethra (fistulae or stenosis).

The disadvantages are:

- you will find penetrative sex difficult or impossible without erectile implants; and
- will not be able to urinate through the penis and, therefore, will not be able to urinate standing up.

You may choose a penis with a urethra

The majority of those undergoing phalloplasty in the UK have chosen to have the urethra extended, but this choice is certainly not universal.

The advantage:

- Being able to urinate standing up means you can be able to use a urinal; apart from the practical advantage, you may find that this is psychologically beneficial.

The disadvantage:

- The most frequent problem is that the urethra becomes narrow and may become blocked (stenosis). In order to try to prevent this happening, you have to keep a catheter running through the urethra, for a short time after surgery. You may also have a second 'suprapubic' catheter in place; this emerges just above the pubic bone and carries urine directly from the bladder. This will be clamped after about one week and, gradually urine will emerge from the urethral catheter. Once this is established the suprapubic catheter can be removed. Occasionally, leaks develop (fistulae) where joints have been made to add sections of tissue to lengthen the urethra. Even when it is all healed and you are able to urinate standing up, you may find it difficult to direct your urine, and you may

experience spraying. If you have slight dribbling following urinating, this can usually be overcome by squeezing the penis from its base, to make sure that all urine is pushed out.

You may choose to have a penis that can be made erect

In the UK, approximately a third of those undergoing phalloplasty have elected to have erectile implants.

The advantages:

- Erectile implants, of the same kind as used in genetic men with erectile problems can be inserted into the newly created phallus. They are very effective and facilitate penetrative intercourse. This is a psychological benefit and also adds an important dimension to your sexual function.

The disadvantages:

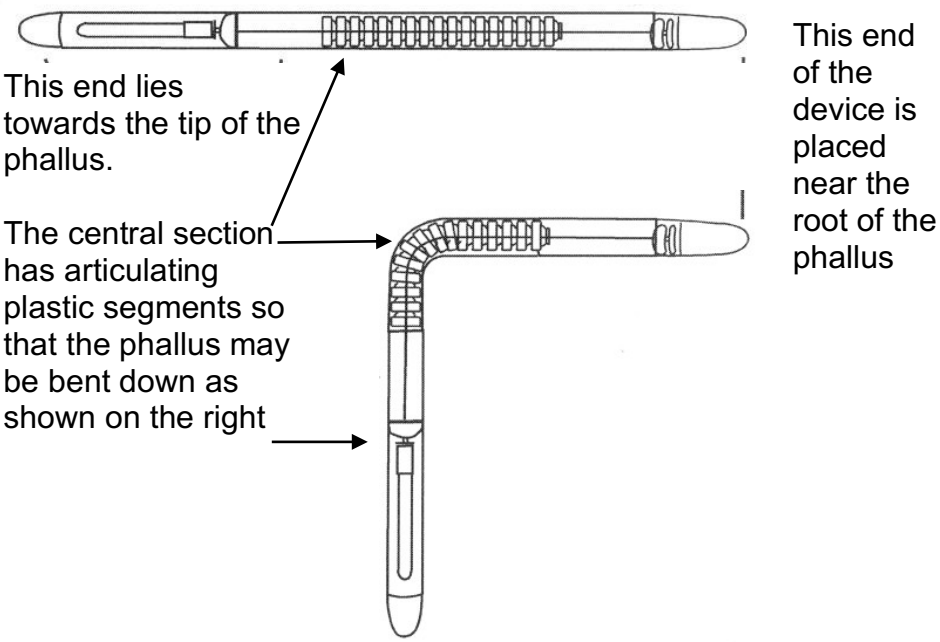
- This will always involve further surgery and, therefore more time off work, and more risk of complications. Sexual sensation may be slightly 'dulled' if the clitoris or micro-penis is 'buried'.

How do erectile implants work?

There are two types of erectile implants:

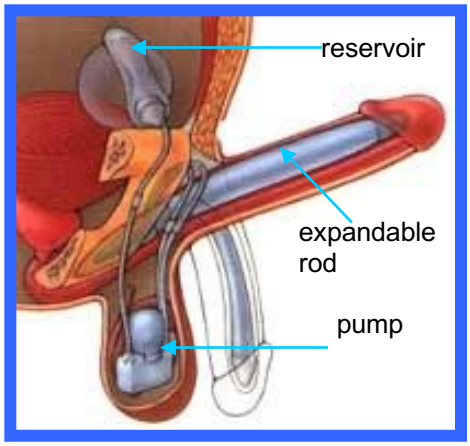
- Semi-rigid rods; one or two are placed inside the shaft of the phallus. When an erection is desired the phallus is bent upwards. The construction of the rods is such that the penis is able to retain an erect profile until such time as the procedure is reversed by bending the phallus down again.[16]

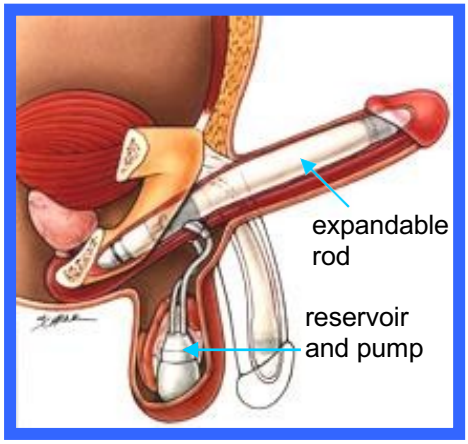
[16] Courtesy of American Medical Systems, Inc. Minnetonka, Minnesota (Dura II ®) www.americanmedicalsystems.com



The disadvantage of this type of prosthesis is that the length and width of the phallus does not alter. The length of the erectile device is cut to correspond to the length of the phallus and is therefore of a fixed length. Also, when bent down it remains relatively rigid and harder to conceal. This is a less popular kind of prosthesis.

Alternatively, a more complex device may be implanted, comprising a reservoir of fluid, a pump and one or two expandable rods.[17] The pump device is placed in the scrotum and the rods are placed in the phallus. The reservoir may be placed either in the lower abdomen (involving an extra stage of surgery) or in the scrotum. Your surgeon will discuss with you which is suitable in your case.



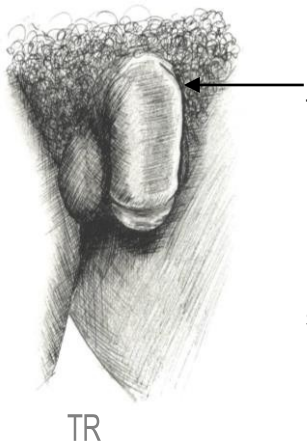


When an erection is desired, the pump is squeezed to transfer some of the fluid from the reservoir to the expandable rods. They thus become more rigid, slightly larger in length and circumference. This mimics the natural erection more accurately. When the erection is no longer desired, the valve is released and the fluid drains back into the reservoir, the phallus returning to its original size.

[17] http://www.trans-health.com/2013/penile-implants-guide/

If you are planning to have erectile prostheses, you need to be aware that although these devices make the penis rigid, which allows penetration, but this rigidity is confined to the centre of the phallus. The feel of the skin on the outside of the penis is still soft because the skin from the donor site has no capacity to become hard.

Implant infection is a possible complication of this procedure. Infections may not become apparent for many months after the surgery. Mechanical failure is possible, but very unlikely; one report indicates a 5% re-operation rate. The life-span of the prosthesis is roughly 7 years so, depending on your age, you will need to consider the possibility of further surgeries.[18,19]



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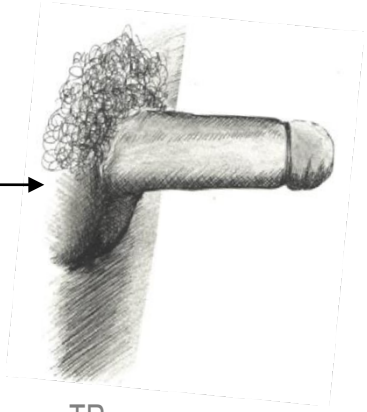
Penis with sculpted glans and testicular prostheses.

Penis made erect with penile prosthesis. The glans-shaping in this example is not entirely satisfactory but variation must be expected.



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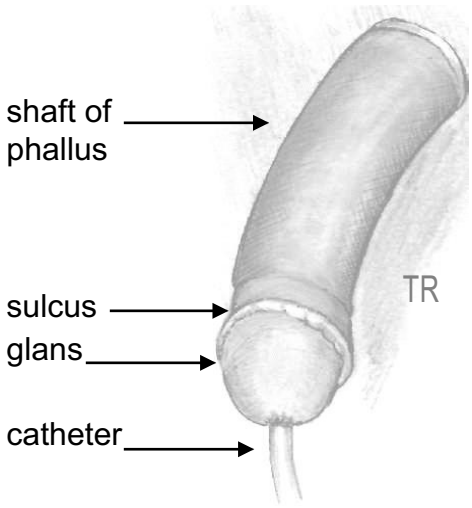
Creating the glans

Either at the time of the initial operation, or when the first stage of creating the phallus has healed, the head of the penis (glans) can be sculpted to give a realistic looking appearance. The coronal sulcus (slight groove where the shaft of the penis meets the glans) is fashioned to create the 'pinched in' appearance. Colour can be added with medical tattooing of the glans as the male phallus is usually a different colour to the shaft. This may be done in the months following surgery when the penis is still without skin sensation. The appearance of the glans can be improved in this way, whether or not you have other refinements such as an extended urethra or erectile implants. Approximately 50% of those undergoing phalloplasty in the UK have chosen to have the glans shaped.

[18] http://london-andrology.co.uk/service/Penis-prosthesis/ N.b. This article refers to surgeries in non-trans men.
[19] In the UK the three-part prosthesis (up to £7,000) is used as it simulates more closely the rigidity and flaccidity of a natural penis. It requires an extra stage of surgery. The prosthesis is covered by warranty.

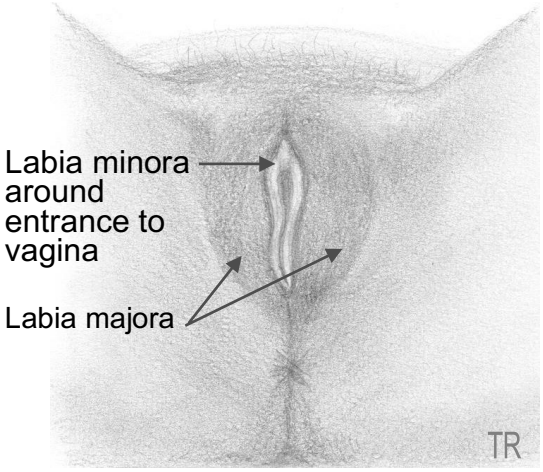


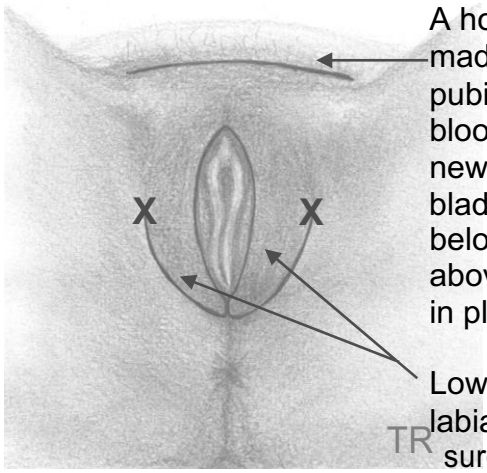
This image shows the appearance of the glans immediately post-operatively, where the glans has been created while the forearm flap was still attached to the arm and still had its own blood supply.

The distinctive shape of the glans of the penis is created using a small skin flap and graft from the arm.

The pelvic floor showing diagrammatic representation of scrotoplasty

A refinement of the techniques outlined in the metoidioplasty section for creating a scrotum, is undertaken by some surgical teams[20], as shown below.

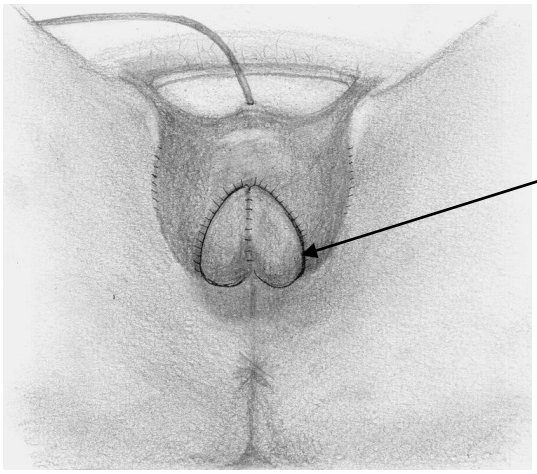




A horizontal incision is made just above the pubic bone to access blood vessels and the new urethra from the bladder. The area below this incision and above the **X**s remains in place.

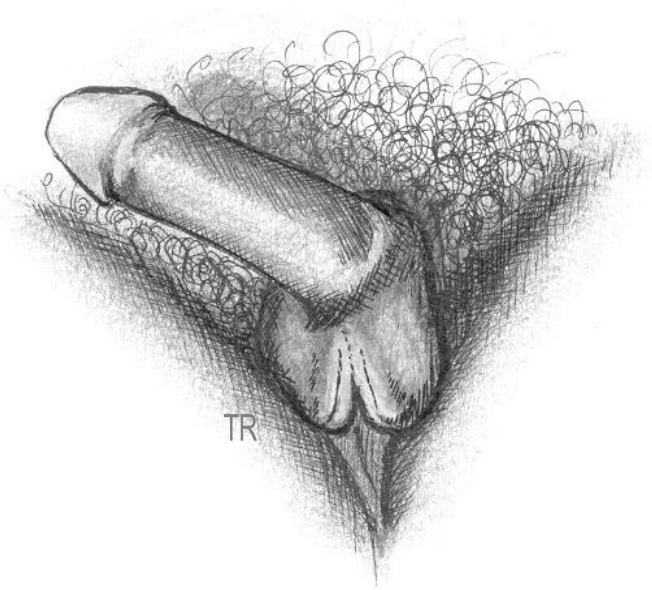
Lower sections of the labia majora are surgically released.

[20] Technique reproduced courtesy of Professor Stan Monstrey, University Hospital, Ghent, Belgium.

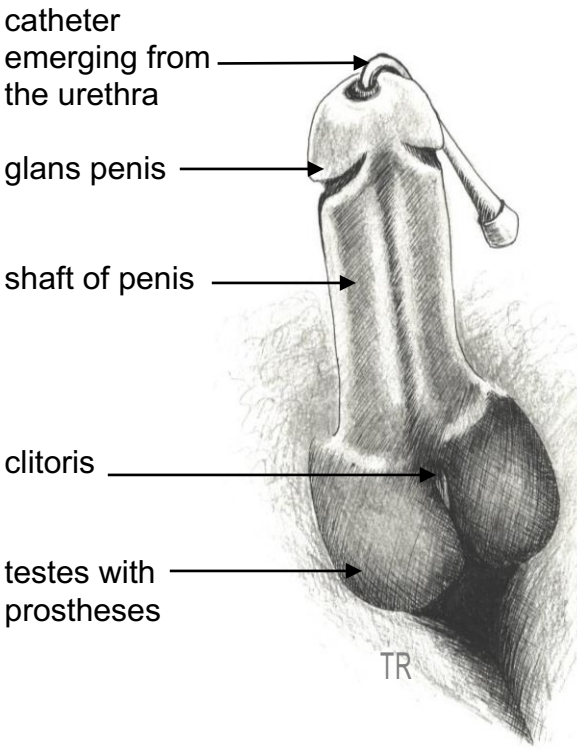


The lower ends of the labia majora are turned up and stitched into place to create a double pouch that will later house the testicular prostheses. The clitoris is moved up and buried under the shaft of the penis. In this picture a catheter is in place to drain the bladder.

The clitoral hood (the tissue that covers the top of the clitoris) is incorporated into the scrotum to enhance erogenous sensation



The scrotal sac shown here has been created in the way described above. It does not yet have testicular implants. This technique is found to give a more masculine appearance especially once the implants are in place.



Penis seen from the underside, with sculpted glans. The catheter is still in place to ensure that the newly created urethra remains open.

Testicular prostheses are in place and, between the testes, the clitoris is just visible, so it has not been 'buried', and metoidioplasty had not taken place in this individual. Those trans men who have not undergone metoidioplasty, or who have not had one of the clitoral nerves attached to a nerve grafted in from the forearm, may prefer to have the clitoris available for direct sexual stimulation.

Sequence and approximate timing of surgical procedures

1. Radial forearm flap phalloplasty (combined with chest reconstruction) (UK)

Operation	Operation time	Hospital stay	Recovery time
Radial forearm flap hysterectomy Chest reconstruction[21,22]	six to eight hours	seven days	six weeks
Hook-up urethroplasty Vaginectomy	two hours	one to three days	two weeks
Glans, testes and reservoir	one hour	23 hours	one week
Penile implant	two hours	23 hours	one week

Although the immediate recovery time for phalloplasty is given as six weeks, many people continue to feel rather fragile for a lot longer. You may need to consider more time off work, depending on the nature of your job. A desk job will clearly be easier than, say, a gardening job. As mentioned earlier, your recovery time will be partly dependent on your health before surgery.

Some surgical teams outside the UK prefer to do most of the surgical procedures in two operations. In Belgium, for instance, vaginectomy and pelvic floor reconstruction are done in the same procedure as the phalloplasty (using forearm flap), urethroplasty, scrotoplasty and glans sculpting. There are obvious advantages in terms of time off work, however, the operation itself takes eight to ten hours, slightly longer than the UK where the procedures may be a little more spread out. In both Belgium and the UK, erectile prostheses are fitted about 12 months later when sensation is established in the penis. NHS funding may be provided for surgery in Europe in exceptional circumstances, where the equivalent treatment is not available in the UK.

[21] The issue of chest reconstruction has not been dealt with in this booklet, but surgeons may do this surgery together with some stages of phalloplasty (See http://transurgery.com/chest-reconstruction/before-surgery.

[22] Some trans men, especially those who are heavy-breasted may have this surgery before meeting the eligibility criteria for genital surgery. (See Feldman, JL, Goldberg, JM. (2006).Transgender primary medical care, *International Journal of Transgenderism*, 9(3/4):3–34)

2 Radial forearm flap phalloplasty (combined with chest reconstruction)(Belgium)

Operation	Operation time	Hospital stay	Recovery time
Laparoscopic hysterectomy Salpingo-oöphorectomy Chest reconstruction[23]	four hours	three to five days	three to four weeks
Forearm flap Urethroplasty Vaginectomy Scrotoplasty Glans sculpting	eight to ten hours	17 – 18 days	ten to 12 weeks
Penile implant	two hours	two days	one week

3 Abdominal flap without urethroplasty (UK).

Operation	Operating time	Hospital Stay	Recovery time
Abdominal Phalloplasty	three to four hours	three to seven days	three weeks
Glans sculpting, Testis, Reservoir	two hours	one to two days	one week
Penile implant	two hours	two to three days	two weeks

As with other surgeries, the time given for recovery – three weeks – is a minimum, and most people will take longer to feel really well and to be strong enough to return to work. Occasionally abdominal phalloplasty may be undertaken in conjunction with abdominal hysterectomy, in which case the timings mentioned here will be considerably increased.

[23] Chest reconstruction may already have taken place in which case these times will probably be shorter.

Risks associated with surgery:

- bleeding;
- pulmonary embolus;
- wound breakdown;
- anaesthetic problems;
- infection;
- deep venous thrombosis (DVT).

Possible complications of phalloplasty:

- loss of phallus (when arterial blood supply fails the tissue dies. This is rare);
- loss of forearm skin graft (necessitating a further graft);
- venous ischaemia (when the veins carrying blood back towards the heart collapse causing back-up blockage in the arterial system. Small areas of tissue can die or, in very rare cases, the phallus can be lost);
- urethral stricture (closing of the urethra. This is rare);
- urethral fistula (leakage through joints; about 30% of people had this problem. Many self-heal; a few will need further surgical correction; and
- in the UK about 15% of people need further surgery to correct one of these problems. A minority of these will have more than one surgical correction.

REMEMBER THE RISK OF COMPLICATIONS INCLUDING LOSS OF PART, OR ALL, OF THE PHALLUS, IS SIGNIFICANTLY GREATER IF YOU SMOKE.
Some clinicians will not operate unless service users have stopped smoking for at least a year.

98% of those having phalloplasty in the UK judged their appearance as good or excellent. Among those whose surgery was long enough ago that a return of sensation would be expected, 70% reported complete skin sensation, and 14% reported partial sensation. Two people lost the phallus (n=111).

Among those who had urethroplasty, 98% were able to urinate standing up.

The final appearance of the forearm donor site was reported as excellent in approximately 72% of people; and moderate to good in the remaining 27%. Skin sensation was complete in nearly 90%, and less than 4% experienced some loss of movement.

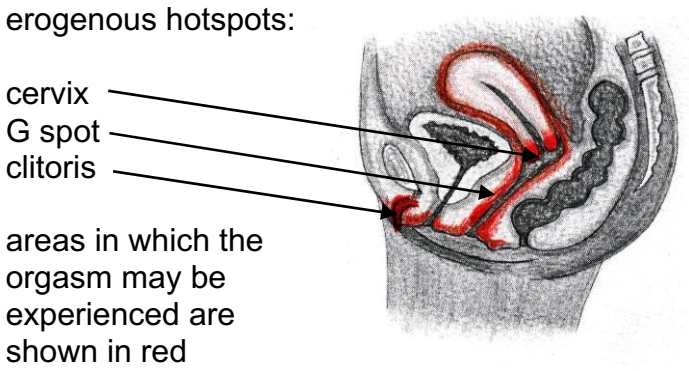
In Belgium the results are similar, in that most problems arose with urethral extensions: 24% had a fistula; 19% had stenosis. Most of the fistulae healed spontaneously and more than half the stenoses were corrected under local anaesthetic but sometimes secondary surgical procedures were necessary. 16% had vascular (blood supply) problems, most of which required further surgical intervention, however, only 8% lost small amounts of skin; two people lost the phallus altogether (n=250).[24] Otherwise all were satisfied with their appearance.

It is worth thinking about the fact that this kind of surgery has a relatively high rate of further surgical interventions to correct problems, so you should mentally prepare yourself for this.

[24] Monstrey, S, Ceulemans, P, Hoebeke, P (2007) Surgery: female to male patient. *In Principles of Transgender Medicine and Surgery*, Randi Ettner, Stan Monstrey, A. Evan Eyler (eds.) pages 135–168. N.B. it is to be expected that outcomes may improve over time, as techniques become more sophisticated.

What about my sex life now?

As mentioned above, your sexual sensation is more limited in range after surgery to remove the uterus and close the vagina. Contractions during orgasm that would usually be felt in the vagina and the uterus will obviously be lost once these organs are removed. Areas that are especially sensitive to stimulation are not only the clitoris but, in many women, the 'G spot'[25] which is on the front wall of the vagina, a little way above its opening on the pelvic floor. The cervix is also particularly sensitive in some women and may be stimulated by the penis during vaginal intercourse. Most trans men do not find the loss of some sexual sensation problematic because testosterone makes the experience more intense.



If you are planning to have a phalloplasty, you may prefer to leave the clitoris uncovered between the scrotal sacs where it is accessible for direct stimulation (see picture on page 36).

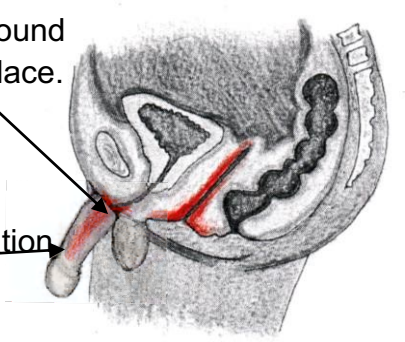
Otherwise the clitoris may be buried under the root of the phallus. If you have had a metoidioplasty previously, the micro-penis will be surrounded by the skin of the phallus. These two techniques may cause some loss of immediate sexual sensation, but it will still be possible to stimulate the clitoris or micro-penis through the phallus, and to achieve orgasm.

[25] Gräfenberg Spot, the G-Spot was named after the gynaecologist Ernst Gräfenberg, who first described it in 1944. It is regarded by some as the equivalent of the male prostate gland. It appears that not everyone has a G-spot.

Diagram to show the areas of sexual sensation where phalloplasty and hysterectomy with vaginal colpoclesis is performed

The penis may cover the clitoris or be wrapped around the micro-penis where metoidioplasty has taken place.

The underlying micro-penis, or the technique of grafting a nerve from the forearm onto one of the nerves supplying the clitoris, causes sexual sensation to be carried further along the penis.



The phallus itself will have skin sensation, but little erogenous sensation. Those who have undergone the technique of extending the clitoral nerve report some sexual sensation in the phallus, although not along its entire length. The inclusion of the clitoral hood in the scrotum is also believed to enhance erogenous sensation.

If you have had phalloplasty **with** erectile implants, you will be able to achieve penetration. The phallus itself is not capable of becoming engorged and therefore, is not rigid on the outside. It is only rigid at its core. Although some report pain on intercourse, most of those who have had the erectile implant say that they are pleased with the improvement in their sexual function.

14 Sexual behaviours and keeping safe from sexually transmitted diseases (STIs)[26,27,28,29]

Behaviours

Sexual behaviours among trans men may be extremely varied depending upon:

- their sexual orientation, that is, whether they are attracted to men or to women or both, neither; and/or
- the type of anatomical changes that they have undergone as part of their treatment.

Sexual orientation

Although sexual orientation usually remains the same after transition as it was before, this is not always the case. For example, a trans man who, before transition, has female sexual partners following transition, may:

- remain attracted to women and be comfortable in a straight relationship;
  OR
- may be more attracted to men and prefer a gay relationship.

The reverse is also possible, that is, where a trans man who, before transition, is in a heterosexual relationship with a straight man may, following transition,

- still prefer to be in a relationship with a man;
  OR
- may be attracted to women and want a straight relationship.

For those who remain in the same relationship, sexual behaviour will almost certainly need to be adapted. For instance, if your partner is lesbian, she may find it extremely difficult to countenance being in a straight relationship with a (trans) man. So there are likely to be emotional issues and perhaps even identity crises for partners, as well as physical adaptations to the anatomical changes.

Where trans people are in sexual relationships with other trans people, the possibilities are more numerous and complex.

[26] Health Protection Agency (2007) prevalence available at www.avert.org/stdstatisticuk.htm
[27] NHS Direct available at www.nhsdirect.nhs.uk/articles/article.aspx?articleID=436
[28] NHS Sexual Health Information for Women who have Sex with Women;
http://www.nhs.uk/Livewell/STIs/Pages/VisitinganSTIclinic.aspx
[29] Dr Richard Curtis: advice to service users

Changed sex anatomy

Anatomically, a trans man may or may not have: a vagina, a micro-penis, or a penis with erectile capacity. Having a penis with erectile capacity means that you are less likely to have a vagina, however such a combination is not impossible

All these possibilities will impact on sexual behaviours and, consequently, the degree of risk of STIs to which a trans man may be exposed. You will be at least risk if you are having non-penetrative sex (most likely with a woman). However, infections can be passed between partners through rubbing vulvas together or hand contact. You will be at most risk if you are having anal penetrative sex (most likely with a man); and there are various shades of risk in between. Penetration with sex toys where these are shared can also cause infections to be passed between partners.

The behaviours that put you at most risk are:

- **Unprotected penetrative sex, especially anal sex; and**
- **Multiple sexual partners**

Hygiene is important although, on its own, it will not prevent infections being passed on. You should have clean hands and clean genitals, sex toys should be washed every time they are used, and this includes when they are used for more than one orifice on the same occasion. Avoid oral sex if you have any cuts or sores on the mouth; use latex condoms for penile penetration. Wear latex gloves and use plenty of *water-based* lubricant for vaginal and anal fisting, or when using dildos (water-based products do not damage rubber).

Douching should not be necessary as the vagina is self-cleansing. Soreness around the entrance to the vagina can occur when using perfumed soaps and bubble baths. Specific conditions such as Bacterial Vaginosis and Thrush can also be caused in this way, and it is also possible that they can be passed on through sexual touching or using sex toys. However, they are not necessarily related to sexual activity. The symptoms of Bacterial Vaginosis are a fishy smelling thin green discharge; this is treatable with antibiotics. The symptoms of Thrush include: itching; pain on vaginal penetration; burning sensation when passing urine and thick white discharge. Medicated creams, pessaries and tablets can be bought at pharmacies but you should see your doctor if these symptoms persist.

Sexually transmitted infections (STIs)

Sexually transmitted infections are seldom trivial; all of them can have serious consequences and several are not curable. They can blight the lives of the individuals that have them, and also the lives of those around them. If you have any reason to believe that you might have contracted an STI, you should seek medical help from your GP or a Sexual Health Clinic. Many people find this embarrassing, but remember, the staff in specialist clinics are professional people who deal with these situations all the time and they are not judgemental. Ideally, you should be tested for STIs before having surgery so that you can receive appropriate treatment. In particular, it is good practice for HIV (Human Immunodeficiency Virus) tests to be undertaken, and some surgical teams insist on it. If you are found to be HIV positive, this is not a reason for withholding your surgical treatment.

STIs are quite common and their prevalence is still rising. The numbers are in the order of 300,000 new cases per annum.

They include:

- HIV
- syphilis,
- gonorrhoea,
- herpes,
- chlamydia,
- hepatitis A, B, C,
- genital warts, and
- trichomonas vaginalis

HIV [30]

HIV infection is a lifelong condition; it can be treated with antiretroviral drugs, but not cured. Treatments may include a mixture of medications that combine to provide 'highly active antiretroviral therapy' (HAART). In the longer term health may decline progressively. The virus may be passed on through body fluids from the vagina or the penis, from blood and it can enter the bloodstream through breaks in the skin or membranes lining the vagina and rectum and from shared needles. There are different strains of HIV and having one strain, does not protect against catching another.

Around 108,000 people were living with HIV in the UK at the end of 2013. Of these 108,000, over 26,000 (one in four) don't know they have HIV because they have never had an HIV test or they got HIV since their last test. Since people do not know that they have the condition they are more likely to infect others.

Recent years have seen around 6,000 people test positive for HIV each year - more than half are gay and bisexual men and heterosexuals make up the other half. Around 43,500 gay and bisexual men and around 59,000 heterosexuals were estimated to be living with HIV in the UK by the end of 2013.

In 2013, 530 people with HIV infection were reported to have died, most of whom were diagnosed late. A total of 81,510 people (55,200 men and 26,300 women) received HIV care in 2013, a 5% increase on the previous year (77,590) and almost double the number of people accessing care a decade ago (41,160).

One in four people living with a diagnosed HIV infection is now aged 50 years and over. This is due to improved survival and continued transmission and signals a need to develop services appropriate to an ageing population.[31]

Many people experience flu-like symptoms in the first couple of months; these may include:

- a high temperature and fever;
- a sore throat;
- fatigue;
- a skin rash;
- muscle aches and pains;
- headaches;
- nausea and vomiting; and
- diarrhoea.

[30] www.nhs.uk/conditions/HIV/Pages/Introduction.aspx

[31] Terrence Higgins Trust; www.tht.org.uk/sexual-health/About-HIV
E-mail: info@tht.org.uk; Tel: 020 7812 1600

If the virus is allowed to spread, your immune system will eventually become weakened and you will develop AIDS (auto, or acquired, immune deficiency syndrome) which will eventually be fatal because your resistance to cancers and infections will be significantly lowered making you vulnerable to other STIs and a range of infections, including:

- infections of the mouth;
- recurring mouth ulcers;
- herpes or shingles infections;
- unusual types of pneumonia;
- tuberculosis (TB);
- infections of the brain and eyes;
- hepatitis C:
- unusual skin problems: and
- infections of the gastrointestinal tract.

Most people with an advanced HIV infection will also experience severe body wasting and weight loss.

If you have good reason to believe that you have just put yourself at risk through intimate contact with someone who is HIV positive, you should seek post exposure prophylaxis (PEP) from a sexual health clinic or an Accident and Emergency department of a local hospital. PEP is a course of anti-HIV drugs which **may** be successful in preventing HIV infection after HIV has entered the body.[32]

Trans men do have babies. If you are HIV positive and you are pregnant, you will need to take special precautions to guard against your baby becoming HIV positive.[33] You should have anti-retroviral treatment; you should plan to have a caesarian delivery and you should not breast-feed.

[32] Op. cit. Terrence Higgins Trust

[33] Royal College of Obstetrician and Gynaecologists (2005) HIV in pregnancy: information for you. Available at https://www.rcog.org.uk/en/guidelines-research-services/guidelines/gtg39/

Syphilis [34]

Syphilis is commonest in gay men. It can be treated with antibiotics.

There may be mild symptoms or none at all. The symptoms of first-stage syphilis may take up to three months to become evident. They include:

- one or more sores (ulcers) on the penis, vulva, vagina, cervix, mouth or anus, that weep pus; they may last for around six weeks; and /or
- small lumps due to swollen glands in the groin.

The symptoms of second stage syphilis usually appear several weeks after any ulcers have gone. The following symptoms come and go over many years. They include:

- a non-itchy rash of dark patches, often on the palms and soles as well as other areas;
- feeling generally unwell, fever, extreme tiredness and malaise, headaches;
- wart-like growths on the genitals;
- white patches inside the mouth;
- patchy hair loss (alopecia); and
- more rarely, major body organs such as the liver, kidneys and brain begin to be affected.

The first and second stages of syphilis are highly infectious.

The symptoms of the second stage may disappear and the infection can lie dormant for many years (latent syphilis) but, in time, third stage syphilis develops which can seriously damage major body systems and organs and will ultimately be fatal.

Gonorrhoea [35]

Cases of gonorrhoea among gay men continue to rise so if you are having sex with gay men, you are at greater risk of contracting gonorrhoea than if you are having sex with straight men or with women. But there's no such thing as **no** risk. Gonorrhoea can be treated with antibiotics.

[34] www.nhs.uk/conditions/syphilis/Pages/Introduction.aspx
[35] www.nhs.uk/conditions/gonorrhoea/Pages/Introduction.aspx

The following applies to trans men who have not had vaginectomy and who are having, or have had, vaginal penetrative sex with a man.

About 50% (of women) do not experience symptoms and therefore the infection may go untreated for some time. Untreated gonorrhoea can cause serious health problems.

The 50% who have symptoms may experience the following:

- A strong, unpleasant smelling thick discharge from the vagina, that may appear green or yellow in colour,
- pain or tenderness in the lower abdominal area, including a burning sensation when urinating,
- frequent need to urinate
- irritation or discharge from the anus, and
- bleeding between periods or heavier periods (this symptom would not occur with a trans man who was high enough testosterone dosage to suppress periods).

Herpes simplex virus [36]

In the last few years there has been a rapid rise in the numbers of teenage girls who have genital herpes.

Many people who have genital herpes do not experience any symptoms, but if you do, the onset is usually between 2-7 days after exposure to the virus (usually by sexual contact). However, it is important to note that symptoms occasionally do not appear until months, or sometimes years, after being exposed to the virus.

The first occurrence of genital herpes may cause a range of symptoms including:

- mild fever,
- aches and pains,
- swollen lymph glands (at the top of your legs), and
- feeling generally unwell.

These symptoms may last for up to 21 days.

You may also have an itching or burning sensation in your genital area. Painful red spots may appear around your genitals that gradually turn into fluid-filled blisters. These blisters will then

[36] www.nhs.uk/conditions/genital-herpes/Pages/Introduction.aspx

burst, leaving painful ulcers. However, the ulcers will eventually dry out and heal, after about 10 -14 days, and should not scar. These symptoms can vary from person to person. For example, you may not experience the blisters, but only have ulcers that appear to be small cuts or cracks in your skin.

The symptoms of genital herpes usually affect the vulva (entrance to the vagina) and sometimes the cervix but any part of the genitals and the surrounding area may be affected. You may experience vaginal discharge. If you are having penetrative sex with a man, his symptoms are likely to affect the end and shaft of the penis, the foreskin, and sometimes the testicles. It is also possible, though less common, to have sores on the buttocks, anus and top of the thighs.

Urinating may be very painful.

Once the initial infection has subsided, the symptoms will disappear, but the virus will still be present and can be reactivated.

When this happens the symptoms are usually milder and last for about 3-5 days. If the virus is reactivated, it will cause symptoms of itching, or tingling, sensation around your genitals, lasting for between 12- 24 hours.

If recurrences are frequent and disabling they can be treated with anti-viral drugs that shorten the length of the episode. Herpes is incurable and recurs throughout life.

Chlamydia[37]

Chlamydia accounts for a significant number of new cases of STIs. This condition may remain symptomless but can lead to infertility. It can be treated successfully with antibiotics.

In trans men having non-penetrative sex with a woman, (rubbing vulvas together) or having penetrative sex with a man, or with a woman (perhaps using sex toys) in the vagina and/or the anus, genital chlamydia can occur and may cause:

- pain when passing urine (cystitis);
- a change in their vaginal discharge; and
- mild lower abdominal pain.

If you have any of these symptoms, or you believe you may have chlamydia you can ask to be tested by your doctor or your local pharmacist, or you may be able to do the test at home.

[37] www.nhs.uk/conditions/chlamydia/Pages/Introduction.aspx

Those over the age of 16 who have tested positive but who are still symptomless, will be able to buy the necessary antibiotic over the counter, without a prescription, from 2008. This will be available to partners as well.

If left untreated, the chlamydia infection may lead to the following symptoms:

- pelvic pain,
- pain during sexual intercourse, or occasionally,
- bleeding between periods.

The infection can also spread to the uterus, and cause pelvic inflammatory disease (PID). If you wish to become pregnant at some future time, you should be aware that PID causes infertility and risk of ectopic pregnancy in those still at risk.

There's a urine test for chlamydia, or a sample can be taken from the infected part of your body using a swab (small cotton bud).

Swabs only take a few seconds and don't hurt - they may be uncomfortable for a moment or two. Chlamydia is treated with antibiotics. Don't have sex until treatment has finished or you could pass on the infection (THT)

Hepatitis [38]

Hepatitis A and B affect the liver and can cause jaundice. Hepatitis can be transmitted in several ways, one of which is by sexual contact.

Hepatitis A can be transmitted through sex involving mouth to anus contact. Hepatitis B can be transmitted in body fluids and the risk is, therefore, higher during menstruation. It is strongly recommended that vaccination against hepatitis A and B is undertaken by those having anal sex. This involves three injections over a period of a few months; this provides life-long protection. This treatment can be provided by a genito-urinary medicine (GUM) clinic.

Hepatitis C can be passed on through sexual contact and, as mentioned above, you are at increased risk of catching it if you are HIV positive. Although it cannot be passed on by ordinary social contact, it can be transmitted through, for instance, sharing toothbrushes. You are at high risk if injecting drugs with shared needles. Hepatitis C can cause cirrhosis of the liver. The symptoms are very like those of chronic fatigue syndrome, but may be slight so people do not always know that they have Hepatitis C. The onset of symptoms may be delayed as long as 20 years. So unless you have been tested for it, you may not be aware until you develop liver failure many years down the line.

[38] http://www.nhs.uk/conditions/Hepatitis-C/Pages/Introduction.aspx

Symptoms include:

- weight loss
- loss of appetite
- joint pains
- nausea
- flu-like symptoms (fever, headaches, sweats)
- anxiety
- difficulty concentrating
- alcohol intolerance and pain in the liver area

Hepatitis C is treated with a combination of pegylated interferon alpha and ribavirin.

Genital warts[39]

Genital warts are fleshy growths around the vulval and anal area. They are caused by the human papilloma virus (HPV). There are many kinds of HPV, a few of which are associated with pre-malignant changes and cervical cancers, so this would be relevant to those trans men who are having vaginal sex with a man. Smear tests are important for those who still have a cervix. HPV can penetrate mucosal and skin surface through minor abrasions. Genital warts can be treated by 'freezing' or with medicated cream.

Trichomonas Vaginalis [40]

Trichomonas Vaginalis is caused by a tiny parasite found in the vagina and urethra.

It is passed on through:

- vaginal sex
- sharing sex toys

Many infected people show no symptoms, but symptoms can appear between three and 21 days after infection.

Symptoms include:

[39] www.nhs.uk/conditions/genital_warts/Pages/Introduction.aspx
[40] www.nhs.uk/Trichomonas_vaginalis/Pages/Introduction.aspx

- increased discharge from the vagina, that may change in colour and have a musty or fishy smell
- itching, soreness and inflammation in and around the vagina
- pain when passing urine or having sex
- tenderness in the lower abdomen

Treatment involves a single dose or a course of antibiotics.

How can I protect myself against all STIs?

Always use condoms for penetrative sex –

- You or your partner should use a condom every time you have sex whether, vaginal, anal or oral;
- Practise putting one on before you need it for real;
- It must go on an erect penis, before penetration;
- Use known brands that are kite marked;
- Check the expiry date;
- Only use once;
- Do not bite the pack to open it;
- Do not stretch the condom before putting it on;
- Get the right size for you: narrow ones called 'TRIM' are made by Pasante (pasante.com); regular size is approximately six inches long by four inches girth and large is eight inches long by six inches girth;
- If you are having penetrative sex with a woman and you have had metoidioplasty, condoms will not fit your micro-penis; you may need to ask your partner to wear a female condom;
- If you are allergic to latex, use polyurethane (Durex, Avanti).
- Standard condoms are now thought to be robust enough for anal sex.
- Use lubrication (water-based) – it helps to prevent damage to mucous membranes
- Remember penetration with anything, hands, fingers, sex toys as well as penises can transfer infection
- Ordinary hygiene helps to limit risk of less serious infections
- Remember, more partners means more risk – what do you know about the person with whom you are having sex? With each new partner you are putting yourself at risk of being infected by anything passed on by any of the people with whom this person has had intimate contact.
- Get medical help quickly if you think you may be infected.

If you are having vaginal penetrative sex, you should have smear tests done in the same way as for women.

Information and support

www.Tranzwiki.net
provides contact details to all national and local support groups.

www.cliniq.org.uk
Holistic sexual health centre, Wednesdays, 5:30 to 7:30, 56 Dean Street, Soho, London.

www.sexpression.org.uk
Sexpression:UK is a student organisation providing with branches around the country, providing informal, comprehensive sex and relationship sessions in the community.

A guide to lower surgery for trans men was prepared by the Gender Identity Research and Education Society's team:
GIRES, Melverley, The Warren, Ashtead, Surrey KT21 2SP.
Tel: 01372 801554; Email: info@gires.org.uk; Website: www.gires.org.uk

GIRES promotes and communicates research; provides information and education to help those affected by gender identity and intersex conditions.

Dr Richard Curtis, BSc, MB, BS, Dip BA
Dr Joyce Martin, MB, ChB, D Obst RCOG
Professor Kevan Wylie, MB, MMedSc, MD, FRCP, FRCPsych, DSM
Terry Reed, OBE, JP, BA (Hons), MCSP, SRP, Grad Dip Phys
Bernard Reed, OBE, MA, MBA