

## **A GUIDE TO THE FEMALE REPRODUCTIVE SYSTEM**

### **Introduction**

This is an information booklet about woman's reproductive and urinary tract systems and the problems which may arise there.

It also includes a brief section on investigation and treatment of these problems.

It is not intended to be a comprehensive guide but a simple, informative document which most women should find useful, especially when they have problems which involve investigation or treatment.

Anatomy of the female sex organs

One of the most distinctive differences between males and females is that the male sex organs are located outside the body, whereas the female sex organs are mainly located inside the body. In the following paragraphs a brief description of the position and function of the female sex organ is given.

### **Vulva**

The external female genitalia are collectively termed the vulva. At the outer sides there is a pair of folds called the labia majora, which enclose two smaller folds or labia minora, which in turn enclose the clitoris and the opening of the urethra and the vagina.

### **Clitoris**

The clitoris is the female equivalent of the male penis which transmits intense sensations during sexual activity.

### **Vagina**

The vagina connects the uterus (womb) to the exterior and provides the passage through which a baby is born. It is capable of expanding during birth or intercourse. The walls are ribbed and moist, the amount of moist varying during the menstrual cycle.

### **Cervix**

The cervix is the neck of the uterus which projects into the vagina. It is closed most of the time, but is large enough to allow the sperm to enter the uterus or the menstrual blood flow out. It is also moist and slippery.

### **Cervical canal**

The narrow passage from the cervix to the womb.

### **Uterus (womb)**

The uterus is the medical name for the womb, which is the size and shape of a pear. It is tilted slightly forward. During pregnancy it enlarges greatly to accommodate the baby. At a certain stage of the menstrual cycle, the endometrium or lining of the uterus thickens to prepare to receive the fertilised egg. If fertilisation does not occur the lining is shed through the vagina. This is what is known as a period or menstruation. The muscles of the uterus contract regularly, e.g. during birth, orgasm or menstruation.

### **Ovaries**

There are two ovaries which are oval shaped organs, situated at each side of the uterus at the end of the Fallopian tubes. These contain the eggs or ova and alternatively release one each menstrual cycle into the fallopian tube. The eggs are contained in the ovary from birth and ripen at puberty.

Some women are aware of the time they ovulate, when they get a lower abdominal cramp-like pain in the middle of their cycle. This is referred to as the "Mittelschmerz".

### **Fallopian tubes**

There are two fallopian tubes, which are attached to each side of the uterus. The eggs travel along these tubes. The Fallopian tube extends into frilly ends called the fimbriae which hover in the area of each ovary, receive the ovum or egg once it is shed, and guide it into the Fallopian tube.

The Fallopian tubes have the ability to conduct the egg down the tube into the womb. If intercourse takes place at the same time, the sperm can fertilise the ovum somewhere along the Fallopian tube. If fertilisation does not take place, the egg is either reabsorbed or simply passes down through the tube out through the uterus and is lost in normal menstruation.

### **The Urinary Tract System**

The kidneys, ureters, bladder and urethra make up the urinary system and although they are not strictly part of the reproductive system, they are closely linked and it is important to understand how they work.

### **Kidneys**

The kidneys are bean shaped organs which are located at either side of the body up against the back wall, embedded in fatty tissue. They get rid of waste products from the body and regulate the water content.

### **Ureters**

The ureters are the two tubes which connect the kidneys to the bladder.

### **Bladder**

The bladder is situated in front of the uterus. It collects the urine produced by the kidneys, stores it and from time to time releases it through the urethra. This release is called urination or micturition. During pregnancy, as the uterus grows it can press on the bladder causing some discomfort and frequency (passing urine frequently).

### **Urethra**

The urethra is a short straight tube connecting the bladder to the outside. Because the female urethra is short, bacteria can more easily reach the urinary system. This is the reason why women are more prone to urinary tract infections than men.

## **The Menstrual Cycle**

### **Menarche**

The onset of menstruation or the first period is referred to as the menarche and can occur anytime between the age of ten and seventy years.

### **Menstruation (period)**

Taken from the Latin menses meaning month, this is a term used for the shedding of the womb lining which happens each month except during pregnancy. When the lining (endometrium) comes away from the womb it causes normal bleeding (about 50 mls) which lasts for about four or five days. Before the next period there is a clear interval of twenty three to twenty four days. The menstrual cycle normally lasts about twenty-eight days and is counted from the first day of the previous period.

The pituitary gland controls two hormones secreted by the ovaries – oestrogen and progesterone which control the menstrual cycle. If this control is in any way upset, then the menstrual cycle may become irregular.

This does not necessarily mean that the woman is sterile, as the ovaries can still produce eggs, even when periods are erratic.

Because the pituitary gland is situated close to the emotional centres of the brain, events causing emotional stress can affect periods or stop them altogether. Thus, fear of pregnancy, worries or other anxieties can suppress or otherwise affect the menstrual cycle.

### **Menorrhagia**

Excessive bleeding may take the form of either a very heavy flow of blood over the usual number of days or appear as a constant loss over an increased number of days with or without small clots.

### **Amenorrhoea**

This is the absence of menstrual periods. It is not an illness in itself but maybe a symptom of any one of a number of possible underlying disorders.

### **Dysmenorrhoea**

Dysmenorrhoea denotes excessively painful periods. It may occur before, or with the bleeding and may be accompanied by tiredness, headache, loss of appetite, palpitations, irritability and in some extreme cases, vomiting and diarrhoea.

### **Premenstrual Tension (PMT)**

The term premenstrual tension is used to refer to those bodily changes and mood swings which occur in some women just before a period is due. Because the menstrual cycle is controlled by hormones, most women experience some minor discomfort prior to a period e.g. weight gain, spots, irritability, inability to concentrate, anxiety or depression. However, for others these problems may be more serious and should be discussed with a doctor who will be able to help. The uncomfortable changes a woman may experience usually disappear when her period arrives.

### **Menopause**

The change of life or menopause means that the menstrual periods have ended. It is usually a gradual process over one or two years and while some women may have distressing symptoms which can be treated, others pass through the menopause without noticing any difference in health.

## **Gynaecological Problems**

### **Inflammations and infections**

Because of the nature of the reproductive system, inflammation and infections do occur from time to time in the pelvic area. The most common are as follows:

- Vulvitis – Inflammation of the vulva
- Vaginitis – Inflammation of the vagina
- Cervicitis – Inflammation of the cervix
- Endometritis – Inflammation of the lining of the uterus
- Salpingitis – inflammation of the Fallopian tubes
- Pelvic Inflammatory Disease (PID) – general term for inflammation in the pelvic area

There are a number of reasons why these conditions occur. Each condition has its own causes and symptoms, which can include pain, abnormal or strong smelling discharge, itchiness, etc. It is very important that you go to your doctor as soon as you become aware of any of the symptoms. You should not feel embarrassed to ask for medical help for any problems such as itching, stinging or unexplained discharge, or if there is an unpleasant smell from the discharge. These matters are dealt with routinely every day of the week in your family doctor's surgery and in gynaecological units.

Many of the infections and complaints that women have are in no way associated with sexual activity, however there are a number of infectious diseases which are sexually transmitted and include:

- gonorrhoea
- non-specific urethritis
- syphilis
- chlamydia
- genital herpes
- genital warts
- Pubic lice
- trichomonas
- thrush (in many cases this may not be sexually transmitted, but it can be)
- HIV infection

Occasionally these infections do not have any symptoms in women, but if you feel you have been exposed to any of them, you should consult your doctor. If left untreated, they can lead to infertility by causing pelvic inflammatory disease (PID) One of the causes of infection can be poor personal hygiene, and it is vital to keep the vulva-vagina area scrupulously clean. Because bacteria present in the anal area can spread infection, it is important to wipe/wash backwards away from the urethra/vaginal area after passing a stool.

### **Fibroids**

Fibroids are almost always benign growths of the uterus which are attached to the inside or outside of the uterus. They vary in size and do not always cause symptoms, but many cause menorrhagia, dysmenorrhoea or a feeling of fullness or pressure in the pelvis.

### **Polyps**

A polyp is almost invariably a harmless overgrowth of the lining of the uterus. They are mostly benign and are usually removed by cutterage.

### **Retroversion**

The uterus normally lies forward in the pelvis. If it is tipped in the opposite direction, it is said to be retroverted. This displacement can cause period problems, back pain or painful intercourse, although many women have the condition and suffer no ill effects.

### **Prolapse**

When the muscles and ligaments holding the uterus become slack, e.g. after childbirth, the uterus is displaced downwards or is prolapsed. This prolapse gives a feeling of pressure and pain due to the tugging at the supporting muscles and ligaments. It can also cause constipation, discharge and characteristically is associated with the occurrence of bladder trouble, increased need to pass urine, wetting on coughing or laughing (stress incontinence) and subsequent inflammation of the bladder (cystitis).

### **Cervical Erosion**

Cervical Erosions are ulcers on the neck of the womb which are liable to bleed. They may be treated by cauterisation and heal without further problem in about 6 weeks.

### **Cervical Cancer**

Cervical Cancer is not a common condition in women under 35 or over 60 years of age. Normal healthy sexually active women are at risk of developing this problem especially women who have had intercourse with more than one partner or began to have intercourse as an adolescent or who has a history of sexually transmitted disease. Cervical cancer is preceded by a long period of pre cancer which is detectable easily by the smear and which is treatable by electro cautery, lazer or removal of that section of the cervix or neck of the womb. The great majority of women who develop cancer have never had a smear taken. A smear should probably be taken every year or at least every second year if the previous smear was normal and a subsequent follow up is associated with the dramatic reduction of ever getting cancer of the cervix. Smear Clinics are available in most Health Board areas as are smears available at Gynaecological Out-patient Departments and indeed nowadays almost all family doctors will carry out a cervical smear thus there is a wide availability of this service.

### **Ovarian Cysts**

Ovarian cysts may be small or large, some have clear fluid in them and others are solid. They may be benign or malignant and sometimes can cause pain or alteration in the periods.

### **Local injury**

An intrauterine device (IUD) or a tampon can occasionally cause an injury in the vagina or uterus. If you are worried you should talk to your doctor.

### **Blocking of Fallopian Tubes**

An infection of the Fallopian tubes may result in scarring and blockage which can lead to an ectopic pregnancy or infertility. An ectopic pregnancy occurs when the egg cannot travel to the uterus because the tube is blocked and if it is fertilised the pregnancy starts in the Fallopian tube itself. Because the foetus cannot survive in the Fallopian tube, these ectopic pregnancies must be treated by surgery.

### **Cystitis**

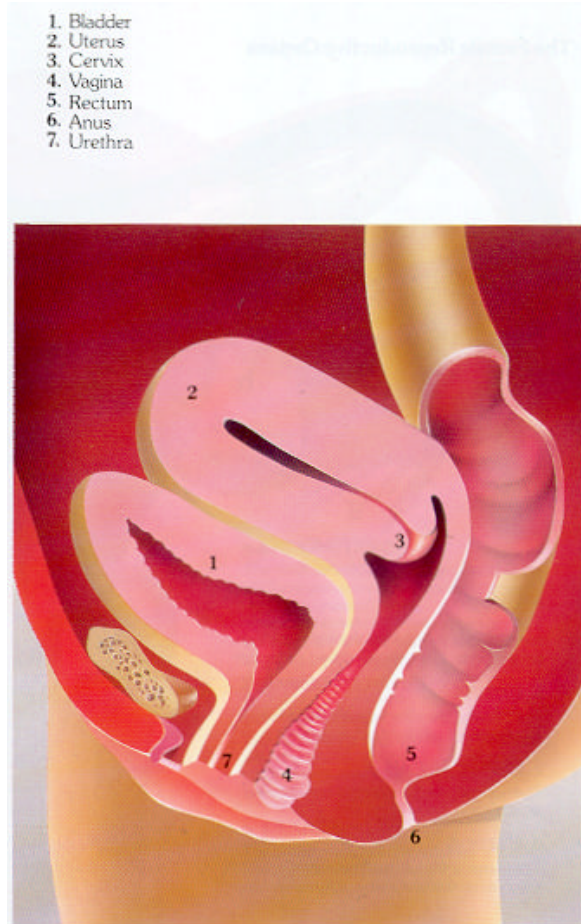
Cystitis is one of the most common conditions affecting women. It is inflammation of the bladder which causes a burning or stinging feeling when passing urine and also a feeling of need to pass urine frequently and urgently, even though there is only a small amount to pass.

### **Bartholin's Glands**

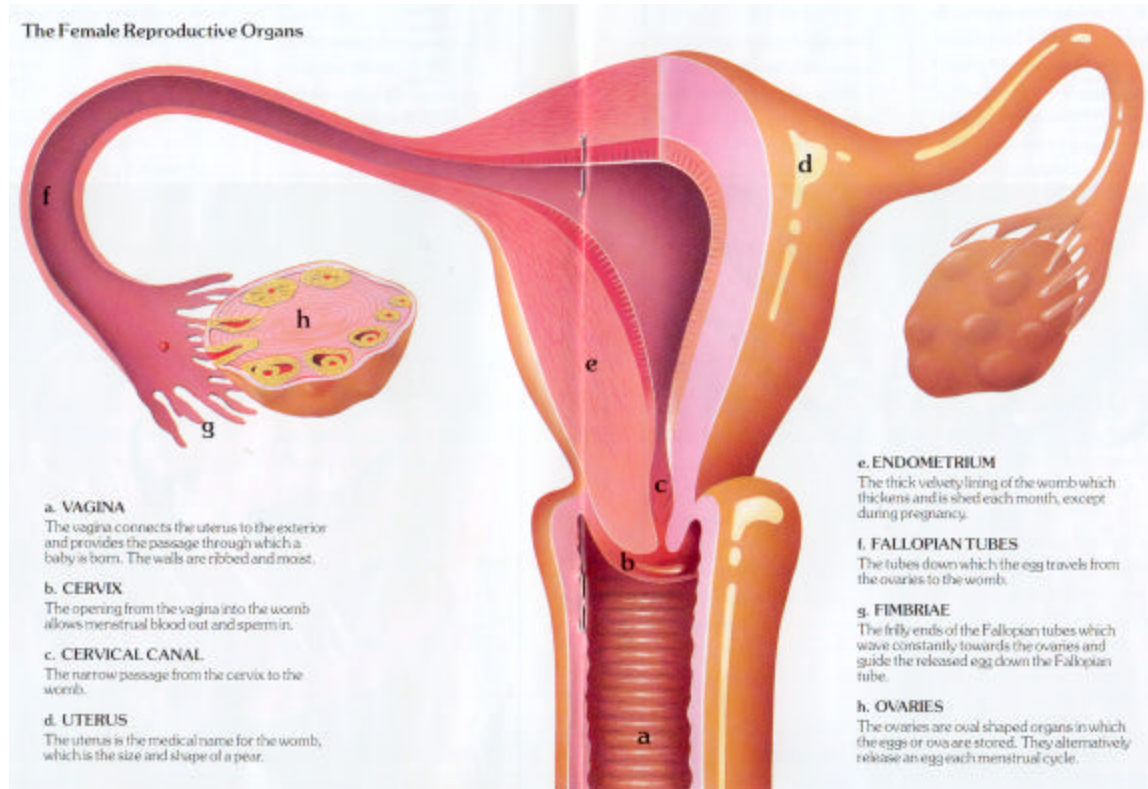
At the entrance of the vagina, low down on the vagina walls, are two small glands called "Bartholin's glands". Sometimes these develop into a little cyst and may become inflamed. This is called a Bartholin's abscess which is extremely painful and should be treated surgically in hospital.

### **Urinary Tract Infection**

Urinary Tract Infection is generally defined as a bacterial inflammation in the bladder or urethra and the traditional symptoms are frequency, dysuria, which is stinging or burning when passing urine and urgency. Sometimes symptoms such as suprapubic pain and blood in the urine may be present and on occasions the infection may not cause any symptoms at all. Because of the short length of the female urethra, bacteria can gain access to the bladder, thus intercourse and the use of diaphragms may cause minor trauma to the urethra and help to move the bacteria into the bladder hence the term honeymoon cystitis. Postmenopausally some women who are oestrogen deficient may get cystitis because bacteria grow more readily in the vagina and then gets into the bladder. Also women who pass water infrequently are subject to bladder infections and women with Diabetes Mellitus have poor resistance to recurrent infection. Increased glucose in the urine may also provide a rich medium for the bacteria to grow in. A diagnosis of Urinary Tract Infection is confirmed by a mid-stream urine sample which is sent to the Laboratory but quite often doctors make a presumptive diagnosis in a patient who is symptomatic and treatment is often started before the results of the tests come back.



Patients who have recurrent urinary tract infections three or four times a year should probably have continuous antibiotics for three to six months and remember that during pregnancy certain antibiotics should be avoided. These include Tetracyclines and Sulpha drugs. Additional measures for the prevention of urinary tract infection includes drinking plenty of fluids to allow flushing of the bladder and urinary analgesics. Perineal hygiene and adequate bladder emptying especially after intercourse are necessary to prevent reoccurrences in people who are susceptible.



### **Stress Incontinence**

The term "Stress Incontinence" means that while the body is subjected to stress, such as coughing, sneezing, laughing or lifting, some urine leaks away and wetting occurs. This can be mild, happening occasionally or severe, occurring during normal waking. It may be caused by a structural defect usually triggered off by childbirth, although a small percentage of women who have not had children can be affected. Many women suffer with this complaint, but tend to ignore the condition in its early stages. It should never be neglected because it does not get better on its own and often becomes worse in middle age. It should be discussed with a doctor as treatment can be given.

## Gynaecological Investigations & Treatment

If you have attended your doctor with a gynaecological complaint it may need further investigation or treatment and listed below are some of the more common forms of these.

Some of them will require a full anaesthetic, while others consist only of special examinations in the surgery or hospital outpatients department. Your gynaecologist will be happy to explain the investigations and treatment which are necessary.

### Cystoscopy

Cystoscopy is a common procedure carried out in most gynaecological hospitals. It is an examination of the bladder and is done with an instrument called a cystoscope where the actual interior of the bladder can be visualised.

### Hysterosalpingogram

This is a means of investigating the problem of infertility where an x-ray picture is taken of the uterus and the Fallopian tubes. Some dye is injected into the uterus and its route examined on an x-ray, so that any blockages or abnormality can be detected.

### Laparoscopy

A small tube called a laparoscope is passed through the umbilicus and then the uterus, Fallopian tubes, ovaries and the other organs are viewed from inside the woman's abdomen. Dye is sometimes put through the cervix and as it spills out through the Fallopian tubes it is visualised by the laparoscope.

### Colposcopy

Colposcopy is a method of examining the cervix using an instrument called a colposcope. This magnifies the cervix rather like a microscope and allows a detailed examination to be undertaken.

### Cervical Smear Test (Pap Smear)

The cervical smear test is a simple procedure which may enable the detection of changes in the cells of the cervix (neck of the womb) which could develop into cancer. It can also detect cancerous cells when cancer has actually developed. An instrument called a speculum is used to hold the walls of the vagina open and the cervix is gently scraped with a small wooden spatula to take a sample of cells. The cells are spread onto a slide and sent to a laboratory to be examined. If the test is abnormal follow up will be necessary and possibly treatment. An abnormal result

1. Pubic Hair
2. Labia
3. Urethra
4. Clitoris
5. Vagina



does not necessarily mean that cancer is present. Regular smear tests may reduce the risk of cervical cancer. Please consult your doctor.

### **High Vaginal Swab**

A High Vaginal Swab (HVS) is taken using a simple cotton bud, which is rubbed gently in the upper part of the vagina and then sent to the laboratory for investigation, when infection or troublesome discharge is a problem.

### **Cone Biopsy**

Cone Biopsy is a minor surgical procedure where a small portion of the cervix in the shape of a cone is removed for investigation. This is carried out under general anaesthetic.

### **LLETZ, Laser, Cryo, Cautery and Cold Coagulation**

In addition to the cone biopsy, there are various other methods available which may be used to treat the cervical cells.

### **D&C (Dilation and Curettage)**

If the pattern of a woman's period changes, it is possible that her doctor may recommend a dilation and curettage. In this minor operation the lining of the womb is gently scraped away and examined under a microscope so that a diagnosis can be made. The operation is performed under anaesthetic but the woman need spend no more than a few hours in hospital. It is loosely referred to as a D&C. This operation may also be carried out following a spontaneous abortion or miscarriage to ensure that all the products of conception have come away.

### **Hysterectomy**

This operation involves the removal of the uterus including the cervix. If a woman is not near the change of life, the ovaries are not usually removed and they continue to produce female hormones in the usual way.

A hysterectomy may be done through the vagina, which will not involve any scarring on the abdomen, but sometimes this is not possible and it is necessary to remove the uterus by abdominal surgery.

### **Removal of Ovarian Cysts**

This may be done through the abdomen or by laparoscope and usually means that only the cyst is removed leaving the ovary intact where possible. Even with a portion of only one ovary remaining the female hormones are produced as normal.

### **Prolapse Correction**

If the uterus is prolapsed, a ring may be inserted to support both the uterus and bladder. If prolapse is more serious a repair operation may be required when the stretched muscles and ligaments supporting the uterus is tightened up.

### **Useful Information**

If you have got to go to hospital for investigation or treatment, you may find the following information helpful.

### **Admission to Hospital**

It is important to check-in to the hospital at the time allocated to you owing to pressure on bed accommodation. If you are going to have an operation you will be asked to check in one or two days beforehand so that your fitness can be checked

and any necessary blood tests or x-ray taken. Having a period will make no difference to your admission.

With regard to the operation itself it is not always necessary to have a general anaesthetic and regional anaesthesia is almost satisfactory alternative. These details will be discussed with you beforehand.

### **What to Bring**

The following items should be brought to hospital with you:

- Nightdress, preferably cotton
- Bed jacket
- Dressing gown and slippers
- Personal toilet requisites including towel, denture container (if required)
- Cotton panties
- In all instances personal garments should be sent home for laundering.

### **Post-Operative Care**

After any operation when you wake up you will have a tube with fluid or blood running into a vein in your arm. This "drip" is usually kept in place for the first 24 hours only. Sometimes following an operation through your tummy a small tube called a drain is put into you in the wound, which is removed after a day or so. If you have stitches or clips through the skin these are removed between 4 and 10 days after the operation. You may even have dissolving stitches under the skin which do not need removal.

If a vaginal hysterectomy is carried out there will be no scar on the abdomen. Often there is a pack of gauze in the vagina which is removed 24 hours after the operation and if the back passage has been repaired also there may be two or three small stitches to be removed on the outside 4 or 5 days later.

Following a repair operation you may have a tube called a catheter draining the bladder either from below or through the abdomen. You will probably feel like passing urine, but there is no need to worry, as the urine will drain freely into a collecting bag.

Most women get wind in their bowels three or four days after the operation which can make the tummy look blown out and be quite painful. This does not last long and medicine can relieve it. Gentle exercise, such as walking can also help. A little discharge or slight or slight bleeding usually occurs for some weeks after a vaginal repair or hysterectomy and if this becomes a problem you should mention it to the doctor at the follow-up visit. If the cervix has been removed as is usual in a hysterectomy then routine smears are no longer necessary.

The position of the scar varies, but it is often below the bikini level and the hair shaved before the operation will grow over it again. If you already have a scar in this area the same scar may be used again. Occasionally it is necessary to use an up and down incision from the naval to the hairline.

There will be some pain from your tummy incision which often remains hard or a little uncomfortable and may be itchy for some weeks.

It is common to feel low or depressed for a time after an operation but this will soon pass.

You will be encouraged and assisted to get up and move around soon after an operation. This encourages healing and a normal circulation of blood. You may not feel like eating much, but you should drink plenty, avoiding fizzy drinks as they give

you wind. You are usually well on the way to recovery after about five days and you should be going home between five and ten days after the operation.

### **Social Services**

If you have anxieties in connection with your home, family, employment, your stay in hospital or about any other personal matters it may help to discuss these with one of the hospital social workers who will visit you on request.

### **Departure**

To facilitate new admissions, beds must be vacated by 12 noon on the day of discharge. Arrange for a relative to collect you as you will not be allowed home on your own.

### **Convalescence**

For two weeks after leaving hospital you should be convalescent. Remember though, convalescence does not mean lying in bed all day. It should consist of gentle activity with the emphasis on movement until you feel slightly fatigued, then rest and resume when you feel able. After this you can usually return to normal activities although it should be a gradual return to normal activities although it should be a gradual return. By six weeks after the operation you should be back to normal life. Convalescence, if at home should mean no housework and resting more than usual. That is, going to bed early, getting up late and resting for an hour or so after lunch.

### **Exercise**

Continue with the exercise you were shown in hospital by your physiotherapist at least until your post-operative check at 6 weeks. These exercises are designed to strengthen the muscles involved with your operation.

Walking is the perfect general exercise - so start with short walks. Try to avoid standing still for more than a few minutes at a time. It is quite safe to go up and down stairs.

Take care of your back - walk tall with your tummy and bottom tucked in. Avoid lifting or carrying heavy weights for at least 12 weeks. When you do lift again do it correctly i.e. bend your knees, bring the object close to you and pull up pelvic floor muscles as you lift.

### **Housework/ Energetic Activities**

In the following two weeks you can start to do light housework. The important thing is to progress gradually each day. Vacuum cleaning, heavy lifting and energetic activities like sports should wait for seven weeks after an operation but gentle swimming may be started sooner.

### **Back to Work**

You should be able to start work 6-8 weeks after your operation but this varies and some women are ready sooner. It is foolish to drive a car too soon as it takes several weeks after any operation for concentration to return to normal.

### **Intercourse**

It is usually safe to have gentle intercourse four weeks after your operation although some women prefer to wait until they are reviewed in the outpatient's clinic six weeks after the operation. Intercourse may be a little uncomfortable at first but it should actually help the tissues become supple again. None of these operations should change your attitude towards sexual relations or your enjoyment of sexual intercourse.

**Weight Problems**

Some people gain weight following operations mainly because they eat more or take less exercise but care with your diet will control this. After abdominal operations your tummy can bulge until the muscles become strong again.

Do not hesitate to ask about any aspect of your operation. Remember the doctors, nurses and indeed all staff are there because of you, and for you. Their skills and care are to enable you to get over your operation as safely and quickly as possible so that you may enter into a new phase of good health and wellbeing.