Body Works
a rough guide to eggs, sperm and conception
Women's bodies

You have two ovaries, one on each side of your uterus. Ovaries are the size and shape of almonds and they contain your ova, or eggs.

The funnel-like ends of your fallopian tubes are near the ovaries. These are tiny tubes – only as wide inside as a thick human hair and just 10cm long! They carry the egg from the ovary to the uterus. Tiny, microscopic hairs line the inside of the fallopian tubes and help move the egg along. The inside of the tube is very delicate and can very easily be damaged or blocked by infection.

The uterus (or womb) is made of muscle. It's about the size and shape of an upside down pear, hollow and very stretchy. If pregnancy does occur, it is here that the baby develops. The womb can stretch to hold a baby and shrink more or less back to its pre-pregnancy size after the baby is born.

The lower part of the uterus which connects to the vagina is called the cervix. A man's sperm swim from the vagina through here to reach an egg. The cervix contains small glands which produce secretions called mucus. The mucus alters in texture and amount during your menstrual cycle. In your fertile phase (the time around ovulation or egg release) it changes from being thick and sticky to being wetter; thinner and more stretchy – like raw egg white. This helps sperm reach an egg more easily. When a woman is pregnant, the cervix is plugged with mucus to protect the developing baby from infection.

Your vagina is a muscular tube 7-10cm long which leads from your cervix to your vaginal entrance (vulva).

The vagina opens between your legs, between the urethra (the tube through which you pee) at the front and anus at the back. The vagina tilts towards your back. It has glands which produce secretions when you are sexually aroused to help the penis enter the vagina (penetration). Like the womb, the vaginal walls are stretchy, allowing it to hold a tampon and stretch around a penis during sex or a baby during delivery.

The vulva includes the opening to the vagina which is surrounded by inner and outer lips called labia and the clitoris. The clitoris is found towards the front of the vulva and when stimulated can result in sexual arousal and orgasm.

Did you know?

- The female sex hormones, oestrogen and progesterone, are responsible for female characteristics such as body shape, developing breasts and periods.
- At birth you will have 1-2 million eggs in your ovaries but by the time you reach puberty you have less than half that amount.
- During your reproductive life only about 400 eggs will actually be released at ovulation.
- An egg is less than 1/10 of the size of a full stop - invisible to the naked eye!
The menstrual cycle

The menstrual cycle is the process in which an egg develops and is released, and the lining of the womb is prepared for a possible pregnancy. The lining of the womb is then shed, as your period, if you don't get pregnant. These events are caused by hormones — chemical messengers which travel around your body in the blood stream.

The menstrual cycle begins with the first day of your period. This is counted as day 1 of the cycle. While the period is happening, about 20 eggs start to ripen in the ovary, although only one of these will finally be released at ovulation. A short time after this the hormone oestrogen causes a new womb lining to start to thicken in preparation for a fertilised egg. It also causes the mucus in the cervix to become thinner and more stretchy, allowing sperm to pass through the cervix more easily and swim to the egg.

Ovulation is when an egg is released from an ovary. This occurs in most, but not all cycles. Occasionally, more than one egg is released (within 24 hours of the first ovulation) which, if fertilised, can lead to a multiple pregnancy such as twins. Once the egg has been released, it travels down the fallopian tube to the womb.

Ovulation triggers the production of a second hormone, progesterone. This prepares the womb lining even further, ensuring that it is spongy and thick and full of nutrients so that a fertilised egg can settle or implant into it. After ovulation the mucus in the cervix goes back to being thick and sticky. If the egg is not fertilised it will be reabsorbed naturally, the level of hormones falls, and this menstrual cycle comes to an end. The cycle then begins again with the womb lining breaking down and being shed through the vagina as a period, also called menstruation.

How long does the cycle take?
The number of days in the menstrual cycle is calculated from the first day of the period to the day before the start of the next period. On average it takes around 28 days, although this is rarely exact and regular cycles of longer and shorter lengths are common. In all cycles, regardless of how long or short they are, ovulation will always happen around 12-16 days before the start of the next period. It is the time from the first day of the period to ovulation that can be variable.

The lowdown on periods

- Some menstrual cycles can be as short as 21 days and some as long as 40 days.
- Some women have menstrual cycles that vary from month to month.
- The average amount of menstrual blood lost in a period is 3 to 5 tablespoons.
- A period usually lasts from between 3 and 7 days.
- Some women have pain around ovulation — this is called Mittelschmerz.
- Any bleeding between periods must be checked by your doctor.
- Women living together often find that they have their periods at the same time.
Men's bodies

Your testicles (balls) are the male equivalent of a woman's ovaries. It is inside these that sperm are made and important male hormones produced. There are two testicles the size of small plums which lie outside your body behind the penis in a soft pouch of skin called the scrotum. They hang outside the body because the average body temperature (37°C) is too hot to produce healthy sperm. They are very sensitive to heat and if they get too hot they drop down to cool off and when they are cold they shrink closer to your body to keep warm.

Hormones are just as important for reproduction in men as they are in women. The male hormone testosterone is produced by the testicles. It helps sperm mature, is important for male sex drive and controls male characteristics such as hair growth and the deepening of the voice.

Inside each testicle are about 1,000 tightly coiled tubes. It is within these tubes that individual sperm are continuously made. The growing sperm travel along the tiny tubes to a larger coiled tube called the epididymis which is at the top of the testicle. Here they stay until they are fully mature and ready to be ejaculated.

As you reach orgasm, sperm or semen as it is now called, passes along the vas deferens (sperm ducts) to the penis and out of the body through the urethra. On the way several glands add fluid to the semen which nourishes and transports the sperm and gives the semen its white creamy appearance. The average ejaculation contains up to 300 million sperm and will fill a small teaspoon.

The penis contains erectile tissue which fills with blood when you are sexually aroused and causes an erection making the penis longer and thicker. To prepare for ejaculation a small amount of lubricating fluid, known as pre-ejaculation fluid is produced from the Cowper's glands. This fluid leaks out of the penis before ejaculation and can contain sperm. When a man ejaculates, the muscles of the penis contract forcing the semen out of the penis in spurts. Straight after ejaculation the fluid is thick but it becomes more liquid after a few minutes to release the sperm.

The lowdown on sperm

- You start to produce sperm at puberty, the time when your body goes through changes from a boy to a man.
- It takes about 70 days for a sperm to be produced but there is always plenty of fully grown sperm at any one time.
- Sperm are minute — only 1/25mm long and 1/250mm wide which is about a hundred times smaller than the female egg. They are made up of 3 parts, a head containing the sex genes, a middle which gives them energy and a tail for swimming.
- On average you produce around 150-1,000 million sperm everyday, so don't worry — you are unlikely to run out!
- Sperm are excellent swimmers. With the right type of conditions the best swimmers are able to swim through the cervix into the womb in about 2 minutes.
- Sperm are also survivors being able to live for 3 to 5 days on average inside the woman's body but up to 7 days if the conditions are right.
Conception

Conception is a process that begins with fertilisation. For fertilisation to take place an egg needs to meet a sperm - usually through a man and woman having intercourse. When the ovary releases the egg, it is picked up by the fallopian tube and it is here that it will be fertilised by the sperm. Sperm are able to wait around in the womb and fallopian tube until the egg is released.

Small beating hairs and tiny wave-like contractions help the egg travel along the fallopian tube where it may meet a sperm within minutes or within hours. The egg only lives between 12 - 24 hours so it increases the chance of pregnancy if the sperm are ready and waiting.

Out of all the millions of sperm that are ejaculated into the vagina only a smaller number will actually survive the trip to the fallopian tubes and finally only one sperm will actually enter the egg. The sperm attaches itself to the egg and by producing a special substance it dissolves the outer coat of the egg and enters. A quick repair of the egg coating means that no other sperm can get in. Once the sperm is fully inside the egg, fertilisation has taken place.

Did you know?

- It takes about 3 hours for the sperm to fully enter the egg.
- The egg can be fertilised by sperm that have been ejaculated up to seven days before.
- The egg has special places on the outside coat that attract the sperm.
- It takes a couple an average of 3-6 months to conceive, if they are having sex regularly.
- An average pregnancy lasts 280 days.

The time from ovulation to implantation is around 10 days, during which time the egg is fertilised and is wafted down the fallopian tube to the ready-prepared womb. Here it settles and attaches itself to the thick, nutritious lining. Implantation has now taken place, conception is complete and the pregnancy begins.

Very rarely a pregnancy develops outside the womb, usually in the fallopian tube. This is called an ectopic pregnancy.

- About one and a half days later: the fertilised egg splits into two cells
- About 3-4 days later: the fertilised egg is now 84 separate cells
- About two days later: the cells divide again
- 5-6 days later: the embryo floats in the womb
- The embryo starts to embed itself in the womb wall. This is about 8-10 days after ovulation and pregnancy begins
- 12-24 hours after ovulation, if unprotected sex has taken place sperm surround the egg. One breaks through to fertilise it.