

# A Growing Awareness of Fertility

The most significant physical change that takes place during puberty is the development of the capacity to reproduce. But this physical change is not obvious in the way that the external changes in the body are. There are definite signs when fertility is developing in males and females, but these signs are experienced privately. When young people do not understand what is happening to their bodies, they may feel confused or overwhelmed. They may wonder if they are normal. By learning to recognize and understand the signs of fertility, they become more comfortable with their bodies and with the experience of puberty.

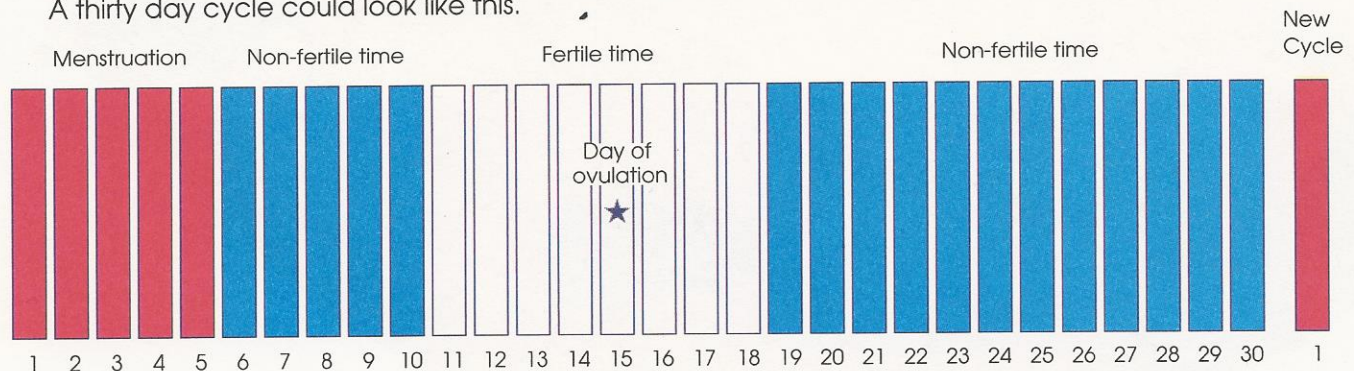
## Female Fertility

Many natural events occur in cycles. For example, in our climate the four seasons follow one another year after year. A *cycle* is a series of events with a beginning and an ending, which are repeated again and again in the same order. The word *cycle* is often used to describe female fertility.

A female fertility cycle is the time between the beginning of one period of menstruation and the beginning of the next period of menstruation. Most cycles last from three to five weeks and include a short period of fertility and a longer period of infertility. In other words, women are fertile only at a certain time during their cycles. In contrast, men are continuously fertile.

## Female Fertility Cycle

Cycles vary from woman to woman and each woman's cycle also varies. A thirty day cycle could look like this.



Regular events that occur during the adult female cycle are:

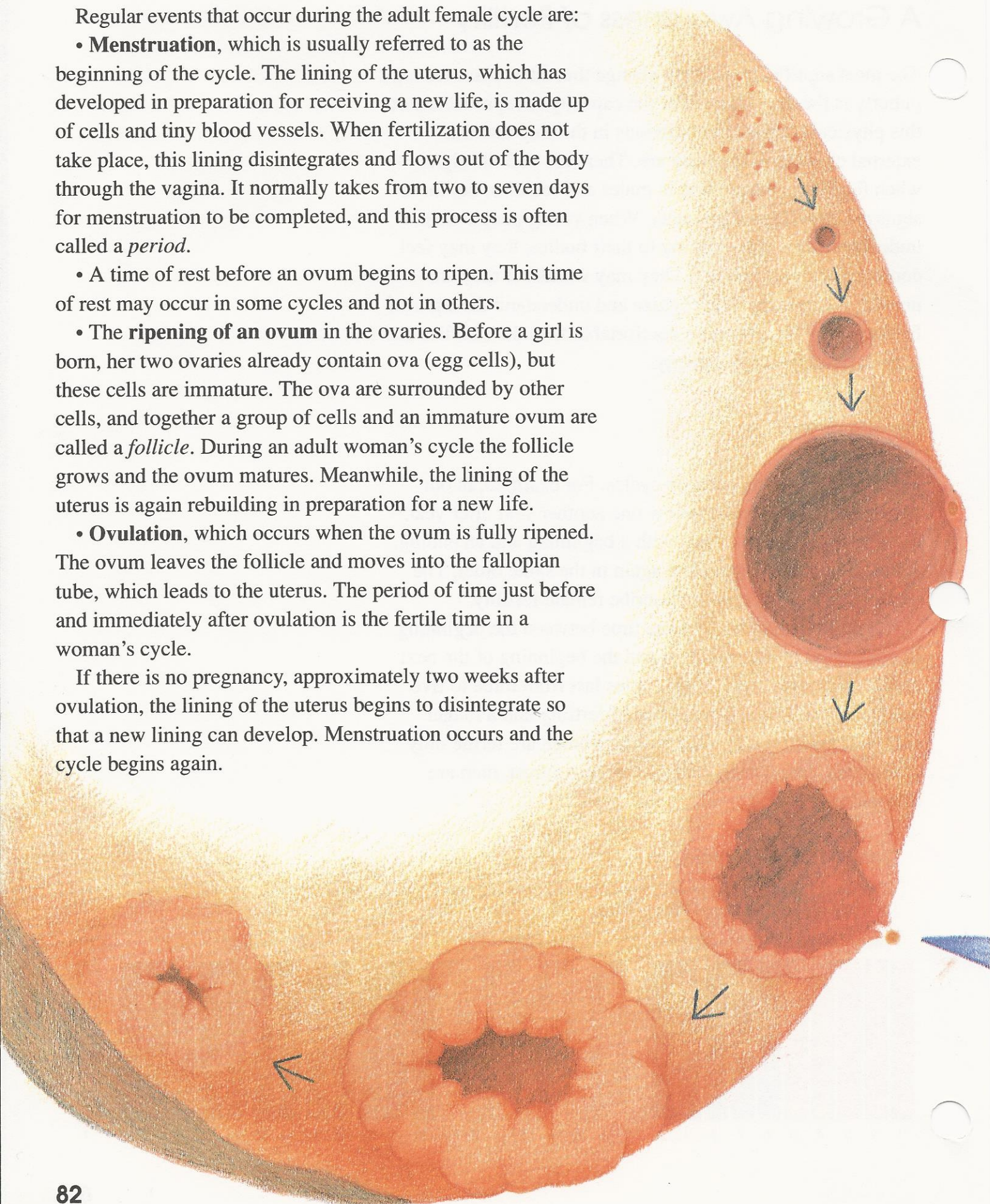
- **Menstruation**, which is usually referred to as the beginning of the cycle. The lining of the uterus, which has developed in preparation for receiving a new life, is made up of cells and tiny blood vessels. When fertilization does not take place, this lining disintegrates and flows out of the body through the vagina. It normally takes from two to seven days for menstruation to be completed, and this process is often called a *period*.

- A time of rest before an ovum begins to ripen. This time of rest may occur in some cycles and not in others.

- The **ripening of an ovum** in the ovaries. Before a girl is born, her two ovaries already contain ova (egg cells), but these cells are immature. The ova are surrounded by other cells, and together a group of cells and an immature ovum are called a *follicle*. During an adult woman's cycle the follicle grows and the ovum matures. Meanwhile, the lining of the uterus is again rebuilding in preparation for a new life.

- **Ovulation**, which occurs when the ovum is fully ripened. The ovum leaves the follicle and moves into the fallopian tube, which leads to the uterus. The period of time just before and immediately after ovulation is the fertile time in a woman's cycle.

If there is no pregnancy, approximately two weeks after ovulation, the lining of the uterus begins to disintegrate so that a new lining can develop. Menstruation occurs and the cycle begins again.



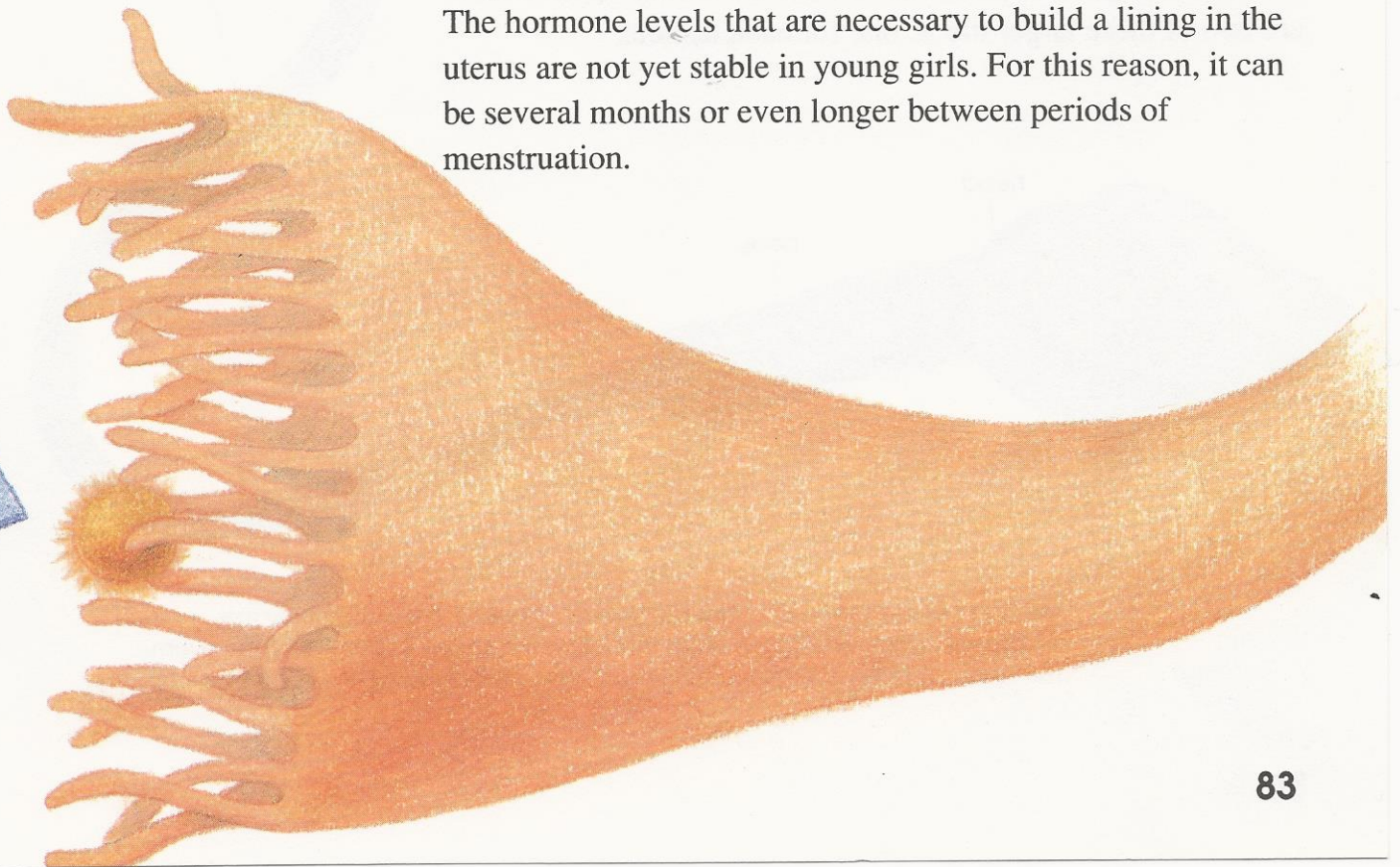
Hormones from the pituitary stimulate ovulation. They cause a group of follicles in the ovary to begin to ripen the ova. A follicle is a group of cells surrounding an ovum. The follicles begin to create estrogen, which signals the uterus to prepare for an ovum. As estrogen levels rise, one follicle becomes dominant and the others die off. Then the pituitary sends out a sudden hormone surge to the ovary. This causes the follicle to burst open and release the egg. The end of the Fallopian tube is there to catch it.

Menstruation is the most obvious sign of the female fertility cycle, but not the only one. As an ovum begins to ripen in the follicle, the ovaries send a signal to the cervix, the opening at the bottom of the uterus, to produce mucus. At first this cervical mucus is quite thick, but gradually, as ovulation approaches, it becomes thinner, more transparent, and elastic. After ovulation, the mucus thickens again and forms a barrier or plug at the opening of the uterus. In this way the opening to the uterus is sealed in order to protect the reproductive system from infection. The mucus plug also offers protection to a new life that might be growing inside the uterus.

Cervical mucus is a sign of female fertility. As it becomes thinner, women become aware of it outside the vagina. Later in their cycle, they are likely to notice that the mucus has disappeared. The purpose of the cervical mucus is to:

- nourish and prolong the life of the sperm cells
- guide and carry sperm toward the ovum
- filter out abnormal or immature sperm cells.

Sometime after girls begin to mature, they experience these signs of their fertility. Menstruation, which first happens when girls are between nine and sixteen years old, is a sign that the uterus has begun its task of building a lining. But it may be several years before menstruation occurs regularly. The hormone levels that are necessary to build a lining in the uterus are not yet stable in young girls. For this reason, it can be several months or even longer between periods of menstruation.

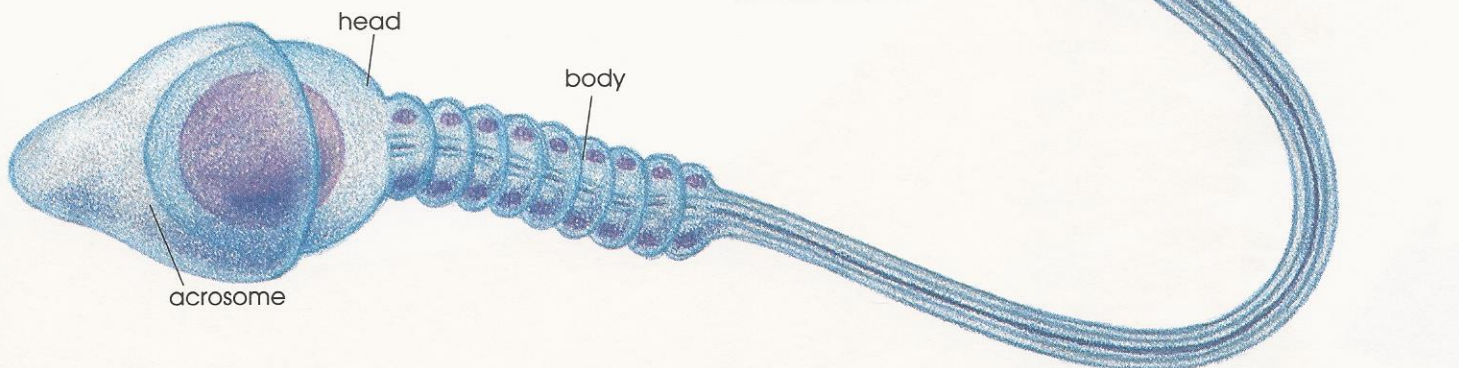


When girls first begin to mature, they may not notice the presence of cervical mucus, or they may misinterpret it. Sometimes they think that there is something wrong with them. But the appearance of mucus during their cycle is a natural sign of female fertility, indicating that ovulation is occurring. Young girls, however, do not always ovulate every cycle even though they are menstruating. The hormones that stimulate ovulation may not always reach a high enough level. By the time girls are in their late teens, however, they are usually ovulating during each cycle.

## Male Fertility

Male fertility, unlike female fertility, does not occur in a cycle. Once males are past puberty, their fertility is continuous. Physically mature males always have the ability to reproduce. Of course, like any other system of the body, both male and female fertility can be impaired by health problems.

Fertility begins in males with the production of sperm cells. This process usually starts when boys are between twelve and sixteen years of age. Sperm are first formed in tiny tubes inside the testicles. As the sperm mature, they travel to a larger tube, which is called the *vas deferens*. There are two of these larger tubes, one for each testicle.



The head of the sperm contains the genetic material. It is covered by the acrosome, which contains enzymes that allow the sperm to penetrate the ovum. The body provides energy for movement, and the tail moves the sperm forward.

Sometimes boys wonder why the testicles are on the outside of the body where they are vulnerable to injury. The reason is that sperm production requires a temperature that is slightly cooler than the rest of the body. The scrotum, which is the sac of skin covering the testicles, actually regulates the temperature of the testicles. It does this by contracting and pulling the testicles closer to the body when more warmth is needed, or by relaxing and allowing the testicles to move away from the body when a cooler temperature is needed.

In order to leave the body, sperm cells must move out of the storage areas and mix with several fluids, which protect and nourish the sperm. The mixture of sperm and nourishing fluids is called *semen*. Semen is expelled from the body through the penis by a process that is called *ejaculation*. Ejaculation is caused by a series of contractions within the man's body that force the semen through the urethra, and out the end of the penis. The amount of semen that is expelled is very small, but it may contain several hundred million sperm cells.

In order for ejaculation to take place, the man must experience an *erection*. An erection occurs when there is an increase in blood flow to the penis. As the tissues in the penis are filled with blood, the penis becomes larger and rigid. This physical change makes it possible for the man's penis to enter a woman's vagina during sexual intercourse. Ejaculation cannot occur without an erection, but an erection is not always followed by ejaculation.

Even baby boys experience erections, but it is not until after puberty that ejaculations can occur. Sometime after sperm production has begun inside the testicles, boys ejaculate for the first time. This occurs because only a limited amount of sperm can be stored inside the body. In order to make room for new sperm cells, semen is cleared out of the body periodically. This can happen gradually, but usually it happens all at once through an ejaculation. Often this clearing out process occurs while boys are sleeping, and so it is called a *nocturnal emission* or *wet dream*. Nocturnal emissions are an important sign of male fertility. The boy has begun to produce life-giving cells.

# Female Fertility

1. A female fertility \_\_\_\_\_ is the time between the beginning of one period of \_\_\_\_\_ and the beginning of the next period of \_\_\_\_\_.
2. During menstruation, the lining of the \_\_\_\_\_ disintegrates and flows out of the body.
3. The ripening of an ovum occurs in the \_\_\_\_\_. When the ovum is ripe it leaves the follicle, and moves into one of the two \_\_\_\_\_. This event is called \_\_\_\_\_.
4. The period of time just before and immediately after ovulation is the \_\_\_\_\_ time.
5. As the ovum ripens, the ovaries send a signal to the \_\_\_\_\_ to produce mucus. One purpose of this mucus is \_\_\_\_\_.
6. Young girls do not always \_\_\_\_\_ even though they have begun to menstruate.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

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## Male Fertility

1. Fertility begins in males with the production of \_\_\_\_\_, which are formed inside the \_\_\_\_\_.
2. The \_\_\_\_\_ is the sac of skin covering the testicles.
3. Sperm production requires a temperature that is slightly \_\_\_\_\_ than the rest of the body.
4. In order to leave the body, sperm cells must move out of the storage areas and mix with \_\_\_\_\_. This mixture is called \_\_\_\_\_.
5. Semen is expelled from the body through the penis by a process that is called \_\_\_\_\_.
6. Sometime after puberty, a sign of fertility that boys may experience when they are sleeping is called a \_\_\_\_\_.