

The Cycle Of Life

Change—A Measure of Growth

Your body is changing, your friendships seem more complicated, your parents embarrass you, and the acne on your face is driving you mad. It may not be very comforting, but these changes are normal. As a matter of fact, if there is one thing you can count on in life, it is change. Just when things seem under control and are going along quite normally, change will hit you in the face, bringing with it confusion and a whole set of new problems.

Things are not as easy as they used to be when you were little. It's hard to balance all the demands of your daily life. It is difficult to set priorities and manage your time. Family commitments sometimes seem secondary when social pressures build at school. This is the time when you, your peers, and your family need to find new ways to communicate, new ways to show support for one another, and new ways to show respect while you are trying out a new degree of independence.

You may have heard the saying, "Life is a journey, not a destination." The same could be said for handling change. If you learn how to see change as a sign post along the road in your journey, then it will be easier to keep your focus on the journey itself. While change is always somewhat stressful, learning to venture into the unknown is essential.

Right now, you are venturing into the great unknown that is called adolescence. A lot of changes will occur in the next ten years of your life, including high school, college, choosing a career, living on your own, and possibly getting married. All of these stages in the journey of life bring unexpected changes. Some will be difficult. Others will be easy. If you learn early how to embrace these changes and how to learn from them, then you will have an exciting and rewarding life. So what do you do? The only way to really handle change successfully is to expect it, go with it, and grow with it.



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- Changing Bodies
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Changing Bodies

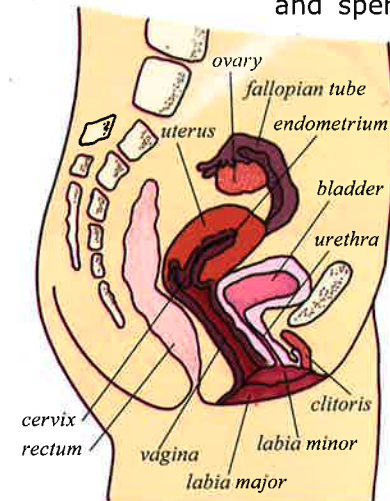
Some of the most obvious changes you are encountering now are physical. Between the ages of 8 and 15 the endocrine system kicks into high gear, and glands start producing hormones that move the body into the stage of life that we call puberty. Some physical changes happen to both guys and girls. For example, pubic hair starts to grow, acne or pimples can become a problem, body odor is more "potent," and emotional ups and downs seem to be common. Other changes are specific to the male and female anatomy. The start of puberty is different for each person. Here is a rundown on the basic chemistry of puberty:

There is a special hormone that starts the changes of puberty: gonadotropin-releasing hormone (GnRH). When GnRH reaches the pituitary gland it sends other puberty hormones into the bloodstream: luteinizing hormone (LH), and follicle-stimulating hormone (FSH). Both guys and girls have these hormones but, depending on whether you're a guy or a girl, the hormones work differently.

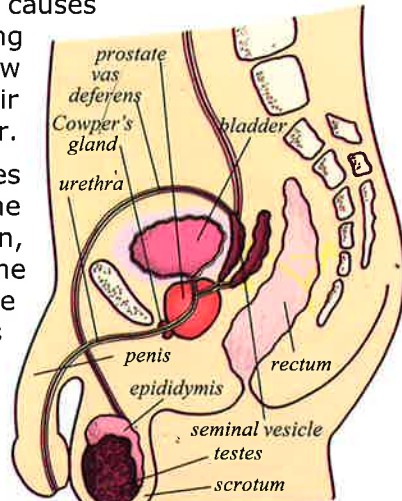
For guys, these hormones travel through the blood and signal the testes to begin producing testosterone and sperm. Testosterone is the male hormone that causes

most of the physical changes for boys during puberty. The male reproductive organs grow and sperm are produced. Boys notice their voices changing and the arrival of facial hair.

For girls, FSH and LH target the ovaries and signal the ovaries to begin producing the female hormone called estrogen. Estrogen, along with FSH and LH, is responsible for the physical changes in a girl's body. When these hormones signal puberty in a girl, breasts develop and the menstrual cycle begins. Puberty causes an egg to "ripen" and leave the ovary in a process called ovulation. The mature egg travels down one of the fallopian tubes toward the uterus. The uterus builds up its lining with extra blood and tissue. If a fertilized egg reaches the uterus, it attaches



Female Reproductive System



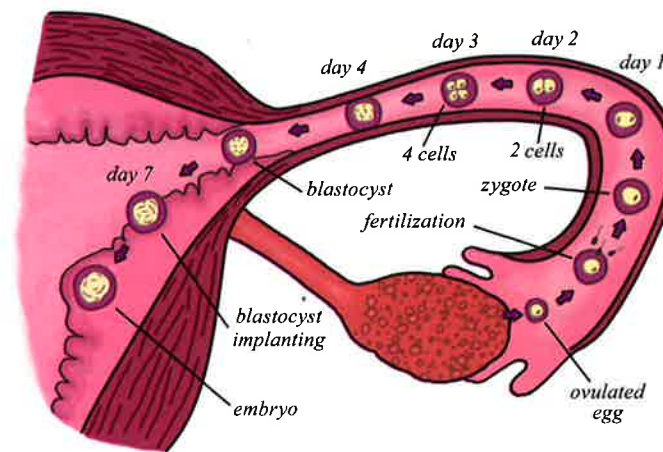
Male Reproductive System

to the uterine wall. If the egg isn't fertilized, it doesn't attach to the wall and exits from the body with the shedding of the uterine lining. This monthly discharge is menstruation, commonly called a "period."

- Anatomy Match**
- | | | |
|---------------------|---------|---|
| Cowper's gland | 1. ___ | A. female reproductive cell |
| semen | 2. ___ | B. the bottom end of the uterus |
| nocturnal emissions | 3. ___ | C. sperm develop here |
| egg | 4. ___ | D. stores mature sperm |
| urethra | 5. ___ | E. tube sperm travel through |
| penis | 6. ___ | F. egg cell develops here |
| testes | 7. ___ | G. passageway for either urine and/or sperm to leave the body |
| epididymis | 8. ___ | H. saclike pouch that holds the testes |
| prostate | 9. ___ | I. secretes fluid that gives nourishment to sperm |
| ovary | 10. ___ | J. makes a fluid that flushes the urethra before ejaculation |
| seminal vesicle | 11. ___ | K. shedding of the lining of the uterus about every 28 days |
| ejaculation | 12. ___ | L. external male reproductive organ |
| uterus | 13. ___ | M. organ that holds a developing baby |
| fallopian tube | 14. ___ | N. passageway from the ovary to the uterus |
| menstruation | 15. ___ | O. male reproductive cell |
| vas deferens | 16. ___ | P. fluid that contains sperm |
| sperm | 17. ___ | Q. passageway from the uterus to the outside of the body |
| vagina | 18. ___ | R. release of semen from the penis |
| scrotum | 19. ___ | S. secretes a fluid which mixes with sperm |
| cervix | 20. ___ | T. release of semen during sleep (also called "wet dream") |

Did You Know...

girls are born with all of the eggs they will need for a lifetime?



From Fertilization to Birth

In order to reproduce, fertilization must take place. Once the sperm and egg have joined, they create a single fertilized cell that contains 23 chromosomes from the mother and 23 chromosomes from the father. This new cell, called a zygote starts dividing, and becomes a blastocyst. The blastocyst becomes the embryo. In about three or four weeks, the embryo starts forming lungs and a brain. Amazingly, a heartbeat can be heard. In about six weeks, fingers, toes, ears, and skin form. At eight weeks, all of the internal organs start to develop. Around twelve weeks, the fetus moves and can swallow. The body continues to grow and develop. At about 38 to 40 weeks, a baby is ready to be born.

As the fetus is developing, the mother will notice some changes within her own body due to the changes in her hormones. During the first few weeks of pregnancy, she may feel nauseous, fatigued, and will stop having menstrual periods. This is when she may first suspect that she is pregnant. She can confirm her pregnancy with a simple test. Over the next nine months, the mother will go through many physical and emotional changes as her body prepares for childbirth. Once the baby is ready to be born, it will reposition itself in the uterus. Soon, "labor" begins. Contractions move the baby down the vagina (birth canal) and out of her body. Labor is hard work for the mother and the baby.

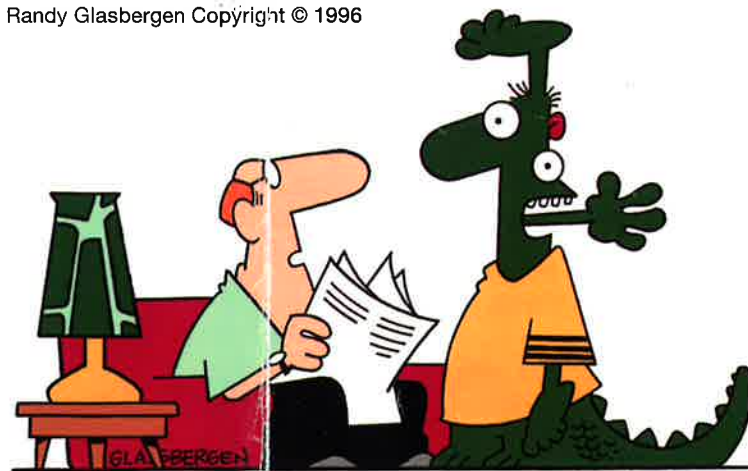
Did You Know...

guys will produce millions of sperm cells every day? Each sperm is microscopic, only 1/600 of an inch (0.05 mm) long.

| age of embryo (in weeks) | | | | | | age of fetus (in weeks) | | | |
|--------------------------|---|---|---|---|---|-------------------------|----|-------|----|
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 16 | 20-36 | 38 |
| | | | | | | | | | |
| | | | | | | central nervous system | | | |
| | | | | | | heart | | | |
| | | | | | | upper limbs | | | |
| | | | | | | lower limbs | | | |
| | | | | | | eyes | | | |
| | | | | | | teeth | | | |
| | | | | | | palate | | | |
| | | | | | | external genitalia | | | |
| | | | | | | ears | | | |

The light red bar indicates the developmental beginnings of each body part. The dark red bar indicates the time frame when the embryo or fetus is most susceptible to negative effects from alcohol, cigarettes, drug abuse, viral infections, etc.

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"At your age, Tommy, a boy's body goes through changes that are not always easy to understand."

Vocabulary

- testosterone**—male hormone
- estrogen**—female hormone
- fertilization**—joining together of sperm and egg
- intimate**—very personal contact or involvement
- puberty**—the stage of life in which the genital organs mature and a person becomes capable of reproducing
- zygote**—a cell formed by the union of a sperm and an egg
- blastocyst**—a stage of development between zygote and embryo
- embryo**—a stage of development between blastocyst and fetus, about 8 weeks
- fetus**—a developing human from about nine weeks after fertilization to birth

Ready for a Family?

The decision to be physically intimate involves a lot more than just sexual attraction. Mature adults who choose to be physically intimate and sexually responsible also need to be ready for the financial, emotional, and physical consequences of sexual involvement. For example, a married couple who want to start a family know that the result of their physical intimacy may be a new baby who will be totally dependent on them for food, security, love, and learning. That's a big responsibility!



Not Yet!

What you read in magazines, or see on TV and the Internet, or even hear from kids at school may lead you to believe that part of being a teen is being physically intimate. The fact is that most kids your age are not having sex—and for some very good reasons!

Young teens may have to make choices about physical intimacy before they are mature adults. Most succeed in making healthy choices, but others don't. So how do you avoid being one of those people who made an unhealthy choice? The best way to handle an awkward situation is to be prepared. Here are some prevention strategies you can use:

- Be assertive. Communicate strong "NO" messages verbally and non-verbally.
- Respect yourself enough to put your own safety or well-being first.
- Build a friendship. A healthy friendship makes it easier for you to speak your mind when you are in a "relationship."
- Set limits. Communicate them clearly and early in a relationship.
- Practice refusal skills for a variety of settings. Have strategies for resisting pressure.
- Check your influencers. Whose messages about sexuality are you listening to? The media? Your peers? Your family? Your values?
- Stay drug-free and avoid parties where alcohol or drugs are present.
- Explain that abstinence is the best way for kids your age to prevent STDs and pregnancy because it is 100% effective.

Family Notes:

We brought up the topic. Now is the time to talk with your family about sex. To help your parents discuss this sensitive topic, we are giving them some suggestions. Remember that this isn't a "once in a lifetime, then you're done" discussion. This is only the beginning. Your family will need to discuss this topic with you at various stages of growth and development. Here are some ideas to get them started. Parents . . .

1. Talk about the physical changes during puberty. Share some of your own embarrassing moments to lighten the mood.
2. Take your son/daughter shopping for hygiene supplies. Apply your consumer skills, read ingredients, compare brands and costs.
3. Teach appropriate ways to show affection at different stages of development. It's not enough to say, "Don't have sex." Explain your family values.
4. Tell about your feelings when you first noticed that "special someone." Sharing your feelings associated with early relationships will open the door for more discussions later on.
5. Timing is everything. Choose the time and place where conversation is most natural and comfortable for you both.
6. Above all, relax. Your teens will thank you (when they are grown adults) for talking about this important subject.

Top 10 Ways to Say I REALLY Like You!

1. Smile.
2. Make eye contact.
3. Send a card or write a note.
4. Do something fun with a group of people—together.
5. Exchange pictures, jokes, stories, books, magazines, or games.
6. Give a small gift—something you made.
7. Talk about your goals, likes, dislikes, and boundaries.
8. Join in family events.
9. Hold hands.
10. Respect yourself and the other person with words and actions.

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"I've had to reprogram my voice recognition software six times—I hate puberty!"

Anatomy Match Solution: 1-J; 2-P; 3-T; 4-A; 5-G; 6-L; 7-C; 8-D; 9-S; 10-F; 11-I; 12-R; 13-M; 14-N; 15-K; 16-E; 17-O; 18-Q; 19-H; 20-B