

Chapter: Development: Adolescence to Death

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Adolescence

Problems of Definition

Adolescent Body Changes

Adolescent Motor Skills

Adolescent Language Development

Adolescent Self-Concept

Issues: Self-image and Love

USING PSYCHOLOGY: Choosing a marriage partner

Adulthood

Adult Body Changes

Aging

Adult Motor Skills

Adult Language Development

Thought

Creativity

Adult Self-Concept

Issues: Sharing and Career

The Elder Years

Issue: Retirement

The Final Response: Death

REVIEW QUESTIONS

ACTIVITIES

INTERESTED IN MORE?

DEVELOPMENT: ADOLESCENCE TO DEATH

"It happened all of a sudden. My sister just turned 14, but she's really looking mature. One of my college fraternity brothers, who saw her picture, wanted to meet her. When he was visiting me at Thanksgiving, she came breezing through the front door blowing the biggest bubble of bubble-gum that I've ever seen. It covered her whole face -- and most of her hair when she saw him. You should have seen the expression on his face! She wasn't what he expected at all, I guess." What happened here?

Why is it that many musicians can begin composing their most famous pieces of music while they're still quite young?

"Can you believe it? I started playing handball last year. Now my coach thinks I'm good enough for the varsity squad sophomore year. Well, my grandfather challenged me to three games of handball. It's true, he played in college, and he's practiced some since -- but still! You know what he did? He beat me two

games out of three! I don't understand it." Do you understand it? How could a 71-year-old beat a mature adolescent at handball? The answers are found in the study of adolescence, adulthood, and the elder years.

The adolescent "growth spurt" happens 18-24 months earlier for girls than boys, but both sexes grow eight and one-half to ten percent a year during the fastest period of growth -- though defining precisely what we mean by adolescence is difficult. Until the onset of puberty and early adolescence, boys and girls are very similar in their motor skills and abilities. In terms of body changes during adolescence, boys continue to grow stronger, whereas the physical strength of girls stops increasing. An adolescent's vocabulary continues to grow, and the language develops to include jargon. Thought processes become more abstract, as described by Piaget. Moral development as studied by Kohlberg also reflects a growth in feelings and sensitivity toward others.

The onset of the adolescent growth spurt may affect social opportunities, the further development of thinking skills, and the teen's evolving sense of self. The adolescent becomes more subject to social pressures -- on a boy to become a cowboy- or playboy-type. A girl may still experience social pressures that encourage her toward a role exclusively in the home. Members of each sex work on their self-image. Falling in love is said to involve attachment, the existence of caring, and an intense interpersonal bond called intimacy. Adolescents are actively trying to form an identity for themselves as they prepare for the search for a long-term partner.

The human body usually achieves its peak physiological form during the 20's. From then until the mid-60's its efficiency gradually declines. Three types of theories have been proposed to explain aging. These emphasize either the combined effects of environment and heredity, or the body maintenance functions, or inherited master plans. Declining motor skills may also be caused by a variety of environmental factors.

Language itself changes very little during the adult years. The vocabulary may grow, but the main gains are in thinking skills. Most creative contributions depend on individual talents. The self-concept of the adult continues to evolve. Marriage is by far the most popular living style in North American societies. The major tasks of adulthood are establishing a career and maintaining a productive livelihood while building toward retirement.

The number of people living into retirement has increased markedly. Gradual physical decline continues in the elder years, but problem-solving and language skills decline more slowly. Prospects for a successful retirement can be predicted

on the basis of being male or female, one's life history prior to retirement, and one's over-all attitudes. There are many different views about death -- both about how to define it and what exactly it is as an experience.

Adolescence

Adolescence, an interesting phase in human development, occurs over a period of eight to ten years. The starting point for changes in the body and motor skills for a boy may be as late as the last part of his 14th year. For a girl it may be as early as the first part of her ninth year. So, while we speak about average this and average that, keep in mind that the range of ages in which these processes occur -- including development of language skills and the evolving sense of self -- is far more important than the "average" ages.

You should also note that no one is 12 years old, period. A person may be 14 physically, but 10 socially, 11 mathematically, and 12 in his or her skill with language. Paraphrasing B. F. Skinner, the (school) grade does violence to what we know about human behavior. Keep this variability in mind, too, as we examine the problems of definition we experience as we try to delimit the most frustrating, vexing, interesting, complex time in human development: the adolescent years. These are times of shifting images of self and growing experience with falling in love, though the final selection of a long-term partner is unlikely to be completed until sometime in early Adulthood.



Problems of Definition

There are two processes that are crucial to the teenage years -- puberty and adolescence -- and defining each of them causes problems. Take adolescence. How are we to define it? It's a period of soaring idealism. Yet, an adolescent often experiences massive feelings of frustration -- with self, with family, with friends, indeed, with the world as a wholesometimes. It has even been defined simply as a

period between two other periods -- childhood and adulthood. We seem to know what precedes and what follows adolescence, but we have trouble defining the intervening state.

Adolescence is also a time when friends and peers are perhaps more important than at any other period. So, it is characterized by many features.

We can define adolescence in terms of biological change. Thus, it is the span of years between the onset of puberty and the completion of bone growth. Staking adolescence to the onset of puberty is a nice way to stress the individual variations in adolescence -- both its onset and its duration. Marking the ending by completion of bone growth makes adolescence stretch a bit longer than you might suspect -- probably into the 21st or 22nd year of life and sometimes even the 25th year.

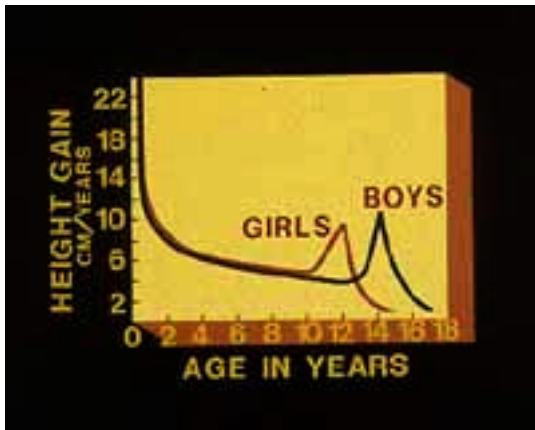
Instead of defining adolescence in terms of physical changes, we can do so in terms of social and personal changes. Then we define adolescence as a span of years of increasing, but mixed, responsibilities and skills. During adolescence, human behavior is modified from child-like to adult-like. It can be said that adolescence ends with the achievement of adulthood, defined in terms of self-governance.

Two features of adolescence, defined in either of these ways, have been observed. One is that adolescence seems to make a universal appearance in human development. Moreover, it seems to be primarily a physiologically based event. It is influenced very little by the environment in that its appearance can't be delayed or sped up significantly either by the adolescent or by interested or concerned parents.

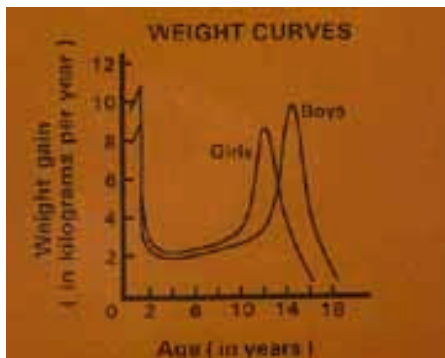
Puberty is derived from the Latin word meaning to grow hairy. That's about all we seem to agree on about puberty. When puberty is viewed as an event, it is usually related to sexual development, completed when the adolescent achieves the ability to reproduce. Another possibility is to view puberty as a process. This lends emphasis to the importance of the joint effects of physical changes and psychological events during puberty. Thus, puberty may continue as long as four years -- first in preparing for sexual maturity and then in completing it.

In addition to problems of defining adolescence, it is also marked by significant body changes, alterations in motor skills, language development and shifts in self-concept. The latter leads to interactions between an adolescent's self-image and love with early thoughts directed toward a problem of young adulthood: selecting a long-term partner.

Adolescent Body Changes



as spectacular, do they? And notice, in the Figure, that the graphs show absolute changes, not relative growth.



adolescent's personality and social life if he or she is markedly early or late in maturing.



Together these stimulate the hormones responsible for maturation of the primary and secondary sex characteristics. The photograph shows the differences in physical maturation possible in both females and males. All fall within the acceptable normal range of development. During adolescence, these processes of physical/sexual maturation influence our developing self-concept and self image. As you might suspect, the impact is substantial. A large alteration of the average human's motor

Physically, the primary marker of adolescence is the changes in body size and shape. The illustrations show the pattern of physical maturation experienced by the average human, male and female. When you compare adolescent growth with that of a young child, the "growth spurt" and growing pains of adolescence don't seem nearly

In fact, the first year -- actually, the first month -- of human life has the highest rate of growth. As shown in the Figure, during adolescence humans are growing at a much more modest 8 1/2 to 10 percent. Yet, these physical changes may have a major impact on an

Three parts of the body contribute to starting the process of pubertal maturation. The hypothalamus (part of the brain) and the pituitary gland are discussed in the Chapter on Physiological Processes. The third part is the gonads (the sex glands of both sexes).

skills also occur during adolescence, in addition to more modest changes in language.

Adolescent Motor Skills

In most ways, prior to adolescence, boys and girls have almost the same body build until the start of puberty and the adolescent growth spurt. As the body matures, a number of physical processes also change. Some skills are lost, but many more are gained. In terms of physical ability, boys and girls are very similar in what they can do up until the start of puberty.

When comparisons are regarding a particular skill, however, an interesting question arises. Boys can throw a ball farther and more accurately even before the onset of puberty. But think about that for a moment. Throwing a ball is a skill that gets better with practice. Is it possible that girls who have practiced (or boys who have not) would throw a ball with the same skill as those who have practiced (or not) in the opposite sex? How would you test that? It turns out to be very simple. Use the non-preferred arm! Ask right-handed youngsters to throw a ball using their left arm and vice versa. And what happens? The differences between boys and girls -- in both accuracy and distance -- disappear. There are differences even using the non-preferred hand and arm after the onset of puberty. However, this test again suggests the essential equality of both boys and girls until puberty begins.

Some other facts can be observed when comparisons are made. At about age 13 males start getting stronger. Females, on the other hand, essentially gain no more physical strength than they have at the end of their early adolescent growth spurt. In fact, in some skills they actually lose ground. Body size clearly has an influence in this, but here's a case where social factors -- called sex roles -- also may have an influence.

Males also have one additional change in a motor skill that occurs during adolescence -- their voices deepen. It happens because of the marked physical maturation of the Adam's apple (the larynx). An adolescent male's vocal cords nearly double in length. Following some basic laws of physics, that means the pitch of his voice drops roughly an octave. However, a young man may expect occasional breaks in his voice -- when it shifts from low to high or the reverse (without warning) -- until he is as old as 16 to 18. Accompanying the change in vocal cords is further sophistication in terms of language development for males and for females. Especially for males, the changing voice impacts both the adolescent's self-concept and self image. At

this point, adolescents are not yet typically concerned about choosing a marriage partner!

Adolescent Language Development

In contrast to major body changes and motor skills during adolescence, the development of language is almost complete at the onset of puberty. However, there are some changes that occur during adolescence. For one thing, our vocabulary continues to grow. It has been estimated that most people upon graduation from high school know 30,000 to 50,000 words -- probably closer to the latter in modern times. Education becomes more and more verbal and abstract in high school. This leads us to suspect that much of the increase in our vocabulary occurs during late junior high and throughout the senior high years. And those who complete college will probably double their vocabulary one more time.

Another interesting thing happens to an adolescent's vocabulary. Adolescents often talk in jargon -- a special vocabulary shared with other adolescents. Most professions (medicine, education, law, psychology, and so forth) also have a jargon. For them it is a technical vocabulary used to communicate complex ideas with a limited number of words. That's exactly how an adolescent uses his or her jargon. You're learning some of psychology's jargon in this book: fovea (in the Sensation and Perception Chapter), sensory store (Remembering Chapter), validity (Testing Chapter), ego (Personality: Theories Chapter), and mean (Methods and Numbers Chapter). Often the terms invented by adolescents become part of the adult vocabulary, but by that time adolescents have moved on to new terms. People who are popular and well-adjusted in any adolescent's society are usually labeled with some complimentary term in jargon. In the 1950's such people were "cool"; in the 60's "hip"; in the 70's "together." What would you call such people now?

At the same time as language use is changing, the mental processes and capacities of adolescents also change. At the start of adolescence, thinking is very concrete. That is, it's tied to the obvious. Remember in junior high school how all your math problems involved apples and oranges, or the number of acres in a field? They were always tied to the material world to fit the thought patterns of preadolescents.

By middle adolescence, our thought processes become capable of handling much more abstract material. Finally it is possible to teach theory and logic. Think about your math courses again. You really don't get heavy doses of algebra, trigonometry, and

calculus (if that's offered) until the last couple of years of high school. It isn't actually that much more difficult, but it is much more abstract. Calculus, a discipline analyzing change and rate of change, is abstract. It is isn't by accident that calculus is usually taught only to honors students in high school and is more typically viewed as college-level math. College students are more mature intellectually, better able to handle the abstract concepts of calculus.

In the same time period, adolescent thought also shifts from more self-centered to more other-centered thinking. A seventh grader may very well think he or she is the only one who has ever experienced the terrible problems of adolescence. College students, on the other hand, are much more aware of others. They are quite capable of recognizing human development -- even as we're discussing it now -- as an abstract process to which all humans are subjected all the time.

In addition, an adolescent's thinking shifts from imaginary thinking and daydreams to thought patterns more related to reality. Logical, abstract thinking ability is gained in the middle adolescent years. Feature 1 describes one of the most widely cited theories of cognitive development. The theory was developed by Jean Piaget (pronounced PEE-ah-ZHAY), a Swiss psychologist, and it is based partly on observations he made as he watched his own children grow up. You can see that the four stages of cognitive development identified by Piaget fit well with our description of adolescent thinking. These changing aspects of cognitive skills are among the major factors influencing our self-concept and self image in adolescence.

Feature 1

Piaget's Stages

Jean Piaget proposed what some call a Stage Theory of Cognitive Development. Piaget's Stage Theory is complex, but elegant. It is based on the simple assumption that a child's meaning and understanding of adult words is not the same as the understanding of adults. The main intellectual limits experienced by a child are due to immaturity and lack of experience with complex operations. Piaget's theory assumes that change is continuous and the sequence of change is constant, even though the age of a child at any given stage may vary widely. Piaget was more interested in how a child functions intellectually than the age at which he or she does so. He suggested that a child goes through four stages, the last of

which is seldom achieved until late childhood or early adolescence. The stages are as follows:

Sensory-motor stage (birth to two years). A major concept that is mastered in this stage is to develop a sense of object permanence. Out-of-sight-out-of-mind describes the mental process of an infant early in this stage. Older infants will search for objects that have been hidden under a pillow or blanket. They know the object continues to exist even if they can no longer see it.

Pre-operational Stage (two to seven years). More and more use of symbols becomes obvious as the child masters his or her language. The child is better able to separate the symbol from the object it represents. Yet, the thinking of an infant is still self-centered—it does no good when scolding a child in this stage to ask him/her to think how another child feels. It is useless for mother to ask the child to consider how Mom feels about what the child has just done. Thinking in this stage is centered—it focuses on only one detail at a time. A pre-operational child cannot integrate a series of events into a broader, coherent whole. As a result, seeing Santa Claus in every department store causes most seven-year-olds very little intellectual difficulty.

Concrete Operations Stage (7-11 years). Children's skill with using and manipulating symbols continues to improve. Now their thinking is no longer self-centered— they can imagine what your view of an event or object is like. They master the conservation principle—changing the shape of clay does not alter its weight, for example. Now the child can appreciate that a tall glass of liquid may not hold more than a shorter, wider glass.

Formal Operations Stage (adolescence to adulthood). Sometime near the start of adolescence a developing child gains the ability to think abstractly. No longer must the objects be concrete or present. Finally, the child, now adolescent, can think about thought, and education becomes much more abstract and theoretical. Math in high school involves primarily concrete subjects such as trigonometry, plane and solid-geometry. It is deliberate that subjects such as calculus are taught only to honors students who have demonstrated they are ready for more abstract disciplines.

Adolescent Self-concept

One of the major tasks of adolescence is developing a concept of who we are -- our self-concept. Morals may be called honesty, ethics, or morals, but they represent a basic orientation we all must form in dealing with our fellow humans. It involves a complex series of behaviors, including reasoning, feeling or emotion, and action. At birth we are without morals and ethics, so our family is really our first source of values. As children, our moral standards differ quite a bit from those of our parents -- we are rather self-centered. However, as our ability to think improves and as we gain experience in dealing with other people, our patterns of moral behavior also develop.

One of the most complete theories about how we develop our sense of morals is that of Lawrence Kohlberg. He suggests that there are three levels of moral reasoning, each of which has two stages -- less and more sophisticated. Feature 2 contains a moral dilemma such as any of us might sometime face. Read the situation -- one used by Kohlberg in his studies -- and then respond to the question at the end.

Feature 2

Making A Moral Judgment

Suppose you found yourself in the following dilemma. If this were you, would you do what the husband did? Be prepared to justify your answer:

In Europe, a woman was near death from cancer. One drug might save her, a form of radium that a druggist in the same town had recently discovered. The druggist was charging \$2,000, ten times what the drug cost him to make. The sick woman's husband went to everyone he knew to borrow the money, but he could only get together about half of what it cost. He told the druggist that his wife was dying and asked him to sell it cheaper or let him pay later. But the druggist refused to bring down his price. The husband, being desperate, then broke into the man's store to steal the drug for his wife. Should the husband have done that? Why or why not?

Table 4.1 shows answers that illustrate typical "Yes" and "No" responses for each of Kohlberg's six stages of moral reasoning.

According to Kohlberg, we can either agree or disagree with the husband's actions, but the reasoning we apply in defending our decision determines our level of moral development. Table 1 lists the six stages of moral development, along with a brief sample of the logical train of thought that would illustrate each level. Notice how the theory is not tied to one's age. Although development of moral reasoning does seem to be related to one's age, not all people achieve the highest levels of moral development. Clearly, our skill in thinking is also involved. The higher levels of moral development are much more abstract. On the other hand, the lowest level is mainly based on whether or not you are likely to get caught!

Table 1

Kohlberg's six stages of moral judgment

LEVEL	STAGE	SAMPLE OF REASONING
PREMORAL	Stage 1	Yes: "If you let your wife die, you will get in trouble. There'll be an investigation of you and the druggist" No: "You shouldn't steal the drug because you'll be caught and sent to jail if you do. If you do get away with it, your conscience will bother you."
	Stage 2	Yes: "If you do happen to get caught, you could give the drug back, and you wouldn't get much of a sentence. You might have a short jail sentence, but you'd have your wife afterwards." No: "He may not get much of a jail term for stealing, but his wife will probably die before he's out. So what good will it do him?"
CONVENTIONAL	Stage 3	Yes: "No one will think you're bad if you steal the drug, but your family will think you're inhuman if you don't. If you let your wife die, you'll never be able to look anyone in the face again." No: "Not only the druggist, but everyone else will think you're a criminal. Afterwards you won't be able to face anybody thinking about the dishonor you've brought on your family."

Stage 4 **Yes:** "If you have any sense of honor, you won't let your wife die just because you're afraid to do what will save her. You'd have a choice: Do your duty or forever feel guilty for not doing so"

No: "You're desperate and you know you're doing wrong when you steal the drug. You'll know how wrong you were after you're punished and sent to jail. You'll always feel guilty for your dishonesty and lawbreaking."

Stage 5 **Yes:** "You'd lose other people's respect, not gain it, if you don't steal. If you let your wife die, it would be out of fear, not out of reasoning it out. You'd lose self-respect, and probably the respect of others, too"

No: "You'd lose your standing and respect in the community and violate the law as well. You'd lose your self-respect if you forget the long range point of view because you're carried away by emotions."

Stage 6 **Yes:** "If you don't steal the drug and your wife dies, you'd always condemn yourself for it. You wouldn't be blamed, but you wouldn't have live up to your own standards of justice."

No: "If you stole the drug, you wouldn't be blamed by other people, but you'd condemn yourself. You wouldn't have lived up to your own conscience and standards of honesty."

Many things about adolescence can make a person feel awkward. For instance, because we are so varied in size and shape, boys and girls in this age group find it difficult to get clothes that fit, just at the time when we're becoming more aware of how we look to our peers. Worse, when adolescents find a favorite something that fits, they outgrow it!

Think About It

The question: We described an incident to you at the start of the chapter. A college man visited his fraternity brother's home at Thanksgiving with hopes of meeting an attractive young woman. What he saw was a bubble-gum-blowing child. How do you explain what happened?

The answer: Since the girl involved has just turned fourteen, and since the narrator of the incident indicates it "happened all of a sudden," there are probably two things going on. First, the girl has only recently completed a fairly rapid adolescent "growth spurt." And, more importantly, her social skills have not matured as much as her body. The friend has made the error of equating looks with social maturity.

Consider the pressures on adolescents. In the past many males in North America seem to have had only two options: They could become what some psychologists have called the cowboy types -- they must never cry, always be tough and virile, and show little affection toward girls.

And the other choice? They could become the playboy type, not getting emotionally involved -- a woman in every port, a girl a week, love them and leave them. These are extremes, of course, but they point to a problem still faced by many North American males. Males are not encouraged to feel or show emotion, especially in public. Crying is taboo. The result is that many emotions -- most profitably released -- remain pent-up.

And for the females, until recently, the choices haven't been much more pleasant. As we've seen, from adolescence on, females are weaker than males physically, although social pressure and lack of physical training play a major role in this. Despite equality shown on tests of intellect, many girls have not been encouraged to develop their abilities -- either mental or physical. There has also been a long tradition that encouraged females to be exclusively homemakers. As a result, in the past many females haven't gained the education and skills necessary to be successful wage-earners. They haven't been given equal opportunities, and that has created a strange situation. Almost half of the females surveyed in one study admitted having played "dumb" or having pretended to be inferior in the presence of boys -- a process some researchers have attributed to females' fear of success.

All this has been changing dramatically in the last few years or so, as suggested by the data in Feature 3. More and more options in education and employment have opened up to women and been opened up by them, and along with the opportunities have come new attitudes and values. Children growing up today face a variety of choices instead of the relatively clear-cut sex roles

of the past. The decisions they make about sex roles has a direct impact on our self-image and love we may experience.

Feature 3

Who's Home?

As a young adult today you may find that your feelings about work and family life differ from those of your parents. Or, you may feel that nontraditional attitudes are a mistake. For instance, "What do you think are the two or three most enjoyable things about being a woman today?" Compare the data in Table 2 compiled from polls conducted in 1970 and 1983 and consider where you, males as well as females, stand on these issues regarding "a woman's place."

Table 2

Women on Womanhood

	1970	1983
Being a mother, raising a family	53	26
Being a homemaker	43	8
Being a wife	22	6
Respect, special treatment	20	12
Career, jobs, pay	9	26
General rights and freedoms	14	32

Sources: 1970 data, Louis Harris and Associates
1983 data, the New York Times poll, November 1983

And what is your position on the following issue? "If you were free to do either, would you prefer to have a job outside the home, or would you prefer to stay home and take care of your house and family?" Look at the second Table (Table 3) to determine how you compare to earlier and more recent views of women regarding their own roles.

Table 3

**Working or Staying at Home:
A Comparison of Women's Attitudes**

	Job	Stay Home
TOTAL	58%	35%
All women	45	47
Working women	58	33
Nonworking women	31	62
Working women with children	50	40
Working women without children	69	24
Women by age		
18-29	56	37
30-44	47	44
45-64	39	51
65- and over	32	63
White women	42	50
Black women	61	30
Women who are professionals and managers	63	27
Blue-collar women	43	49
Women who are teachers or nurses	50	32
Other white-collar women	65	26
Women making below \$10,000	53	36
Women making \$10,000- \$20,000	62	32
Women making over \$20,000	62	28

Source: The New York Times poll November 1983

Issues: Self-image and Love



Adolescence is a time when a young person's self-image may be undergoing its most severe tests and revisions. Suddenly he or she begins to experience the natural processes of physical maturation. As a result, the self-image may lag behind what is physically quite

obvious to everyone else. Concern with our own body is perhaps greater during adolescence than at any other time in life.

This is when information on sex-related processes is perhaps most needed. According to a study in the early 1970s, 85 percent of adolescents want sex education to be taught in school. Roughly the same percentage place the highest level of confidence in information from that source. However, many adults still feel that this responsibility belongs to parents and should be discussed only in the home environment.

Letters are always pouring in to "Dear Abby" and "Ann Landers" from adolescents. The scene varies a bit, but it usually involves several of the following elements: (1) an adolescent is convinced he/she has fallen in love. (2) One or both parents object. (3) Marriage is being considered. (4) There is a difference in ages (or religion or something). What should the writer do? Often the issue is whether or not the two



people are in love. Parents often talk to their children about love -- at some point. Dear Abby has probably written for you about love. You've talked to friends -- both boy and girl -- about love. Maybe even a minister or your doctor has talked to you. And is there an answer? Can love -- or the state (condition?) of being in love -- be defined?

Yes, it can. A loving relationship -- sufficient to warrant marriage -- includes at least three common elements, based on surveys of many hundreds of dating/married adolescent or young adult couples. The elements are, first, attachment, a bond based on an intense physical/emotional need.

Second, is the existence of caring. This involves a giving of yourself to others. It might even be called total altruism -- placing the needs of another ahead of your own needs.

Third, is a linkage best called intimacy. It's not easy to define, but it is an intense bond between two people that may be seen in a variety of behaviors. One frequent example is simultaneous thoughts in which two people who are in love will turn to each other at the same moment and start to ask the same question or make the same observation. This is particularly striking when the question or statement may bear no immediate relation to the current environment or the ongoing situation -- it's "off the wall."



One problem faced by older humans talking of love is that infatuation for a young adolescent is indistinguishable from the mature love of a young (or older) adult in terms of the intensity of the emotional feelings involved. However, there are other ways to answer the question. If you are asking yourself -- in a positive sense -- whether

you are in love, then some would say you probably are. That's good enough for popular consumption, but it's not good science. Using Psychology for choosing a marriage partner represents an effective application of some of the material in this chapter. We also discuss love in chapters dealing with Your Emotions and Social Psychology.

Finally, let's turn for a moment to the developmental theory of Erik Erikson discussed in the Chapter on Early Development. We enter puberty with the issue of industry (productivity) versus inferiority (failure) more or less resolved. The adolescent is then faced with another crisis. We need much of adolescence -- even in our early 20's -- resolving what has sometimes been called an identity crisis. It focuses on whether or not the adolescent is going to form a positive sense of self. The adolescent may adopt external figures -- such as pop stars or groups of friends -- as models for behavior. Then dissatisfaction sets in as the adolescent realizes he or she has simply taken on someone else's identity. A sense of "self" cannot be found. Goals and values may change, become less clear, or seem less attainable. Successful resolution may be difficult. Yet, in time, out of this period of "crisis" should come an adult able to respond directly and positively to the question, "Who am I?"

Other than infancy, adolescence represents the interval in which we experience the greatest changes in the shape and function of our body. At the end of adolescence we enter the longest, most stable period of life, adulthood, followed ultimately by our elder years.

USING PSYCHOLOGY: Choosing a marriage partner

One of the events dreamed about during adolescence is the choice of a lifetime partner. Though not usually acted upon

during adolescence, it as an event often occurring early in adulthood, and concerns about finding a long-term partner are directly impacted by the adolescent's self image and experiences with love.

There's an old saying about being "too soon old and too late smart." One of the advantages of the psychological study of lifelong developmental processes is that it allows you to draw on the experiences of age for the benefit of youth. A big problem for most adults is having to choose a marriage partner - - hopefully for the rest of their lives -- while they are still in their mid-to-late-20's.

At some point in the life of 98 percent of us the central question becomes "To wed or not to wed?" It is a subject that has not gone unnoticed by psychological researchers. Yet the results of this research are apparently widely ignored by people having to answer that central question. Divorce rates may be going up due to society's more tolerant attitudes toward divorce or because of less strict religious stances concerning divorce. Perhaps the wider availability of child-care facilities removes concern about the children's welfare as a reason for remaining married. Finally, the fact that more than half of all working-age women are now in the work force may add strains for both partners in some marriages.

Are there any bases for predicting what combination of genes, interests, family histories, and dreams will yield a successful marriage? Yes. All of the following factors are in favor of creating a longer-lasting marriage. The greater the maturity of the couple, the greater the likelihood of a successful marriage. The older the couple when they first get married, and the longer they've been dating, the greater the likelihood of a successful marriage. Having a similar ethnic, religious, and social background, more advanced education, and parents who are happily married all contribute toward a successful marriage.

How about the matter of common interests? He likes basketball, she loves soccer -- will that cause problems? Common interests have been confirmed as supporting successful marriages. Common interests in romantic love, owning a home, having children, and religious activities all lead toward a more successful marriage. Two of the fallouts of these shared common interests are that the successfully married couple is likely to have friends in common and roughly similar attitudes toward sex.

Furthermore, it is not the existence of mutual interests that is so important. It is the types of interests that are shared by a couple that are essential to a happy relationship. One of the most crucial "interests" in the successful marriage is the view of each partner on the proper roles for each sex.

Is the woman or the man to be superior? Are the burdens to be shared equally? What are the means by which the tasks of each will be adjusted to recognize the family or career demands on the other partner?

These are the interests and views that are crucial to a successful marriage. Establishing that such views are shared by a couple does not happen overnight. Rather, it occurs gradually over months -- during shared joys and sorrows, and through experiencing each other in a wide variety of settings and circumstances. Finally, perhaps the most important factor for a happy marriage is the primary motivation behind each person's desire to marry. A person should not marry simply to escape an unpleasant family situation; that can be accomplished without marrying.

Whether or not to marry is not an easy decision to make. Given the length of time to be spent in marriage, however, it is a decision that deserves much careful thought. In recent years, the average age at marriage has crept into the high 20's, but marriage still remains one of the important events of early adulthood.

Adulthood

A chapter and a half is dedicated to discussing just childhood and adolescence. It may strike you as strange that in discussing the human life span from adolescence to death, we spend only half a chapter doing all of adult life and the elder years. The reasons are complex. Essentially, much more research has been done concerning the first 20 years or so of our lifespan than on any other period. Then, too, the "baby boom" following World War II created a large number of humans demanding services and encouraging developmental psychologists to try to understand older adults. That led to a mushrooming interest in gerontology.

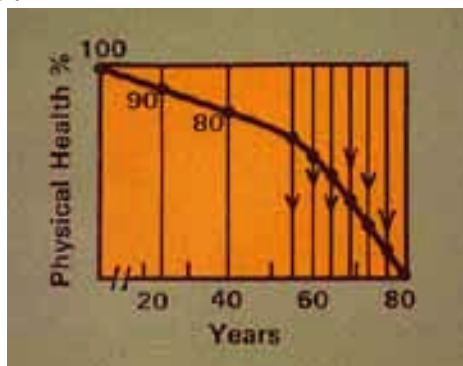
One developmental psychologist phrased the problem very nicely. She said, "Seated under the same circus tent, some of us who are child psychologists remain seated too close to the entrance and are missing much of the action that is going on in the main ring. Others of us who are gerontologists (scientists studying the aged) remain seated too close to the exit. Both groups are missing a view of the whole show."

Today the increasing number of retired senior citizens is the main reason so much more research attention is now being directed to the elderly. So the mid-lifers -- adults from 20-25 or so to retirement -- are still being relatively ignored. Yet, we do know quite a bit about those at mid-life. We know that

body changes occur during adulthood which lead to differences in how we use our motor skills, the many processes of aging are experienced, and this has led to a wide variety of theories of aging. As in adolescence, language development continues and this directly impacts both thought processes and creativity. The self-concept continues to mature and evolve. Major issues of adulthood include sharing and career concerns.

Adult Body Changes

Most people during adulthood, if they were asked to draw a chart of human physiological development, would have their performance curve peak at about age 20 or 25 and drop steadily from then until death. I would like to argue that this apparent steady decline into senility is an artifact of an inappropriate statistical averaging technique. Others have suggested that the average adult human lives at or very close to 100% efficiency until a major life-altering event is experienced. The impact of such occurrences on an individual may be dramatic. An adult may be healthy, efficient, and productive and then suddenly suffer some kind of permanently disabling accident. From that time onward the individual tends to operate at a markedly lower efficiency. As seen in the Figure, the efficiency-of-operation curve for any single individual reflects this decline -- from high efficacy to markedly lower efficacy. Averaging these all-or-none curves using a mean is inappropriate -- it yields a curve unlike the actual efficiency of most people. The "average" curve drops not because of a general decline in operating efficiency, but rather because the likelihood such a major life-altering event will be encountered increases as we age.



More and more evidence is suggesting that this gradual-decline curve of human performance is not accurate through the adult years. Of course, there are some changes that make this prediction seem true. Wrinkles do occur in the skin, the hair gradually

thins out and grays, and the whole frame settles a bit as the bones become less flexible and more brittle. However, the change is not as drastic as most think it to be. From a peak between 20 and 30, the majority of organ systems undergo a

general decline in their ability to function -- but it amounts to a drop of only about one percent per year as seen in the Figure.

There are some other changes that may not be so obvious. In any system involving a complex function (meaning many nerves, nerve-muscle, and nerve-gland connections), there is a greater than average decline. As a person lives longer, the environment in which he or she is living has an ever greater impact on that individual. At 65 differences among people are greater than they have been since puberty -- there are wide variations in the aging of various individuals. Perhaps the greatest decline is seen in the ability to react to physical or emotional stress and then return to the level of performance that existed before the stress occurred. These body changes are among the most prominent effects of aging.

Aging



Perhaps the process most frequently associated with adulthood and its related body changes is aging. How is an adult's behavior influenced by the aging process? All of the senses drop somewhat in their efficiency. Most obvious, perhaps, is the gradual loss

of accurate vision -- reflected in our increasing use of glasses as we age. The declining sensitivity of all the senses results in a decreasing awareness of the external environment. Adolescent muscle strength constantly increases, peaking in our 20's. But by the time we reach our early 40's a drop in muscle strength is already becoming obvious. The gradual, but rather slight, loss of general vitality, is coupled with a very simple fact of life: the longer we live, the greater the likelihood that we will have a major accident or develop a disabling or crippling illness.

Aged people are not highly valued in the modern societies of North America. Look at the advertising you see on television and in newspapers. What kind of people appear in the ads? Unless it's an advertisement for a retirement or nursing home, the model posing is almost always in his or her teens or 20's. Our societies have a strong bias favoring youth. We've even seen it show up in the research subjects chosen by most developmental psychologists! Yet, the times are changing.

Starting back in the mid-70's, the not-so-flattering image of older people has been altered slowly. For example, older women are now permitted to be flight attendants, formerly a "youth" profession. Only by applying pressure, however, were women able to make airlines eliminate the under-26 rule long in effect.

The physiological processes of aging are irreversible. No matter how hard we try to avoid it, we humans do still grow older. Aging is the increasing inability of our body to maintain itself and to function at levels typical of young adults.

Why does it happen? We have a number of theories, but rather few firm answers so far. Three types of explanations have been developed. One type emphasizes the combined effects of environment and heredity. Is it possible we simply wear ourselves out through use (meaning through living)? We might accumulate waste products from what we've eaten or inhaled. As these waste products accumulate -- from whatever source -- they may begin to hinder every normal cell function from digestion to repair.

A second set of theories focuses on the fact that our bodies are constantly manufacturing cells to replace injured or non functioning parts. You see it happen if you cut your skin, scrape yourself, or break a bone. Our cells contain messages (the chromosomes are discussed elsewhere) by which they reproduce themselves. What would happen if -- in the process making new cells -- an error were introduced into the process? As long as that cell retained the ability to reproduce itself, flawed cells will be reproduced based on the model of that cell. Aging might just be an accumulation of such flaws over the years.

The third group of theories focuses on what we may have inherited. It is possible that among the genetic messages that combine to form each of us there is a complete life-long program of events. We reach our peak of performance and efficiency at the time when we are capable of having children and are looking around for an opposite-sexed person with whom to start the process. Or perhaps the speed and course of our life may be determined entirely by brain functions -- the ultimate "pacemaker." So, we have a number of theories from which to choose. Much research remains before we'll know the answer(s).

Another of the processes influenced by body changes and aging through adulthood is our motor skills.

Adult Motor Skills

The physical skills of adults logically tend to follow -- as they must -- the changing form and strengths of the body

throughout adulthood because of the processes of aging. That is not to say, however, that in all physical skills adults reach their peak during their 20's. Why not? Because there are few physical skills that involve only physical strength.

There are also environmental events that influence the physical skills of adults. Pollution is one source. It's known, for instance, that if you work (or play, for that matter) for long periods of time in an environment where a loud and/or constant sound is heard, your hearing may become weaker for similar sounds. And, of course, don't forget the bad effects smoking and polluted air can have on the lungs.



Another source of weakening in the adult is the normal stress of living. An example of physical stress is the simple act of picking up your child. The first baby is born, say, to a woman who is 28 years old. She's near her peak of health, as is her husband. Picking up a 7-pound infant is no problem. By the time that infant is

three years old, a second one has probably arrived -- who also needs to be picked up. Now the first one is perhaps 35 pounds and continuing to grow. Four years later, the woman will be 35. Her oldest child may by then weigh 70-75 pounds, but children still occasionally need to be picked up. The demands made on the mother become greater, not lighter, because her back gets steadily weaker as her children get progressively heavier. The last time she picks up her youngest child will put a great deal of stress on her back.

There are several general impressions of the effects of aging. First, age does not necessarily mean a loss of all physical skills. Quite the contrary, some men -- even in late adulthood -- have almost the same muscle strength for short periods of time as what can be delivered by a much younger man. The difference -- if there is any -- is that the older man no longer has the endurance. Second, different parts of the body may age at very different rates -- depending upon how you and the environment treat them. Finally, third, there are vast individual differences in the aging process within a given adult. You have undoubtedly known some people who were "old" at 55 and others whose views-on life and skill in living you'd love to have even though they were 70 at the time.

Thus aging is a slow, years-long process of decline. However, in many instances we use our experience to compensate for declining speed or strength. Depending on your chosen occupation, language development may flourish or be quite stable. Your self-concept will undoubtedly change during your adult years, and issues such as sharing and caring become increasingly important.

Adult Language Development

For most adults, language changes very little during adulthood, that is, between age 22 and retirement. There are only two exceptions to this. (1) As a young adult masters a profession -- such as psychology, law, or medicine -- he or she will gain a new jargon (most often a technical or job-related language). (2) During the older years an adult may experience growing difficulties in locating words, but in some ways this is countered by a continuing skill in using a broader vocabulary than the younger adult might use. Those years of experience with cross-word puzzles and Scrabble doubtless do help! Intelligence, for example, apparently shows no decline with age -- an issue discussed in more detail in the Chapter on Testing. Clearly, once concepts are learned, increasing experience in their use may more than offset minor drops in speed.

By contrast, some of the processes in which language plays a central, crucial role do change quite a bit during the adult years -- thought and creativity.

Thought

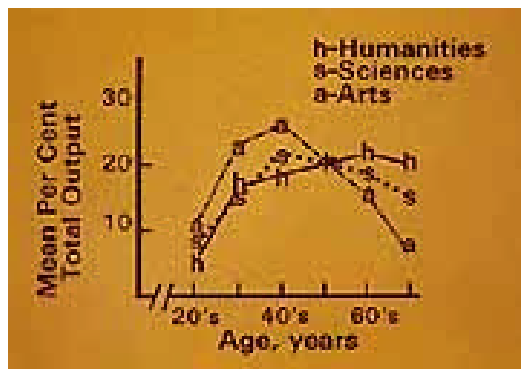
One of the processes that continues to improve because of language development during Adulthood is our cognitive abilities. A basic change occurs -- or perhaps we should say is completed -- in the nature of an adult's thinking during the early adult years. The shift from concrete to abstract thinking -- begun during the adolescent years -- is completed in the 20's.

The developmental psychologist Piaget notes that in later adulthood all sophisticated thought processes decrease. Formal thought as well as concrete and abstract thought return to a less mature form. Why? That's not easy to answer, but some informed guesses can be made. In later adulthood, difficulties in recalling specific information may begin. In addition, some responses have been made so many times by the elder adult that they no longer take much active controlling thought. This is

what we mean when we describe an older person as being "set in his (or her) ways." Finally, in many of the day-to-day tasks of this world there really is little need for formal or abstract thought. It seems that lack of challenge may be a key reason why older adults no longer engage in higher forms of thought. We also visit this matter in discussing issues of adult life involving caring and sharing. A related process impacted by and impacting language development is creativity.

Creativity

An interesting alternative view can be made of oft-presented conclusions about adult modes of thought. When do you suppose adults make their most creative, original contributions to society? At what age do scientists and humanitarians make their most important contribution? The answers to those questions may surprise you.



This Figure plots the percentage of total life creative productivity in ten-year intervals for artists (including painters, sculptors), scientists (including chemists, physicists, biologists, psychologists), and humanitarians (including

historians). As you can see, in arts and science, the bulk of a person's creative work is done in the early years of adult life -- the 30's and 40's. By contrast, in the humanities the major contributions are made in the later adult years -- the 60's and even the 70's. Why?

One psychologist has developed a rather fascinating, possible explanation. Think about this: In science, math, and the arts, a person must master only a limited number of details -- the principles of mathematics or the principles governing the effective blending of colors. Once these are mastered, one can start to work and make -- if one is capable -- major contributions. By contrast, history, for example, involves the accumulation and mastery of many, many individual details -- facts, dates, and events. It takes longer to master these than the principles of a science or an art. It takes longer to think through and integrate multiple details, and thus it takes longer to develop new, creative views or opinions or theories in such disciplines. It's an interesting possibility.

Think About It

The question: Why is it that musicians -- even world-famous musicians -- are able to compose their most famous pieces of music while they're quite young?

The answer: Composing music requires the mastery of a fairly simple set of physical principles, about which we'll learn more later on. Because the principles themselves can be mastered in a relatively short time with reasonable ease, it is possible for musicians to start applying them quickly when writing music at a young age. The same is true for scientists and other kinds of artists. In those disciplines, a relatively small number of principles -- once mastered -- can be combined in new ways to do cutting research or avante garde art.

One of the aspects of adulthood which is impacted by your thought and your creativity is the self-concept which you maintain.

Adult Self-concept

Enumerating the tasks of adulthood would fill a book -- they also fill a lifetime. From the early 20's until retirement, most humans find and adjust to a mate, start and maintain a family, manage a home, select and establish a vocation, assume a normal share of civic duties, and find a social group with whom they can relax and feel comfortable. Let's examine some of those tasks.



Most adults get married. The decision to do so is a major one. The results affect life style and happiness, types of experiences, and more often than not the appearance of children. Marriage is most often entered into in the name of love, but are there other factors? Most definitely, yes!

As is discussed in more detail in the Chapters on Emotions and You and Groups, physical attraction is important. Even more

important, however, is the similarity of the two people attracted to one another. Similar ethnic, religious, and social backgrounds all blend to increase the likelihood of a stable family being formed. To the extent that both members of the couple share interests and values, they have a common background on which to anchor their marriage. A marriage leads to changes in personal freedom, moving the participants more and more toward interdependence. There is a clashing and then a blending of life styles. Whether to squeeze the toothpaste tube from the center or squeeze-and-roll from the end is a classic example of the "battles" that may be fought. Is the toilet paper to come over the top or from underneath the roller?

But there are also alternative life styles that have been explored more frequently in recent years. Some people, of course always choose to remain single; yet this is the exception, not the rule. The alternate forms of living together range widely from simply sharing a home to communal living -- both extremes are favorites principally at the late adolescent and 20's age level. Contract marriages have also been tried, as have group marriages. However, these forms are exceptional, too.

Traditionally, it has been the male role to get a job and support the family. Today, the roles are changing. Females are three times as likely to have a job now as they were in 1890. The 1980's was the first decade in which more than half the work-age women, including mothers, are in the work force.

Each parent serves as a model of adult male or female behavior. Fathers contribute to the development of their sons' masculinity, aggressiveness, and sex-role behavior. Studies show that a father's absence from home -- whether because of death, separation, or long work hours -- can result in poorer academic performance for both boys and girls. The effects of the working mother's absence from home is a relatively new phenomenon and research topic of the 1990's. The primary challenges of adulthood, according to theorist Erik Erikson are two issues: sharing and caring.

Issues: Sharing and Career

The theory of human development proposed by Erikson suggests that during adulthood humans face two challenges. Having found self-identity, the young adult must make a basic decision: Will his or her adult life be shared intimately with another, or will it be spent in isolation? Erikson presents the outcome of this stage as dependent upon the successful resolution of previous challenges. An intimate -- sharing,

caring -- relationship is likely to develop only between two mature individuals. A close bond can't easily be formed between immature persons, or those who have elected to lead a more isolated existence. Yet, the search for intimacy is still a somewhat self-centered process. It's shared with one other person, yes, but the search is focused on an assurance of our own well-being.

Entering mature adulthood -- roughly ages 45-65 -- a person has faced six life crises so far. Mature adulthood presents yet another challenge. In some cases this is the most important stage of all -- both for the individual and for society as a whole. Why? Well, assuming that close bonds have been established, what follows is a desire to extend the intimacy achieved. This intimacy is shared in several ways. Primarily, more attention is directed toward the establishment and maintenance of a successful career and its relationships. There



is also an involvement in community affairs. Choosing between generation and stagnation provides the crisis of middle adulthood. Adults successfully meeting this seventh challenge are increasing their concern for the next generation -- for their children and for other young.

The mid-life crisis you sometimes hear about is a reflection of this crisis identified by Erikson. It is a concern for keeping in touch with the world and the times, rather than stagnating, living on past laurels, and failing to grow. It is a challenge not easily, nor rapidly, met. If your parents are now in their 40's they may -- without realizing it -- be in the midst of dealing with this crisis even as many of you are wrestling with establishing your own personal (late) adolescent identity. Following adulthood, we enter the final phase of our lives -- the elder years.

The Elder Years

Following infancy, our human development moves progressively through childhood, adolescence, and young adulthood. We move from later adulthood into our elder years -- the culminating events of our life. A former President of the United States voiced the challenge about as well as anyone.

President John F. Kennedy, speaking to the members of the House of Representatives in 1963, said, "Our senior citizens present this nation with increasing opportunity to draw upon their skill . . . and the opportunity to provide the respect and recognition they have earned. It is not enough for a great nation merely to have added new years to life -- our objective must also be to add new life to those years." He touched on a number of important issues related to the problems of growing old -- in all North American societies. Let's review some of those problems briefly.

Between 1900 and 1950 the number of people in the United States doubled. During the same period the number of people over 65 quadrupled! In the years from 1970 to 1980, the median age in the United States increased from 28 to 30. Some people have taken these statistics to mean that our life span is increasing. New developments -- such as modern medicine and medical techniques, greater knowledge of nutrition, and more attention to fitness and health -- are making it possible for more people to reach old age. Fewer people die in infancy, childhood, or young and middle adulthood. The bottom line is that the average age of our population continues to increase because all of the major biological killers of children -- polio, tuberculosis, rheumatic fever -- all of them have been conquered. Yet these developments are not substantially increasing our life span. In 1900 anyone in the United States who became 65 could expect to reach 78. Someone 65 in 1980 could expect to live to 81.4 -- only about a three-year increase after 80 years of progress! See the Figure for the numbers of people who live to advanced ages today. However, the fact that more and more of us are living past 65 is changing the form of our society. Some of the impact of this population shift is only now beginning to be felt.

One way to summarize attitudes toward these changes is to ask adolescents, newlyweds, middle-aged adults, and adults just prior to retirement what age they consider to be the best. Table 4 lists the results of such a survey. It also shows the results of a similar survey asking the same age groups to identify the worst years. The results yield some unexpected findings. The older the person being quizzed, the lower the ratings of the desirability of adolescence and the greater the ratings of the goodness of middle age. Regarding adolescence as the worst years, there are some disagreements; generally as we age, we tend to view adolescence as more undesirable, yet we come to view old age in more positive terms. What age would you identify as the best and worst ages to be?

Table 4

*Opinions about the best/worst years of life**

	Age Group							
	Asked:							
	High School		Newlywed		Middle-Aged		Pre-retirement	
	Men	Women	Men	Women	Men	Women	Men	Women
I. What is the best age?								
Adolescence or the 20's	92	92	70	76	50	35	33	21
Middle age-the 40's	00	00	00	04	19	31	41	59
II. What's the worst age?								
Adolescence	20	46	45	50	33	44	46	57
Old age	56	27	45	39	37	22	24	17

Adapted from Lowenthal, Thrunher, Chiriboga, and Associates, 1976.

The pattern of physical change that starts even before we may notice a decline in our skills is clearly a major factor in our adjustment to retirement. However, to describe the typical

case is perhaps more difficult for this age than for any since adolescence, because there are such differences in physical fitness among the elderly. At 65 there may be as much as a 30-year span in the apparent agedness of a person.

Think About It

The question: Remember the late adolescent about whom you read at the start of the chapter? How do you explain that his 71-year-old grandfather beat him at handball. Since the adolescent mentions only his grandfather's age, we can assume his physical ability was not that different from his grandson's.

The answer: Handball is a sport in which cunning and skill go much further than a smashing serve. What happened is that the grandfather just outsmarted his grandson -- winning not by overpowering him, but by placing his shots smartly -- that is, with skill. In this case, skill was more important than youth.

Old age represents the only period during which there may be marked losses of language and thinking skills. More than three million elderly in the United States suffer from Alzheimer's disease, a degenerative brain disorder that affects not only speech but reasoning, memory, and time and space orientation. New research seems to indicate that the disease has a genetic origin, but many changes associated with the disease may be related to how often and how well skills were used in earlier years. Even healthy old people with superior verbal skills are unlikely to add new words or jargon to their speech.

Clearly, too, inherited characteristics can influence the quality of old age. There are a number of studies (both in the United States and Russia) that suggest we can live a long and happy life. These studies agree on four major factors that can help bring this about: First is maintaining a role in society. Second is having a positive self-concept and view of life. Third is having moderately good physical functions -- that is, a healthy body. Finally, fourth -- probably the most direct way to achieve the third goal -- is to be a nonsmoker.



An event typically occurring during the elder years is retirement. Though some never do retire, others spend half their adult life looking forward to it! Regardless of the path chosen, the final response is death.



Issue: Retirement

The primary events dominating the elder years are preparations for and the experiencing of retirement. Aside from birth, retirement has to be one of the biggest changes we experience during our lifetime. What factors

influence how successful a retirement will be? Probably one factor is more important than any other -- money. Without income you lose control of your life. Many adolescents experience this -- if they're not working or receiving an allowance! If you remember, such adolescents may often stay home whether they want to or not. The same is true of retired adults, except the situation may be much worse because they've experienced many years of personal freedom. One's sex is a predictor of successful retirement. Females in our society have more often than not stepped into and out of the working force more times than males. They've practiced "retiring" and tend to be better at it. For the fortunate male, retirement may be the first time he has ever had extended periods of time when he was responsible to no one but himself and possibly his spouse. This is changing now, since more women are choosing to develop full time careers. Within the next 2-3 decades, the norm will be families with two retirees, though now there is typically only one.

Attitude is another important factor impacting retirement as summarized in Feature 4. Some people you may have met are labeled "workaholics" -- for them their job seems to be everything. In fact it may be, and they may be hit harder by retirement than anyone since it requires a total readjustment of living style.

Feature 4

Golden Years Or A Gold Watch?

Retirement as it is usually enforced in North American societies is an expression of bias against old age. There is evidence--as we review in Chapters on Early Development and Puberty to Old Age -- that abilities change with age. Yet nothing you've read in these two chapters argues that we all become inept or demonstrably less useful at 65 . . . or 68 . . .

or 70 . . . or. . . Many industries simply ignore the later-life needs of older employees, preferring an arbitrary retirement age -- though that's no longer legal. Give them a gold watch and wave good-bye.

Two types of theories have developed that try to explain what happens to bring about retirement. One set of theories, which may be too shallow, emphasizes disengagement. This is retirement as controlled by the employer, often proceeding in stages. A worker will notice a change--work assignments will be shifted to younger employees. The person may even go along readily with the change, which will further speed up the shifting of responsibilities. This is, however, illegal, since it represents discrimination based on age.

Other theories emphasize the person's withdrawal, retirement controlled by the employee. From a psychological point of view, this is a healthy process in which the person is adjusting their life style in preparation for a planned retirement. The ease and stability of post-retirement life can be influenced by how active a person remains. A worker whose only sense of accomplishment was based in his or her work will have more trouble with retirement than someone who has developed lifetime interests/skills in sports, hobbies, or other activities. Old roles and friendships are shaken when a steady job disappears. The solution, then, is to find new roles, even though one's options and abilities may become more limited.

Another attitude that influences the success of retirement is our attitude toward life itself. A feeling of pride in one's accomplishments will lead to a more satisfactory retirement, especially if other interests -- such as interests in life-time sports or hobbies -- have already been developed. Maintaining an active role in society is a good predictor of the successful later life.

Finally, the personal history of each of us -- our success in living, or the lack of it -- may be the best predictor of all as to the likely success of our retirement. And the last event of life is the final response: death itself.

The Final Response: Death

The final events of the elder years are the processes of dying and death. You might think that a recognition that death is near would lead those who are older to think more about it. But that is not the case. All humans -- regardless of age -- think about death, but there is only a very slight increase in

the frequency with which older people do so. It's an awkward event to think about anyway. Huckleberry Finn imagined his death. Have you ever tried to imagine your own death? We tend to put ourselves in the third person at our funeral -- as if we were still alive, observing!

Even defining death isn't easy. It has moral and religious implications. The courts of our land have not been able to define precisely when a person is dead. Must brain waves be absent? Speech? Unaided or aided breathing? A mind? There is no easy reply, although most of the difficulties come in the gray area between life and death -- both at life's start and at its conclusion. Interestingly, very few people who have been (or are) close to death report fearing it. Of course, the circumstances in which death will occur have something to do with those views.

An analysis of the stages of adaptation to one's death was developed by a medical doctor, Elisabeth Kübler-Ross, from interviews with terminally ill patients. She suggested the existence of five stages as seen in Table 5.

It is important to note that there is precious little evidence that people adapt to news of their impending death in terms of these five stages. Rather, what Kübler-Ross may have identified is simply five of the most common ways in which people adapt to news of their impending death, Or, perhaps, some people may be going through two or three of these stages -- for instance, denying it, angry about it, and bargaining -- all at once. And, of course, even when a person reaches the final

Table 5

*Five stages in humans' emotional reactions to impending death**

STAGE	MOST OBVIOUS REACTION
I	Denial and isolation
II	Anger
III	Bargaining
IV	Depression
V	Acceptance

*Kübler-Ross, 1969.

stage -- that of accepting death -- this should not be confused with giving up on life. Rather, people in the final stages of their life often engage in what might be called a life review. It seems to be a fairly universal process, perhaps involving a

search for the meaning in one's life as much anything. As that meaning is found, perhaps the acceptance death does become easier.

With a fully developed organism, another topic of immediate interest concerns the internal functioning of our body. These functions really provide the bases of behavior, which are discussed in chapters on Physiological Processes and Sensation and Perception.

REVIEW QUESTIONS

Adolescence

1. Does the adolescent "growth spurt" begin first in boys or in girls? What effects does the widely varying onset of physical maturation have on personal development?
2. What changes in motor skills occur during adolescence in girls? In boys?
3. How does language use change in adolescence?
4. What are the stages proposed by Piaget in developing abstract thought?
5. What are Kohlberg's ideas about moral development?
6. List some of the social pressures that influence teenagers.
7. What are some characteristics of love?
8. Name one of the major tasks of adolescence.

Adulthood

1. When is the human body at its physiological peak? What changes take place during adulthood?
2. What are the major tasks of middle adulthood?

The Elder Years

1. The proportion of the elderly in our population has been steadily increasing for many years. How do you explain this?
2. List some of the factors contributing to a successful retirement.
3. List some of the views about when death can be considered to have occurred. What definition of death is most acceptable to you?

ACTIVITIES

1. Have you ever had someone you know find out that he or she was soon going to die? If so, did the person show any of the emotional reactions suggested by KÜBLER-ROSS? Which ones?

2. Volunteer to spend some time visiting a nursing or retirement home. Offer to help with the patients there, perhaps feeding them, writing letters for them, helping them with crafts, or any other desired activity. What observations can you make about development that confirm the points made in this chapter? How does the world view of people in their elder years differ from your own? Try to get the patients to describe their childhoods, including their education and family life. How do their lives differ from yours? Which differences in their behavior as compared to yours can you attribute to different upbringing and which to different educations?

3. Interview a personnel officer in an employment agency or local company. Ask whether he or she has seen much evidence of mid-career "crises" in which an apparently successful middle-aged person chooses to try something completely different. Another possibility is to discuss with one or both of your parents their views on their own careers. What is their most important goal now? What subject(s) would they study now, if they had the opportunity, that they didn't study when they were in school? Why?

4. If you've never done so before, and if you are genuinely interested, why not take some interest tests now, either through your college's testing and counseling service?

5. Interview a freshman in high school. Ask how his or her life has changed since junior high school. Has this person assumed or been assigned more responsibilities at home? Is he or she given more trust by parents? Now find some students who graduated from your high school last year -- perhaps one who went on to college as you did and another who got a job. Ask them the same questions (adjusted appropriately, of course). What differences do you find in (a) the views of each person, (b) their ability to express themselves, (c) the responsibilities they now have, and (d) the rights they have gained?

INTERESTED IN MORE?

BRADBURY, W. (1975.) *The Adult Years*. New York, NY: Time-Life Books. Richly illustrated, this is but one volume in a Human Behavior series. Starts with late adolescence and continues with some fascinating facts and figures bearing on the adult years. Draws data and conclusions from a wide range of social and behavioral sciences.

BUTLER, R. N. (1975.) *Why Survive?: Being Old in America*. New York, NY: Harper & Row. Calling aging "the neglected stepchild of the human life cycle," this Pulitzer-Prizewinning author examines the plight of senior citizens. Chapters include "Houses of Death Are a Lively Business" and touches on a wide range of age-related problems, including problems of being caught between declining earning power and rising costs.

FROMM, E. (1956.) *The Art of Loving*. New York, NY: Bantam Books. Asserts that love grows out of maturity, self-knowledge, and courage. Fromm discusses everything from brotherly love to the practice of love. A good exposure to psychoanalytic thought on love, written by a world-famous psychoanalyst.

HORROCKS, J. E. (1976.) *The Psychology of Adolescence, 4th ed.* Boston, MA: Houghton Mifflin. A topics approach to adolescent development, covering everything from motivation to vocational development.

HURLOCK, E. B. (1980.) *Developmental Psychology, 5th ed.* New York, NY: McGraw-Hill Book Company. Takes a life span developmental view of humans, devoting roughly equal space to early-, middle-, and late-life human development, also including dying and death. Discusses behavior patterns at each age.

KÜBLER-ROSS, E. (1975.) *Death: The Final Stage of Growth*. Englewood Cliffs, NJ: Prentice-Hall. Through a collection of essays on death and dying, the author familiarizes the reader with the viewpoints of other people, cultures, religions, and philosophies.

LEVINSON, D. J. (1978.) *The Seasons of a Man's Life*. New York, NY: Alfred A. Knopf, Inc. It is limited to a discussion of men, but this author divides the adult life cycle into a number of specific developmental transitions from the Early Adult Transition (ages 17 to 23) to the Age Fifty Transition (ages 50 to 55).

MOODY, R. A., JR. (1975.) *Life After Life*. New York, NY: Mockingbird Books. A paperback book with a religious emphasis. Makes fascinating reading as the author uses interviews with people who experienced "clinical death" and survived.

NEWMAN, B. M. & NEWMAN, P. R. (1984.) *Development through Life: A Psychosocial Approach, 3rd ed.* Chicago, IL: Dorsey Press. Although light on illustrations, this developmental text covers human life from procreation to burial. It includes a good cross-section of the recent literature in developmental psychology.

SHEEHY, G. (1976.) *Passages*. New York, NY: Dutton. A best-selling book about various stages of human experience through adult life. The book's descriptive narration represents

a popularized version of the research project reported by Levinson (see above).

STONE, L. J. & CHURCH, J. (1973.) *Childhood and Adolescence: A Psychology of the Growing Person*. New York, NY: Random House. Appropriate reading following either Chapter 2 or Chapter 3. Offers a life span view of human development through the adolescent years, blending laboratory and research findings with "real-world" experiences.

TURNER, J. S. & HELMS, D. B. (1982.) *Contemporary Adulthood, 2nd ed.* New York, NY: Holt, Rinehart & Winston. A well illustrated text that examines the adult years, including physical and intellectual development, family, and issues related to retirement and death. Contains a lot tables, graphs, and essays, presenting a broad, challenging description of adulthood.