As infants learn and develop, synaptic connections between active neurons strengthen, and dendritic connections become more elaborate. **Synaptic pruning** (reduction of unused synapses) helps support this process. **Myelination**, the accumulation of fatty tissue coating the axons of nerve cells, continues until early adulthood.

### Brain and Body Changes over Your Lifespan

### Sensory and Perceptual Development

- Many senses are highly developed at birth, though sense of vision is poor
  - Normal adult is 20/20
  - Normal infant is 20/200-20/400
  - Visual acuity nears 20/20 at two years
- Hearing begins a few months prior to birth
  - Infants can recognize their mother’s voice
- At birth, a newborn can smell most odors and distinguish between sweet, salty, and bitter tastes. Breast-fed newborns also recognize and show preference for the odor and taste of their mother’s milk over another mother’s (Allam et al., 2010; DiPietro, 2000; Rattaz et al., 2005). In addition, the newborn’s sense of touch and pain is highly developed, as evidenced by reactions to heel pricks for blood testing and to circumcision (Williamson, 1997).
- The newborn’s sense of vision, however, is poorly developed. At birth, an infant is estimated to have vision between 20/200 and 20/600 (Haith & Benson, 1998). Imagine what the infant’s visual life is like: the level of detail you see at 200 or 600 feet (if you have 20/20 vision) is what they see at 20 feet. Within the first few months, vision quickly
Chapter 10: Attachment

- Strong emotional bond with special others that endures over time
- Infants raised in abusive or impersonal environments have social-emotional deficits, as well as physical and mental deficits

In studying attachment behavior, researchers are often divided along the lines of the nature-versus-nurture debate. Those who advocate the nativist, or innate, position cite John Bowlby’s work (1969, 1989, 2000). He proposed that newborn infants are biologically equipped with verbal and nonverbal behaviors (such as crying, clinging, and smiling) and with “following” behaviors (such as crawling and walking after the caregiver) that elicit instinctive nurturing responses from the caregiver. Konrad Lorenz’s (1937) studies of imprinting and attachment (Chapter 9), along with Harry Harlow’s experiment with contact comfort in rhesus monkeys (What a Psychologist Sees), further support the biological argument for attachment.

What if a child does not form an attachment? Research shows that infants raised in impersonal surroundings (such as in institutions that do not provide the stimulation and love of a regular caregiver) or under abusive conditions suffer from a number of problems. They seldom cry, coo, or babble; they become rigid when picked up; and they have few language skills. They also tend to form shallow or anxious relationships. Some appear forlorn, withdrawn, and untrusted in their caretakers, whereas others seem insatiable in their need for affection (Main, 2000). Finally, they also tend to show intellectual, physical, and perceptual retardation; increased susceptibility to infection; and neurotic “rocking” and associated behaviors. In some cases, they die from lack of attachment (Bowlby, 1973, 1980, 2000; Duniec & Raz, 2011; Gunnar, 2010; Spitz & Wolf, 1946; Zeanah, 2000).

The Strange Situation

Mary Ainsworth and her colleagues (1967, 1978, 2010) found significant differences in the typical levels of attachment between infants and their mothers using a technique called the strange situation procedure, in which she observed how infants responded to the presence or absence of their mother and a stranger. Ainsworth found that children could be divided into three groups: Secure, anxious/avoidant, and anxious/ambivalent. A later psychologist, Mary Main, added a fourth category, disorganized/disoriented (Main & Solomon, 1986, 1990).

**Secure (60 percent)** When exposed to the stranger, the infant seeks closeness and contact with the mother, (a) uses the mother as a safe base from which to explore, (b) shows moderate distress on separation from the mother, and is happy when the mother returns.

<table>
<thead>
<tr>
<th>Attachment Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure</td>
<td>Seeks closeness with mother when stranger enters. Uses her as a safe base from which to explore, shows moderate distress on separation from her, and is happy when she returns.</td>
</tr>
<tr>
<td>Anxious/ambivalent</td>
<td>Infant becomes very upset when mother leaves the room and shows mixed emotions when she returns.</td>
</tr>
<tr>
<td>Anxious/avoidant</td>
<td>Infant does not seek closeness or contact with the mother and shows little emotion when the mother departs or returns.</td>
</tr>
<tr>
<td>Disorganized/disoriented</td>
<td>Infant exhibits avoidant or ambivalent attachment, often seeming either confused or apprehensive in the presence of the mother.</td>
</tr>
</tbody>
</table>

Mary Ainsworth and her colleagues (1967, 1978, 2010) found significant differences in the typical levels of attachment between infants and their mothers using a technique called the strange situation procedure, in which she observed how infants responded to the presence or absence of their mother and a stranger. Ainsworth found that children could be divided into three groups: Secure, anxious/avoidant, and anxious/ambivalent. A later psychologist, Mary Main, added a fourth category, disorganized/disoriented (Main & Solomon, 1986, 1990).
Yet navigating such partnerships is often very challenging. For example, approximately half of all marriages in the United States end in divorce, with serious implications for both adult and child development (Barczak et al., 2010; Hakvoort et al., 2011; Li, 2008; Osler et al., 2008; Steiner et al., 2011). For the adults, both spouses generally experience emotional as well as practical difficulties and are at high risk for depression and physical health problems. In many cases, these problems are present even before the marital disruption.

Realistic expectations are a key ingredient in successful relationships (Beachkofsky, 2010; Cheever, 2010; Gottman & Levenson, 2002; Hall & Adams, 2011). Yet many people harbor unrealistic expectations about marriage and the roles of husband and wife, opening the door to marital problems.

**Families**

**Family Violence**

More likely if:

- Marital conflict
- Substance abuse
- Mental disorders
- Economic stress
- Socially isolated
- Poor communication and parenting skills
- Impulsivity

*Abuse occurs in many forms (physical, verbal, and emotional).*

Violence is more likely in families and relationships experiencing financial problems, substance abuse, mental disorders, and/or social isolation (Hall & Adams, 2011; Koss, White, & Kazdin, 2011; Raphel, 2008; Siever, 2008). These external factors, combined with the fact that many abusers lack good communication and interpersonal skills and their victims generally have no one to turn to for help or feedback, may lead to increasing anxiety and frustration that explodes into violence. In fact, one of the clearest identifiers of abuse potential is impulsivity (Gansler et al., 2011; Venables et al., 2011). Treatment with antianxiety and serotonin-enhancing drugs like fluoxetine (Prozac) may lower the risk of some forms of impulsive violence.

**Resiliency:** The ability to adapt effectively in the face of threats

*Resilient children have:*

- Good intellectual functioning
- Relationships with caring adults
- Ability to regulate attention, emotions, and behavior

Despite the odds, some children are able to survive and even prosper in harsh circumstances (Figure a). Ann Masten at the University of Minnesota and Douglas Coatsworth at the University of Miami (1998) identified specific traits and environmental conditions of resiliency, the ability to adapt effectively in the face of threats, which seem to account for the resilient child's success (Figure b). Good intellectual functioning, for example, may help resilient children solve problems or protect themselves from adverse conditions (Anderson & Bang, 2012; Irvin, 2012; Masten & Narayan, 2012).
Obviously, there is strong motivation to engage in sexual behavior: it’s essential for the survival of our species, and it’s also pleasurable. But sexuality includes much more than reproduction.

- Humans are partially motivated to engage in sexual behavior because it helps the species survive.
- Sexual relationships fulfill many other needs:
  - Connection
  - Pleasure
  - Intimacy
  - Release of sexual tension

William Masters and Virginia Johnson (1966) were the first to conduct laboratory studies on what happens to the human body during sexual activity. They attached recording devices to male and female volunteers and monitored or filmed their physical responses as they moved from nonarousal to orgasm and back to nonarousal. They labeled the bodily changes during this series of events a sexual response cycle (Figure 11.10). Researchers have further characterized differences between sexual response patterns in men and women (Figure 11.11) sexual response cycle Masters and Johnson’s description of the four-stage bodily response to sexual arousal, which consists of excitement, plateau, orgasm, and resolution.

Although the overall pattern of sexual response is similar in both sexes, there is more variation in specific patterns among women.

- Immediately after orgasm, men generally enter a refractory period, which lasts from several minutes up to a day.
- Female sexual responses generally follow one or more of three basic patterns
Adler’s Individual Psychology

- We are motivated by our goals in life rather than by unconscious forces.
- Inferiority complex—feelings of inferiority develop from early childhood experiences of helplessness and incompetence.
- Some initial followers of Freud later rebelled and proposed theories of their own; they became known as neo-Freudians.
- Alfred Adler (1870–1937) was the first to leave Freud’s inner circle. Instead of seeing behavior as motivated by unconscious forces, he believed that it is purposeful and goal-directed. According to Adler’s individual psychology, we are motivated by our goals in life—especially our goals of obtaining security and overcoming feelings of inferiority.
- Adler believed that almost everyone suffers from an inferiority complex, or deep feelings of inadequacy and incompetence that arise from our feelings of helplessness as infants. According to Adler, these early feelings result in a “will-to-power” that can take one of two paths. It can either cause children to strive to develop superiority over others through dominance, aggression, or expressions of envy, or—more positively—it can cause children to develop their full potential and creativity and to gain mastery and control in their lives (Adler, 1964, 1998).
Explaining Anxiety Disorders

**Psychological** contributions to anxiety disorders are primarily in the form of faulty cognitions and maladaptive learning.

**Faulty Cognitions:** People with anxiety disorders have habits of thinking, or cognitive habits, that make them prone to fear. They tend to be hyper vigilant—they constantly scan their environment for signs of danger and ignore signs of safety. They also tend to magnify ordinary threats and failures and to be hypersensitive to others’ opinions of them.

**Maladaptive Learning:** According to learning theorists, anxiety disorders generally result from conditioning and social learning. During classical conditioning, for example, a stimulus that is originally neutral (e.g., a harmless spider) becomes paired with a frightening event (a sudden panic attack) so that it becomes a conditioned stimulus that elicits anxiety. The person then begins to avoid spiders in order to reduce anxiety.

**Biological Factors:** Some researchers believe that phobias reflect an evolutionary predisposition to fear that which was dangerous to our ancestors. Some people with panic disorder also seem to be genetically predisposed toward an overreaction of the autonomic nervous system, further supporting the argument for a biological component. In addition, stress and arousal seem to play a role in panic attacks, and drugs such as caffeine or nicotine and even hyperventilation can trigger an attack, all suggesting a biochemical disturbance.

**Sociocultural Factors:** In addition to psychological and biological components, sociocultural factors can contribute to anxiety. There has been a sharp rise in anxiety disorders in the past 50 years, particularly in Western industrialized countries. Unlike the dangers that humans faced in our evolutionary history, today’s threats are less identifiable and immediate, which may lead some people to become hyper vigilant and predisposed to anxiety disorders.
Emerges between late teens and mid-thirties

**Schizophrenia: Five Areas of Disturbance**

**Perception:** The senses of people with schizophrenia may be either enhanced or blunted. The filtering and selection processes that allow most people to concentrate on whatever they choose are impaired, and sensory stimulation is jumbled and distorted. People with schizophrenia may also experience hallucinations—most commonly auditory hallucinations (hearing voices and sounds). On rare occasions, people with schizophrenia will hurt others in response to their distorted perceptions. But a person with schizophrenia is more likely to be self-destructive and suicidal than violent toward others.

**Language and Thought:** For people with schizophrenia, words lose their usual meanings and associations, logic is impaired, and thoughts are disorganized and bizarre. When language and thought disturbances are mild, the individual jumps from topic to topic. With more severe disturbances, the person jumbles phrases and words together (into a “word salad”) or creates artificial words. The most common—and frightening—thought disturbance experienced by people with schizophrenia is the lack of contact with reality (psychosis). Delusions are also common in people with schizophrenia. We all experience exaggerated thoughts from time to time, such as thinking a friend is trying to avoid us, but the delusions of schizophrenia are much more extreme. For example, if someone falsely believed that the postman who routinely delivered mail to his house every afternoon was a co-conspirator in a plot to kill him, it would likely qualify as a delusion of persecution. In delusions of grandeur, people believe that they are someone very important, perhaps Jesus Christ or the queen of England. In delusions of reference, unrelated events are given special significance, as when a person believes that a radio program is giving him or her a special message.

**Emotion:** Changes in emotion usually occur in people with schizophrenia. In some cases, emotions are exaggerated and fluctuate rapidly. At other times, emotions become blunted. Some people with schizophrenia have flattened affect—almost no emotional response of any kind.

**Behavior:** Disturbances in behavior may take the form of unusual actions that have special meaning. For example, one patient massaged his head repeatedly to “clear it” of unwanted thoughts. People with schizophrenia may become cataleptic and assume a nearly immobile stance for an extended period.

**Types of Schizophrenia**

1. **Positive schizophrenia symptoms** involve additions to or exaggerations of normal thought processes and behaviors, including bizarre delusions and hallucinations.
2. **Negative schizophrenia symptoms** involve the loss or absence of normal thought processes and behaviors, including impaired attention, limited or toneless speech, flat or blunted affect, and social withdrawal.
Talk therapies: Variety of therapies that emphasize communication between the therapist and client versus the behavioral and biomedical therapies discussed later.

- Psychoanalysis/Psychodynamic therapies
- Humanistic therapy
- Cognitive therapy

In psychoanalysis, a person’s psyche (or mind) is analyzed. Traditional psychoanalysis is based on Sigmund Freud’s central belief that abnormal behavior is caused by unconscious conflicts among the three parts of the psyche—the id, ego, and superego (Chapter 12).

During psychoanalysis, these conflicts are brought to consciousness. The patient comes to understand the reasons for his or her behavior and realizes that the childhood conditions under which the conflicts developed no longer exist. Once this realization (or insight) occurs, the conflicts can be resolved and the patient can develop more adaptive behavior patterns.

Unfortunately, according to Freud, the ego has strong defense mechanisms that block unconscious thoughts from coming to light. Thus, to gain insight into the unconscious, the ego must be “tricked” into relaxing its guard. With that goal, psychoanalysts employ five major methods: free association, dream analysis, analyzing resistance, analyzing transference, and interpretation.

- **Free association:** According to Freud, when you let your mind wander and remove conscious censorship over thoughts—a process called free association—interesting and even bizarre connections seem to spring into awareness. Freud believed that the first thing to come to a patient’s mind is often an important clue to what the person’s unconscious wants to conceal. Having the patient recline on a couch, with only the ceiling to look at, is believed to encourage free association (Figure 14.1).
enabling that person to see him- or herself. To *Paraphrase* is to summarize in different words what the other person is saying. To *clarify* is to check that both the speaker and listener are on the same wavelength.

Supporters say that there is empirical evidence for the efficacy of client-centered therapy, but critics argue that outcomes such as self-actualization and self-awareness are difficult to test scientifically. In addition, research on specific therapeutic techniques such as “empathy” and “active listening” has had mixed results.

**Cognitive Therapies**: Therapy that treats problem behaviors and mental processes by focusing on faulty thought processes and beliefs

- **Self-Talk**: Internal dialogue; the things people say to themselves when they interpret events
- **Cognitive Restructuring**: Process in cognitive therapy to change destructive thoughts or inappropriate interpretations
- **Cognitive-Behavior Therapy**: Combines cognitive therapy (changing faulty thinking) with behavior therapy (changing faulty behaviors)

Cognitive therapy teaches clients to challenge and change negative self-talk in order to improve their life experience.

- **a.** Negative interpretation and destructive self-talk leads to destructive and self-defeating outcomes.
- **b.** Positive self-talk and beliefs lead to more positive outcomes.

**Ellis’s Rational-Emotive Behavior Therapy (REBT)**
This is one of the best-known cognitive therapists, Albert Ellis, suggested that irrational beliefs are the primary culprit in problem emotions and behaviors. He proposed that most people mistakenly believe they are unhappy or upset because of external, outside events, such as...
receiving a bad grade on an exam. In reality, Ellis suggests these negative emotions result from faulty interpretations and irrational beliefs (interpreting the bad grade as a sign of your incompetence and a sign that you’ll never qualify for graduate school or a good job).

To deal with these irrational beliefs, Ellis developed **rational-emotive behavior therapy (REBT)**. To treat these disorders Albert Ellis developed an A–B–C–D approach:

- **A** stands for *activating event*
- **B** the person’s *belief system*
- **C** the emotional and behavioral *consequences*
- **D disputing** erroneous beliefs.

During therapy, Ellis helped his clients identify the A, B, C’s underlying their irrational beliefs by actively arguing, cajoling, and teasing them—sometimes in very blunt, confrontational language. Once clients recognized their self-defeating thoughts, he worked with them on how to dispute these beliefs and how to create and test out new, rational beliefs.

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**Beck’s Cognitive Therapy**

Beck’s **cognitive-behavior therapy** is designed to reduce both self-destructive thoughts and self-destructive behaviors. One of the most successful applications of Beck’s theory has been in the treatment of depression. Beck has identified several thinking patterns that he believes are associated with depression-prone people:

- **Selective perception.** Focusing selectively on negative events while ignoring positive events. (“Why am I the only person alone at this party?”)
- **Overgeneralization.** Overgeneralizing and drawing negative conclusions about one’s own self-worth. (“I’m worthless because I failed that exam.”)
- **Magnification.** Exaggerating the importance of undesirable events or personal shortcomings, seeing them as catastrophic and unchangeable. (“She left me, and I’ll never find someone like her again!”)
- **All-or-nothing thinking.** Seeing things as black-or-white categories—everything is totally good or bad, right or wrong, a success or a failure. (“If I don’t get straight A’s, I’ll never get a good job.”)
In Beck’s cognitive-behavior therapy, clients are first taught to recognize and keep track of their thoughts. Next, the therapist trains the client to develop ways to test these automatic thoughts against reality. This approach helps depressed people discover that negative attitudes are largely a product of faulty thought processes.

At this point, Beck introduces the second phase of therapy—persuading the client to actively pursue pleasurable activities. Depressed individuals often lose motivation, even for experiences they used to find enjoyable. Simultaneously taking an active rather than a passive role and reconnecting with enjoyable experiences help in recovering from depression.

**Evaluating Cognitive Therapies**

Highly effective for:

- Depression
- Anxiety disorders
- Bulimia nervosa
- Anger management
- Addiction
- Procrastination
- Some forms of schizophrenia
- Insomnia

**Criticisms**

- Ignore unconscious processes
- Overemphasize rationality
- Minimize the importance of the past
- Use behavior techniques rather than changing cognitive structure

**Behavior Therapies**: A group of techniques based on learning principles used to change maladaptive behaviors that focus on the problem behavior rather than underlying causes

- Classical conditioning
- Operant conditioning
- Observational learning

**Classical Conditioning: Systematic Desensitization** is the gradual process of extinguishing a learned fear (phobia) by working through a hierarchy of fear-evoking stimuli while staying deeply relaxed; replace anxiety with relaxation
3. **Assignment of responsibility.** When the teacher simply read the list of words, while another delivered the shock, obedience jumped to almost 94 percent. However, when the teacher was responsible for choosing the level of shock, only 3 percent obeyed.

4. **Modeling or imitating others.** When teachers watched two other teachers disobey, their own obedience was only 10 percent. But after watching other teachers obey, their own obedience jumped to over 70 percent.

In addition to the four factors that Milgram identified, social psychologists have emphasized socialization, the foot-in-the-door technique, and relaxed moral guard, among other things.

**Socialization:** This factor helps explain many instances of mindless obedience to immoral requests from people in positions of authority. For example, participants in Milgram’s study came into the research lab with a lifetime of socialization toward the value of scientific research and respect for the experimenter’s authority. They couldn’t suddenly step outside themselves and question the morality of this particular experimenter and his orders. American soldiers accused of atrocities in Iraq or in the Abu Ghraib prison shared this general socialization toward respect for authority combined with military training requiring immediate, unquestioning obedience.

**Foot-in-the-door:** The gradual nature of many obedience situations may also help explain why so many people were willing to give the maximum shocks in Milgram’s study. The initial mild level of shocks may have worked as a foot-in-the-door technique, in which a first, small request is used as a setup for later, larger requests. Once Milgram’s participants complied with the initial request, they might have felt obligated to continue.

**Relaxed moral guard:** One common intellectual illusion that hinders critical thinking about obedience is the belief that only evil people do evil things or that evil announces itself. The experimenter in Milgram’s study looked and acted like a reasonable person who was simply carrying out a research project. Because he was not seen as personally corrupt and evil, the participants’ normal moral guard was down, which can maximize obedience. As philosopher Hannah Arendt has suggested, the horrifying thing about the Nazis was not that they were so deviant but that they were so “terrifyingly normal.” Although the forces underlying obedience can be loud and powerful, even one, quiet, courageous, dissenting voice can make a difference.

**Group membership**
How do the roles that we play within groups affect our behavior? This question fascinated social psychologist Philip Zimbardo. In his famous study at Stanford University, 24 carefully screened, well-adjusted young college men were paid $15 a day for participating in a two-week simulation of prison life.

The students were randomly assigned to the role of either prisoner or guard. Prisoners were “arrested,” frisked, photographed, fingerprinted, and booked at the police station. They were then blindfolded and driven to the “Stanford Prison.” There, they were given ID numbers, deloused,
PSYCHOSOCIAL FACTORS

- **Substance Abuse**: Substance abuse (particularly alcohol) is a major factor in many forms of aggression.
- **Aversive Stimuli**: Similarly, aversive stimuli, such as loud noise, heat, pain, bullying, insults, and foul odors, also may increase aggression.
- **Frustration-Aggression Hypothesis**: According to the frustration–aggression hypothesis, developed by John Dollard and colleagues (1939), another aversive stimulus—frustration—creates anger, which for some leads to aggression.
- **Violent Media**: Research also finds that the widespread media violence on TV, the Internet, movies, and video games may contribute to aggression in both children and adults. However, the research is controversial, and the link between violent media and aggression appears to be at least a two-way street. Laboratory studies, correlational research, and cross-cultural studies have found that exposure to violence increases aggressiveness and that aggressive children tend to seek out violent programs.
- **Culture and Learning**: Finally, social-learning theory suggests that people raised in a culture with aggressive models will learn aggressive responses. For example, the United States has a high rate of violent crimes, and American children grow up with numerous models for aggression, which they tend to imitate.

*Some approaches for reducing aggression:*
- **Catharsis** (typically doesn’t help)
- **Incompatible responses**
- **Improve social and communication skills**

**Altruism**: Actions designed to help others with no obvious benefit to the helper

*Explanatory models:*
- **Evolutionary**: favors survival of one’s genes
- **Egoistic**: motivated by anticipated gain
- **Empathy-Altruism Hypothesis**: due to empathy for someone in need
**Diffusion of Responsibility:** dilution (diffusion) of personal responsibility for acting by spreading it among all other group members

**Interpersonal Attraction:** positive feelings toward another

**Physical Attractiveness**
- Factor in initial liking
- Physically attractive individuals of all ages receive more positive interactions, success, and health benefits
- Perceived attractiveness is also influenced by nonphysical traits
- Matching hypothesis—people of equal attractiveness tend to select each other as partners

**Culture and Attractiveness**
Some universals:

**Men**
- Maturity, ambitiousness, financial resources (suggest support for partner and family)

**Women**
- Looks and youth (suggest fertility)
- Differences in what is considered beautiful between cultures

**Proximity**
- Attraction based on geographic closeness
- Important for initial liking

Mere exposure: Repeated exposure increases liking, unless it is a negative stimulus

**Similarity**
- Major factor in long-term relationships
- Prefer similarity in many different aspects of life and personhood