

OBJECTIVE 5 | Explain why sleep patterns and duration vary from person to person.

Most people, if allowed to sleep as long as they want, will average about 9 hours. But sleep is affected by age—newborns, for example, sleep twice as much as adults. People also differ in their individual sleep requirements, and twin studies indicate these differences may be partly genetic. Cultural expectations about “the perfect sleep” also help determine the amount of sleep we feel is adequate.

OBJECTIVE 6 | Discuss several risks associated with sleep deprivation.

Sleep deprivation puts people at risk not only for fatigue, but also for a depressed immune system; impaired concentration, creativity, and communication; irritability; and slowed performance (with greater vulnerability to accidents). Chronic sleep deprivation can alter metabolic and hormonal functioning, creating conditions that may contribute to obesity, hypertension, and memory impairment.

OBJECTIVE 7 | Identify four theories of why we sleep.

Sleep may have played a protective role in human evolution by keeping people safe during potentially dangerous periods. Sleep gives the brain time to heal, as it restores and repairs damaged neurons. During sleep, we restore and rebuild memories of the day’s experiences, and a good night’s sleep promotes insightful problem-solving the next day. Sleep also encourages growth; the pituitary gland secretes a growth hormone in Stage 4 sleep.

OBJECTIVE 8 | Identify the major sleep disorders.

The disorders of sleep include insomnia (recurring wakefulness), narcolepsy (sudden uncontrollable sleepiness or lapsing into REM sleep), sleep apnea (the stopping of breathing while asleep), night terrors (high arousal and the appearance of being terrified), sleepwalking, and sleepwalking. Sleep apnea mainly targets overweight men. Children are most prone to night terrors, sleepwalking, and sleepwalking.

OBJECTIVE 9 | Describe the most common content of dreams.

We usually dream of ordinary events and everyday experiences, 80 percent of them involving some anxiety or misfortune. Fewer than 10 percent of dreams (and less among women) have any sexual content. Most dreams occur during REM sleep; those that happen during non-REM sleep tend to be vague fleeting images.

OBJECTIVE 10 | Compare the major perspectives on why we dream.

(1) Freud believed that dreams provide a safety valve, because their manifest content (or story line) is a censored version of latent content (some underlying meaning that gratifies our unconscious wishes). (2) The information-processing perspective on dreaming is that dreams help us sort out the day’s experiences and fix them in memory. (3) Other physiological theories of dreaming propose that REM-induced regular brain stimulation helps develop and preserve neural pathways in the brain. (4) The activation-synthesis explanation of dreaming is that REM sleep triggers impulses in the visual cortex, evoking random visual images that our brain tries to weave into a story line. (5) The brain-maturation/cognitive-development perspective believes dreams represent the dreamer’s level of development, knowledge, and understanding. Despite their differences, most sleep theorists agree that REM sleep and its associated dreams serve an important function, as shown by the REM rebound that occurs following REM deprivation.

ASK YOURSELF: In some countries, such as Britain, the school day for teenagers runs from about 9:00 A.M. to 4:00 P.M. In other countries, such as the United States, the teen school day often runs from 8:00 A.M. to 3:00 P.M., or even 7:30 A.M. to 2:30 P.M. Early to rise isn’t making kids wise, say critics—it’s making them sleepy. For optimal alertness and well-being, teens need 8 to 9 hours of sleep a night. So, should early-start schools move to a later start time, even if it requires buying more buses or switching start times with elementary schools? Or is this impractical, and would it do little to remedy the tired-teen problem?

Hypnosis

OBJECTIVE 11 | Define *hypnosis*, and note some similarities between the behavior of hypnotized people and that of motivated unhypnotized people.

Imagine you are about to be hypnotized. The hypnotist invites you to sit back, fix your gaze on a spot high on the wall, and relax. In a quiet, low voice the hypnotist suggests, “Your eyes are growing tired. . . . Your eyelids are becoming heavy . . . now heavier and heavier. . . . They are beginning to close. . . . You are becoming more deeply relaxed. . . . Your breathing is now deep and regular. . . . Your muscles are becoming more and more relaxed. Your whole body is beginning to feel like lead.”

After a few minutes of this hypnotic induction, you may experience **hypnosis**. When the hypnotist suggests, “Your eyelids are shutting so tight that you cannot open them even if you try,” it may indeed seem beyond your control to open your eyelids. Told to forget the number 6, you may be puzzled when you count 11 fingers on your hands. Invited to smell a sensuous perfume that is actually ammonia, you may linger delightedly over its

■ **hypnosis** a social interaction in which one person (the hypnotist) suggests to another (the subject) that certain perceptions, feelings, thoughts, or behaviors will spontaneously occur.

pungent odor. Told that you cannot see a certain object, such as a chair, you may indeed report that it is not there, although you manage to avoid the chair when walking around.

Although hypnotic techniques have been used since antiquity, credit for their modern popularity goes to an Austrian physician, Anton Mesmer (1734–1815), who mistakenly thought he had discovered an “animal magnetism.” With great flourish, Mesmer passed magnets over the bodies of ailing people, some of whom would lapse into a trancelike (“mesmerized”) state, then awaken much improved. A French commission chaired by Benjamin Franklin found no evidence of animal magnetism and attributed Mesmer’s “cures” to “mere imagination.” Thus, hypnosis—or mesmerism, as it was then called—became linked with quackery.

Also working against the respectability of hypnosis were the grand claims made by its practitioners. Supposedly, mesmerized people could see with the back of their head, perceive others’ internal organs, and communicate with the dead. Researchers now agree that hypnotized people can perform no such feats. In experiments, the strength, stamina, learning, and perceptual abilities of those under hypnosis are like those of motivated un hypnotized people (Druckman & Bjork, 1994). Hypnotized people may surprise you by, say, extending their arms for 6 minutes—but un hypnotized people can also do this and other amazing feats (FIGURE 7.11).

Before considering whether the hypnotic state is actually an *altered* state of consciousness, let’s first consider some areas of general agreement.

Facts and Falsehoods

OBJECTIVE 12 | Discuss the characteristics of people who are susceptible to hypnosis, and evaluate claims that hypnosis can influence people’s memory, will, health, and perception of pain.

Those who study hypnosis agree that its power resides not in the hypnotist but in the subject’s openness to suggestion (Bowers, 1984). Hypnotists have no magical mind-control power; they merely engage people’s ability to focus on certain images or behaviors. But what powers does this openness to suggestion have?

Can Anyone Experience Hypnosis?

To some extent, nearly everyone is suggestible. When people standing upright with their eyes closed are told repeatedly that they are swaying back and forth, most will indeed sway a little. In fact, postural sway is one of the items on the Stanford Hypnotic Susceptibility Scale that assesses a person’s hypnotizability. The people who respond to such suggestions without hypnosis are the people who respond with hypnosis (Kirsch & Braffman, 2001). During hypnosis, a hypnotist gives a brief hypnotic induction and then presents a series of suggested experiences that range from easy (one’s outstretched arms will move together) to difficult (with eyes open, one will see a nonexistent person).

Those who are highly hypnotizable—say, the 20 percent who can carry out a suggestion not to smell or react to a bottle of ammonia held under the nose—frequently become deeply absorbed in imaginative activities (Barnier & McConkey, 2004; Silva & Kirsch, 1992). Typically, they have rich fantasy lives and easily become absorbed in the imaginary events of a novel or movie. (Perhaps you can recall being riveted by a movie into a trancelike state that had you oblivious to people or noise surrounding you.) Many researchers refer to hypnotic “susceptibility” as hypnotic *ability*—the ability to focus attention totally on a task, to become imaginatively absorbed in it, to entertain fanciful possibilities.

Actually, anyone who can turn attention inward and imagine is able to experience some degree of hypnosis—because that’s what hypnosis is. And virtually anyone will experience hypnotic responsiveness if led to *expect* it. Imagine being asked to stare at a high spot and then hearing that “your eyes are growing tired . . . your eyelids are becoming heavy.” With such strain, anyone’s eyes would get tired. (Try

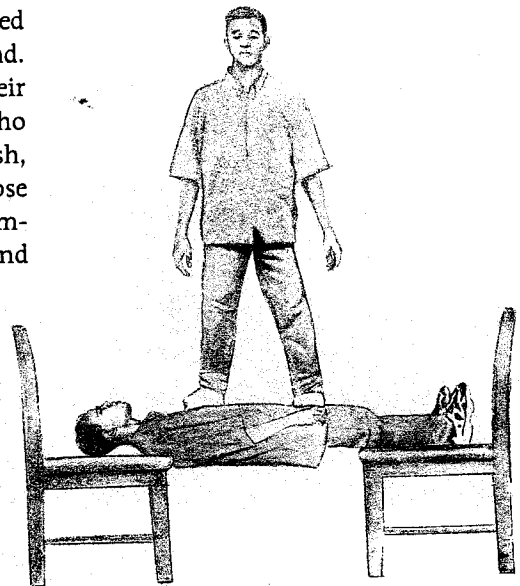


FIGURE 7.11
The “amazing” hypnotized “human plank”

Actually, un hypnotized people can also perform this feat.

looking up for 30 seconds.) But if the hypnotist is successful, you will attribute your heavy eyelids to the hypnotist's abilities and then become more open to the suggestions that follow.

Can Hypnosis Enhance Recall of Forgotten Events?

Can hypnotic procedures enable people to recall kindergarten classmates? To retrieve forgotten or suppressed details of a crime? Should testimony obtained under hypnosis be admissible in court?

Most people believe (wrongly, as Chapter 9 will explain) that our experiences are all "in there," that everything that happens to us gets recorded in our brains and can be recalled if only we are able to break through our own defenses (Loftus, 1980). In one community survey, 3 in 4 people agreed with the inaccurate statement that hypnosis enables people to "recover accurate memories as far back as birth" (Johnson & Hauck, 1999). But 60 years of research dispute such claims of *age regression*—the supposed ability to relive childhood experiences. Age-regressed people act as they *believe* children would, but they typically miss the mark by outperforming real children of the specified age (Silverman & Retzlaff, 1986). They may, for example, *feel* childlike and print much as they know a 6-year-old would. But they sometimes do so with perfect spelling and typically without any change in their adult brain waves, reflexes, and perceptions.

Researchers have also found that "hypnotically refreshed" memories combine fact with fiction. Without either person being aware of what is going on, the hypnotist's hints—"Did you hear loud noises?"—can plant ideas that become the subject's pseudomemory. Thus, American, Australian, and British courts increasingly ban testimony from witnesses who have been hypnotized (Druckman & Bjork, 1994; Gibson, 1995; McConkey, 1995).

Striking examples of memories created under hypnosis come from the tens of thousands of people who since 1980 have reported being abducted by UFOs, abused in satanic cults, or adored during a past life. Studies reveal that most reports of UFOs have come from people who are predisposed to believe in aliens, are highly hypnotizable, and have undergone hypnosis (Newman & Baumeister, 1996; Nickell, 1996).

Can Hypnosis Force People to Act Against Their Will?

Researchers Martin Orne and Frederick Evans (1965) demonstrated that hypnotized people *could* be induced to perform an apparently dangerous act. The participants followed a request to dip one hand briefly into fuming "acid," then throw the "acid" in a research assistant's face. When interviewed a day later, they exhibited no memory of their acts and emphatically denied they would ever follow orders to commit such an act.

Had hypnosis given the hypnotist a special power to control these people against their will? To find out, Orne and Evans unleashed that enemy of so many illusory beliefs—the control group: Orne asked some other people to *pretend* they were hypnotized. The laboratory experimenter, unaware that those in the control group had not been hypnotized, treated all participants the same. The result? All the *unhypnotized* participants (perhaps believing that the laboratory context assured safety) performed the same acts as those who were hypnotized.

Such studies illustrate a principle that Chapter 18 emphasizes: An authoritative person in a legitimate context can induce people—hypnotized or not—to perform some unlikely acts. Hypnosis researcher Spanos (1982) put it directly: "The overt behaviors of hypnotic subjects are well within normal limits."

Can Hypnosis Be Therapeutic?

Hypnotherapists do nothing magical. They simply try to help patients harness their own healing powers (Baker, 1987). **Posthypnotic suggestions** have helped alleviate headaches, asthma, and stress-related skin disorders. One woman, who for more than 20 years suffered from open sores all over her body, was asked to imagine

Hypnosis is not a psychological truth serum and to regard it as such has been a source of considerable mischief."

Researcher Kenneth Bowers (1987)

See Chapter 9 for a more detailed discussion of how people may construct false memories.

It wasn't what I expected. But facts are facts, and if one is proved to be wrong, one must just be humble about it and start again."

Agatha Christie's Miss Marple

herself swimming in shimmering, sunlit liquids that would cleanse her skin, and to experience her skin as smooth and unblemished. Within three months her sores had disappeared (Bowers, 1984).

In one statistical digest of 18 studies, the average client whose therapy was supplemented with hypnosis showed greater improvement than 70 percent of other therapy patients (Kirsch & others, 1995, 1996). Hypnosis seemed especially helpful for treatment of obesity. However, drug, alcohol, and smoking addictions do not respond well to hypnosis (Nash, 2001). In controlled studies, hypnosis speeds the disappearance of warts, but so do the same positive suggestions given without hypnosis (Spanos, 1991, 1996).

Can Hypnosis Alleviate Pain?

Yes, hypnosis *can* relieve pain (Druckman & Bjork, 1994; Patterson, 2004). When un hypnotized people put their arms in an ice bath, they feel intense pain within 25 seconds. When hypnotized people do the same after being given suggestions to feel no pain, they indeed report feeling little pain. As some dentists know, even light hypnosis can reduce fear, and thus hypersensitivity to pain. And nearly 10 percent of us can become so deeply hypnotized that even major surgery can be performed without anesthesia. Half of us can gain at least some pain relief from hypnosis. In surgical experiments, hypnotized patients have required less medication, recovered sooner, and left the hospital earlier than un hypnotized controls, thanks to the inhibition of pain-related brain activity (Lang & others, 2000; Patterson & Jensen, 2003).

How can this be? One theory of hypnotic pain relief finds the answer in **dissociation**, a split between different levels of consciousness. Hypnosis, it suggests, dissociates the sensation of the pain stimulus (of which the subject is still aware) from the emotional suffering that defines our experience of pain. The ice water therefore feels cold—very cold—but not painful.

Another theory proposes that hypnotic pain relief results from selective attention, as when an injured athlete, caught up in the competition, feels little or no pain until the game ends. Support for this view comes from several studies showing that hypnosis relieves pain—for example, the pain women experience during childbirth—no better than does merely relaxing and distracting people (Chaves, 1989; D'Eon, 1989).

Both views of pain assume that at some level a hypnotized person does experience the pain stimulus. Indeed, people who report feeling no pain nevertheless may respond with a pounding heart to electric shock or a surgeon's knife. Similar disparities between self-reports and behavior occur with hearing. Following a suggestion that they are deaf, hypnotized people will deny being able to hear their own voices. But when they hear their voice over a headset with a half-second delay, the supposedly unheard delayed feedback disrupts their ability to speak fluently. Although these individuals *report* perceiving no pain or sound, the stimuli have quite obviously registered within their sensory systems. PET scans reveal that hypnosis reduces brain activity in a region that processes painful stimuli, but not in the sensory cortex that receives the raw sensory input (Rainville & others, 1997). Hypnosis does *not* block sensory input, but it may block our *attention* to those stimuli.

The unanswered question of how hypnosis relieves pain—by *dissociating* the pain sensation from conscious awareness, or merely by focusing *attention* on other things—brings us to the basic issue: Is hypnosis a unique psychological state?

posthypnotic suggestion a suggestion made during a hypnosis session, to be carried out after the subject is no longer hypnotized; used by some clinicians to help control undesired symptoms and behaviors.

dissociation a split in consciousness, which allows some thoughts and behaviors to occur simultaneously with others.



David Young-Wolff/PhotoEdit, Inc.

The Lamaze method of childbirth

Like hypnosis, the Lamaze method uses breathing and concentration techniques that draw attention away from pain. Women for whom the method works tend to have high hypnotic abilities (Venn, 1986).



Courtesy of News and Publications Service, Stanford University

Demonstrating the “hidden observer”

A hypnotized woman being tested by Ernest Hilgard exhibits no pain when her arm is placed in an ice bath. But asked to press a key if some part of her feels the pain, she does so. To Hilgard, this suggested that hypnosis divides consciousness into one part that is unaware of pain and another part—a “hidden observer”—that is aware of it.

Is Hypnosis an Altered State of Consciousness?

OBJECTIVE 13 | Give arguments for and against hypnosis as an altered state of consciousness.

We have seen that hypnosis involves heightened suggestibility. We have also seen that hypnotic procedures do not endow a person with special powers. But they can sometimes help a person overcome psychologically influenced ailments or cope with pain. So, just what is hypnosis?

Hypnosis as a Social Phenomenon

Some skeptics believe that hypnotic phenomena may reflect the workings of normal consciousness and the power of social influence (Lynn & others, 1990; Spanos & Coe, 1992). In Chapter 6 we saw how powerfully our interpretations influence ordinary perceptions. Especially in the case of pain, for which the effects of hypnosis seem most dramatic, our attention guides our perceptions.

No one is proposing that people are consciously faking hypnosis. Rather, like actors who get caught up in their roles, they begin to feel and behave in ways appropriate to the role of “good hypnotic subjects.” The more they like and trust the hypnotist and feel motivated to demonstrate hypnotic behavior, the more they allow that person to direct their attention and fantasies (Gfeller & others, 1987). “The hypnotist’s ideas become the subject’s thoughts,” explains Theodore Barber (2000), “and the subject’s thoughts produce the hypnotic experiences and behaviors.” If told later to scratch their ear when they hear the word *psychology*, subjects will likely do so only if they think the experiment is still under way (and scratching is therefore expected). If an experimenter eliminates the motivation for their acting hypnotized—by stating that hypnosis reveals their “gullibility”—subjects become unresponsive.

Based on such findings, advocates of the *social influence theory* contend that hypnotic phenomena are *not* unique to hypnosis. They argue that hypnotic phenomena—like the behaviors associated with other supposed altered states, such as dissociative identity disorder (page 656) and spirit or demon possession—are an extension of everyday social behavior (Spanos, 1994, 1996). Hypnotic subjects may simply be imaginative actors caught up in playing the role of hypnotic subject.

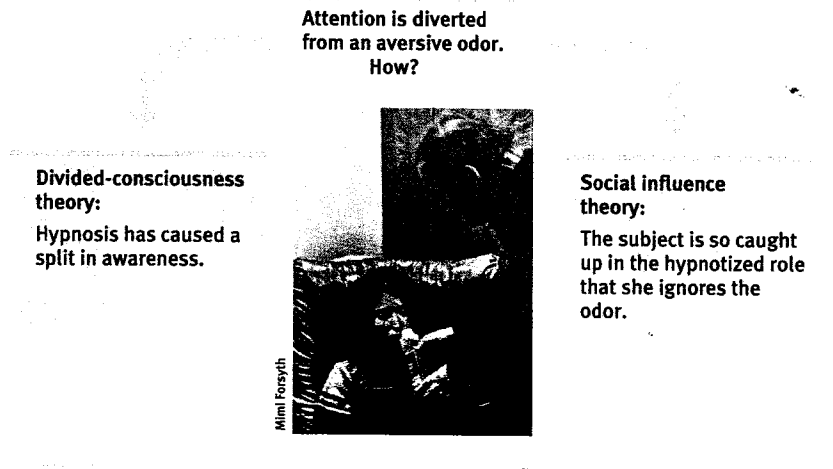
Hypnosis as Divided Consciousness

Most hypnosis researchers grant that normal social and cognitive processes play a part in hypnosis, but they nevertheless believe hypnosis is more than trying to be a “good subject.” For one thing, hypnotized subjects will *sometimes* carry out suggested behaviors on cue, even when they believe no one is watching (Perugini & others, 1998). Moreover, many practitioners remain convinced that certain phenomena *are* unique to hypnosis, which is accompanied by distinctive brain activity. In one experiment, when deeply hypnotized people were asked to imagine a color, areas of their brain lit up as if they were really seeing the color. What would only be mere imagination in the un hypnotized state had become—to the hypnotized person’s brain—a compelling hallucination (Kosslyn & others, 2000).

To famed researcher Ernest Hilgard (1986, 1992), hypnosis involved not only social influence but also a special state of dissociated (divided) consciousness (**FIGURE 7.12**). Hilgard viewed hypnotic dissociation as a vivid form of everyday mind splits. Putting a child to bed, we might read *Goodnight Moon* for the fourteenth time while mentally organizing a busy schedule for the next day. With practice, you could read and comprehend a short story while copying dictated words, much as you can doodle while listening to a lecture or finish typing a sentence while starting a conversation, or as a skilled pianist can talk to an audience while playing a familiar piece (Hirst & others, 1978).

The total possible consciousness may be split into parts which co-exist but mutually ignore each other.”

William James, *Principles of Psychology*, 1890



Although the divided-consciousness theory of hypnosis is controversial, this much seems clear: You and I process much information without conscious awareness. In hypnosis as in life, *much of our behavior occurs on autopilot*. Thus, when hypnotized people write answers to questions about one topic while talking or reading about a different topic, they display an accentuated form of normal dissociation of cognition from behavior. So, when today's researchers refer to a "hypnotic state," note Irving Kirsch and Steven Jay Lynn (1995, 1998a,b), they merely refer to the subjective experience of hypnosis, not to a unique trance state.

Without doubt, there is much more to thinking and acting than we are conscious of. Our information processing, which starts with selective attention, is divided into simultaneous conscious and subconscious realms.

But still, there is also little doubt that social influences do play an important role in hypnosis. So, might the two views—social influence and divided consciousness—be bridged? Researchers John Kihlstrom and Kevin McConkey (1990) believe there is no contradiction between the two approaches, which are converging toward a "unified account of hypnosis." Hypnosis, they suggest, is an extension *both* of normal principles of social influence *and* of everyday dissociations between our conscious awareness and our automatic behaviors. Today's hypnosis researchers are therefore moving beyond the "hypnosis is social influence" versus "hypnosis is divided consciousness" debate (Killeen & Nash, 2003; Woody & McConkey, 2003). Using various levels of analysis, they are exploring how brain activity, attention, and social influences affect hypnotic phenomena (FIGURE 7.13).

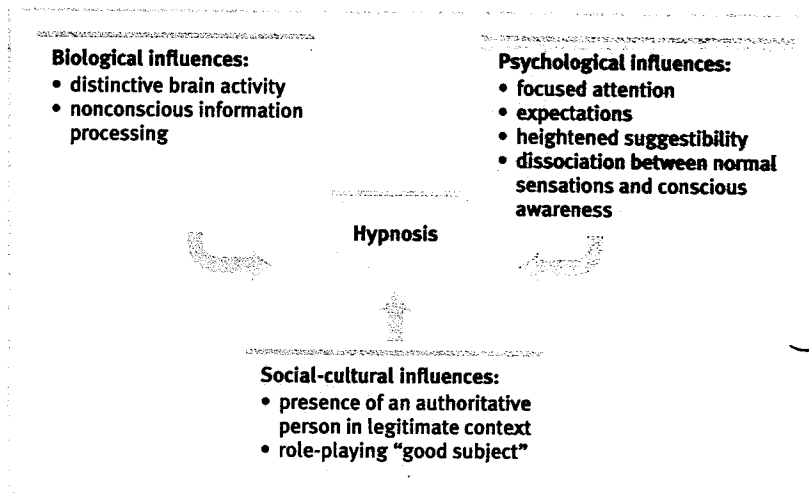


FIGURE 7.12
Explaining hypnosis

How can she do it? How can this hypnotized young woman in Ernest Hilgard's lab show no reaction to the terrible smell of ammonia? Divided-consciousness theory and social influence theory offer possible explanations.

FIGURE 7.13
Levels of analysis for hypnosis
Using a biopsychosocial approach, researchers explore hypnosis from complementary perspectives.