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# in your dreams

Wild, wonderful, scary, weird—dreams may be more than just random brain patterns. Find out what scientists have discovered about the personal truths your dreams reveal.

You wake up in a panic—teeth clenched, heart pounding, mind racing—but then are relieved, even euphoric, when you realize you aren't being interrogated by that guy on *Law & Order* about a crime you didn't commit. It was only a dream. Or was it? Perhaps it was some sort of signal or a clue to your inner life.

Dreams have been inspiring debate for millennia. The ancient Egyptians believed dreams carried divine messages; Freud argued that they revealed unconscious desires. So far, neither of these theories has been proven. But over the last decade, scientists, with the help of brain scans and sleep-lab subjects, have learned a great deal about dreams and their purpose in our lives. "The mind never really sleeps," says Rosalind Cartwright, Ph.D., a psychologist and the founder of the Sleep Disorder Service and Research Center at Rush University Medical Center, in Chicago. Here, surprising answers to seven dream questions.

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i was in France, and somehow i  
could speak French, even though i  
don't know it. i just somehow  
knew it from watching all  
those Pink Panther movies and ...



everyone said my accent was  
very good, including Madonna.  
Who was dressed as a waitress because we  
were on the set of some movie she was making.  
She was very nice and wanted me to  
help her translate *Madame Bovary* and ...

#### What is a dream, anyway?

A dream is a collection of images and ideas that occur involuntarily during certain periods of repose. When you first drift off, your heart rate slows, your temperature drops, and your brain is busy processing the day's events. During this initial sleep stage, dreams are made up of flashes of thoughts and images from your waking life: what you ate for lunch, a phone call you made during the day, the movie you watched before bed. You rarely remember these dreams unless you wake up during them.

After about 90 minutes, you fall into the rapid eye movement (REM) stage of sleep, where vivid, often surreal dreams occur. The amygdala, the area of the brain responsible for processing emotions, and the hippocampus, the seat of memory, are both active, which is why REM dreams have a storylike quality and are the ones you tend to remember the next day and recount to friends. If you get six to eight hours of sleep, you experience four to five REM periods of various lengths, all of which are dream filled (though you probably won't remember most of them).

## What purpose do dreams serve?

The topic is still hotly contested, but the leading position holds that dreams "help us process new, emotionally important information and add it to our conceptual memory system," says Cartwright. Once the information is in your memory, it influences your waking behavior and decisions. For instance, research has revealed that dreams can:

- **Help you understand new experiences.** REM dreams link new events to old ones, putting them in context. For example, if you're feeling anxious about your job, you may dream about another anxious time, like when you were taking a test in college. "It's almost like the old card-catalog system in libraries," says David Linden, Ph.D., a professor of neuroscience at the Johns Hopkins University School of Medicine, in Baltimore. "Dreams consolidate our recent memories and cross-reference them with older ones so that we can better understand what's going on. This explains why dreams so often incorporate elements from our past."

Indeed, when scientists do brain scans on subjects during REM sleep, they find that the visual center of the brain, the dominant area that processes all the new information people encounter while awake, is shut down. The visual memory center, though—the part of the brain that stores images from the past, like what your childhood bedroom looked like—is in overdrive. This indicates that all the images we "see" during our dreams are being pulled from our memories, says Linden, who is also the author of *The Accidental Mind: How Brain Evolution Has Given Us Love, Memory, Dreams, and God* (Belknap, \$26). It's almost as if your brain is taking a new experience and flipping through the old photo albums in your memory to find out where it fits, which ultimately may help you better understand it.

- **Prepare you for change.** Dreams can be a rehearsal for new challenges. When a person in love dreams about weddings or an athlete dreams about compe-

titions, this helps the dreamer mentally prepare for the future. Says Cartwright, "Your brain is taking this 'emotionally hot' material and helping you process it so that you can better deal with it when you're awake."

- **Help you cope with trauma or loss.** Cartwright studied people going through divorces and found that those who were the most depressed in their waking lives had the flattest, least emotional dreams, while those who were managing well had highly expressive, furious dreams, complete with scenes of throwing objects at their soon-to-be exes. "It seemed like the people who were having a harder time adjusting were having the dullest dreams because they weren't facing up to their emotions, while those who coped the best were working out their feelings in their dreams," Cartwright says. "It was almost like their dreams helped them realize, 'I've handled feelings like this before, so I can deal with them again.'"

Your dreams may change, though, as you begin to adjust to a loss. Deirdre Barrett, Ph.D., a clinical assistant professor of psychology at Harvard Medical School and the editor in chief of the scientific journal *Dreaming*, looked at the dreams of people who had lost loved ones. She found that dreams in the earliest stages of mourning were often back-to-life dreams, in which the dreamer was confused or upset by the appearance of the loved one. Dreams that occurred months or years after the person had died were more pleasant, with the deceased person telling the dreamer that everything was OK or sometimes giving advice. "These later dreams were reassuring, even comforting, to the dreamers, helping them to deal with their loss," says Barrett.

- **Facilitate learning.** Non-REM dreams, which tend to reflect the day's events, may help us consolidate new information. In a series of studies being conducted at Harvard, sleep-lab subjects were asked to play the video game Tetris. Later, when woken during the first stage of sleep, of those who could recall

## put your dreams to work for you

Stephen King wrote the novel *Misery* after a trans-Atlantic flight, during which he dreamed about the main character. Jack Nicklaus improved his golf game after dreaming about a better way to play. If you'd like to have some creative bursts of your own, try this technique, called dream incubation.

- **Write down the problem you want help with just before bed, in a concrete sentence, like "I want to figure out a way to work from home part-time."**
- **Mull over the idea and its possible solutions.**
- **Visualize the problem as a concrete image.** For example, imagine yourself working at your home computer.
- **Keep visualizing the subject and, as you drift off, tell yourself that you want to dream about it.**
- **Write down anything you can remember from your dreams when you wake up. If no great insights come to you, repeat the process.**

## analyze this

Why does your high school sweetheart keep visiting you in your dreams? Why do you dream that you've been asked to host a party for an important dignitary? You can learn how to make sense of your dreams. Start by asking these questions for each perplexing dream you have, then write down your answers in a dream journal.

1. What is the plot, who are the characters, and what is the setting?
2. How do you feel about the dream when you awaken? Scared? Excited? Sad?
3. Is there anything in your waking life to which it might relate?
4. How do you feel about a familiar person in your dream versus in real life?

The more you document and analyze the images in your dreams, the quicker you'll understand them. "After several weeks, you'll start to notice the patterns," says psychologist Rosalind Cartwright. "It's almost like discovering your own dream language."

three-quarters were dreaming about Tetris. The researchers believe that by dreaming about the game, the subjects were working on perfecting their skills as they slept. The research team that conducted these studies has just completed similar ones using the skiing game *Alpine Racer 2*. The initial reports, published in the journal *Science* in 2001, stated that the people who were most involved while playing the game were the ones most apt to dream about it, suggesting that, while they slept, their brains were processing the information that seemed most important.

## Does everyone dream?

All humans dream. (And as most mammals and birds experience REM sleep, it's presumed that they do, too.) When people say, "I don't dream," they're really telling you that they don't remember their dreams. Remembering is easier if you wake up in the middle of a dream or almost immediately afterward. Consequently, light sleepers, who are apt to wake up frequently during REM sleep, generally have better recall than their sound-asleep bedmates. Remembering is also easier when you awaken naturally, like on the weekend or during a vacation. The jolt of an alarm clock, on the other hand, is liable to make your thoughts jump abruptly from a fantasy dream to a nagging to-do list.

## Why are dreams so weird?

There's a biological reason. The prefrontal cortex of the brain, responsible for logic and reasoning, is inactive during sleep, thus allowing all sorts of crazy images to evolve uncensored. And as your dreams are linking new memories to old ones, those associations often turn out to be a little kooky. "Dreams use so many bits and pieces of our memory, but not in a logical, linear way," says Cartwright. "It's more of an associative conglomeration of things."

Still, while the associations sometimes seem unconnected, if you look at the images symbolically,

they might start to make sense. For example, a dream that combines flying, a childhood swim meet, and your college graduation seems outlandish, but upon closer inspection, you notice that the images all relate to feeling confident. Perhaps this theme pertains to a current challenge you are facing and your desire to be brave.

Or maybe not. Some of our dreams may be a haphazard mishmash of thoughts. "In the same way that we have lots of silly, trivial, bizarre thoughts during the day, we shouldn't expect all our dreaming thoughts to be especially profound," says Barrett. "Some of it might just be nonsense."

Hormonal changes, like those during pregnancy or the postpartum period, can also make your dreams crazy, as can some antihistamines and most antidepressants. (Both can be sedating, altering sleep patterns, and antidepressants change the brain's chemistry.) A fever can also affect sleep and dreams, as can a stomachache, which is why some people believe spicy foods or eating right before bed causes wild dreams.

## Why are certain dreams so common?

Falling from a cliff. Being chased. Flying. These themes persist across cultures and generations. "There's folklore from almost every civilization showing that we all dream about these things," says Cartwright. "They're related to universal anxieties." The predominant anxiety-dream themes express the fear of feeling humiliated, losing one's beauty, not being desired, or not having the capabilities to succeed at something. They include:

- Taking a test
- Finding yourself pregnant
- Forgetting your child someplace
- Appearing naked in public
- Standing on stage
- Teeth or hair falling out
- Being intimate with a stranger

i tried to, but the bookstores all over France were closed-- because, someone said, there was some kind of strike, which might have been the reason, too, why all the lights kept going out. and it turned out that Madonna was on vacation anyway and . . .

#### What are nightmares and recurring dreams?

Intense, frightening dreams are common and normal, says Barrett, as long as you don't have them every night. Nightmares are often brought on by a real-life event, such as moving to a new place, or a trauma, such as being the victim of a crime. These dreams, too, can be instructive. "I tell clients to try to welcome their nightmares because they can clue you in to an emotion that's worth exploring," says Gayle Delaney, Ph.D., the founding president of the International Association for the Study of Dreams, in Berkeley, California. "For instance, a patient had a nightmare where she saw her boyfriend across a room, smiling sweetly. But as she approached, farming instruments, like pitchforks and shovels, started flying out of his head toward her. When she backed away, it stopped. This happened a few times during the dream. She told me she had pulled away from him several times in real life because every time she let herself get close to him, he could be mean and cold. As for the farm equipment? She was a city girl, and he was more rough-hewn."

Children tend to have more nightmares than adults do. "They haven't developed the psychological tools to deal with emotions, so they're more likely to feel overpowered by them," says Carrwright. "They have a lot of nightmares about animals and monsters. This could be symbolic of all the big things they don't yet understand."

Uncomfortable recurring dreams are typically linked to an unaddressed anxiety, says Veronica Tenay, Ph.D., a psychology instructor at the University of California, Santa Cruz, and the author of *The Creative Dreamer* (Celestial Arts, \$15). Says Delaney: "I've seen hundreds of clients put an end to upsetting dreams by figuring out what underlying worry the dream is expressing, then dealing with it in real life. One client had a recurring dream about being gagged. As we talked, she revealed that she was worried about her mother-in-law coming to live with her and felt like she couldn't talk to her husband about it. That was the connection—she truly felt gagged. She talked to her husband about her concerns, and she stopped having the dream."

#### Can dreams be predictive?

Perhaps. According to legend, Abraham Lincoln told his wife that he dreamed he had been assassinated just days before he was killed. But no one really knows whether dreams can act as crystal balls, because it's nearly impossible to study the phenomenon. Researchers would need to track thousands of people's dream journals for many years to come to any conclusions. "My guess is that the majority of 'predictive' dreams are purely coincidental," says Delaney. "Without evidence, it's impossible to say for certain. But I'd be willing to leave the door open to the possibility." \*

Share your weird or puzzling dreams at [www.realsimple.com/dreams](http://www.realsimple.com/dreams) and tell us what you think they might mean.