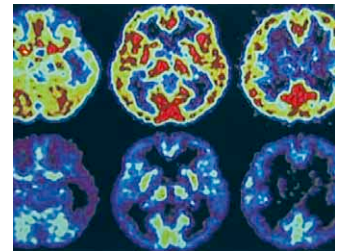
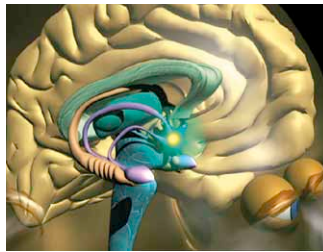


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The Mysteries of the Brain

The brain is the nerve center of the human body. It is the point where all information from the body and its environment is collected and processed into reactions and memories. Everything we think, say or do is controlled by the brain, as are processes that occur without our conscious input, such as understanding what we're seeing or hearing, feeling joy or fear, or recognizing danger. Researching the workings of the human brain is an even greater scientific challenge than decoding the human genome.

01 The Brain Pacemaker

Deep brain stimulation is a treatment that can provide therapeutic benefits to people who have Parkinson's. The method involves placing electrodes at the heart of the afflicted region of the brain via a small hole drilled in the skull. These electrodes restore order to neural activity via electrical pulses. They are connected to a pulse generator implanted below the clavicle or in the abdomen via insulated wires that run beneath the skin.

02 How We Learn

The brain never stops learning. It's probably more flexible than we ever imagined. Experiments have shown that when it comes to absorbing information and making decisions, young people are not always at an advantage. Evidence that evolution has programmed the brain to learn is provided by its own internal reward system: learning makes you happy and content, right through to an advanced age.

03 Nerve Center for Movement

We need our brain to think and learn. But it is also responsible for controlling our movements. We learn to control our movements through the cerebral cortex. Later, when those movements have become so automatic that we execute them without having to think about it, other regions of the brain take over. But it's not just a case of the brain affecting our movements, movement itself also has an influence on the performance of the brain.

04 Understanding Pain

Increasing numbers of people suffer from chronic pain. Latest studies show that such pain is an acquired behavioral pattern, like a program that's been stored by the brain. And once a pain memory has affected the nervous system, it's not easily erased, even with medication.

05 Sleep as a Source of Energy

We need seven to eight hours of sleep every day. Sleep can have an enormous impact on our quality of life. If you've slept well, you are likely to be active, receptive and healthy. And regular, adequate sleep appears to be especially important for the brain. The reasons for this have not been fully explained, but experiments show that when we don't get enough sleep, our memory capacity is greatly reduced.

06 Conquering Fear

Fear is an instinctive protective mechanism, which is often activated without our conscious input. For example, we jump to the side when a car gets too close. This instinctive reaction is key to our survival. Fear can result in high performance, during an examination for example, but it can also leave you paralyzed. The situation becomes critical when fear gets so out of control that it suddenly turns into panic. Scientists are exploring ways to conquer fear.