SCIENCE TECHNOLOGY MEDICINE

DOCUMENTARY 30 MIN.

VERSIONS

Arabic, English, Spanish: 11 x 30 min.

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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 are 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 VoD **SD**

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 VoD SD

The brain never stops learning. It is 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 VoD SD

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 them, other regions of the brain take over. But it is 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 VoD SD

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

05 Sleep as a Source of Energy **SD**

We need seven to eight hours of sleep every day. Sleep can have an enormous impact on our quality of life. If you have 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 do not get enough sleep, our memory capacity is greatly reduced.

06 Conquering Fear **SD**

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.

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07 What Makes a Person Evil? VoD HD

Violent crime often leaves us speechless with incomprehension. How are such deeds committed? What occurs in the minds of the perpetrators? Are the mechanisms that trigger such actions similar in all those who carry them out, or are they very different? Neuroscientists have found some surprising answers to these questions.

08 Doping for the Brain VoD HD

In a bid to enhance their performance in various activities, many people use prescription drugs developed to treat health problems. That holds not only for physical performance but also for mental functioning. But does 'brain doping' really help? What is certain is that it has negative side effects and can inflict long-term damage.

09 Invisible, But Highly Effective: Our Thoughts VoD HD

We can use our thoughts to control devices and move artificial limbs. Our thoughts even have the power to heal disease. But what are thoughts? Mere brain waves, or something more? The latest neurological research shows that thoughts and feelings belong together, that they influence each other and cannot be understood independently of each other.

10 Neuromarketing – Tracking Our Decisions **SD**

How does a person decide what to spend money on? Do commercials influence behavior? When do ads elicit the intended response, when are they ignored? Neuromarketing deploys psychological and neurological research to answer such questions. For the advertising industry and its clients, the answers are of huge significance and value in developing new strategies.

11 How Scientists Manipulate Our Memories VoD HD

Scientists are looking for ways to erase terrible, distressing memories in order to help people overcome crippling fear. Neuroscientists have discovered that a certain enzyme is involved in longterm fear memories and are seeking to control its activity. Might this mean a ray of hope for traumatized people? Or is it a risky path for society to take?