

1

00:00:00,890 --> 00:00:10,885

This series presents information based in part on theory and conjecture.

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00:00:10,885 --> 00:00:20,880

The producer's purpose is to suggest some possible explanations, but not necessarily the only ones to the mysteries we will examine.

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00:00:21,880 --> 00:00:33,874

What may appear as some bizarre medieval torture is in fact a controversial therapy for reaching the minds of brain damaged children.

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00:00:33,874 --> 00:00:45,868

Eight. Nine. Good. Alright, I want you to try to say a word. Can you say Robbie? Almost.

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00:00:45,868 --> 00:00:52,864

Through methods such as these, we are beginning to understand how to unlock the mysteries of the mind.

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00:01:00,861 --> 00:01:06,858

Some animals have highly developed brain areas that control the sense of smell, sight or hearing.

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00:01:06,858 --> 00:01:13,854

The eagles soaring thousands of feet above the earth can spot small prey instantly.

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00:01:13,854 --> 00:01:17,852

More sophisticated animals have keener senses.

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00:01:17,852 --> 00:01:24,849

Man possesses the most complex brain of all, yet he has never finally honed his perceptions.

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00:01:24,849 --> 00:01:31,845

Why? Animals provide us with a valuable opportunity to study the brain's evolution.

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00:01:31,845 --> 00:01:36,843

From them, we can learn more about how the human brain functions.

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00:01:36,843 --> 00:01:47,837

At the Brain Research Institute at UCLA, Dr. Michael Chase carries on one of more than 100 separate studies on the human mind.

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00:01:47,837 --> 00:01:55,834

Experimenting with laboratory cats, he developed an instrument capable of isolating a single brain nerve cell.

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00:01:55,834 --> 00:02:00,831

Dr. Chase is able to record the entire life of the cell.

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00:02:01,831 --> 00:02:06,828

Now the brain, as you know, is composed of literally billions of nerve cells.

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00:02:06,828 --> 00:02:09,827

And each nerve cell is more or less the same.

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00:02:09,827 --> 00:02:18,822

But it's the interconnections between nerve cells and what goes on at the level of a single nerve cell that fascinates us.

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00:02:18,822 --> 00:02:22,820

What we're trying to do then is to study how one nerve cell works.

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00:02:22,820 --> 00:02:30,816

If we can understand how one nerve cell works, we can understand how all nerve cells work, which is really how the brain functions.

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00:02:30,816 --> 00:02:35,814

We can then, in a sense, tap the secret inner life of the neuron.

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00:02:35,814 --> 00:02:41,811

A single neuron, while an animal, the cat, goes through normal cycles of sleep and wakefulness.

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00:02:41,811 --> 00:02:47,808

From Dr. Chase's work, we may be able to create a refined roadmap to the brain.

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00:02:47,808 --> 00:02:56,804

It has been only within the last 50 years that medical researchers have been able to chart general areas of the brain responsible for particular actions.

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00:02:56,804 --> 00:03:00,802

The brain is divided into left and right hemispheres.

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00:03:00,802 --> 00:03:07,798

Tests show that the left is more analytical and logical, and is the primary controller of speech.

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00:03:07,798 --> 00:03:11,796

The right half gathers overall patterns and concepts.

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00:03:12,796 --> 00:03:23,790

A test measuring how much of our ability to speak is controlled by each half of the brain has been devised by Dr. Aaron Ziedel of Caltech.

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00:03:23,790 --> 00:03:30,787

Subjects respond to pictures or symbols which relate to sounds they hear through the headphones.

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00:03:30,787 --> 00:03:35,784

His work is designed to help brain damaged people who cannot speak.

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00:03:35,784 --> 00:03:43,781

If we know what the right hemisphere does, or what it can do, then perhaps when we have a patient who suffered damage to his language abilities,

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00:03:43,781 --> 00:03:50,777

because he had a stroke or trauma or gunshot wound or a tumor to the left side of the brain,

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00:03:50,777 --> 00:03:59,773

now we know what kind of abilities can be recovered, how the right hemisphere can be compensatory for these abilities in this person.

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00:03:59,773 --> 00:04:04,770

So we can perhaps train the right hemisphere, the one that was not damaged, to take over some of these functions.

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00:04:04,770 --> 00:04:07,769

And that will improve his abilities.

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00:04:08,768 --> 00:04:12,766

Science is just beginning to unravel the secrets of the mind.

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00:04:12,766 --> 00:04:20,762

It is interesting and perhaps a bit ironic that much of what we learned about the brain is gained from those who suffer from its abnormalities.

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00:04:20,762 --> 00:04:26,759

One such group suffering from a form of autism is called the Idiot Savant.

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00:04:26,759 --> 00:04:32,756

They give us a tiny clue to the extremes of which the brain is capable.

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00:04:35,755 --> 00:04:41,752

At a center for children with brain dysfunctions, work is being done on the Idiot Savant.

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00:04:41,752 --> 00:04:50,748

At one and the same time, the Idiot Savant exhibits evidence of mental retardation and signs of genius.

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00:04:50,748 --> 00:04:55,745

For the most part, these children are unaware of the outside world.

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00:04:55,745 --> 00:05:03,741

At the Morgan Center in Palo Alto, vigorous physical therapy programs are designed to help them interact with other individuals.

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00:05:04,741 --> 00:05:09,738

Louise Emerson works with one of the rare Idiot Savants, Michael.

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00:05:09,738 --> 00:05:14,736

When asked why in search of cameras were present, he easily answered.

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00:05:15,735 --> 00:05:20,733

He's circling too soon with the story about the brain.

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00:05:29,728 --> 00:05:36,725

Much of Michael's life is spent attempting to master simple sign language, since he cannot speak.

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00:05:36,725 --> 00:05:45,721

Yet, when tested by Stanford University scientists, they found that Michael understood highly sophisticated astronomy problems.

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00:05:57,715 --> 00:06:02,712

Chuck cannot multiply, he cannot divide, he does not know algebra.

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00:06:03,712 --> 00:06:06,710

First day. He is right.

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00:06:06,710 --> 00:06:11,708

What day was Christmas on when you were eight years old?

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00:06:13,707 --> 00:06:15,706

1971.

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00:06:15,706 --> 00:06:17,705

What day was Christmas then?

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00:06:17,705 --> 00:06:19,704

I thought I was on there.

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00:06:24,701 --> 00:06:25,701

Saturday.

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00:06:25,701 --> 00:06:27,700

This season's meadow.

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00:06:27,700 --> 00:06:28,700

No.

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00:06:28,700 --> 00:06:29,699

Is this season's meadow?

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00:06:29,699 --> 00:06:39,694

While Chuck can identify days of the year, both past and future, he encounters incredible difficulty in reading the simplest restaurant menu.

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00:06:39,694 --> 00:06:40,694

Okay.

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00:06:40,694 --> 00:06:42,693

All down.

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00:06:44,692 --> 00:06:47,690

Two, three, eight, eighty, seven.

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00:06:47,690 --> 00:06:49,689

Okay, what's the last thing you're going to get?

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00:06:49,689 --> 00:06:50,689

Coffee.

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00:06:50,689 --> 00:06:52,688

Okay, what is coffee?

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00:06:52,688 --> 00:06:54,687

It's a beverage.

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00:06:54,687 --> 00:06:56,686

It's 35 cents.

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00:06:57,685 --> 00:07:04,682

John can draw plans of any place or of any structure that he has ever been in during his entire life.

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00:07:04,682 --> 00:07:06,681

His accuracy is astounding.

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00:07:06,681 --> 00:07:12,678

He can correctly reproduce flight paths into San Francisco International Airport.

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00:07:12,678 --> 00:07:14,677

What is that?

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00:07:14,677 --> 00:07:16,676

What is this?

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00:07:16,676 --> 00:07:18,675

Everything.

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00:07:19,674 --> 00:07:30,669

A child who is autistic, who has not received any remediation, demonstrates apparent inability to really see or hear much of what goes on in his environment.

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00:07:32,668 --> 00:07:39,665

So these kinds of perceptual deficits continue to exist for the child, even when he has been remediated.

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00:07:39,665 --> 00:07:47,661

Now, remediation might cause him to be able to monitor some stimuli, to understand more of what's

going on around him,

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00:07:47,661 --> 00:07:54,657

and eventually to develop a splinter skill that might be much higher than his corresponding level of functioning,

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00:07:54,657 --> 00:08:02,653

so that it's perfectly possible for a child to walk down the street and be totally unaware of cars, say, for example,

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00:08:02,653 --> 00:08:06,651

or even unaware of other people and smash into them,

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00:08:06,651 --> 00:08:15,647

and at the same time be concentrating entirely on, say, multiplying the cracks in the sidewalk by the number of times the light blink.

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00:08:15,647 --> 00:08:26,642

John has great difficulty in remembering objects in a series, a strange twist, considering he has an outstanding memory for floor plans.

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00:08:26,642 --> 00:08:36,637

With the help of highly skilled teachers who develop programs to fit each idiot's advance needs, it is hoped that the secrets of their minds may unfold.

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00:08:42,634 --> 00:08:47,631

People often ask why so much time, effort, and money are spent on the idiot's avance.

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00:08:47,631 --> 00:08:57,626

Aside from the humanitarian considerations, the study of these children might someday lead to a giant step forward in understanding the human brain.

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00:08:57,626 --> 00:09:04,623

Is it possible that the extraordinary skills possessed by these children might exist within us all?

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00:09:04,623 --> 00:09:10,620

Let's go round and round all through the city.

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00:09:14,618 --> 00:09:23,614

Medical researchers have discovered within the last 20 years that it is possible to monitor and record the brain's electrical activity.

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00:09:25,613 --> 00:09:32,609

From the different types of waves given off by the brain, we know that various patterns or states of mind exist.

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00:09:35,608 --> 00:09:43,604

Some of these patterns or states of mind correspond to what happens when a debilitating disease such as epilepsy strikes.

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00:09:46,602 --> 00:09:54,598

Through training, previously uncontrollable epileptics can be taught to maintain certain brain waves and eliminate seizures.

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00:09:56,597 --> 00:09:58,596

Dr. Barry Sturman explains,

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00:09:59,596 --> 00:10:03,594

We believe we've discovered a state which is anti-convulsant.

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00:10:03,594 --> 00:10:06,592

There are drugs which are anti-convulsant.

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00:10:06,592 --> 00:10:13,589

These drugs apparently produce changes in the nervous system which can be empirically defined as anti-convulsant.

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00:10:13,589 --> 00:10:19,586

It is possible that they activate certain normal patterns in the brain which are deficient in epileptics.

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00:10:20,586 --> 00:10:32,580

And that this activation can be achieved in other ways, namely by teaching the patient through this operating conditioning method to alter a neural circuitry and produce this state which is more resistant to seizures.

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00:10:32,580 --> 00:10:42,575

We can get a bioelectric signal, an EEG wave, some physiological event that we can look at and teach the patient to manipulate.

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00:10:42,575 --> 00:10:48,572

It may be possible to achieve very profound changes at all levels of nervous function.

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00:10:50,571 --> 00:10:57,567

Children who are brain damaged can also learn how to bypass those areas of the brain which are injured.

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00:10:57,567 --> 00:11:11,561

A team of doctors from Philadelphia have devised a therapy which teaches brain damaged babies to use those areas of their brains which are not blocked and thus operate within a normal range of intelligence.

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00:11:19,557 --> 00:11:28,552

Christina has classified as a brain damaged child, not from birth but when she was 8-month-old, some clothes fell on her in a crib and she suffocated.

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00:11:28,552 --> 00:11:37,548

For Christina, the therapy has made the difference between an utterly helpless child and one who now approaches normality.

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00:11:37,548 --> 00:11:45,544

A series of seemingly bizarre exercises have been devised to help stimulate new cells in the child's brain.

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00:11:45,544 --> 00:11:57,538

Once brain cells which control simple physical motions function properly, other cells responsible for speech, thought and logic may begin to operate.

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00:11:57,538 --> 00:12:06,534

Okay sweetheart, this is ear, this is knee.

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00:12:06,534 --> 00:12:18,528

Therapists using the Domen Delicato method claim that 33% of brain injured children like Christina can overcome their handicaps and become normal.

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00:12:18,528 --> 00:12:25,524

If this is true, it is a significant step toward understanding how the brain matures and learns.

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00:12:25,524 --> 00:12:36,519

Would you point to the one that says daddy? Get your arm up. Point to the one that says daddy. Point. Use your pointer finger. Point. That's right! That's right!

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00:12:36,519 --> 00:12:45,514

Of all the organs of the body with the exception perhaps of the skin, the brain is the easiest body organ to reach and to do something about.

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00:12:45,514 --> 00:12:53,510

Dr. Robert Domen, one of the therapy's originators, believes that the brain can be stimulated by use of the five senses.

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00:12:53,510 --> 00:13:06,504

Our goal is to improve the child's brain's efficiency, having the child use undamaged brain cells, brain cells that are not dead, and developing new pathways to the child's brain.

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00:13:06,504 --> 00:13:21,497

In doing this we feel that through successive stimulation of the child's brain, the changes can come about. In fact the goal of what we're trying to do is to move the child up the scale of neurological organization.

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00:13:22,496 --> 00:13:27,494

One, two, three.

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00:13:27,494 --> 00:13:43,486

We use many different techniques. Patterning is one of the oldest techniques that we use in which we utilize volunteers who put the child through what would be verbal crawling or creeping actions.

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00:13:43,486 --> 00:13:56,480

The purpose of this is not to exercise the muscles of the arms and legs or the neck, but to put into the child's brain, the child who has been brain injured, information about where are his parts?

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00:13:56,480 --> 00:14:01,477

Where is his arm? Where is his leg? And where is each part of the body related to one another?

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00:14:01,477 --> 00:14:03,476

Three.

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00:14:03,476 --> 00:14:05,475

One.

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00:14:05,475 --> 00:14:16,470

As we look at normality in the brain's potential, we agree with many before us who say that you and I as normal people may not be using our brain very effectively.

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00:14:16,470 --> 00:14:25,465

In fact, many authorities believe that the average normal person perhaps only uses five percent of his brain's potential at any given moment.

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00:14:26,465 --> 00:14:35,460

That implies that we are in fact wasting 95 percent of our brain's potential, a sad waste of such a valuable, valuable part.

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00:14:35,460 --> 00:14:50,453

And so indeed when we achieve some results with range of patients and have them use their brain more efficiently, then perhaps they can work within this normal range, since normal isn't very efficient in itself.

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00:14:50,453 --> 00:14:58,449

Tommy, can you show us how you do your eyebrow trick? Can you show us where your nose is, Tommy?

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00:14:58,449 --> 00:15:09,444

Tommy was born with this problem and he was born with the inability to do what other babies do at birth. He couldn't cry.

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00:15:09,444 --> 00:15:17,440

He didn't have any of the normal reflexes. If you would lift Tommy's hand, it would flop down. If you would lift Tommy's leg, it would flop down on the floor.

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00:15:17,440 --> 00:15:30,433

He could not hold his head in an upright position. One pediatrician told us when Tommy was face-to-face with it, we had to face the fact that he had never seen a baby lay as long as Tommy had and ever do anything in their entire life.

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00:15:30,433 --> 00:15:43,427

He was a vegetable and we would have to face this fact. We would hate to believe that the pediatrician's viewpoint was correct that Tommy would have laid there and never have done anything in his entire life. It would have been a big waste.

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00:15:44,427 --> 00:15:52,423

As a result of his therapy, Tommy has now entered day school and functions much the same as other normal three-year-olds.

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00:15:52,423 --> 00:16:06,416

If we can teach an injured brain to stimulate unused cells to take over the functions of damaged cells, think what could be accomplished in a healthy brain if these unused neurons were activated.

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00:16:06,416 --> 00:16:14,412

Since only 5% of the brain is used, what if 20% was utilized? What might the potential be?

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00:16:15,411 --> 00:16:35,401

By determining which side of the brain is primarily responsible for identifying faces, Dr. Ziedel believes he may be on the first step toward understanding where creative inspiration arises. Creativity, it appears, is directly linked to a physical reaction within the brain.

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00:16:36,401 --> 00:16:48,395

We know that damage to either side of the brain will decrease your creativity enormously. After right hemisphere damage, you will perhaps not be able to see the whole gestalt, the spatial orientation very well.

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00:16:48,395 --> 00:16:58,390

After left hemisphere damage, you will perhaps not get all the details right. So I would say that the evidence so far is that really both hemispheres are very important for coordinated activity.

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00:16:58,390 --> 00:17:04,387

How do you measure creativity? More importantly, how do you tap it?

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00:17:04,387 --> 00:17:18,380

Dr. Betty Edwards, by teaching pupils to look at and draw pictures upside down, has enabled non-art students to utilize untapped portions of their brains and to become accomplished artists.

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00:17:18,380 --> 00:17:29,375

When you look upside down, you no longer can view the drawing as, say, a man sitting in a chair wearing glasses and so on, that that verbal knowledge becomes suppressed.

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00:17:29,375 --> 00:17:45,367

As you look at the lines, I want you to try not to name things. When you come to parts that you can name, the H-A-N-D-S, try not to think to yourself in terms of words, but simply copy off the lines just as you see them.

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00:17:45,367 --> 00:17:56,362

Part of my work is based on a study that I did in which half the students were presented with the Picasso drawing right side up and told to copy it.

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00:17:56,362 --> 00:18:02,359

The other half of the students were presented with the same drawing upside down and asked to copy it.

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00:18:02,359 --> 00:18:14,353

And the results of that experiment show that there was a significant difference illogically that the upside down drawings were better than the drawings done right side up.

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00:18:14,353 --> 00:18:38,341

Now this goes against common sense, doesn't it? The hypothesis of that study was that upside down, the normal way of regarding visual information, coding it into words, recognizing parts, symbolizing is shut off.

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00:18:38,341 --> 00:18:49,336

That part of our brain will not deal with upside down information. Upside down, the brain is forced to process the information in a different way.

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00:18:49,336 --> 00:18:58,331

By using Dr. Edwards' method, it seems possible to unlock a creative area of the brain previously ignored.

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00:18:59,331 --> 00:19:11,325

Dr. Thelma Moss, a professor at UCLA, has studied the powers of the mind. She believes that psychokinesis, the ability to move objects with brain waves, is very real.

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00:19:11,325 --> 00:19:33,314

Let's see if we can try to define what psychokinesis is. Let's call it PK for short, simpler and easier. PK for whatever fantastic processes are involved is the ability for somebody, just by a look of the eye or something that emanates from his hands, the ability for that person to move

objects without touching them.

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00:19:33,314 --> 00:20:02,300

Some of the early best work comes out of the Soviet Union. There's a lady there, her name is Madame Kulagina, and when this power is working in her, she can simply stare at a box of matches that have been scattered on a table, concentrate on them, and you can see the whole group of matches as if they were one, magnetized together, moving sometimes away from her, sometimes toward her, and something in her brain makes this occur.

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00:20:04,299 --> 00:20:19,292

When we try to figure out what psychokinesis is, what is it that moves objects at a distance, we can say that it may be an energy that comes from the body, that we are not yet, I'm not lying the word yet, not yet able to harness.

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00:20:20,291 --> 00:20:29,287

It will perhaps require years of study by brain researchers before we will be able to understand and harness the true potential of the brain.

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00:20:30,286 --> 00:20:38,282

Professor William Tiller of Stanford University has extensively studied the mind and its potential.

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00:20:39,282 --> 00:20:46,278

I think that if we work at tapping our brain power and really work at it, I think the results will be actually phenomenal.

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00:20:47,278 --> 00:21:08,267

My own feeling is that we use a very small portion of our latent abilities, but if we focus on them, I suspect that the new man, that is the man, the new man would begin to perceive at a function, at five dimensional and six dimensional levels of the universe, compared to present man functioning at a four dimensional level,

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00:21:09,267 --> 00:21:17,263

and I think that the new man or the new humanity will be as far beyond present man as present man is beyond neanderthal man.

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00:21:21,261 --> 00:21:30,257

Coming up next, a murderer and an escaped convict kidnaped a young woman, unaware that she's a deputy sheriff on FBI The Untold Stories.

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00:21:30,257 --> 00:21:39,252

Then history's crimes and trials investigates the career of the Boston Strangler and the desperate attempt to bring him to justice.