

Kindness and Brain: What is the Impact of Kindness in Brain Functioning

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Practice kindness can mean much more than an act of love and compassion for the others. Being kind, from the point of view of brain functioning may result in a range of neural changes that have a strong impact on the central nervous system.

In the same way, that the practice of physical exercise has the ability to change the neural structure of the brain and the body functioning, kindness demonstrations can alter the neural structures related to the prefrontal cortex, the brain region responsible for planning behaviors, thoughts, and decision-making. These changes are capable of forming new neural connections, which are essential for brain plasticity mechanism. In brain plasticity, the cerebrum alters the structure and functioning, as a result of new apprenticeships, emotions or experiences that an individual is exposes. This means that the neural connections have the ability to modify in each new experience and stimulus.

In a practical way, every new gesture of empathy or kindness manifested by a person brings in chemical reactions between the neurons, resulting in significant changes in how the brain works. Thus, all emotion, motivation, learning and experiences are represented in the brain, by connections between neurons. In this manner, new habits become new brain connections, and these new connections contribute to the formation of new synapses (communication between neurons), which develop in humans, new knowledge, skills and attitudes.

This means that the more one practices goodness, more neural connections this person will be in the part of the brain responsible for managing emotions. Thus, through neuroplasticity, you can convert negative thoughts and attitudes, in habits of positive behaviors, such as empathy and kindness, demystifying the idea that personality and temperament are not capable of being changed.

Chemically, what happens in the brain is that when a person is privileged with an act of kindness, such as receiving donations of food or clothing, the brain releases a chemical substance called dopamine, producing in the person an immediate sense of satisfaction and well-being. Another substance responsible for acts of kindness in human behavior is the oxytocin, which has an important physiological role in demonstrations of empathy and affection, observed in situations related to birth and breastfeeding, for example. Thus, the higher the empathy in front of a human difficulty, more roles the oxytocin takes over.

The plasticity of the brain allows you to build positive connections between neurons, through the experience of pleasant situations such as smiling at someone, or performing some volunteer work. When this happens, the left prefrontal cortex (responsible for positive emotions) is activated.

Positive emotions manifest a strong impact on human mental health, helping to reduce stress levels, depression and anxiety. The body, especially the heart, can also be benefited from positive emotions like love and gratitude, through the balance of the heart rate. A weakened heart pressure sends disordered signals to the brain, impairing the capacity of thought and judgment of a person.

For students for example, the habit of performing positive actions, can lead to improvements not only in the quality of life, but also on their academic performance and consequently, in their school success. This occurs because, when a new emotion is experienced, chemical substances are released between neurons causing reactions and physiological changes in the human body. Therefore, at school when a

student assists a colleague with some difficulty in the lesson, this situation can trigger chemicals substances linked to joy and gratitude, like oxytocin, for example.

In the case of goodness, when a person has a need satisfied, such as receiving donations in cash or in food, the emotional part of the brain known as the limbic system, (responsible for processing the emotions) perform changes in the mechanisms of humor as well as in the reward system of the brain, making this person joyful.

According to a research conducted by the psychologist Sarina Saturn, from the University of State Oregon, students who watched heroic images developed severe brain responses in the sympathetic and parasympathetic nervous system. The sympathetic nervous system is responsible for stimulating actions that allow the body to respond to stress situations, such as reaction of fight or flight. In the parasympathetic nervous system, the organism is stimulate to develop actions that allow the body to respond calmly for the pressure, such as in the decreased of the adrenaline and the arterial blood pressure for example after presenting an important lecture for the first time in front of many people. According to the Brazilian neurosurgeon João Lobo Antunes, these brain responses occurs because when an individual witnesses the suffering of another person, a stress response is triggered by the sympathetic nervous system. However, when the person in distress has the pain relieved, the parasympathetic system is activated and releases calm responses to the body.

The generosity besides involving the area of the brain responsible for decision-making, such as the prefrontal cortex, also involves the amygdala, a neural structure responsible for human expressions and emotional reactions.

Being generous is an effective way to stimulate the brain to manage positive emotional responses, by the fact that when a person acts in solidarity with someone, the brain develops a greater neural activity in the left prefrontal cortex (responsible for generating positive emotional reactions). From this way, it is clear to note that the best way to manage negative emotions is developing positive emotional responses, through acts of kindness, compassion and empathy.

Perform generous actions or receive them activate the reward system of the brain, producing reactions of happiness and satisfaction to the person who was generous, as well as for the individual who was benefited from an act of generosity. In addition, the generosity provides a better understanding of yourself, about people and about the world, promoting in those who practice it, the improvement of emotional and social skills, such as:

- Empathy: be generous, develops in the individual the ability to understand others' feelings through verbal and non-verbal reactions.
- Productive interpersonal skills: be generous with someone generates feelings of care, affection and trust, bringing balance and harmony in dealing with people's difficulties.
- In communication: kindness facilitates the interaction of the individual with people from different cultures and social environments.
- In the stimulation of the brain in favor of positive emotions: the practice of being kind, keeps active the left prefrontal region of the brain, responsible for human positive reactions.

At Stanford University, a research was developed which fourteen participants watched a series of videos that showed people in pain and suffering. When the videos were not shown to the volunteers, a jet of intense heat was applied in the arm of each person, producing intense pain. At the end of the study, scientists observed that the pain felt in the participant's arm was similar to the suffering that they felt when watched the videos of people in suffering. The results of this study were analyzed through the registration of the brain activity of each participant with the help of a scanner.

At the end of the research, the scientists concluded that similar brain regions are activated when a person felt pain, and when this person witnessed the pain of another individual. This occurs because we have in the brain neurons that allow us to identify with the pain of others. These neurons are known as mirror neurons, and allows the person to feel similar emotions to a person in distress, even without literally feel this pain. This can happens when we watch movies with high content of violence or suffering, as in thrillers or dramas.

What about the development of generous behavior in children?

Scientists from Chicago University conducted an experiment with a group of children between three and five years old, in which some cartoons with positive and negative social behaviors were presented to the group. After viewing the cartoons, these children were encouraged to share an object, like a toy, with another child. The result was that only 1.78 out of ten, shared an object with another child. The scientists concluded that the exhibition of the cartoons made a significant influence on the behavior and the child's decision-making.

The good news is that the brain can be trained in compassion. This is the conclusion of a study at the Center for Investigating Healthy Minds at the Waisman Center of the University of Wisconsin-Madison.

According to the study, a group of young adults was stimulated to meditate, metalizing a situation in suffering, experienced by someone, and wishing that this suffering were relieved. During this act, phrases such as "May you be free from suffering" was repeated by the participants.

The group practiced meditation, visualizing different groups of people in distress: first starting with a loved one, second for themselves, third for strangers, and finally for someone they actively had a conflict, such as a family member or someone from the work environment.

In the second part of the study, the young adults played a game in which they had the opportunity to spend their own money to respond to someone in need.

The participants also saw images of people suffering, such as children crying or burns victims. Meanwhile, the scientists using magnetic resonance imaging (that has the aim to monitor areas of the brain), found significant changes in regions involving the prefrontal cortex, responsible for the capacities of planning, decision-making and problem solving.

After hours of research it was concluded that compassion, as well as physical and academic skills can be trained, developed and improved, explains UW-Madison psychology and psychiatry professor Richard J. Davidson, founder and chair of the Center for Investigating Healthy Minds.

The science of kindness involves two parts: the person who practice the compassion, and the one who is benefited by the action.

In both cases, the kindness provides benefits for the proper brain function, promoting balance and harmony in relationships and emotions. The best of all is that kindness can be taught and learned, and every good action begins with a little decision.

The attitudes of compassion and kindness may even seem very simple, but the consequences are huge, impacting people, communities, but especially inside each of us.

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