

The Neuropsychological Mechanisms of Faith

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Abstract: The purpose of the human brain, as we know it as a multi-functional master piece, is to help us perceive reality in the most accurate way, but also to experience it in the most secure way. From a neurological point of view, everything we experience, everything we think, perceive and feel about the surrounding world is the result of the processing performed by this complex organ called the human brain. Whether we are aware or not our ability to make decisions is strongly influenced by our belief system. Exposure of the brain to various stimuli related to the personal cult of beliefs determines the activation of neural networks in various cortical regions responsible for experiencing feelings of love, peace, tranquility, increasing the degree of concentration and more importantly activating the reward system, which makes our the brain to feel good and to reinforce this behavior by which it feels good and consumes less energy.

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The moment we know God or perceive the concept of divinity our brain changes (Dr. Andrew Newberg - How God Changes your Brain). Neurotheology is the discipline that tries to discover and explain the relation between the brain and theology, or from another perspective, the relation between the brain and religion, but not a specific religion but rather the concept of divinity and its manifestation. There are various studies in the field that evaluate the effects of religion and spirituality on the brain but also the effects of certain practices and beliefs on health. Neurotheology, a relatively new discipline, has managed to attract the attention of both the academic public and the general public, being a discipline that has been noted for its intention to understand spirituality from the brain's perspective, as well as for the purpose of discovering new, more accessible and efficient ways, perhaps

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even personalized, to experience the state of enlightenment, the state of union with the divinity. In order to achieve this, the “neuro” section is not only limited to neurology, but also includes psychology, cognitive sciences, the study of consciousness, anthropology, and the “theology” section does not only refer to this specific discipline, but also includes spirituality, religion, rituals, different practices such as meditation and prayer, the experiences that people have.

Let’s take for example the experiment of Dr. Andrew Newberg and his team who analyzed with SPECT technology the brains of specific subjects who urged them to practice for eight weeks a simple meditation called Kirtan Kriya.

This is a very simple technique and accessible one, which is based on a mantra - the repetition of four sounds: *sa, ta, na, ma* - simultaneously with the consecutive touching, on each new sound, between the thumb and each of the other fingers of each hand. The mantra is spoken for two minutes in a normal tone of voice, followed by the next two minutes whispering, and within the next four minutes the sounds are spoken in thought and then again two minutes in whispering and another two minutes with loud voice. This simple practice lasts about 12 minutes and needs to be performed daily.

There must be noted that the subjects were subjected to the monitoring meaning that the subjects’ brains were “photographed” before the beginning of the experiment when they were in normal condition, then immediately after they completed the first Kirtan Keiya meditation session, then in normal condition, wakefulness, after practicing meditation for eight weeks and finally during the last meditation session. The researchers focused at this point especially on the permanent effects on the brain, specifically on the “images” of the brains before the first meditation and after eight weeks. Thus an increase of 10 to 15% of brain activity in the frontal lobe area was observed and it is interesting that this was observed in the waking state rather than the meditative one. This means that the practice of meditation for longer periods can predispose the brain to states of enlightenment, which can lead the individual to that very deep experience. However, changes in the thalamus level were observed, in the sense of balancing the level of activity in its two hemispheres, that is to say that the area of the brain responsible for discerning and experiencing reality is permanently affected by meditation.

What actually happens in the brain when practicing meditation or saying a prayer?

With the help of SPECT / PET (positron emission tomography) technology, blood flow measurements were made in the brain, corresponding to the active areas, which was a good indicator of brain activity. The more blood circulates in a particular area of the brain, the more active it is. Therefore, scientists have thus “photographed” a person’s brain before they begin to meditate and then during meditation.

Thus, a significant increase in blood flow in the limbic system area was noticed, indicating an intense activity in this region of the brain and a strong emotional experience. The activation of the limbic system is associated with the extreme emotional experiences, important, with significance, so it is it who feels the intensity of the illumination experience.

Another area of the brain that attracted the attention of the researchers was the thalamus, a central brain structure whose relay function is to take all the sensory information and transmit it to the rest of the brain to allow us to perceive reality, thus contributing to the interconnection of different parts of the brain. In this case, when a person is in normal waking state, the two hemispheres of the thalamus are lit equally and therefore are equally active.

Interestingly, when a person enters the meditative state, only one of these thalamic hemispheres remains very active, and the other one is almost completely deactivated. It is a situation that occurs not only during the meditation, but also as a permanent result of this constant practice. Since the thalamus is the one that outlines our sense of reality and tells us what it is, it is easy to understand that when an alteration of it occurs, the perception of the reality is automatically transformed, giving the feeling of a deeper understanding and a particular clarity, a fundamental component of the experience of the state of prayer.

A very common aspect in the descriptions of people experiencing the state of prayer is the presence of the feeling of unity: the subjects feel that they become one with the Universe, one with the universal consciousness, one with God and all things. This notion of unifying all that exists is extremely important and fundamental to the experience of enlightenment, and the feeling that all things are part of this unity and that God is in fact a unifying force of all things is indispensable to the phenomenon.

Also with this SPECT technique, parietal lobes - the back area of the brain, responsible for orientation - were also analyzed, where the researchers found that even in this case, when the person is in a normal mental state, both halves have an

equal activity course. This indicates that the region in question is active and helps us to regulate our self-awareness and how we relate to the surrounding world.

Surprising was the situation when, as with the thalamus, during meditation, in one of the parietal lobes the brain activity in this area decreased considerably to a very low level. The conclusion we can deduce is that when the individual begins to have that sense of unity, the area of the brain that helps us determine who we are and helps us to differentiate ourselves from the rest of the world begins slowly, slowly to deactivate. And, as it does, the border between us and the rest of the world, as well as the border between the objects of the world begins to blur, and if the activity drops far enough in that brain area, then the person completely loses his or her identity, self, and the perception of time and space, which blends into this wonderful sense of unification.

Another very interesting feeling, often associated with the state of prayer or deep meditation, is self-abandonment, renunciation. The individual often has the sensation of giving up on himself, in the world, only to be in a close connection with the Creator, whose presence he feels he has. And even sometimes after the moment of spiritual “climate” it remains with the feeling of a new relationship with God, in which He is always present, without distance, without separation.

The frontal lobe area is the area of brain activity that allows us to carry out actions with a specific purpose, to have behaviors that are deliberate, intentional, calculated and thoughtful in order to make something happen. During practices such as meditation, focusing on an object, a mantra, a prayer or on one’s own breathing, the activity of the frontal lobes increases, as evidenced during the measurements.

Conclusions

From the researches it turns out that the spiritual activity experienced either through prayer or various rituals, mantras has a significant impact on the functioning of the brain, as well as the functioning of the brain can also affect our perception of the divinity. It is true that there is no particular point of God in our brain, and the nice part is that spiritual activity engages many brain areas of the thalamus up to the prefrontal cortex, and modulation of the brain during spiritual practices brings significant benefits to the individual by activating the reward system, the release of neurotransmitters specific to the state of well-being and relaxation, the change of the

vision on the life and especially the decrease of the anxiety level through the abandonment of self and the union with the divinity.

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