

A STUDY CARRIED OUT AT THE UNIVERSITY OF LA LAGUNA (ULL) TENERIFE ENDORSES THE BENEFITS OF MEDITATION IN THE CONTROL OF ATTENTION AND EMOTIONS

A study conducted at the University of La Laguna on the human brain in the state of mental silence in meditation has just been published in the journal *Neuroscience*. The article is entitled "Grey matter and functional connectivity in the anterior cingulate cortex are associated with the state of mental silence perceived during Sahaja Yoga meditation", the original text can be found on this link:

<https://doi.org/10.1016/j.neuroscience.2017.12.017>

This state of mental silence from the perspective of neuroscience and health has been under investigation for eight years by scientists from several European universities: Kings College London, University of Leipzig and the Spanish universities Jaume I of Castellón and The University of La Laguna in Tenerife (ULL), led by Professor Sergio Elias Hernández, of the ULL.

It is said that meditation is, among other things, a physiological state of reduced metabolic activity, different from sleep, which causes physical and mental relaxation and improves psychological balance and emotional stability. In Western psychology, three states of consciousness are described: deep sleep, dreaming and wakefulness. In Eastern philosophy and in several Western religious and mystical traditions, an additional and supposedly "superior" state of consciousness has been described, the so-called "fourth state of consciousness", also called "state of mental silence" or "consciousness without thoughts" or "Nirvichara Samadhi" in Sanskrit.

In addition to the interest that meditation has always aroused as a practice of personal growth, the positive results of meditation in the treatment of mental disorders such as stress, depression or anxiety, among others, have greatly impelled the scientific study of meditation in its different facets and versions.

The study presented in the journal *Neuroscience* was conducted in the magnetic resonance scanner of the University of La Laguna, where researchers recorded brain anatomy and functional connectivity in a state of mental silence during meditation (functional connectivity is a neuroimaging technique which shows how different brain areas cooperate to perform functions). For the aforementioned study, 23 volunteers experienced in Sahaja Yoga meditation and a group of 23 non-meditating volunteers participated with whom brain anatomy was compared. Both groups were very similar or equivalent in age, educational level, ethnicity, etc.

The study of the brain anatomy of the meditators showed that a region called the rostral anterior cingulate cortex (rACC) was directly related to the ability to be in mental silence. In this rACC area the meditating group had an average of 7.5% more grey matter than the non-meditating group (the grey matter is the part of the brain tissue that includes the nuclei of the neurons and the dendrites who are the receptor of the influences of other neurons). In addition, those meditators who had a deeper mental silence in their meditation in the scanner also had more grey matter in this area than those who had a less lasting mental silence (see figure).

It is important to note here that according to recent scientific publications, people suffering from anxiety, depression, hyperactivity and attention deficit, psychic illnesses characterized by the difficulty of stopping the torrents of thoughts, as well as other more serious mental conditions such as schizophrenia or autism, have less grey matter in this area rACC, likewise people who enjoy greater happiness and greater self-control of their emotions have more grey matter in this area. These findings, together with that of this study, show the importance of this rACC centre as an important area of control of emotions and attention.

Another important finding of this study was that mental silence was associated with a greater functional connectivity between the aforementioned rostral anterior cingulate, rACC, with the anterior insula and the putamen in both hemispheres, areas in charge of internalized attention, the anterior insula, and the simple state of joy, the putamen.

On the other hand, the state of mental silence produced a disconnection of the rACC with the thalamus (see figure 2). The thalamus is an area known as a place where there is neuronal interconnection (synapses) of sensory neurons of different senses, this fact was interpreted as less attention to the outside world in favour of greater internalized attention during meditation, which facilitates the concentration in meditation and prevents meditators from being distracted by noise or disturbances from the outside, an important fact if one has to meditate inside a resonance scanner that has a high level of noise associated with its normal functioning.

In conclusion, the study's findings show that mental silence experienced through Sahaja Yoga meditation is associated with the development of neural networks and areas that are crucial for the control of attention and emotions, all of which may have a positive impact on mental health directly and on physical health indirectly.

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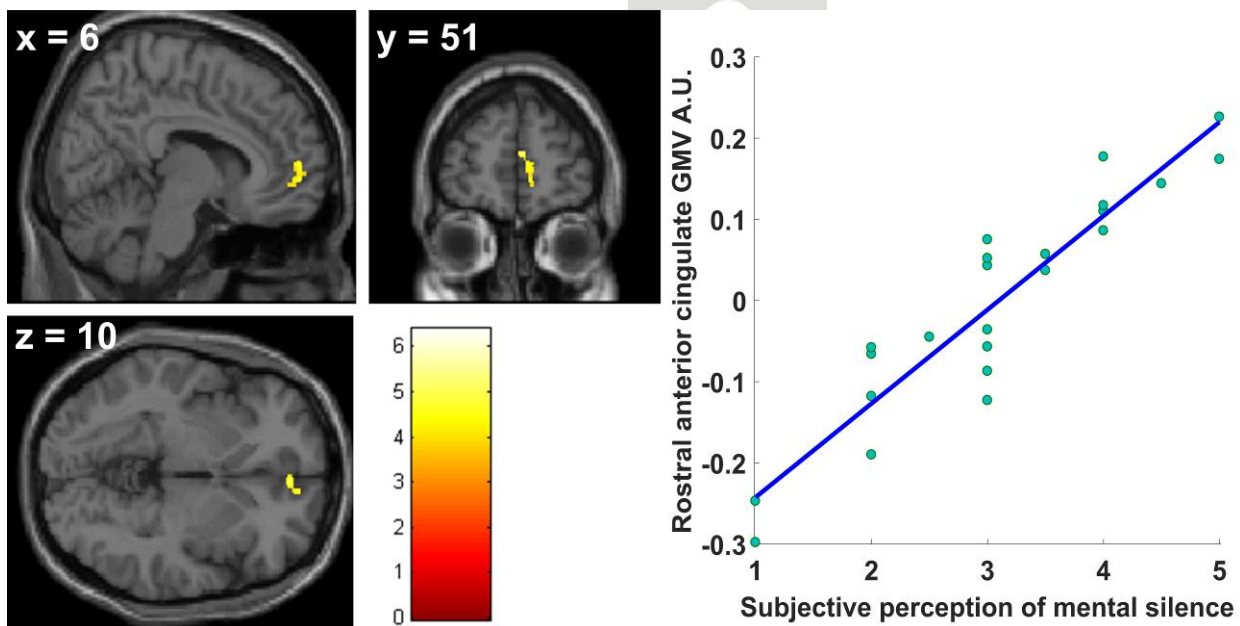


Figure. Left: Grey matter volume in rACC area positively correlated with the subjective perception of the depth of mental silence. Right: Grey matter volume at rACC as a function of the subjective perception of the depth of mental silence inside the scanner.

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