

Mirror Neurons: Recent Findings and Further Suggested View



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Abstract

This article is a brief view about recent status findings in mirror neurons; what is their nature? How do they work in a human brain? What are their relationship with empathy and telepathy; brain-to-brain communication, and brain-to-brain Sync? Finally, what is the upcoming suggesting study in the light of these recent findings?

Keywords: Mirror neurons; Telepathy; Empathy; Brain-to-brain interaction; Brain-to-brain sync

What are Mirror Neurons? How do They Work in the Human Brain?

The main goal of neuroscience is to understand how neurons interact to create behavior. Neurons exchange information by sending electrical signals and chemical ones through synapses connections. Mirror neurons are a special class of nerve cells playing an important role in the direct knowledge, automatic and unconscious environment [1].

Mirror neurons perceived as the ability to connect with others, but not as a conscious level, learning by imitating, understand and offering help; empathy. These connections are not directly, but mediated by one's experience [1]. Mirror neurons are important during childhood, they are highly important in learning and acquiring new skills. They are involved in thinking, planning, controlling and memory. If a child observes an action, the mirror-neurons will activate and form new neural connections, as if he or she undertook the action herself/ himself. An efficient functioning of the mirror neurons leads to an excellent development in any field, to a greater emotional intelligence and to a higher-level of empathy [1].

It is proposed that a human mirror neuron system may contribute to a number of cognitive functions such as action understanding; 'theory of mind', humans' abilities to infer another's mental state through experiences or others' behavior; emotion understanding; imitation; and speech perception [2].

Ramachandran (2000) suggests that the discovery of mirror neurons will affect the field of psychology as DNA influenced biology; that mirror neurons can provide a unifying framework, which can explain a number of humans' mental abilities [2]. Mirror neurons considered as a matching system in the human brain.

The technique that measure brain activation indicates some areas suggesting for this system, as the frontal and parietal areas of the brain, limbic system, and other motor regions, as amygdale and insula. Mirror neurons may sub serve higher social cognition, including social cognitive abilities as communication, empathy, emotions, and sensation [2]. Mirror neurons are motor neurons; the motor system involved in understanding the actions and intentions of others [3].

The Role of Mirror Neurons in Brain-To-Brain Communication

Mirror neurons recently discovered underlying empathy, brain-to-brain coupling, neuro-tuning, synchronization (SYNC) between brains and between individuals, which increases group cooperation and performance [4]. Empathic responses done by creating cycles of tension and release sync the specter's rhythms, producing empathic resonance, Empathy relates to connectedness and to a sense of just knowing what another person is feeling, and is closely related to intuition . Moreover, it defines as recognizing

other people's emotions through intuition and a feeling of connecting to the other person [4].

The neural structures responsible for the development of empathy are mirror neurons, which make us "feel" the reasons for and consequence of an observed action of the other, as if we, ourselves, were performing this action. An increasing body of evidence shows that, during joint action, people become implicitly coupled at motor, perceptual and cognitive levels. Synchronized brains can create new phenomena, including verbal and nonverbal communication systems and interpersonal social brain-to-brain coupling [4].

It is hypothesized that telepathy phenomena, including thought transfer among humans, may be attributed to role of subconscious parts of brain mediated by mirror neurons, especially with regard to the existence of mirror neurons in subconscious centers of brain including cingulate amygdale, hippocampus, entorhinal cortex and parahippocampal gyrus . Noticeably, as previously mentioned, the parahippocampal gyrus is one of the brain regions that may be involved in the brain-to-brain interface [5].

Direct brain-to-brain communication (DBBC) is a kind of extra-sensory perception, called telepathy; transferring feels and thoughts without using the common sensory channels of communication. It suggested that Cryptochrome, which exists in the retina and in different regions of the brain, confirmed to be able to perceive magnetic fields and convert magnetic fields to action potentials. Recently, iron particles (Fe3O4) believed to be functioning as magnets found in various parts of the brain, and postulated as magnetic field receptors. Newly developed supersensitive magnetic sensors made of iron magnets that can

sense the brain's magnetic field have suggested the idea that these Fe3O4 particles or magnets may be capable of perceiving the brain's extremely weak magnetic field [5,6].

Future Suggested Study in the Light of These Findings

From the presented above, we may suggest that mirror neurons are a "matching neurons system" in human brain, that is for connectedness unconsciously. This means new paradigm in cognitive neuro social psychology, seeking how we may interact directly by our brains' magnetic fields. New methods and techniques needed to discover this highly important new realm, not only as the discovery of DNA in biology, but also as the importance as Freud unconscious mind discovery; psychologically and physiologically.

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