

Lack of empathy following traumatic brain injury linked to reduced responsiveness to anger

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Egocentric, self-centred, and insensitive to the needs of others: these social problems often arise in people with severe traumatic brain injury (TBI) and have been attributed in part to a loss of emotional empathy, the capacity to recognise and understand the emotions of other people. Given that traumatic brain injuries are becoming more common, and resulting empathy deficits can have negative repercussions on social functioning and quality of life, it is increasingly important to understand the processes that shape emotional empathy. A new study has recently revealed evidence of a relationship between physiological responses to anger and a reduction of emotional empathy post-injury, as reported in the May 2011 issue of *Cortex*.

Researchers from the University of New South Wales, Australia, teamed up to investigate whether physiological responses to emotions correlate with emotional empathy in a group of adults with severe TBI and a group of healthy control participants. After determining the emotional empathy abilities of the participants by questionnaire, the researchers measured activation of their [facial muscles](#) and [sweat glands](#), in response to happy and angry [facial expressions](#), using facial electromyography (EMG) and skin conductance. They found that the control group spontaneously mimicked the emotional facial expressions they saw, and also perspired more in response to [angry faces](#). In contrast, those in the TBI group generally scored lower in emotional empathy and were less responsive, specifically to angry faces. Lack of emotional empathy was specifically

found to be associated with reduced physiological responses to angry faces.

"The results of this study were the first to reveal that reduced emotional responsiveness observed after severe TBI is linked to changes in empathy in this population. The study also lends support to the conclusion that impaired emotional responsiveness - including facial mimicry and skin conductance - may be caused, at least in part, by dysfunction within the system responsible for emotional empathy", explains author Arielle De Sousa. "This has important implications for understanding the impaired social functioning and poor quality of interpersonal relationships commonly seen as a consequence of TBI, and may be key to comprehending and treating empathy deficits post-injury."

More information: The article is "Understanding deficits in empathy after traumatic brain injury: The role of affective responsivity" by Arielle de Sousa, Skye McDonald, Jacqueline Rushby, Sophie Li, Aneta Dimoska, and Charlotte James, and appears in *Cortex*, Volume 47, Issue 5 (May 2011). www.sciencedirect.com/science/journal/00109452

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