

Amygdala Whisperers: Training our Brains Not to Fear

It is within the orbitomedial prefrontal cortex (OMPFC) and amygdala networks that our ability to regulate emotion based on experiences of safety and danger becomes organized. The amygdala is a primitive structure beneath the brain's cortex that rapidly appraises sensory information for danger and, if necessary, mobilizes the body into action by activating the sympathetic nervous system. The OMPFC, on the other hand, can convert our experiences into learning that is capable of regulating and inhibiting the amygdala. The OMPFC's role in emotional regulation is highlighted by the fact that people with damage to this forehead region are more vulnerable to depression, mania, and antisocial behavior. Together, the OMPFC-amygdala network evaluates and remembers the reward or punishment value of complex social interactions. This network, central for survival, organizes early attachment experiences and therefore, our ability to bond with others throughout life.

On its own, the amygdala is capable of processing aspects of our environment of which we are totally unaware, making us automatically react to and avoid people, places, and things that have previously had a negative effect on us. These capabilities lead it to have a profound influence on both our conscious and unconscious experience. So, even when we do our very best being mindful of our moment-to-moment emotional experience, the amygdala can have its way with us before we are even aware that it has become activated.

The amygdala and the OMPFC have a mutually inhibitory relationship with each other. Therefore, when the OMPFC is damaged or underactive, the amygdala has greater control over our behaviors, perceptions, and judgments. In these situations, our thinking is guided less by conscious consideration and more by survival-based instincts and impulses. When we are anxious, in fact, we are more likely to behave in ways that are less civilized – more aggressive, authoritarian, and prejudicial. We are also more likely to engage in compulsive and self-

destructive behaviors such as substance abuse, binge eating, or stealing. On the other hand, when we are able to regulate our emotions, we optimize cortical participation in judgment and decision making. A highly developed and well-regulated OMPFC-amygdala network may well be a prerequisite for psychological maturity and the attainment of wisdom.

One reason it is so easy to forget the name of an acquaintance, but so hard to forget a traumatic experience lies in the differences between the hippocampus and amygdala. The hippocampus, central to explicit memory (names, places, and events), remains flexible to new learning and even changes size with changing memory demands. The amygdala, in contrast, retains stable and persistent dendritic structure in response to stressful situations. So while the hippocampus is constantly remodeling to keep abreast of current environmental changes, the amygdala catalogues past threats to apply toward future situations. Unlike our fragile memories for names and dates, the amygdala has a resilient memory for what has frightened us. Adding to the tenacity of trauma is the fact that amygdala activation results in chemical processes that enhance memory for fearful experiences. Our fears are, then, more resistant to extinction.

The amygdala is not only a center of fear processing, but is also central in processing most social information. Secure attachments with caregivers and positive affect regulation early in life allow us to maximize amygdala functioning as opposed to being victimized by the anxiety and fear it can activate in downstream perceptions, feelings, and behaviors. When a child is neglected or abused, his or her amygdala can become biased toward fear activation, which can be emotionally crippling to the victim in ways that can last a lifetime.

Like a wild horse, the amygdala needs to be tamed to enhance its positive characteristics. With the amygdala, as with horses, taming occurs in the context of an understanding relationship – the establishment of control and regulation through a combination of affection and limit setting. Among other things, loving parents and grandparents are “amygdala whisperers.” And, for larger endeavors in undercutting the neuro-biology of fear, Neurofeedback Training is available. To

become an attuned amygdala whisperer, check out our web site:
AffectiveNeuroSciences.com