# Chapter 37 The Amygdala and Fear

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# Abstract

The amygdala comprises multiple subnuclei receiving input, directly or indirectly from all sensory systems. Major reciprocal connections with the insula are relevant to interoception and emotional awareness in man.

Lesion studies demonstrate that the amygdala subserves the classical paradigm of fear conditioning, in animals and man. Modern neuroscience promises a detailed understanding of mechanisms in animals. In man, rare lesions of the amygdala are associated with a loss of both the subjective experience of fear and the capacity to detect expressions of fear by others. In addition, there is impairment of social cognition and decision-making.

Brain imaging in man has confirmed that fear may be registered subliminally and independently of other nonemotional signals: thus a fearful expression is processed independently of facial recognition. Prominent fearful experience in a psychiatric disorder necessarily implicates the amygdala. Drugs that increase serotonin in the brain have early actions in reducing neuronal responses in the amygdala.