

THE SOCIAL, EMOTIONAL AND SEXUAL FUNCTIONS OF THE HUMAN AMYGDALA

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The amygdala has received much attention from neuroscientists investigating social, emotional and sexual behaviour in rodents and humans. The amygdala is a densely interconnected hub in the brain, which regulates neural networks including the prefrontal cortex, the striatum, and the hippocampus, and critically underlies e.g. (social) punishment and reward learning, emotional memory, and goal-directed behaviour. The amygdala may however be a misnomer because scientifically there is no unified amygdala, but this “amygdala” is a complex compound of interconnected structures vastly different in structure and function. Most pronounced, the basolateral and central-medial nuclei of the amygdala (BLA and CMA) have (ancient) striatal vs (modern) cortical structure and antagonistic functions. For many decades in rodents the amygdala has already been researched detailed on sub-region level, but most of human research the non-existent unified amygdala remains the standard. As a result, rodent data on the amygdala are lost in translation, and might even have no relevance for the human case. I will present a line of research from South Africa with a unique population of subjects with a gene-mutation variant of Urbach-Wiethe disease which is accompanied by selective bilateral calcification of exclusively the basolateral amygdala, leaving the other amygdala nuclei fully intact and functional. This group of individuals is currently importantly contributing (and will in the future importantly contribute) to the translation of a wealth of research on the rodent basolateral amygdala in the domains of social, emotional and sexual behaviour.