# Chapter 19 Trauma and Memory

B. Iffland and F. Neuner

Bielefeld University, Bielefeld, Germany

# Abstract

During a traumatic event, mainly emotional, sensory, and perceptual information is stored in an interconnected neural network. This network can be activated by environmental stimuli and internal cues later at any given time. An activation of the entire network is thought to be a flashback, which is one of the cardinal symptoms of post-traumatic stress disorder (PTSD). Additionally, the PTSD symptom of avoidance can be seen as a consequence of the activation of the trauma network. In contrast to the extensive memory of sensory-perceptual information, memories of traumatic events are characterized by a disconnectedness from temporal and spatial information about the general event and cannot be clearly positioned in a lifetime period. Furthermore, traumatic stress and the distribution of stress hormones during a traumatic event cause strong structural and functional alterations of brain structures involved in memory processing, like the hippocampus and the amygdala.