

The Roozendaal lab focuses on understanding the role of stress and emotional arousal in learning and memory processes. By using animal models, we examine the impact of stress hormones on brain circuits regulating more qualitative aspects of memory, like accuracy, flexibility and generalization, and their possible role in phobias and post-traumatic stress disorder.

Both positive and negative experiences are more likely to be recalled with greater detail and vividness than events that lack this emotional aspect, and this is a highly adaptive survival mechanism to help us remember important life events. However, the same phenomenon is known to play an important role in the development of traumatic memories and anxiety disorders.

We use animal models of learning and memory, combined with an array of molecular and imaging techniques to investigate the brain processes underlying the effects of emotional arousal on memory processes. Previously we have shown that stress hormones adrenaline and cortisol enhance the formation and storage of new memory traces via interactions with endocannabinoid and noradrenergic mechanisms within the basolateral amygdala. In recent projects, we are investigating not only how stress hormones modulate the strength of memory, but also have an impact on the quality of memory. Furthermore, we work closely together with clinical researchers to investigate how findings of our animal studies can be used to increase understanding of traumatic memories in humans and might lead to new strategies for the prevention or treatment of memory- and anxiety disorders.

We are always looking for Bachelor or Master students to join our team! We have various projects you could work on. If you are interested; please send an email to [benno.roozendaal@radboudumc.nl](mailto:benno.roozendaal@radboudumc.nl).