


Module 4:Hormone-Behaviour Relationship

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Hypothalamus

Hypothalamus is part of the brain that controls multiple functions and work as relay centre for the endocrine system. The animation given below shows the location of hypothalamus in the brain.

[See video on web](#)

The hormones released by hypothalamus are thyrotropin-releasing hormone, growth hormone-releasing hormone, somatostatin, gonadotropin-releasing hormone and corticotropin-releasing hormone. Gonadotropin-releasing hormone stimulates secretion of hypophysial gonadotropins and regulates sexual behaviour. Corticotropin-releasing hormone (CRH) controls the activity of the pituitary-adrenocortical system. It mediates behavioural and autonomous responses to anxiety and stress. Increased secretion of CRH from the hypothalamus induces pathological anxiety. It makes pituitary secrete adrenocorticotrophic hormone (ACTH).

From the behavioural point of view, CRH plays several important roles. High CRH concentration has been reported in the cerebrospinal fluid of depressed patients. Postmortem studies of suicide cases have also reported the same. Gastrinreleasing peptide (GRP) affects the expression of learned fear. It is also involved in the regulation of emotionally salient memories, feeding behaviour, synaptic plasticity and immune system functions. It alters the expression of corticotropin releasing hormone (CRH) at brain sites associated with stress, such as the central nucleus of amygdale. The GRP system has been considered important for drawing our attention to life threatening situations. Studies have also found the role of gastrinreleasing peptide receptor (GRPR) in regulating synaptic plasticity and memory formation in the hippocampus and other brain areas.

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