THE NEUROENDOCRINE REGULATION OF BEHAVIOR.
By Jay Schulkin.

Neuroendocrine regulation of behaviour underlies motivational states that ultimately determine survival of individual organisms and species. Jay Schulkin reviews the role of hormones regulating motivational drives for thirst, food selection, sexual and parental behaviours, underlying stress and fear responses, and biological rhythms. A reverberating theme throughout the text is that steroids and peptides influence central states that are related to functional requirements and subsequently motivate behaviour. Behavioural states, however, are not isolated events. Rather, behaviour is dependent on environmental context and it is the environment that is reflected by ‘coping behaviours’ and central activational states. ‘Functionalism’ suggests that behaviour allows adaptation to environmental conditions and, internally, physiological systems respond to meet these altered physiological/environmental demands and maintain the ‘internal milieu’.

Common themes emerge within each chapter when assessing model systems underlying various motivational states. Discussion of motivational drive states indicates that steroids influence peptidergic expression in the brain and subsequently activate neural circuits. It is suggested that natural economy dictates the use of similar neural circuitry to regulate most steroid induced behaviours and that these pathways connect with ‘reward circuitry’ underlying ‘motivated’ behaviour. Each chapter adopts a similar structural framework in its research review that indicates the interactive role of steroids and peptides and then reviews their role in regulating behaviour and their actions within the CNS.

Other organizational themes throughout the text are the evolutionary and developmental significance of behaviour, and the diversity and commonality of the mechanisms underlying behavioural states. Commonality of the organization of behaviour and its underlying physiological mediators across species is considered in each of the chapters. In contrast, however, the discussion of diversity is limited since most of the data reviewed are from rodents and only limited consideration is given to other species or clinical human data.

As is clearly stated by the author, this book is not intended as an exhaustive review of behavioural endocrinology. Rather, it is intended as a general textbook and an introduction to the field. The reader is introduced to a specific area of research within behavioural neuroscience that touches on common yet diverse themes. The review is current and thorough within the limited scope of particular steroid–peptide interactions and motivated behaviours, but is strictly limited in its review of non-peptidergic regulation of behaviour. One criticism of this text is that, given the concentration on data from original reports and the thematic and structural duplication within each chapter, it can become a repetitive and dry read. Each chapter is concluded with a summary that gives a superficial or thematic assessment of each chapter and is of limited use. The text would have been greatly improved by a concluding chapter schematically integrating the reviewed data into a comprehensive theoretical ‘take home message’ encapsulating the main themes of all the chapters.

Overall, this text will prove useful as an academic text, particularly for individuals first encountering the field of behavioural neuroendocrinology as part of undergraduate course curricula in the life sciences, endocrinology, neuroscience, biology or psychology.

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