

Biological Sixth Edition Psychology

James W. Kalat

USED

SIXTH EDITION

BIOLOGICAL PSYCHOLOGY

James W. Kalat

North Carolina State University



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Biological Psychology

ABOUT THE **AUTHOR**

James W. Kalat (rhymes with ballot) is Professor of Psychology at North Carolina State University. Born in 1946, he received an A.B. degree *summa cum laude* from Duke University in 1968 and a Ph.D. in psychology in 1971 from the University of Pennsylvania. He is also the author of *Introduction to Psychology* (the fourth edition was published by Brooks/Cole in 1996).

To Ann

• **Chapter 7: The Nonvisual Sensory Systems** New section on the auditory cortex. New or expanded discussions of phantom pain, headache, and sensitization of pain. Explanation of why opiates block postsurgical pain but not the pain from a cut.

• **Chapter 8: Movement** Revised descriptions of the behavioral functions of the cerebellum, basal ganglia, and motor cortex. Deleted discussion of the pyramidal and extrapyramidal systems, with concentration instead on the dorsolateral tract and ventromedial tract. Updated discussions of Parkinson's disease and Huntington's disease.

• **Chapter 9: Rhythms of Wakefulness and Sleep** New section on melatonin. Completely new discussion of brain mechanisms and pharmacology of arousal and sleep. Revised digression on the evolution of REM sleep.

• **Chapter 10: The Regulation of Internal Body States** Much revision of the hunger module. Note especially the virtually all-new sections on genetics of body weight, effects of leptin, and the effects of NPY and other neurotransmitters and hormones.

• **Chapter 11: Hormones and Sexual Behavior** Greatly revised section on the activating effects of hormones on sexual behaviors, emphasizing the effects of dopamine and the medial preoptic nucleus of the hypothalamus. A new section on activating effects of hormones on nonsexual behaviors replaces the old section on activating effects of hormones on aggressive behavior. Updated discussion of parental behaviors. Brief updates on antiandrogens for sex offenders, premenstrual syndrome, and harms from steroid abuse.

• **Chapter 12: Emotional Behaviors and Stress** Deleted section on ulcers (because new data indicate that bacteria, not stress, cause most ulcers). Removed reinforcement, placing it in Chapter 3. Changed order of presentation within modules. New discussion of hormones and aggression; new discussion of amygdala damage in humans.

• **Chapter 13: The Biology of Learning and Memory** Reordered presentation of material within modules. Downplayed the distinction between implicit and explicit memory; new discussion of working memory and its mechanisms. New material on hippocampus and spatial memory, including comparative material on food-storing and nonstoring birds. Updated and revised the section on age and memory. New information on Alzheimer's disease.

• **Chapter 14: Lateralization and Language** New section, "Beyond Broca and Wernicke." Revised discussion of dyslexia to emphasize multiple types and multiple explanations. Note that Williams syndrome is now known to be genetic in origin.

• **Chapter 15: Recovery from Brain Damage** Much new information on mechanisms of cell death after a stroke, and new strategies for minimizing such brain

damage. Completely rewritten description of assessment after brain damage. Updates on collateral sprouting, denervation supersensitivity, and neural transplants.

• **Chapter 16: Depression and Schizophrenia** Reorganized the module on mood disorder, separating the discussions of major depression, bipolar disorder, and seasonal affective disorder. Also reorganized order of presentation in schizophrenia module. New section on the neurodevelopmental hypothesis. Revised description of the role of neurotransmitters, with discussion of the glutamate hypothesis as a plausible rival to the dopamine hypothesis. New digression on differential diagnosis of schizophrenia. Deleted the section on autism.

• **Epilogue: Mind and Brain** A revised presentation of some material previously in Chapter 1.

Supplements

An exciting new **CD-ROM** called *The Integrator* has been prepared by Art and Wendy Kohn and their associates. This program provides video clips, computer simulations, interviews, and many other audiovisual aids for instructors to use in the classroom and for students to use on their own. A new **Biopsych Web Site** has been designed to accompany the textbook to help students learn the concepts of biological psychology and have fun at the same time. Students and instructors will find annotated links, online tutorial modules, practice tests, an online biopsych dictionary, discussion forums, Kalat's "Biological Psychology Updates" newsletter, and more at <http://psychstudy.brookscole.com>. Instructors who adopt the book may also obtain from the publisher a copy of the *Instructor's Manual*, written by Ron Ruiz of Riverside Community College and Teri Rust of Lewis-Clark State College. The manual contains approximately two thousand multiple-choice test items (also available on diskette for IBM and Macintosh computers), chapter outlines, class demonstrations and projects, a list of video resources, and the author's answers to the Thought Questions at the end of text modules. A set of **overhead transparencies** is also available to U.S. adopters, as is a **videotape** containing teaching modules edited from "The Brain" video series. The *Study Guide*, written by Elaine Hull of SUNY-Buffalo, may be purchased by students. I am grateful for the excellent work of the Kohns, Ruiz, Rust, and Hull.

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Let me tell you something about researchers in this field: As a rule, they are amazingly cooperative with textbook authors. A number of my colleagues have sent

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I welcome correspondence from both students and faculty. Write: James W. Kalat, Department of Psychology, Box 7801, North Carolina State University, Raleigh, NC 27695-7801, U.S.A. E-mail: kalat@poe.coe.ncsu.edu.

James W. Kalat

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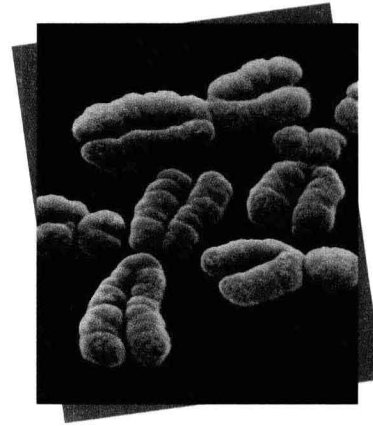


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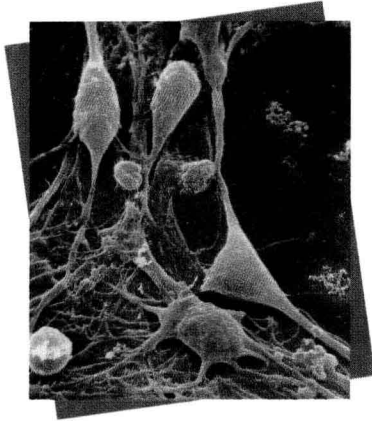
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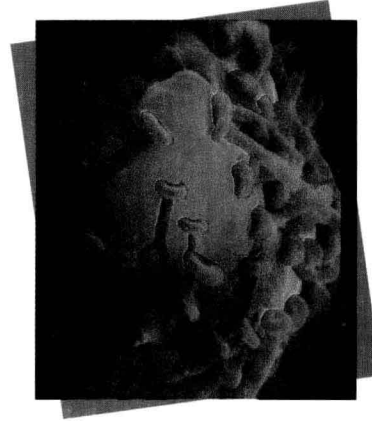
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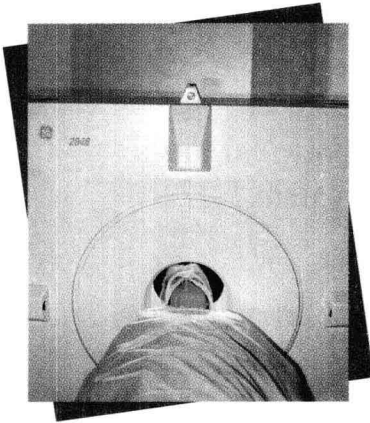
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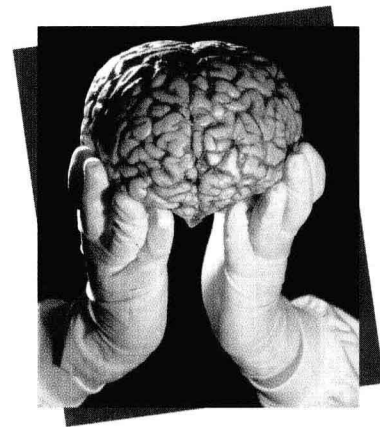
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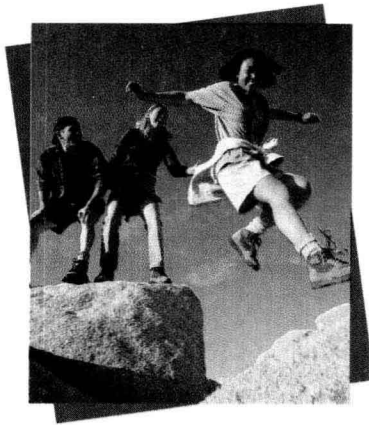
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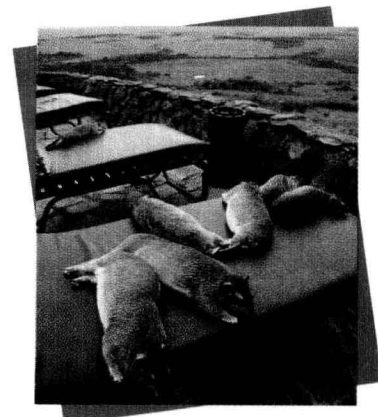
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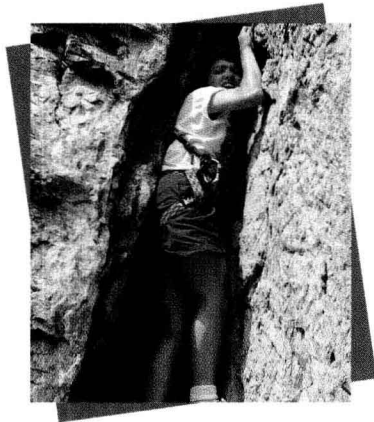
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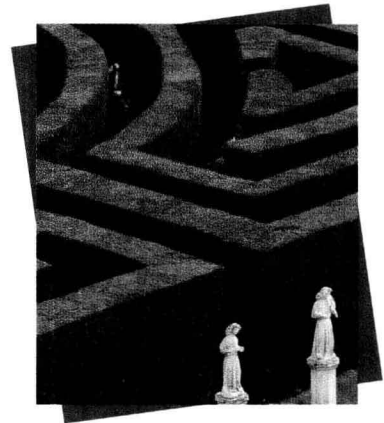
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