

Contents

Part I Basic Concepts

Biologic Rhythms from Biblical to Modern Times, A Preface	1
Y. TAUER and E. HALL	

Principles of Clinical Chronobiology	5
E. HALL and Y. TAUER	

Part II Mechanisms of Rhythm

Cellular and Molecular Aspects of Circadian Oscillators: Models and Mechanisms for Biological Timekeeping	35
L. N. EISNER, Jr.	

The Suprachiasmatic Nucleus and Other Pacemakers	55
W. J. BRETHERTON	

Molecular and Genetic Aspects of Chronobiology	65
D. E. LARAYA	

Neuronal and Daily Control of Enzyme Synthesis and Activity by Circadian Clocks	75
H. GILBERT and C. GILBERT-CLAUDE	

Part III Data Processing

Data Processing in Chronobiological Studies	90
J. DE POURS and R. BRETHERTON	

Part IV Pharmacology and Toxicology

Chronopharmacology	114
B. BREVETONVILLE	

Chronobiology	138
B. CANNAN, B. L. AARAS, and J.-C. CAS	
Rhythms in Drug-Induced Teratogenesis	151
L. NEUTMANN	

Part V Child Development and Aging

Chronobiology of Pregnancy and the Perinatal Time Span	158
P. J. MORA	
Patterns of Growth Hormone Release During Childhood and Adolescent Development in the Human	167
A. D. KRON	
Rhythms in Biochemical Variables Related to Bone and Their Regulating Hormones	179
M. E. MONTAGNÉ	
Biological Rhythms and Aging	189
Y. TROUSSER and E. HANIN	

Part VI Physical and Mental Performance

Chronobiology of Mental Performance	205
T. H. MORAY	
Biological, Behavioral and Intellectual Activity Rhythms of the Child During Its Development in Different Educational Environments	214
H. MORVANDEAU, G. DE ROOVERSTRAET, and M. DUBOIS	
Chronobiology of Physical Performance and Sports Medicine	239
C. M. WILSON, M. R. L. SIMMONS, D. C. HOLLIST, and J. S. MURPHY	

Part VII Shift Work and Transmeridian Flight

Night and Shift Work and Transmeridian and Space Flight	245
A. E. FORTIN and M. H. SANCHEZ	

Part VIII Sleep

Chronobiology of Human Sleep and Sleep Disorders	266
B. HERRN and C. A. CZEISLER	

Part IX Psychiatry

The Complex Circadian Pharmacokinetics in Affective Disorders	365
D. F. Kasper, M. D. DREAMAN, and J. A. ELLERT	

Part X Endocrine and Metabolic Functions

Rhythmic and Non-Rhythmic Modes of Anterior Pituitary Hormone Release in Man	377
J. D. VIGAMORE, M. L. JOHNSON, A. INVERNIZZI, and G. LUCAMAZZINI	
Chronobiology of the Hypothalamic-Pituitary-Adrenal and Kinin-Angiotensin-Adrenergic Systems	392
R. ARONAL, G. GOTTU, and R. CANNON	
Chronobiology of the Hypothalamic-Pituitary-Gonadal Axis in Men and Women	415
C. H. BARNHARTER and J. P. HILL, Jr.	
Chronobiology of the Hypothalamic-Pituitary-Thyroid Axis	509
G. V. NICKOLA and E. HALL	
The Pituit	568
J. ARONAL	
Chronobiology of Endocrine-Immune Interactions	783
G. GOTTU, R. ARONAL, and R. CANNON	
Chronobiology, Nutrition, and Diabetes Mellitus	795
L. MITHAN, M. KOLMAN, and P. DIMITROU	
Endocrine and Neuroendocrine Axis Testing in Clinical Medicine: Evidence for Time Dependency	798
Y. TAYLOR and A. BROUWER	

Part XI Hepatobiliary System

Biological Rhythms in Hepatic Drug Metabolism and Biliary Systems	803
P. M. BILSBOOM and G. LAMMERS	

Part XII Gastrointestinal System

Chronobiology of the Gastrointestinal System	839
J. G. MITHAN	

Part XIII Cardiovascular System

Cardiovascular Chronobiology and Chronopharmacology	418
B. LEANER	
Chronobiologic Blood Pressure Assessment from "Womb to Tomb"	428
G. COMTESSINI, E. HALL, and F. HAMANN	

Part XIV Respiratory System

Postnatal Airway Mechanisms and Chronotherapy	433
M. H. SCHNEIDER and G. B. D'AMICO	

Part XV Renal Physiology and Pathology

Renal Function: Rhythms in Physiology and Pathology	439
J. CAMMAR, J. C. CHAI, and J. THURSWAY	

Part XVI Inflammatory Reactions

Inflammatory Reaction and Disease States	483
G. LAMMIGRE	

Part XVII Immunology and Hematology

Chronobiology of Immune Functions: Cellular and Humoral Aspects	493
G. FERNANDES	
Chronobiology of Circulating Blood Cells and Platelets	504
E. HALL	
Chronobiology of Human Bone Marrow	527
R. SINGALANI and G. B. LEANER	
Chronobiology of Polymorphonuclear Leukocyte Migration	547
J. FIBRIGER and L. GARNIER	
Chronobiology in Hemostasis	555
H. DEGENNE	

Part XVII Cell Proliferation and Cancer

Normal and Abnormal Cell Proliferation in Mice Especially as It Relates to Cancer	606
L. F. Sweeney, T. H. Tsao, L. A. Sweeney, R. J. Francis, and E. J. Rasmussen	
Chronobiology of Endocrine and Endocrine-Responsive Tumors	609
R. von Bormann	
Chemotherapeutic of Malignant Tumors: Temporal Aspects of Antineoplastic Drug Toxicity	611
W. J. M. Hoessemer and W. J. M. Lee	
Immune System in Relation to Cancer	615
C. Ceresa and F. Lipo	
Rhythms in Tumor Markers	619
N. Horiuchi and C. Fujita	

Part XIX Epidemiology

Chronoepidemiology: Chronobiology and Epidemiology	620
M. H. Samsonov	

Part XX Laboratory Medicine

Chronobiology in Laboratory Medicine	623
E. Haas and S. Horiuchi	
Glossary	709
Subject Index	713