# Table of Contents

**Preface**

1

## A. Physiological basis of sleep

**Section Editors: R. Amici, Z. Đogaš, P. Peigneux**

1. **The neurophysiology and neurobiology of sleep**
   - P.-H. Luppi, A. Adamantidis and P. Fort
   - Pages 3

2. **Regulation of sleep and wakefulness**
   - Z. Đogaš, R. Pecotic and M. Valic
   - Pages 13

3. **Adaptation of bodily functions to sleep**
   - R. Amici and G. Zoccoli
   - Pages 27

4. **Theories on the functions of sleep**
   - P. Peigneux and R. Leproult
   - Pages 39

5. **Effects of acute and chronic sleep deprivation**
   - H.-P. Landolt, A. Sousek and S.C. Holst
   - Pages 49

6. **Sleep and dreaming**
   - M. Schredl
   - Pages 63

7. **Ageing and sleep: sleep in all stages of human development**
   - N. Olini and R. Huber
   - Pages 73

8. **Gender differences in sleep**
   - T. Porkka-Heiskanen, T. Saaresranta and Polo-Kantola
   - Pages 83

## B. Assessment of sleep disorders and diagnostic procedures

**Section Editors: T. Penzel, M. Zucconi**

1. **Classification of sleep disorders**
   - M. Zucconi and R. Ferri
   - Pages 95

2. **The clinical interview and clinical examination**
   - L. Grote and F. J. Puertas
   - Pages 111

3. **Measuring – monitoring sleep and wakefulness**
   - J. Mathis, S. de Lacy and C. Roth
   - Pages 125

4. **Other tests and examinations**
   - T. Penzel and C. Schöbel
   - Pages 145

## C. Insomnia

**Section Editors: C. Espie, T. Pollmächer, D. Riemann**

1. **Nosological classification, definitions, epidemiology**
   - J.G. Ellis
   - Pages 151

2. **Pathophysiology**
   - K. Spiegelhalder and C. Baglioni
   - Pages 165

3. **Clinical picture and diagnosis**
   - D. Riemann and K. Spiegelhalder
   - Pages 171

4. **Comorbidities and special populations**
   - T. Pollmächer
   - Pages 177

5.1. **Treatment—practical skills for applying CBT-I**
   - C. Baglioni and D. Riemann
   - Pages 183

5.2. **Tailoring cognitive–behavioural therapy for insomnia to specific needs: a personalized behavioural medicine approach**
   - C.A. Espie, S.D. Kyle, P.R. Gehrmann, J.C. Ong and P. Hames
   - Pages 193

5.3. **Pharmacological treatment of insomnia**
   - D. Leger
   - Pages 207

## D. Sleep-related breathing disorders

**Section Editors: W. McNicholas, D. Peveragie**

1. **Nosological classification, definitions, epidemiology**
   - W. T. McNicholas
   - Pages 215

2. **Pathophysiology**
   - W.J. Randerath
   - Pages 221

3. **Clinical picture and diagnosis**
   - S. Mhaiacuta, L. Grote
   - Pages 233

4. **Comorbidities and special populations**
   - Pages 251

5. **Treatment of respiratory sleep disorders**
   - D. Peveragie, M. Sastry and O. Vanderveken
   - Pages 259

## E. Hypersomnias of central origin

**Section Editor: C. Bassetti**

1. **Nosological classification, definitions, epidemiology**
   - C. R. Baumann
   - Pages 275
Preface

Friend or foe, sleep accompanies us all along our life from birth to death. Taking a toll that may amount, on average, to one-third of the 24-h cycle, it fulfills essential functions to keep brain and body able to answer the challenges of wakefulness. Lack of sleep and sleep disruptions lead rapidly to detrimental changes in physical and psychological wellbeing. Conversely, sleep is one of the most sensitive markers of health problems. Indeed, most diseases accompany changes in quantitative and qualitative patterns of sleep, which may even anticipate the occurrence of critical symptoms by years, for instance in some neurodegenerative diseases. This makes sleep medicine a central component in modern multi-disciplinary health-care systems, and calls for the in-depth specialization and training of sleep medicine specialists to benefit higher accuracy in diagnosis, and improved treatment and intervention methods. This also calls for unified approaches and the development of standard European curricula in sleep medicine.

The European Sleep Research Society (ESRS) Sleep Medicine Textbook aims to address this challenge by providing a comprehensive basis and knowledge of sleep medicine, serviceable across all countries in a broadly defined European zone. It also logically follows the publication of the ‘Catalogue of knowledge and skills for sleep medicine’ in the Journal of Sleep Research (Penzel et al., 2014), the official publication of the ESRS. This Catalogue was a joint action of the Board and the Sleep Medicine Committee of the ESRS, in cooperation with members of the Assembly of National Sleep Societies (ANSS), a constituent body of the ESRS. The Catalogue was intended to be the basis for sleep medicine education, for sleep medicine courses and for sleep medicine examinations, servicing not only physicians with a medical speciality degree, but also PhD and MSc health professionals such as clinical psychologists and scientists, technologists and nurses, all of whom are involved professionally in sleep medicine. The ESRS Sleep Medicine Textbook is one of the educational actions advocated in the Catalogue, as it proposes a systematic knowledge base that will be used from now on as the reference for the ESRS Examination/Certification in Sleep Medicine and the ESRS Examination/Certification in Sleep Medicine for Sleep Technologists.

Accordingly, the ESRS Sleep Medicine Textbook develops state-of-the-art knowledge over 10 sections that parallel the domains defined in the Catalogue, comprising physiology, pathology, diagnosis and treatment procedures to societal and organizational aspects of sleep medicine. This structured material also provides a comprehensive basis for the development of teaching modules and the collection of European Credit Transfer and Accumulation System (ECTS) points in the framework of standard education study programmes conducted at the European level, to be developed in close cooperation with universities or with other expert societies collaborating in the sleep medicine domain.

Recognized sleep medicine and sleep research experts have written all the chapters, which have been subjected to peer-review evaluation. The three Editors-in-Chief warmly thank all the Authors, Section Editors and Reviewers for their outstanding contribution to this ESRS action. We also warmly thank ESRS assistant, Mrs Brigitte Knobl, for her enthusiastic and highly professional support in the management and realization of this book. We sincerely hope that the ESRS Sleep Medicine Textbook will serve future students of newly developed integrated sleep medicine curricula, and support the continuous medical education of sleep experts all over Europe and worldwide. We trust that this textbook will attract new students and fellows in the exciting fields of sleep medicine and sleep research, and ultimately benefit the numerous worldwide patients suffering from sleep disorders.

Prof. Claudio Bassetti (ESRS President 2008–12), Prof. Zoran Dogas (ESRS Education Committee 2012–14) and Prof. Philippe Peigneux (ESRS President 2012–16)

REFERENCE