
Endocrinology

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Within the health sciences, Endocrinology has an unique and pivotal role. This old, but continuously new science is the study of the various hormones and their actions and disorders in the body. The matter of Endocrinology are the glands, i.e. the organs that produce hormones, active on the metabolism, reproduction, food absorption and utilization, growth and development, behavior control, and several other complex functions of the organisms. Since hormones interact, affect, regulate and control virtually all body functions, Endocrinology not only is a very complex science, multidisciplinary in nature, but is one with the highest scientific turnover. Knowledge in the Endocrinological sciences is continuously changing and growing. In fact, the field of Endocrinology and Metabolism is one where the highest number of scientific publications continuously flourishes. The number of scientific journals dealing with hormones and the regulation of body chemistry is dramatically high. Furthermore, Endocrinology is directly related to genetics, neurology, immunology, rheumatology, gastroenterology, nephrology, orthopedics, cardiology, oncology, gland surgery, psychology, psychiatry, internal medicine, and basic sciences. All these fields are interested in updates in Endocrinology. The aim of the MRW in Endocrinology is to update the Endocrinological matter using the knowledge of the best experts in each section of Endocrinology: basic endocrinology, neuroendocrinology, endocrinological oncology, pancreas with diabetes and other metabolic disorders, thyroid, parathyroid and bone metabolism, adrenals and endocrine hypertension, sexuality, reproduction, and behavior.

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Paolo Sbraccia • Nicholas Finer
Editors

Obesity

Pathogenesis, Diagnosis, and Treatment

With 66 Figures and 31 Tables

 Springer

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Series Preface

Is there an unmet need for a new MRW series in Endocrinology and Metabolism? It might not seem so! The vast number of existing textbooks, monographs and scientific journals suggest that the field of hormones (from genetic, molecular, biochemical and translational to physiological, behavioral, and clinical aspects) is one of the largest in biomedicine, producing a simply huge scientific output. However, we are sure that this new Series will be of interest for scientists, academics, students, physicians and specialists alike.

The knowledge in Endocrinology and Metabolism almost limited to the two main (from an epidemiological perspective) diseases, namely hypo/hyperthyroidism and diabetes mellitus, now seems outdated and closer to the interests of the general practitioner than to those of the specialist. This has led to endocrinology and metabolism being increasingly considered as a subsection of internal medicine rather than an autonomous specialization. But endocrinology is much more than this.

We are proposing this series as the *manifesto* for “**Endocrinology 2.0**”, embracing the fields of medicine in which hormones play a major part but which, for various historical and cultural reasons, have thus far been “ignored” by endocrinologists. Hence, this MRW comprises “traditional” (but no less important or investigated) topics: from the molecular actions of hormones to the pathophysiology and management of pituitary, thyroid, adrenal, pancreatic and gonadal diseases, as well as less common arguments. Endocrinology 2.0 is, in fact, the science of hormones, but it is also the medicine of sexuality and reproduction, the medicine of gender differences and the medicine of wellbeing. These aspects of Endocrinology have to date been considered of little interest, as they are young and relatively unexplored sciences. But this is no longer the case. The large scientific production in these fields coupled with the impressive social interest of patients in these topics is stimulating a new and fascinating challenge for Endocrinology.

The aim of the **MRW in Endocrinology** is thus to update the subject with the knowledge of the best experts in each field: basic endocrinology, neuroendocrinology, endocrinological oncology, pancreatic disorders, diabetes and other metabolic disorders, thyroid, parathyroid and bone metabolism, adrenal and endocrine hypertension, sexuality, reproduction and behavior. We are sure that this ambitious aim,

covering for the first time the whole spectrum of Endocrinology 2.0, will be fulfilled in this vast Springer MRW in Endocrinology Series.

Andrea Lenzi M.D.
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Volume Preface

Obesity is now the leading cause of preventable disease worldwide and continues to increase in prevalence. The ever-increasing list of complications of obesity affects every organ system in the body, from type 2 diabetes to nonalcoholic steatohepatitis and dementia. Increasingly it is recognized as a disease in its own right. Yet despite the importance of obesity as a disease, people with obesity are still underdiagnosed and undertreated and are subject to bias and stigma not just from society at large but also health-care professionals. The past decade has seen a major shift in the perception of obesity from being simply a matter of excess weight with largely mechanical complications to a chronic disease characterized by chronic low-grade inflammation driven by the active secretion of cytokines, hormones, and other factors from adipose tissue. Obesity is a true endocrine disease, and adipose tissue is the largest endocrine organ.

It is with this background that the editors have drawn together experts in the field to provide a timely and comprehensive resource to those wanting to expand their understanding of this twenty-first-century disease. There is much to learn in this rapidly evolving area of basic science, physiology, and translational medicine, with a growing number of treatment options for people with obesity. In the USA, Board Certification is well established as a specialty and the numbers of bariatric physicians growing in numbers and strength. Elsewhere, it is endocrinologists who are seen taking on this role, but they are often poorly resourced to provide the multidisciplinary and long-term care that patients with obesity need and should expect. We hope this book will enthuse endocrinologists, in particular but not only, into the exciting field of obesity medicine and encourage them to develop and strengthen their research and clinical involvement. The ultimate goal is to benefit every single patient with obesity and the public health at large.

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Professor Sbraccia is also currently serving as President of the Italian Federation of Endocrinology, Diabetology, Andrology, Metabolism and Obesity and as Vice President of the Italian Barometer Diabetes Observatory. In addition, he is Past President of the Italian Society of Obesity and a Member of the European Medicines Agency’s Scientific Advisory Group on Diabetes/Endocrinology.

In 2011, on behalf of SIO, he coordinated the Steering Committee for the Italian Guidelines for the Management of Obesity, and in 2016 he was Editor of the book *Clinical Management of Overweight and Obesity: Recommendations of the Italian Society of Obesity (SIO)*.

Professor Sbraccia is also a Member of the editorial boards and reviewer panels of various scientific journals; in particular, he was recently Editor of the book “Clinical Management of Overweight and Obesity, Recommendations of the Italian Society of Obesity (SIO)” and coordinated an SIO steering committee for the Italian Guidelines for the Management of Obesity.



Nicholas Finer has been since 2016 Senior Principal Clinical Scientist with Novo Nordisk, Global Medical Affairs. He is also Honorary Clinical Professor in the National Centre for Cardiovascular Prevention and Outcomes within the Institute of Cardiovascular Science at University College London. Qualifying in Biochemistry and Medicine at University College London, Finer has held senior clinical and academic appointments as an Endocrinologist and Obesity and Internal Medicine Physician at UMDS Guy's and St Thomas' Hospitals, Luton and Dunstable Hospital NHS Trust, University of Cambridge, and University College Hospital London. Nicholas Finer is an elected Fellow of the US Obesity Society and of the UK Association for Nutrition; in 2013 he received the Bisset Hawkins Medal "for work in advancing sanitary science or in promoting public health" awarded by the Royal College of Physicians. Finer chaired World Obesity – Clinical Care until 2015, developing the SCOPE educational program. He is Past Chair of the UK Association for the Study of Obesity. Finer coauthored the Royal College of Physicians report "Action on Obesity: Comprehensive Care for All" and was a Member of the UK Government Advisory Group on Obesity, the Clinical Reference Group that advised NHS England on commissioning of specialist obesity services, and the NICE Public Health Advisory Group. Finer is Editor-in-Chief of Clinical Obesity and has published more than 200 peer-reviewed papers and lectured extensively on obesity and its complications as an internationally invited speaker.

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