

## Preface

Groundbreaking research during the first part of the 20th century by researchers such as Pavlov, Cannon, Hess, and Selye has provided us with a better understanding of the physiological consequences of fear and mental stress. In the second part of last century, Mason, McEwan, and Salpolsky, just to mention a few, were able to demonstrate the specificity of the stress response. Researchers also identified structures and mechanisms in the brain coordinating stress response and enhanced our understanding of short- and long-term consequences on health and well-being.

Today, we recognize that stress is of paramount importance both in health and disease. Without a healthy, timely and temporarily defined stress response, we are unlikely to survive, neither on the Savanna thousands of year ago, nor today challenged by microbes, nor in the globalized and increasingly competitive society. However, sustained activation of the stress response will attenuate our ability to stay healthy and increase our likelihood to succumb to environmental challenges and disease.

Some of today's most challenging public health threats, including cardiovascular and Alzheimer's diseases, premature aging, metabolic syndrome, obesity, and diabetes are all linked to stress. Stress might not be the root cause, but a contributing factor in the initiation and progress of diseases. These major public health threats, in addition to malignant conditions, appear to have immunological malfunction in common. Moreover, it is not sufficient to be genetically at risk; environmental factors appear to play an important triggering role. This is apparent in understanding the socioeconomic gradient of many public health disorders, that is, the better off we are as compared to others, the healthier we are.

In order to understand the mechanisms behind stress, our body's response to stress, its relationship to health and disease, and, ultimately, the treatment and prevention of stress, we need to cross scientific silos. No one discipline will have the ultimate answers. Not even one scientific paradigm is likely to come with the ultimate answers. We need to think trans-disciplinarily. We need to consider how we can move knowledge, not only from the lab bench to the clinic and society at large, but also how to reverse this information flow. We truly need a new roadmap, just as has been proposed by the NIH Director Dr. Zerhouni.

Actually, stress might be one of the most fruitful areas in which to apply innovative new thinking and paradigms in order to not only improve mechanistic understanding, but to enhance our ability to implement new knowledge into society and improve overall public health.

In the current book, *Stress in Health and Disease*, we decided not to take the easy route. It would have been simpler to only invite some of the world's most renowned biological and molecular stress researchers, or some of the most recognized organizational stress researchers. But we did not think such a format would have added sufficiently to the vast amount of stress literature already published. Rather we decided to take the challenge and invite globally outstanding researchers representing a wide array of scientific disciplines, all relevant to stress, but which rarely meet in today's busy research environment.

We asked experts on history, molecular medicine, endocrinology, brain imaging, sleep, recovery, organizational stress, global health and a range of other disciplines to tell us their view and perspective on stress. We requested a lot from these authorities. We asked them to be very specific and focused on their area of expertise. We asked them to challenge the current paradigm. We also asked them to accept sometimes rather harsh editing in order to make sure the book met the mission – understanding stress in health and disease from a multitude of perspectives. Thus, when you read the book, be aware of the active role the editors played. We take full responsibility for this, with the ultimate vision to offer a book that not only presents the state of the art when it comes to stress in health and disease, but also contributes to new and challenging questions that will encourage the coming generation of stress researchers to stretch their experimental design and hypotheses. We also hope the book will encourage meetings and collaborations of researchers and practitioners from a wide array of fields.

This is the first attempt to create a truly trans-disciplinary book on stress – both with regard to the disciplines included as well as its application to real-life settings. The book represents a work in progress. We would be very happy to hear from you how we can improve the book in coming editions and if there are areas you, the reader, think we should have included. Or, are there perhaps superfluous areas that do not belong in a book on stress?

We hope you enjoy this book, that you find some things familiar and universally “true” and other things challenging. We also hope the book generates new approaches in the study and application of stress research.

Finally, we would like to thank all contributing authors. It has been a true joy to work with you all. Without your open minds and timely collaboration, we would not have succeeded. We also would like to thank our publisher, Wiley-VCH, which met the challenge to release a trans-disciplinary book on stress in health and disease. We owe a tremendous amount of thanks to our project editor, Dr. Rainer Muenz, as well as the copy editor, Mrs. Cathy Beesley, and the production manager, Mrs. Dagmar Kleemann, who provided endless professional and social support, ensuring that the editors were optimally challenged and stressed (with sufficient recovery time).

*“Boundaries between disciplines are not barriers, challenges us to find new words and approaches”*

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