Most neurological disorders are chronic and aging-related. With the increase of life expectancy their incidence and prevalence will grow in the decades to come, which in turn will increase the load on medical and social systems worldwide. There is thus a desperate need for successful preventive and therapeutic measures based on randomized clinical trials (RCTs) conducted by independent organizations. This book provides a compendium relating most of the principles of reliable RCTs to specific neurological diseases. Contributed by specialized neurologists, the articles touch on important aspects of RCTs with a clear critical approach, highlighting their limitations as well as giving recommendations for their planning and conducting to address the variable genotypic and phenotypic aspects of neurological conditions. Consideration is also given to combining the clinical impact of the study results with patients’ values and the interests of pharmaceutical companies.

Neurologists involved in clinical trials will certainly benefit from this book, which should become a basic text for all neurological courses dealing with evidence-based neurology.

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Aging and Health – A Systems Biology Perspective

A. I. Yashin
S. Michal Jazwinski

Aging is a major risk factor for chronic diseases, which in turn can provide information about the aging of a biological system. This publication serves as an introduction to systems biology and its application to biological aging. Key pathways and processes that impinge on aging are reviewed, and how they contribute to health and disease during aging is discussed. The evolution of this situation is analyzed, and the consequences for the study of genetic effects on aging are presented. Epigenetic programming of aging, as a continuation of development, creates an interface between the genome and the environment. New research into the gut microbiome describes how this interface may operate in practice with marked consequences for a variety of disorders. This analysis is bolstered by a view of the aging organism as a whole, with conclusions about the mechanisms underlying resilience of the organism to change, and is expanded with a discussion of circadian rhythms in aging. Finally, the book presents an outlook for the development of interventions to delay or to reverse the features of aging. The publication is recommended to students, researchers as well as professionals dealing with public health and public policy related to an aging society.

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