

Mild Stress and Healthy Aging: Applying Hormesis in Aging Research and Interventions

Eric Le Bourg and Suresh I.S. Rattan Springer Science, 2008, pp. 187, hard back, price not mentioned, ISBN 978-1-4020-6868-3, e-ISBN 978-1-4020-6869-0

As there is a rapid rise in the elderly population and incidence of related old age diseases, an emerging social challenge is to maintain health throughout ones lifespan. In this context, the present book is timely written by experts in the subject and presents state-of-art status of research on hormesis and aging. Although the book is multi-authored, chapters are highly coordinated. It aims to explore whether hormesis can be used for healthy aging of human beings and presents excellent and interesting information on hormesis with respect to aging. The editors, Eric Le Bourg and Suresh I.S. Rattan, are leading researchers and popularly known for their longstanding contributions in the area of aging and hormesis.

The book comprises 10 well-written chapters covering a wide range of topics on hormesis and aging. Each chapter is thoroughly discussed and provides new information. The first two chapters deal with detailed introduction of hormesis and aging, the next five chapters discuss hormetic effects of various types of stresses, and the last three chapters are concerned with clinical applications of hormesis. At the end, it is concluded how hormesis can be useful for healthy aging, though the underlying mechanism of action is not clearly understood.

The book begins with an excellent introduction and brief historical analysis of hormesis and aging by the editors. The second chapter by Edward Calabrese further explains the phenomenon of hormesis and focuses on its use in gerontological research. The third chapter written by Alexander Vaiserman describes the beneficial effects of low dose irradiation on the longevity of fruitflies, nematodes, rodents and human beings. The next chapter by Eric Le Bourg presents results of hormetic effects of hypergravity on aging and longevity of *D. melanogaster*. The following chapter by Jesper Sorensen and colleagues focuses on the use of extreme temperatures, either hot or cold in *D. melanogaster*. The next chapter by the editor Suresh Rattan himself describes the effects of mild stresses on human cells, mainly fibroblasts. Focusing on rodents and human beings, Li Li Ji shows that an increased physical activity can act as a mild stress with hormetic effects. The last three chapters are concerned with clinical applications of hormesis. Brian Morris discusses the use of hormetic compounds for health benefits. Pasquale Abete and Franco Rengo present evidences to show how mild stress can be used to protect the aging heart from pathological insults. Akmal Safwat argues that low dose whole body irradiation enhances the efficiency of immune system. Finally, in conclusion, all authors emphasize the perspectives for human beings mentioning that hormesis can be used as an effective anti-aging, health-promoting and lifespan-extending strategy. The book is thought provoking and opens an exciting new area for detailed study. It would be highly useful for young researchers in biogerontology as well as for the established biogerontologist to analyse their results in the light of hormetic effects. Thus the book is worth reading by not only biogerontologists but by all those who are interested in understanding the hormetic approach for healthy aging.

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