# New textbook sheds light on aging

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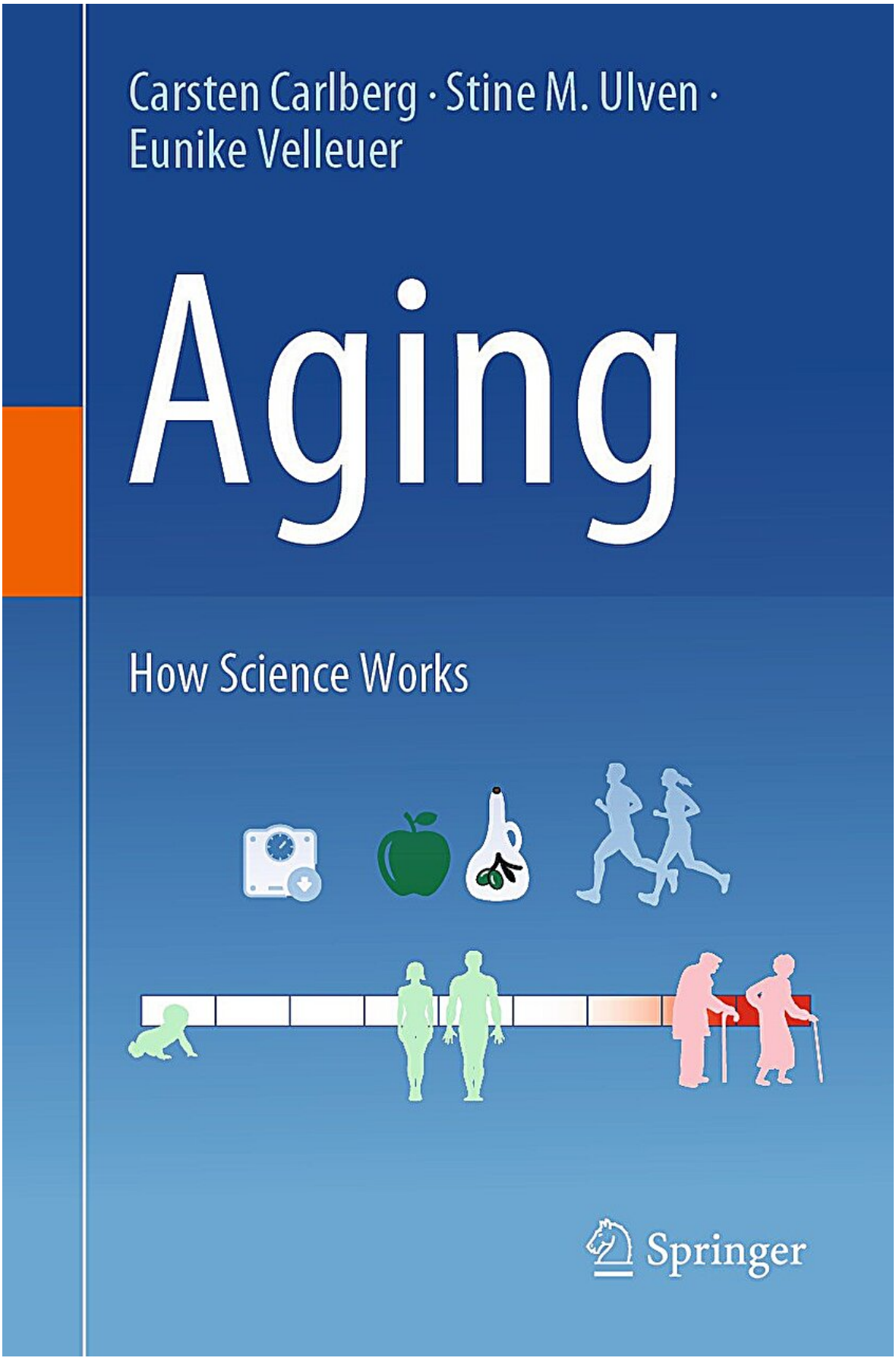
Carsten Carlberg · Stine M. Ulven · Eunike Velleuer
Aging
How Science Works
Springer

Credit: Springer

A new textbook provides an overview on the present understanding of aging—from the basic biology of aging to age-related diseases and to the role of lifestyle and the environment. The textbook "Aging: How Science Works," is based on Professor Carsten Carlberg's popular lectures at the University of Eastern Finland, with Professor Stine Ulven and Dr. Eunike Velleuer as co-authors.

Aging is a topic that concerns everyone. It is not a disease but involves natural changes in physiological and biochemical processes in the human body as we get older. We all have an individual speed of aging, which to a large extent is related to our lifestyle and the environment we live in. Importantly, the molecular and cellular mechanisms of aging are contained in each of our cells.

The process of aging limits our maximal life span, which is, for us humans, 120 years. However, very few have reached this age. How did their lives differ from others who died younger? Is it just the absence of life-threatening disease paired with a healthier lifestyle? Or is it built into our genome or epigenome?

These are some of the questions the book sets out to answer from the perspectives of evolution, our genome and epigenome as well as through the functionality of our tissues and cell types.

"In order to get insight into the process of aging, we have to understand how our body is organized and how the environment to which we are exposed interacts with cellular processes, such as cellular growth,

differentiation and death," the authors write.

In the book, they first explain the human genome in relation to the principles of evolution as well as the basics of gene regulation and epigenetics. They then discuss cellular mechanisms of aging and the impact of nutrition and immunity on the aging process.

Aging-related common diseases, such as type 2 diabetes, atherosclerosis, cancer and Alzheimer's disease, are also examined. Finally, the book gives insights into healthy aging and the potential of slowing down the aging process.

According to Professor Carlberg, the new textbook summarizes what he teaches in his lecture courses "Molecular Medicine and Genetics," "Cancer Biology," "Molecular Immunology" and "Nutrigenomics" on the topic of aging, which has long been his special interest.

Carsten Carlberg is Professor of Biochemistry at the Institute of Biomedicine at the University of Eastern Finland. Professor Stine M. Ulven works at the Department of Nutrition at the University of Oslo, Norway, and Dr. Eunike Velleuer at Helios Clinic Center for Child and Adolescent Health, Germany.

Provided by University of Eastern Finland

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