

Biology Of Aging | 580b9648aabe0cf21bbdbc49861e1a18

Biology of Aging Comparative Biology of Aging Biochemistry and Cell Biology of Ageing: Part II Clinical Science The Biology of Aging Biology of Longevity and Aging Evolutionary Biology of Aging Molecular Biology of Aging Biology of Aging and Development Ageless The Biology of Aging Molecular Biology of Aging Biological Aging An Introduction to Biological Aging Theory Biological Aging Handbook of the Biology of Aging Epigenetics of Aging and Longevity Biology of Aging Biology of Aging The Biology of Aging The Biology of Human Longevity Evolutionary Biology of Aging The Longevity Book Lifespan Does Aging Stop? Biology of Aging Biology of Aging Handbook of Models for Human Aging Handbook of the Biology of Aging Biochemistry and Cell Biology of Ageing: Part I Biomedical Science An Introduction to Gerontology Handbook of the Biology of Aging Human Biological Aging Human Aging Aging and Health - A Systems Biology Perspective Introductory Review on Sirtuins in Biology, Aging, and Disease Handbook of the Biology of Aging Annual Review of Gerontology and Geriatrics, Volume 10, 1990 Handbook of the Biology of Aging Aging of Organisms Biology of Aging

Biology of Aging Handbook of the Biology of Aging, Eighth Edition, provides readers with an update on the rapid progress in the research of aging. It is a comprehensive synthesis and review of the latest and most important advances and themes in modern biogerontology, and focuses on the trend of 'big data' approaches in the biological sciences, presenting new strategies to analyze, interpret, and understand the enormous amounts of information being generated through DNA sequencing, transcriptomic, proteomic, and the metabolomics methodologies applied to aging related problems. The book includes discussions on longevity pathways and interventions that modulate aging, innovative new tools that facilitate systems-level approaches to aging research, the mTOR pathway

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and its importance in age-related phenotypes, new strategies to pharmacologically modulate the mTOR pathway to delay aging, the importance of sirtuins and the hypoxic response in aging, and how various pathways interact within the context of aging as a complex genetic trait, amongst others. Covers the key areas in biological gerontology research in one volume, with an 80% update from the previous edition Edited by Matt Kaeberlein and George Martin, highly respected voices and researchers within the biology of aging discipline Assists basic researchers in keeping abreast of research and clinical findings outside their subdiscipline Presents information that will help medical, behavioral, and social gerontologists in understanding what basic scientists and clinicians are discovering New chapters on genetics, evolutionary biology, bone aging, and epigenetic control Provides a close examination of the diverse research being conducted today in the study of the biology of aging, detailing recent breakthroughs and potential new directions

Comparative Biology of Aging A NEW YORK TIMES BESTSELLER “ Brilliant and enthralling. ”
—The Wall Street Journal A paradigm-shifting book from an acclaimed Harvard Medical School scientist and one of Time ’ s most influential people. It ’ s a seemingly undeniable truth that aging is inevitable. But what if everything we ’ ve been taught to believe about aging is wrong? What if we could choose our lifespan? In this groundbreaking book, Dr. David Sinclair, leading world authority on genetics and longevity, reveals a bold new theory for why we age. As he writes: “ Aging is a disease, and that disease is treatable. ” This eye-opening and provocative work takes us to the frontlines of research that is pushing the boundaries on our perceived scientific limitations, revealing incredible breakthroughs—many from Dr. David Sinclair ’ s own lab at Harvard—that demonstrate how we can slow down, or even reverse, aging. The key is activating newly discovered vitality genes, the descendants of an ancient genetic survival circuit that is both the cause of aging and the key to reversing it. Recent experiments in genetic reprogramming suggest that in the near future we may not

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just be able to feel younger, but actually become younger. Through a page-turning narrative, Dr. Sinclair invites you into the process of scientific discovery and reveals the emerging technologies and simple lifestyle changes—such as intermittent fasting, cold exposure, exercising with the right intensity, and eating less meat—that have been shown to help us live younger and healthier for longer. At once a roadmap for taking charge of our own health destiny and a bold new vision for the future of humankind, Lifespan will forever change the way we think about why we age and what we can do about it.

Biochemistry and Cell Biology of Ageing: Part II Clinical Science 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.

The Biology of Aging Why do we age? The answer to this question is critical to our ability to prevent

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and treat highly age-related diseases such as cancer and heart disease that now cause the deaths of most people in the developed world. This short book provides an overview of biological aging theories including history, current status, major scientific controversies, and implications for the future of medicine. Major topics include: human mortality as a function of age, aging mechanisms and processes, the programmed vs. non-programmed aging controversy, empirical evidence on aging, and the feasibility of anti-aging and regenerative medicine. Evolution theory is essential to aging theories. Theorists have been struggling for 150 years to explain how aging, deterioration, and consequent death fit with Darwin's survival of the fittest concept. This book explains how continuing genetics discoveries have produced changes in the way we think about evolution that in turn lead to new thinking about the nature of aging.

Biology of Longevity and Aging This volume covers the major threads in the molecular genetics of aging, including genes that regulate aging, causes of aging, evolutionary theories of aging, and the relationship between diet and aging. Among specific topics covered are calorie restriction, mitochondria, sirtuins, telomeres, stem cells, and cancer.

Evolutionary Biology of Aging "e of the reasons for all the F ASEB Societies to meet yearly is the possibility O to interrelate recent progress in diverse areas of research. The F ASEB Conferences have been organized to promote such interdisciplinary approaches. They center around a basic theme with the aim of discussing active research, in cluding widely divergent approaches, towards a better understanding of a general biological phenomenon. Because of the mounting interest in the subject of aging and development, this has been chosen as the theme for this year's symposia. We have necessarily been limited in the number of topics that could be covered. In our choice we have attempted to' select those facets of the main subject which at this time are gen erating active research

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interest among our membership. We have included invited speakers from abroad, such as Drs. Goldstein, Liew and Miller from Canada and Drs. Wolpert, Holliday and Williamson from England. I am sorry to say that the two speakers that we had invited from Russia, Dr. Frolkis, and from Czechoslovakia, Dr. Sterzl, were unable to attend.

Molecular Biology of Aging This new volume in the Subcellular Biochemistry series will focus on the biochemistry and cellular biology of aging processes in human cells. The chapters will be written by experts in their respective fields and will focus on a number of the current key areas of research in subcellular aging research. Main topics for discussion are mitochondrial aging, protein homeostasis and aging and the genetic processes that are involved in aging. There will also be chapters that are dedicated to the study of the roles of a variety of vitamins and minerals on aging and a number of other external factors (microbiological, ROS, inflammation, nutrition). This book will provide the reader with a state of the art overview of the subcellular aging field. This book will be published in cooperation with a second volume that will discuss the translation of the cell biology of aging to a more clinical setting and it is hoped that the combination of these two volumes will bring a deeper understanding of the links between the cell and the body during aging.

Biology of Aging and Development The Handbook of the Biology of Aging, Sixth Edition, provides a comprehensive overview of the latest research findings in the biology of aging. Intended as a summary for researchers, it is also adopted as a high level textbook for graduate and upper level undergraduate courses. The Sixth Edition is 20% larger than the Fifth Edition, with 21 chapters summarizing the latest findings in research on the biology of aging. The content of the work is virtually 100% new. Though a selected few topics are similar to the Fifth Edition, these chapters are authored by new contributors with new information. The majority of the chapters are completely new in both content

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and authorship. The Sixth Edition places greater emphasis and coverage on competing and complementary theories of aging, broadening the discussion of conceptual issues. Greater coverage of techniques used to study biological issues of aging include computer modeling, gene profiling, and demographic analyses. Coverage of research on *Drosophila* is expanded from one chapter to four. New chapters on mammalian models discuss aging in relation to skeletal muscles, body fat and carbohydrate metabolism, growth hormone, and the human female reproductive system. Additional new chapters summarize exciting research on stem cells and cancer, dietary restriction, and whether age related diseases are an integral part of aging. The Handbook of the Biology of Aging, Sixth Edition is part of the Handbooks on Aging series, including Handbook of the Psychology of Aging and Handbook of Aging and the Social Sciences, also in their 6th editions.

Ageless

The Biology of Aging Egocentricity is characteristically human. It is natural for our prime interest to be ourselves and for one of our major concerns to be what affects us personally. Aging and death - universal and inevitable have always been of compelling concern. Mystical explanations were invented when scientific answers were lacking. and gross physiologi As scientific knowledge developed, anatomical processes were explained, and the roles of the endocrine glands were revealed. Since the sex hormones obviously lose some of their potency with age, it was logical to assume that they played the major role in declining general well-being. The puzzle of aging would now be solved. The Ponce de Leon quest would soon be fulfilled. Pseudoscientists and quacks rushed in where most scientists feared to tread. By the time the glowing promises of perpetual youth through gland transplants and injections had proved illusory, serious study of the aging process had been set back for years. The field had lost "respectability," and most capable scientists shunned it. Those who did continue to seek

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answers to its tough questions deserve special recognition.

Molecular Biology of Aging This book investigates the various processes that are affected by the age of an organism. Several new tools for the analysis of biological aging have been introduced recently, and this volume provides methods and protocols for these new techniques in addition to its coverage of established procedures. Researchers seeking new technology and techniques will find this volume of tremendous benefit as they move towards new directions.

Biological Aging Biological aging as the time-dependent general decline of biological systems associated with a progressively increasing mortality risk is a general phenomenon of great significance. The underlying processes are very complex and depending on genetic and environment factors. These factors encode or affect a network of interconnected cellular pathways. In no system this network has been deciphered in greater detail. However, the strategy of studying various biological systems has led to the identification of pathways and specific modules and makes it obvious that aging is the result of different overlapping mechanisms and pathways. Some of these appear to be conserved ("public") among species, others are specific or "private" and only of significance in one or a few organisms. This volume in the series on "Biology of aging and its modulation" specifically focuses on organismic aging. The book covers research on organisms from lower to higher complexity representing examples from very diverse taxa like photosynthetic plants, fungi, sponges, nematodes, flies, birds and mammals. Such a broad treatise of this complex topic provides a comprehensive "flavor" about the current issues dealt with in this rapidly growing scientific discipline.

An Introduction to Biological Aging Theory This unique book looks at the biology of aging from a fundamentally new perspective, one based on evolutionary theory rather than traditional concepts

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which emphasize molecular and cellular processes. The basis for this approach lies in the fact that natural selection, as a powerful determining force, tends to decline in importance with age. Many of the characteristics we associate with aging, the author argues, are more the result of this decline than any mechanical imperative contained within organic structures. This theory in turn yields the most fruitful avenues for seeking answers to the problem of aging, and should be recognized as the intellectual core of gerontology and the foundation for future research. The author ably surveys the vast literature on aging, presenting mathematical, experimental, and comparative findings to illustrate and support the central thesis. The result is the first complete synthesis of this vital field. Evolutionary biologists, gerontologists, and all those concerned with the science of aging will find it a stimulating, strongly argued account.

Biological Aging This unique book looks at the biology of aging from a fundamentally new perspective, one based on evolutionary theory rather than traditional concepts which emphasize molecular and cellular processes. The basis for this approach lies in the fact that natural selection, as a powerful determining force, tends to decline in importance with age. Many of the characteristics we associate with aging, the author argues, are more the result of this decline than any mechanical imperative contained within organic structures. This theory in turn yields the most fruitful avenues for seeking answers to the problem of aging, and should be recognized as the intellectual core of gerontology and the foundation for future research. The author ably surveys the vast literature on aging, presenting mathematical, experimental, and comparative findings to illustrate and support the central thesis. The result is the first complete synthesis of this vital field. Evolutionary biologists, gerontologists, and all those concerned with the science of aging will find it a stimulating, strongly argued account.

Handbook of the Biology of Aging With the world's population getting increasingly older, there has

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never been a more pressing need for the study of old age and ageing. An Introduction to Gerontology provides a wide-ranging introduction to this important topic. By assuming no prior expert knowledge and avoiding jargon, this book will guide students through all the main subjects in gerontology, covering both traditional areas, such as biological and social ageing, and more contemporary areas, such as technology, the arts and sexuality. An Introduction to Gerontology is written by a team of international authors with multidisciplinary backgrounds who draw evidence from a variety of different perspectives and traditions.

Epigenetics of Aging and Longevity Written by Caleb Finch, one of the leading scientists of our time, *The Biology of Human Longevity: Inflammation, Nutrition, and Aging in the Evolution of Lifespans* synthesizes several decades of top research on the topic of human aging and longevity particularly on the recent theories of inflammation and its effects on human health. The book expands a number of existing major theories, including the Barker theory of fetal origins of adult disease to consider the role of inflammation and Harmon's free radical theory of aging to include inflammatory damage. Future increases in lifespan are challenged by the obesity epidemic and spreading global infections which may reverse the gains made in lowering inflammatory exposure. This timely and topical book will be of interest to anyone studying aging from any scientific angle. Author Caleb Finch is a highly influential and respected scientist, ranked in the top half of the 1% most cited scientists Provides a novel synthesis of existing ideas about the biology of longevity and aging Incorporates important research findings from several disciplines, including Gerontology, Genomics, Neuroscience, Immunology, Nutrition

Biology of Aging Biology of Aging presents the biological principles that have led to a new understanding of the causes of aging and describes how these basic principles help one to understand

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the human experience of biological aging, longevity, and age-related disease. Intended for undergraduate biology students, it describes how the rate of biological aging is measured; explores the mechanisms underlying cellular aging; discusses the genetic pathways that affect longevity in various organisms; outlines the normal age-related changes and the functional decline that occurs in physiological systems over the lifespan; and considers the implications of modulating the rate of aging and longevity. The book also includes end-of-chapter discussion questions to help students assess their knowledge of the material.

Biology of Aging Does Aging Stop? shatters the conventional beliefs on which aging research has been based for the last fifty years.

The Biology of Aging

The Biology of Human Longevity determined by an inability to move in response to touch. *C. elegans* develop through four larval stages following hatching and prior to adulthood. Adult *C. elegans* are reproductive for about the first week of adulthood followed by approximately two weeks of post-reproductive adulthood prior to death. Life span is most commonly measured in the laboratory by maintaining the worms on the surface of a nutritive- agar medium (Nematode Growth Medium, NGM) with *E. coli* OP50 as the bacterial food source (REF). Alternative culture conditions have been described in liquid media; however, these are not widely used for longevity studies. Longevity of the commonly used wild type *C. elegans* hermaphrodite (N2) varies from 16 to 23 days under standard laboratory conditions (20 C, NGM agar, *E. coli* OP50 food source). Life span can be increased by maintaining animals at lower ambient temperatures and shortened by raising the ambient temperature. Use of a killed bacterial food source, rather than live *E. coli*, increases lifespan by 2–4

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days, and growth of adult animals in the absence of bacteria (axenic growth or bacterial deprivation) increases median life span to 32–38 days [3, 23, 24]. Under both standard laboratory conditions and bacterial deprivation conditions, wild-derived *C. elegans* hermaphrodites exhibit longevity comparable to N2 animals [25].

Evolutionary Biology of Aging Molecular Biology of Aging, the latest volume in the Progress in Molecular Biology and Translational Science series, focuses on placental development and disease. Contains contributions from leading authorities on the topic Publishes cutting-edge reviews in molecular biology

The Longevity Book This volume presents a clear, concise overview of the current state of knowledge about the biology of aging ñ serving as both an invaluable graduate-level text and a key reference for practicing professionals. Over a dozen distinguished contributors probe the latest developments in our knowledge of why people age and how the process works. These authoritative chapters are not just written for biologists ñ but for gerontologists in general. Marks the tenth anniversary of the Annual Review of Gerontology and Geriatrics.

Lifespan Egocentricity is characteristically human. It is natural for our prime interest to be ourselves and for one of our major concerns to be what affects us personally. Aging and death - universal and inevitable have always been of compelling concern. Mystical explanations were invented when scientific answers were lacking, and gross physiology As scientific knowledge developed, anatomical processes were explained, and the roles of the endocrine glands were revealed. Since the sex hormones obviously lose some of their potency with age, it was logical to assume that they played the major role in declining general well-being. The puzzle of aging would now be solved. The Ponce de

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Leon quest would soon be fulfilled. Pseudoscientists and quacks rushed in where most scientists feared to tread. By the time the glowing promises of perpetual youth through gland transplants and injections had proved illusory, serious study of the aging process had been set back for years. The field had lost "respect ability," and most capable scientists shunned it. Those who did continue to seek answers to its tough questions deserve special recognition.

Does Aging Stop? Human Aging: From Cellular Mechanisms to Therapeutic Strategies offers an exhaustive picture of all the biological aspects of human aging by describing the key mechanisms associated with human aging and covering events that could disrupt the normal course of aging. Each chapter includes a summary of the salient points covered, along with futures prospects. The book provides readers with the information they need to gain or deepen the skills needed to evaluate the mechanisms of aging and age-related diseases and to monitor the effectiveness of therapies aimed at slowing aging. The book encourages PhD and Postdoc students, researchers, health professionals and others interested in the biology of aging to explore the fascinating and challenging questions about why and how we age as well as what can and cannot be done about it. Concentrates on different processes, e.g., oxidative stress, cellular senescence and Inflammaging Offers the ability to access cross-sectional knowledge more easily Written by expert researchers in biogerontology who are actively involved in various fields within aging research

Biology of Aging The survival of the human species has improved significantly in modern times. During the last century, the mean survival of human populations in developed countries has increased more than during the preceding 5000 years. This improvement in survival was accompanied by an increase in the number of active years. In other words, the increase in mean life span was accompanied by an increase in health span. This is now accentuated by progress in medicine reducing

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the impact of physiologic events such as menopause and of pathological processes such as atherosclerosis. Up to now, research on aging, whether theoretical or experimental, has not contributed to improvement in human survival. Actually, there is a striking contrast between these significant modifications in survival and the present knowledge of the mechanisms of human aging. Revealed by this state of affairs are the profound disagreements between gerontologists in regard to the way of looking at the aging process. The definition of aging itself is difficult to begin with because of the variability of how it occurs in different organisms.

Biology of Aging “ A fascinating look at how scientists are working to help doctors treat not just one disease at a time, but the aging process itself. ” —Dr. Sanjay Gupta A startling chronicle by a brilliant young scientist takes us onto the frontiers of the science of aging, and reveals how close we are to an astonishing extension of our life spans and a vastly improved quality of life in our later years. Aging--not cancer, not heart disease--is the true underlying cause of most human death and suffering. We accept as inevitable that as we advance in years our bodies and minds begin to deteriorate and that we are ever more likely to be felled by dementia or disease. But we never really ask--is aging necessary? Biologists, on the other hand, have been investigating that question for years. After all, there are tortoises and salamanders whose risk of dying is the same no matter how old they are. With the help of science, could humans find a way to become old without getting frail, a phenomenon known as "biological immortality"? In *Ageless*, Andrew Steele, a computational biologist and science writer, takes us on a journey through the laboratories where scientists are studying every bodily system that declines with age--DNA, mitochondria, stem cells, our immune systems--and developing therapies to reverse the trend. With bell-clear writing and intellectual passion, Steele shines a spotlight on a little-known revolution already underway.

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Handbook of Models for Human Aging This volume of the subcellular Biochemistry series will attempt to bridge the gap between the subcellular events that are related to aging as they were described in the first volume of this set of two books and the reality of aging as this is seen in clinical practice. All chapters will start from the biochemistry or cell biology, where the data is available and work up towards the understanding that we have of aging in the various areas that are related to the subject. Key focus points for this volume are nutrition, external factors and genetics on aging. There will also be chapters that will focus on various organs or tissues in which aging has been well studied, like the eyes, the muscles, the immune system and the bones. The aim of the book project and the book project that is published in concert with this volume is to bring the subcellular and clinical areas into closer contact.

Handbook of the Biology of Aging The goal of *Biological Aging: Methods and Protocols* is to present some of the most promising and important tools that are currently used in biological aging research. These tools include established protocols such as aging cell culture as well as many more contemporary approaches such as nuclear transfer, microarray and proteomics technologies and the use of ribozymes in aging research. Collectively, these powerful tools combined with the many other techniques that are presented are rapidly advancing the exciting and expanding field of biological aging.

Biochemistry and Cell Biology of Ageing: Part I *Biomedical Science Handbook of the Biology of Aging, Seventh Edition*, reviews and synthesizes recent findings and discoveries in the field. This volume is part of *The Handbooks of Aging* series, which also includes *The Handbook of the Psychology of Aging* and *The Handbook of Aging and the Social Sciences*. The book is organized into two parts. Part 1 covers basic aging processes. It covers concepts relevant to clinical research, such as muscle, adipose

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tissue, and stem cells. It discusses research on how dietary restriction can slow down the aging process and extend life in a wide range of species. Part 2 deals with the medical physiology of aging. It contains several chapters on the aging of the human brain. These chapters deal not only with diseases but also with normal aging changes to cerebral vasculature and myelination as well as the clinical implications of those changes. Additional chapters cover how aging affects central features of human health such as insulin secretion, pulmonary and cardiac function, and the ability to maintain body weight and body temperature. The volume is primarily directed at basic researchers who wish to keep abreast of new research outside their own subdiscipline. It will also be useful to medical, behavioral, and social gerontologists who want to learn about the discoveries of basic scientists and clinicians. Contains basic aging processes as determined by animal research as well as medical physiology of aging as known in humans Covers hot areas of research, like stem cells, integrated with longstanding areas of interest in aging like telomeres, mitochondrial function, etc. Edited by one of the fathers of gerontology (Masoro) and contributors represent top scholars in gerontology

An Introduction to Gerontology the aim of the book was not to focus the age-dependent modifications of one specific biological systems or phenomena, but the attempt was pursued to cover several fields in which the biological research on aging is going on. The fundamental purpose of this planning was to offer the PhD students an advanced text that could raise the possibility of an interdisciplinary discussion on a wide and complex field that is very suitable to be utilized as an example of the connection existing between advanced teaching and experimental research.

Handbook of the Biology of Aging The Handbook of Models for Human Aging is designed as the only comprehensive work available that covers the diversity of aging models currently available. For each animal model, it presents key aspects of biology, nutrition, factors affecting life span, methods of age

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determination, use in research, and disadvantages/advantages of use. Chapters on comparative models take a broad sweep of age-related diseases, from Alzheimer's to joint disease, cataracts, cancer, and obesity. In addition, there is an historical overview and discussion of model availability, key methods, and ethical issues. Utilizes a multidisciplinary approach Shows tricks and approaches not available in primary publications First volume of its kind to combine both methods of study for human aging and animal models Over 200 illustrations

Human Biological Aging Actress Cameron Diaz opens a conversation with her peers on a topic that for too long has been taboo in our society: the aging female body. She shares the latest scientific research on how and why we age, synthesizing insights from top medical experts with her own thoughts, opinions, and experiences. The Longevity Book explores what history, biology, neuroscience, and the women's health movement can teach us about maintaining optimal health as we transition from our thirties to midlife. From understanding how growing older impacts various bodily systems to the biological differences in the way aging affects men and women; the latest science on telomeres and slowing the rate of cognitive decline to how meditation heals us and why love, friendship, and laughter matter for health, Diaz offers an all-encompassing, holistic look at how the female body ages -- and what we can all do to age better.

Human Aging Revised edition of: Biology of aging: observations and principles. 2006.

Aging and Health - A Systems Biology Perspective Handbook of The Biology of Aging, Third Edition provides a general overview to a wide scientific audience of some of the most important topics in biomedical gerontology. The book discusses methodologies for biological aging studies and on animal models. Protein modifications with aging, special senses, circadian rhythms, and the adrenocortical

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axis are tacked in the book as well. Gerontologists, psychologists, health care professionals, and graduate students will find the book useful.

Introductory Review on Sirtuins in Biology, Aging, and Disease

Handbook of the Biology of Aging Robert Arking's Biology of Aging is an introductory text to the biology of aging which gives advanced undergraduate and graduate students a thorough review of the entire field. The mass of data related to aging is summarized into fifteen focused chapters, each dealing with some particular aspect of the problem. His prior two editions have also served admirably as a reference text for clinicians and scientists. This new edition captures the extraordinary recent advances in our knowledge of the ultimate and proximal mechanisms underlying the phenomenon of aging.

Annual Review of Gerontology and Geriatrics, Volume 10, 1990 Introductory Review on Sirtuins in Biology and Disease provides key insights for scientists and advanced students who need to understand sirtuins and the current research in this field. This book is ideal for pharmaceutical companies as they develop novel targets using sirtuins for metabolic diseases, cancer and neurodegenerative illnesses. Sirtuins are a diverse family of proteins, with several members in mammals. The functional diversity of sirtuins is rather broad, and they have been implicated in various central biological processes. Thus, they are also highly relevant in the context of various human diseases, from cancer to neurodegeneration. Covers both the general and specific aspects of sirtuin proteins and their role in biology, aging and disease Presents a top quality collection of leading experts who contribute on a wide range of sirtuin-related topics Ideal resource for pharmaceutical companies as they develop novel targets using sirtuins for metabolic diseases, cancer and

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neurodegenerative illnesses

Handbook of the Biology of Aging Comprehension of the theories of aging requires rudimentary knowledge of oxidation and reduction reactions, protein function, cell organelles, mitosis, acquired immunity, and evolution, among other basic biological concepts. Without these fundamentals, students of biological aging struggle to learn the essentials of biological aging and how to appreciate the research advances in the field. Human Biological Aging: From Macromolecules To Organ-Systems is an introduction to human aging from the level of macromolecules to organ systems. Age changes in proteins, DNA, polysaccharides and lipids are discussed relative to known age-related alterations in structure and function produced by free radicals and oxidants. At the cellular level, age-dependent mechanisms that diminish organelle function are described. Cellular phenomena of replicative senescence apoptosis, autophagy and neuroplasticity are detailed as to their contribution to compromised cellular functions. Authored by a leader in the field, Human Biological Aging: From Macromolecules To Organ-Systems is an invaluable introduction for those studying human aging.

Aging of Organisms Biology of Aging, Second Edition presents the biological principles that have led to a new understanding of the causes of aging and describes how these basic principles help one to understand the human experience of biological aging, longevity, and age-related disease. Intended for undergraduate biology students, it describes how the rate of biological aging is measured; explores the mechanisms underlying cellular aging; discusses the genetic pathways that affect longevity in various organisms; outlines the normal age-related changes and the functional decline that occurs in physiological systems over the lifespan; and considers the implications of modulating the rate of aging and longevity. The book also includes end-of-chapter discussion questions to help students assess their knowledge of the material. Roger McDonald received his Ph.D. from the University of Southern

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California and is Professor Emeritus in the Department of Nutrition at the University of California, Davis. Dr. McDonald ' s research focused on mechanisms of cellular aging and the interaction between nutrition and aging. His research addressed two key topics in the field: the relationship between dietary restriction and lifespan, and the effect of aging on circadian rhythms and hypothalamic regulation. You can contact Dr. McDonald at rbcdonald@ucdavis.edu. Related Titles Ahmad, S. I., ed. Aging: Exploring a Complex Phenomenon (ISBN 978-1-1381-9697-1) Moody, H. R. & J. Sasser. Gerontology: The Basics (ISBN 978-1-1387-7582-4) Timiras, P. S. Physiological Basis of Aging and Geriatrics (ISBN 978-0-8493-7305-3)

Biology of Aging Epigenetics of Aging and Longevity provides an in-depth analysis of the epigenetic nature of aging and the role of epigenetic factors in mediating the link between early-life experiences and life-course health and aging. Chapters from leading international contributors explore the effect of adverse conditions in early-life that may result in disrupted epigenetic pathways, as well as the potential to correct these disrupted pathways via targeted therapeutic interventions. Intergenerational epigenetic inheritance, epigenetic drug discovery, and the role of epigenetic mechanisms in regulating specific age-associated illnesses—including cancer and cardiovascular, metabolic, and neurodegenerative diseases—are explored in detail. This book will help researchers in genomic medicine, epigenetics, and biogerontology better understand the epigenetic determinants of aging and longevity, and ultimately aid in developing therapeutics to extend the human life-span and treat age-related disease. Offers a comprehensive overview of the epigenetic nature of aging, as well as the impact of epigenetic factors on longevity and regulating age-related disease Provides readers with clinical and epidemiological evidence for the role of epigenetic mechanisms in mediating the link between early-life experiences, life-course health and aging trajectory Applies current knowledge of epigenetic regulatory pathways towards developing therapeutic interventions for age-related diseases

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and extending the human lifespan

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