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The Evolution of Cardiac Surgery Development of the Cardiac Conduction System Evolution of Adaptations to Cardiac Glycosides in the Hemipteran Subfamily Lygaeinae **Ontogeny and Phylogeny of the Vertebrate Heart** The Heart of History **Dawn and Evolution of Cardiac Procedures Evolution of Cardio-Metabolic Risk from Birth to Middle Age** The History of Coronary Angioplasty **Heart Development and Regeneration** The Singing Heart of the World: Creation, Evolution, and Faith *Zoobiquity* **Cardio-Respiratory Control in Vertebrates Etiology and Morphogenesis of Congenital Heart Disease Heart Teams for Treatment of Cardiovascular Disease** *Myocardial Protection* **State of the Heart** CT of the Heart **Elucidation of the Cardiac Myogenesis Regulatory Network Coronary Microvascular Obstruction in Acute Myocardial Infarction** Heart Development and Regeneration **Spiritual Evolution Evolution in Health and Disease Cardiac Electrophysiology Methods and Models Morphological and Cellular Aspects of Tail and Limb Regeneration in Lizards** *Cardiovascular Pathology* Dr. Gundry's Diet Evolution *Quality Measures* **Cardiac Mechanics and Function in the Normal and Diseased Heart Cardiovascular Diseases The Story of the Human Body Electrocardiographic Findings During the Evolution of Naturally Occurring Heart Failure in a Spontaneously Hypertensive Rat Cardiovascular Regenerative Medicine** *Evolution of Cardio-Metabolic Risk from Birth to Middle Age* **Evolution and Medicine On Stress, Disease, and Evolution Evolution Cardiac Mapping** *Design in Nature* **Monarchs and Milkweed Principles of Evolutionary Medicine**

The Heart of History Oct 22 2022 This book is about the psychology of acute culture change based on the historical antecedents of such events. It focuses on the spiritual process and the social circumstances of stressful turning points.

Evolution of Cardio-Metabolic Risk from Birth to Middle Age May 25 2020 That precursors of adult coronary artery disease, hypertension, and type II diabetes begin in childhood have been clearly established by the Bogalusa Heart Study. This unique research program has been able to follow a biracial (black/white) population over 35 years from childhood through mid-adulthood to provide perspectives on the natural history of adult heart diseases. Not only do these observations describe trajectories of cardio-metabolic risk variables leading to these diseases but provide a rationale for the need to begin prevention beginning in childhood. The trajectories of the burden of cardio-metabolic risk variables in the context of their fetal origin and chromosome telomere dynamics provide some insight into the metabolic imprinting in utero and aging process. The observed racial contrasts on cardio-metabolic risk variables implicate various biologic pathways interacting with environment contributing to the high morbidity and mortality from related diseases in our population. To address the seriousness of the onset of cardiovascular disease in youth, approaches to primordial prevention are described focussing on childhood health education as an important aspect of Preventive Cardiology.

The Singing Heart of the World: Creation, Evolution, and Faith May 17 2022

Cardiovascular Pathology Feb 02 2021 Cardiovascular Pathology, Fourth Edition, provides users with a comprehensive overview that encompasses its examination, cardiac structure, both normal and physiologically altered, and a multitude of abnormalities. This updated edition offers current views on interventions, both medical and surgical, and the pathology related to them. Congenital heart disease and its pathobiology are covered in some depth, as are vasculitis and neoplasias. Each section has been revised to reflect new discoveries in clinical and molecular pathology, with new chapters updated and written with a practical approach, especially with regards to the discussion of pathophysiology. New chapters reflect recent technological advances with cardiac devices, transplants, genetics, and immunology. Each chapter is highly illustrated and covers contemporary aspects of the disease processes, including a section on the role of molecular diagnostics and cytogenetics as specifically related to cardiovascular pathology. Customers buy the Print + Electronic product together! Serves as a contemporary, all-inclusive guide to cardiovascular pathology for clinicians and researchers, as well as clinical residents and fellows of pathology, cardiology, cardiac surgery, and internal medicine Offers new organization of each chapter to enable uniformity for learning and reference: Definition, Epidemiology, Clinical Presentation, Pathogenesis/Genetics, Light and Electron Microscopy/Immunohistochemistry, Differential Diagnosis, Treatment and Potential Complications Features six new chapters and expanded coverage of the normal heart and blood vessels, cardiovascular devices, congenital heart disease, tropical and infectious cardiac disease, and forensic pathology of the cardiovascular system Contains 400+ full color illustrations and an online image collection facilitate research, study, and lecture slide

creation

Heart Development and Regeneration Jun 18 2022 The development of the cardiovascular system is a rapidly advancing area in biomedical research, now coupled with the burgeoning field of cardiac regenerative medicine. A lucid understanding of these fields is paramount to reducing human cardiovascular diseases of both fetal and adult origin. Significant progress can now be made through a comprehensive investigation of embryonic development and its genetic control circuitry. Heart Development and Regeneration, written by experts in the field, provides essential information on topics ranging from the evolution and lineage origins of the developing cardiovascular system to cardiac regenerative medicine. A reference for clinicians, medical researchers, students, and teachers, this publication offers broad coverage of the most recent advances. Volume One discusses heart evolution, contributing cell lineages; model systems; cardiac growth; morphology and asymmetry; heart patterning; epicardial, vascular, and lymphatic development; and congenital heart diseases. Volume Two includes chapters on transcription factors and transcriptional control circuits in cardiac development and disease; epigenetic modifiers including microRNAs, genome-wide mutagenesis, imaging, and proteomics approaches; and the theory and practice of stem cells and cardiac regeneration. Authored by world experts in heart development and disease New research on epigenetic modifiers in cardiac development Comprehensive coverage of stem cells and prospects for cardiac regeneration Up-to-date research on transcriptional and proteomic circuits in cardiac disease Full-color, detailed illustrations

Zoobiquity Apr 16 2022 Engaging science writing that bravely approaches a new frontier in medical science and offers a whole new way of looking at the deep kinship between animals and human beings. Zoobiquity: a species-spanning approach to medicine bringing doctors and veterinarians together to improve the health of all species and their habitats. In the tradition of Temple Grandin, Oliver Sacks, and Neil Shubin, this is a remarkable narrative science book arguing that animal and human commonality can be used to diagnose, treat, and ultimately heal human patients. Through case studies of various species--human and animal kind alike--the authors reveal that a cross-species approach to medicine makes us not only better able to treat psychological and medical conditions but helps us understand our deep connection to other species with whom we share much more than just a planet. This revelatory book reaches across many disciplines--evolution, anthropology, sociology, biology, cutting-edge medicine and zoology--providing fascinating insights into the connection between animals and humans and what animals can teach us about the human body and mind.

Cardiac Mechanics and Function in the Normal and Diseased Heart Oct 30 2020 Cardiovascular dynamics is a field in which modelling and systems analysis have formed an extremely important discipline. For example, understanding of even such a fundamental function of the circulation as the relationship between central venous pressure apd cardiac output has required evolution of a pertinent model based on years of exhaustive ex perimental investigations by Starling, Starr, and Guyton. Hemodynamic analyses of pulsatile pressures and flows in the arteries and veins have been a continuing challenge taken up by champions of fluid dynamics such as Frank, Wetterer, Taylor, and Wormersley, just to mention a few names, and some kind of model was always proposed as a conceptual framework. An even greater challenge to cardiovascular dynamicists was how to analyze the intermittent coupling of the ventricle and the arterial or venous vasculature through the valve. The availability of numerical solutions by computer and the recently evolved ventricular model with a time-varying elastance and a pressure-dependent internal resistance opened the way to analysis of this coupling. The ever increasing speed of computers has also facilitated trips between the fre quency and the time domain, even on-line for some experimental studies. This book contains many analyses dedicated to the interactions between the heart and the vasculature, providing the reader with findings at the cutting edge of current research in this field.

Monarchs and Milkweed Nov 18 2019 The fascinating and complex evolutionary relationship of the monarch butterfly and the milkweed plant Monarch butterflies are one of nature's most recognizable creatures, known for their bright colors and epic annual migration from the United States and Canada to Mexico. Yet there is much more to the monarch than its distinctive presence and mythic journeying. In Monarchs and Milkweed, Anurag Agrawal presents a vivid investigation into how the monarch butterfly has evolved closely alongside the milkweed—a toxic plant named for the sticky white substance emitted when its leaves are damaged—and how this inextricable and intimate relationship has been like an arms race over the millennia, a battle of exploitation and defense between two fascinating species. The monarch life cycle begins each spring when it deposits eggs on milkweed leaves. But this dependency of monarchs on milkweeds as food is not reciprocated, and milkweeds do all they can to poison or thwart the young monarchs. Agrawal delves into major scientific discoveries, including his own pioneering research, and traces how plant poisons have not only shaped monarch-milkweed interactions but have also been culturally important for centuries. Agrawal presents current ideas regarding the recent decline in monarch populations, including habitat destruction, increased winter storms, and lack of milkweed—the last one a theory that the author rejects. He evaluates the current sustainability of monarchs and reveals a novel explanation for their plummeting numbers. Lavishly illustrated with more than eighty color photos and images, Monarchs and Milkweed takes readers on an unforgettable exploration of one of nature's most important and sophisticated evolutionary relationships.

Morphological and Cellular Aspects of Tail and Limb Regeneration in Lizards Mar 03 2021 The present review

covers a very neglected field in regeneration studies, namely, tissue and organ regeneration in reptiles, especially represented by the lizard model of regeneration. The term “regeneration” is intended here as “the ability of an adult organism to recover damaged or completely lost body parts or organs.” The process of recovery is further termed “restitutive regeneration” when the lost part is reformed and capable of performing the complete or partial physiological activity performed by the original, lost body part. Lizards represent the only amniotes that at the same time show successful organ regeneration, in the tail, and organ failure, in the limb (Marcucci 1930a, b; Simpson 1961, 1970, 1983). This condition offers a unique opportunity to study at the same time mechanisms that in different regions of the same animal control the success or failure of regeneration. The lizard model is usually neglected in the literature despite the fact that the lizard is an amniote with a basic histological structure similar to that of mammals, and it is therefore a better model than the salamander (an a- mniote) model to investigate regeneration issues.
Spiritual Evolution Jun 06 2021 In our current era of holy terror, passionate faith has come to seem like a present danger. Writers such as Richard Dawkins, Sam Harris, and Christopher Hitchens have been happy to throw the baby out with the bathwater and declare that the danger is in religion itself. God, Hitchens writes, is not great. But man, according to George E. Vaillant, M.D., is great. In Spiritual Evolution, Dr. Vaillant lays out a brilliant defense not of organized religion but of man’s inherent spirituality. Our spirituality, he shows, resides in our uniquely human brain design and in our innate capacity for emotions like love, hope, joy, forgiveness, and compassion, which are selected for by evolution and located in a different part of the brain than dogmatic religious belief. Evolution has made us spiritual creatures over time, he argues, and we are destined to become even more so. Spiritual Evolution makes the scientific case for spirituality as a positive force in human evolution, and he predicts for our species an even more loving future. Vaillant traces this positive force in three different kinds of “evolution”: the natural selection of genes over millennia, of course, but also the cultural evolution within recorded history of ideas about the value of human life, and the development of spirituality within the lifetime of each individual. For thirty-five years, Dr. Vaillant directed Harvard’s famous longitudinal study of adult development, which has followed hundreds of men over seven decades of life. The study has yielded important insights into human spirituality, and Dr. Vaillant has drawn on these and on a range of psychological research, behavioral studies, and neuroscience, and on history, anecdote, and quotation to produce a book that is at once a work of scientific argument and a lyrical meditation on what it means to be human. Spiritual Evolution is a life’s work, and it will restore our belief in faith as an essential human striving.
Coronary Microvascular Obstruction in Acute Myocardial Infarction Aug 08 2021 Coronary Microvascular Obstruction in Acute Myocardial Infarction: From Mechanisms to Treatment provides a comprehensive understanding of the phenomenon of coronary microvascular obstruction (CMVO) that is the main limitation of reperfusion therapies in ST-elevation myocardial infarction. It provides in-depth coverage of the phenomenon of CMVO which heavily affects prognosis by increasing the risk of death and heart failure at follow-up. A first of its kind reference dedicated solely to this topic, it is appropriate for a wide audience, from researchers, to those who aid in the management, prevention and treatment of CMVO. Provides in-depth coverage of coronary microvascular obstruction (CMVO), spanning research, management, prevention and treatment Includes the most up-to-date information on CMVO as presented from top experts around the word Provides access to a companion website with extra material, including tables, additional references and instructional videos Gives extensive coverage on how to measure CMVO, including in-depth indexes that can be used to detect and quantify the phenomenon
Cardiac Mapping Jan 21 2020 Cardiac Mapping is the cardiac electrophysiologist’s GPS. It will guide you to new places in the heart and help you find the old places more easily...a valuable addition to your bookshelf Douglas P. Zipes, from the Foreword. Over the course of three previous editions, this book has become the acknowledged gold standard reference on the electro-anatomical mapping of the heart. This new edition features greatly expanded coverage—the number of chapters have doubled to 80 with 40 new chapters—on leading edge science, new clinical applications and future frontiers, authored by a who’s-who of global electrophysiology. This unique text offers truly comprehensive coverage of all areas of cardiac mapping, from core scientific principals to methodological and technical considerations to the latest data that you can put to work caring for patients. In addition, the all new 4th edition adds essential content on: Mapping in experimental models of arrhythmias Mapping supraventricular and ventricular tachyarrhythmias New catheter-based techniques Also featuring a companion website with video clips illustrating essential techniques described in the text The only state-of-the-art, stand-alone text on this dynamic subject, Cardiac Mapping is an essential resource for basic scientists, clinical electrophysiologists, cardiologists and all physicians who care for patients with cardiac arrhythmias.
Quality Measures Nov 30 2020 While the healthcare system continues to shift towards more emphasis on quality metrics, there remains a substantial gap between the expectations of healthcare policies and standards of hospital administrations vs. the realistic care provided by the average healthcare provider. This book offers the perspective of the healthcare provider and aims to fulfill the unmet need to educate other healthcare providers on recognizing quality measures and understanding how to achieve them to meet standards of quality care. This book covers the historical perspective of quality measures, the context of their existence, their utility, and the contemporary issues related to their use. Simultaneously, it critically addresses the quality of these quality metrics and presents the

evidence available to date on the efficacy and the limitations of these quality measures. This text is all-inclusive and is organized into chapters that include the evolution of quality metrics in healthcare, the practical role of hospitals, as well as the practical role of individual healthcare providers in addressing quality metrics. The chapters also include assessment of quality metrics that uniquely pertain to medical and surgical practices, as well as non-clinical quality metrics that specifically target undergraduate and graduate medical training. Finally, the book reflects on the use of contemporary quality metrics and their impact on outcomes, patient care, and public health and policy making. In these chapters, tables and illustrations, including algorithms, will be used to provide systematic approaches to common issues related to quality metrics. In addition, historical anecdotes and case presentations will be used to address pearls in contemporary practice of quality metrics. Quality Measures is the definitive reference on quality metrics in healthcare and is a valuable resource for healthcare providers, trainees, administrators and public health agencies.

Cardiac Electrophysiology Methods and Models Apr 04 2021 Cardiovascular disease is the major cause of mortality and morbidity in the Western Hemisphere. While significant progress has been made in treating a major sub-category of cardiac disease, arrhythmias, significant unmet needs remain. In particular, every day, thousands of patients die because of arrhythmias in the US alone, and atrial fibrillation is the most common arrhythmia affecting millions of patients in the US alone at a given time. Therefore, there is a public need to continue to develop new and better therapies for arrhythmias. Accordingly, an ever increasing number of biomedical, pharmaceutical, and medical personnel is interested in studying various aspects of arrhythmias at a basic, translational, and applied level, both in industry (ie Biotech, Pharmaceutical and device), and in academia. Not only has our overall understanding of molecular bases of disease dramatically increased, but so has the number of available and emerging molecular, pharmacological or device treatment based therapies. This practical, state-of-the art handbook will summarize and review key research methods and protocols, their advantages and pitfalls, with a focus on practical implementation, and collaborative cross-functional research. The volume will include visual and easy-to-use graphics, bulleted summaries, boxed summary paragraphs, links to reference websites, equipment manufacturers where appropriate, photographs of typical experimental setups and so forth, to keep this book very focused on practical methods and implementation, and yet, provide enough theory that the principles are clearly understood and can be easily applied.

CT of the Heart Oct 10 2021 This book is a comprehensive and richly-illustrated guide to cardiac CT, its current state, applications, and future directions. While the first edition of this text focused on what was then a novel instrument looking for application, this edition comes at a time where a wealth of guideline-driven, robust, and beneficial clinical applications have evolved that are enabled by an enormous and ever growing field of technology. Accordingly, the focus of the text has shifted from a technology-centric to a more patient-centric appraisal. While the specifications and capabilities of the CT system itself remain front and center as the basis for diagnostic success, much of the benefit derived from cardiac CT today comes from avant-garde technologies enabling enhanced visualization, quantitative imaging, and functional assessment, along with exciting deep learning, and artificial intelligence applications. Cardiac CT is no longer a mere tool for non-invasive coronary artery stenosis detection in the chest pain diagnostic algorithms; cardiac CT has proven its value for uses as diverse as personalized cardiovascular risk stratification, prediction, and management, diagnosing lesion-specific ischemia, guiding minimally invasive structural heart disease therapy, and planning cardiovascular surgery, among many others. This second edition is an authoritative guide and reference for both novices and experts in the medical imaging sciences who have an interest in cardiac CT.

Principles of Evolutionary Medicine Oct 18 2019 This is the first integrated and comprehensive textbook to explain the principles of evolutionary biology from a medical perspective and to focus on how medicine and public health might utilise evolutionary biology.

Dr. Gundry's Diet Evolution Jan 01 2021 "Dr. Gundry has crafted a wise program with a powerful track record." –Mehmet Oz, M.D. Does losing weight and staying healthy feel like a battle? Well, it's really a war. Your enemies are your own genes, backed by millions of years of evolution, and the only way to win is to outsmart them. Renowned surgeon and founder of Gundry MD, Dr. Steven Gundry's revolutionary book shares the health secrets other doctors won't tell you: • Why plants are "good" for you because they're "bad" for you, and meat is "bad" because it's "good" for you • Why plateauing on this diet is actually a sign that you're on the right track • Why artificial sweeteners have the same effects as sugar on your health and your waistline • Why taking antacids, statins, and drugs for high blood pressure and arthritis masks health issues instead of addressing them Along with the meal planner, 70 delicious recipes, and inspirational stories, Dr. Gundry's easy-to-memorize tips will keep you healthy and on course.

Evolution and Medicine Apr 23 2020 Evolution and Medicine provides an accessible introduction to the new field of evolutionary medicine. Evolutionary concepts help explain why we remain vulnerable to disease, how pathogens and cancer cells evolve, and how the diseases that affected our evolutionary ancestors have shaped our biology. The book interweaves the presentation of evolutionary principles with examples that illustrate how an evolutionary perspective enhances our understanding of disease. It discusses the theory of evolution by natural selection, the

genetic basis of evolutionary change, evolutionary life history theory, and host-pathogen coevolution, and uses these concepts to provide new insights into diseases such as cystic fibrosis, cancer, sexually transmitted diseases, and malaria, incorporating the latest research in rapidly developing fields such as epigenetics and the study of the human microbiome. The book concludes with a discussion of the ways in which recent, culturally constructed changes in the human environment are increasing the prevalence of man-made diseases such as diabetes and cardiovascular diseases, and are exacerbating socioeconomic disparities in health. Just as evolutionary biology is concerned with populations and with changes in populations over time, evolutionary medicine is concerned with the health of populations. Evolution and Medicine emphasizes the role of demographic processes in evolution and disease, and stresses the importance of improving population health as a strategy for improving the health of individuals. This accessible text is written primarily for physicians, biomedical scientists, and both premedical and medical students, and will appeal to all readers with a background or interest in medicine.

Heart Development and Regeneration Jul 07 2021 The development of the cardiovascular system is a rapidly advancing area in biomedical research, now coupled with the burgeoning field of cardiac regenerative medicine. A lucid understanding of these fields is paramount to reducing human cardiovascular diseases of both fetal and adult origin. Significant progress can now be made through a comprehensive investigation of embryonic development and its genetic control circuitry. Heart Development and Regeneration, written by experts in the field, provides essential information on topics ranging from the evolution and lineage origins of the developing cardiovascular system to cardiac regenerative medicine. A reference for clinicians, medical researchers, students, and teachers, this publication offers broad coverage of the most recent advances. Volume One discusses heart evolution, contributing cell lineages; model systems; cardiac growth; morphology and asymmetry; heart patterning; epicardial, vascular, and lymphatic development; and congenital heart diseases. Volume Two includes chapters on transcription factors and transcriptional control circuits in cardiac development and disease; epigenetic modifiers including microRNAs, genome-wide mutagenesis, imaging, and proteomics approaches; and the theory and practice of stem cells and cardiac regeneration. Authored by world experts in heart development and disease New research on epigenetic modifiers in cardiac development Comprehensive coverage of stem cells and prospects for cardiac regeneration Up-to-date research on transcriptional and proteomic circuits in cardiac disease Full-color, detailed illustrations

Cardiovascular Regenerative Medicine Jun 25 2020 This book is a comprehensive and up-to-date resource on the use of regenerative medicine for the treatment of cardiovascular disease. It provides a much-needed review of the rapid development and evolution of bio-fabrication techniques to engineer cardiovascular tissues as well as their use in clinical settings. The book incorporates recent advances in the biology, biomaterial design, and manufacturing of bioengineered cardiovascular tissue with their clinical applications to bridge the basic sciences to current and future cardiovascular treatment. The book begins with an examination of state-of-the-art cellular, biomaterial, and macromolecular technologies for the repair and regeneration of diseased heart tissue. It discusses advances in nanotechnology and bioengineering of cardiac microtissues using acoustic assembly. Subsequent chapters explore the clinical applications and translational potential of current technologies such as cardiac patch-based treatments, cell-based regenerative therapies, and injectable hydrogels. The book examines how these methodologies are used to treat a variety of cardiovascular diseases including myocardial infarction, congenital heart disease, and ischemic heart injuries. Finally, the volume concludes with a summary of the most prominent challenges and perspectives on the field of cardiovascular tissue engineering and clinical cardiovascular regenerative medicine. Cardiovascular Regenerative Medicine is an essential resource for physicians, residents, fellows, and medical students in cardiology and cardiovascular regeneration as well as clinical and basic researchers in bioengineering, nanomaterial and technology, and cardiovascular biology.

Cardio-Respiratory Control in Vertebrates Mar 15 2022 Hopefully, this book will be taken off of the shelf frequently to be studied carefully over many years. More than 40 researchers were involved in this project, which examines respiration, circulation, and metabolism from ?sh to the land vertebrates, including human beings. A breathable and stable atmosphere ?rst appeared about 500 million years ago. Oxygen levels are not stable in aquatic environments and exclusively water-breathing ?sh must still cope with the ever-changing levels of O 2 and with large temperature changes. This is re?ected in their sophisticated count- current systems, with high O extraction and internal and external O receptors. 2 2 The conquest for the terrestrial environment took place in the late Devonian period (355–359 million years ago), and recent discoveries portray the gradual transitional evolution of land vertebrates. The oxygen-rich and relatively stable atmospheric conditionsimpliedthatoxygen-sensingmechanismswererelativelysimpleandl- gain compared with acid–base regulation. Recently, physiology has expanded into related ?elds such as biochemistry, molecular biology, morphology and anatomy. In the light of the work in these ?elds, the introduction of DNA-based cladograms, which can be used to evaluate the likelihood of land vertebrates and lung?sh as a sister group, could explain why their cardio-respiratory control systems are similar. The diffusing capacity of a duck lung is 40 times higher than that of a toad or lung?sh. Certainly, some animals have evolved to rich high-performance levels.

The History of Coronary Angioplasty Jul 19 2022

State of the Heart Nov 11 2021 In State of the Heart, Dr. Haider Warraich takes readers inside the ER, inside patients' rooms, and inside the history and science of cardiac disease. State of the Heart traces the entire arc of the heart, from the very first time it was depicted on stone tablets, to a future in which it may very well become redundant. While heart disease has been around for a while, the type of heart disease people have, why they have it, and how it's treated is changing. Yet, the golden age of heart science is only just beginning. And with treatments of heart disease altering the very definitions of human life and death, there is no better time to look at the present and future of heart disease, the doctors and nurses who treat it, the patients and caregivers who live with it, and the stories they hold close to their chests. More people die of heart disease than any other disease in the world and when any form of heart disease progresses, it can result in the development of heart failure. Heart failure affects millions and can affect anyone at anytime, a child recovering from a viral infection, a woman who has just given birth or a cancer patient receiving chemotherapy. Yet new technology to treat heart failure is fundamentally changing just what it means to be human. Mechanical pumps can be surgically sown into patients' hearts and when patients with these pumps get really sick, sometimes they don't need a doctor or a surgeon—they need a mechanic. In State of the Heart, the journey to rid the world of heart disease is shown to be reflective of the journey of medical science at large. We are learning not only that women have as much heart disease as men, but that the type of heart disease women experience is diametrically different from that in men. We are learning that heart disease and cancer may have more in common than we could have imagined. And we are learning how human evolution itself may have led to the epidemic of heart disease. In understanding how our knowledge of the heart evolved, State of the Heart traces the twisting and turning road that science has taken—filled with potholes and blind turns—all the way back to its very origin.

Evolution Feb 20 2020

The Evolution of Cardiac Surgery Feb 26 2023 A history of the development of heart surgery, from the observations of the ancient Greeks to the advances of the present day. It traces the incremental growth in our knowledge of the human heart and its repair, with discussions of each procedure, both the successes and the failures.

Development of the Cardiac Conduction System Jan 25 2023 The pacemaking and conduction system (PCS) is vital for generating and synchronizing the heart beat. Dysfunction of this system can be a direct cause of cardiac conduction disturbance, arrhythmias and sudden cardiac death. A wealth of information has been collected over many years on the unique histological, morphological and phenotypic characteristics of specialized cardiac tissues. The cellular and molecular mechanisms that govern development of the PCS are now starting to be understood. This book draws together contributions from an international and interdisciplinary group of experts working on both basic and clinical aspects of cardiac development. It features reviews of the structure and function of the developing PCS, discussion of the molecular and cellular mechanisms regulating embryological development of this system and studies on the fundamental basis of PCS pathology. The book also considers how novel therapeutic interventions based on understanding of the developmental biology of cardiac pacemaking and conduction tissues might ultimately impact on clinical medicine.

Electrocardiographic Findings During the Evolution of Naturally Occurring Heart Failure in a Spontaneously Hypertensive Rat Jul 27 2020

The Story of the Human Body Aug 28 2020 In this landmark book of popular science, Daniel E. Lieberman—chair of the department of human evolutionary biology at Harvard University and a leader in the field—gives us a lucid and engaging account of how the human body evolved over millions of years, even as it shows how the increasing disparity between the jumble of adaptations in our Stone Age bodies and advancements in the modern world is occasioning this paradox: greater longevity but increased chronic disease. The Story of the Human Body brilliantly illuminates as never before the major transformations that contributed key adaptations to the body: the rise of bipedalism; the shift to a non-fruit-based diet; the advent of hunting and gathering, leading to our superlative endurance athleticism; the development of a very large brain; and the incipience of cultural proficiencies. Lieberman also elucidates how cultural evolution differs from biological evolution, and how our bodies were further transformed during the Agricultural and Industrial Revolutions. While these ongoing changes have brought about many benefits, they have also created conditions to which our bodies are not entirely adapted, Lieberman argues, resulting in the growing incidence of obesity and new but avoidable diseases, such as type 2 diabetes. Lieberman proposes that many of these chronic illnesses persist and in some cases are intensifying because of "dysevolution," a pernicious dynamic whereby only the symptoms rather than the causes of these maladies are treated. And finally—provocatively—he advocates the use of evolutionary information to help nudge, push, and sometimes even compel us to create a more salubrious environment. (With charts and line drawings throughout.)

Dawn and Evolution of Cardiac Procedures Sep 21 2022 The book provides a clear overview of the various research stages of cardiac surgery, interventional cardiology, and cardiac anesthesia. It also deals with recent advances in minimally invasive surgery, robotic surgery, and many other innovations introduced in this field. However, aim of this volume is not only to describe the evolution of the discipline, but also to give the occasion of revisiting old and forgotten ideas that could be used successfully also nowadays if supported by modern

technologies. With contributions by renowned international experts, the volume will be a very useful tool for students, residents, cardiac surgery and anesthesia professionals, cardiologists, biomedical engineers, and researchers.

Heart Teams for Treatment of Cardiovascular Disease Jan 13 2022 This book provides a comprehensive framework for developing heart teams to manage a variety of cardiovascular diseases. Management of cardiovascular diseases has changed dramatically in recent years due to developments in evidence-based practices and treatments as well as the introduction of new devices. The sequential method of referring patients from doctor to doctor is becoming an antiquated model. The future of cardiac care lies in developing multidisciplinary "Heart Teams" to provide patient-focused treatment for complex cardiovascular problems. This volume examines the history and evolution of cardiovascular care and technology and explains why the implementation of heart teams is absolutely necessary to the future of cardiac care. It analyzes the role of heart teams for heart failure, complex coronary revascularization, mitral valve disease, cardiac imaging, aortic valve disease, cardiac arrhythmias, and women's heart health. Finally, the book explores how heart teams work with hospital administration and the broader healthcare industry. Heart Teams for Treatment of Cardiovascular Disease: A Guide for Advancing Patient-Centered Cardiac Care is an essential resource for physicians and related professionals, residents, fellows, and graduate students in cardiology, cardiac surgery, critical care medicine, and radiology.

Ontogeny and Phylogeny of the Vertebrate Heart Nov 23 2022 This collection of reviews will be of considerable interests to biologists and MDs working on any aspect of cardiovascular function. With state-of-the-art reviews written by competent experts in the field, the content is also of interest for MSc and PhD students in most fields of cardiovascular physiology.

Cardiovascular Diseases Sep 28 2020 Cardiovascular Diseases: Genetic Susceptibility, Environmental Factors and Their Interaction covers the special heritability characteristics and identifying genetic and environmental contributions to cardiovascular health. This important reference provides an overview of the genetic basis of cardiovascular disease and its risk factors. Included are important topics, ranging from lifestyle choices, risk factors, and exposure, to pollutants and chemicals. Also covered are the influences of Mendelian traits and familial aggregation and the interactions and interrelationships between genetics and environmental factors which, when compared, provide a sound understanding of the interplay between inherited and acquired risk factors. The book provides a much needed reference for this rapidly growing field of study. By combining the latest research within the structured chapters of this reference, a better understanding of genetic and environmental contribution to cardiovascular disease is found, helping to substantiate further investigations in the field and design prevention and treatment strategies. Provides an overview of the genetic basis of cardiovascular disease and its risk factors Reviews several large population-based studies which indicate that exposure to several environmental factors may increase CVD morbidity and mortality, exploring the plausibility of this association by data from animal studies Reflects on future studies to help understanding the role of genes and environmental factors in the development and progression of cardiovascular disease

Elucidation of the Cardiac Myogenesis Regulatory Network Sep 09 2021 Heart development has been extensively studied in numerous organisms throughout the twentieth century. The timing of key inductive signals and the expression of many critical transcription factors have been mapped across a variety of model systems. A collective image of the various stages of cardiac development is beginning to emerge. Although most of the seminal events are conserved across evolution, it is increasingly clear that subtle differences can have substantive effects on models of heart development processes. Furthermore, the overwhelming majority of work contributing to these models has been performed on a gene-by-gene basis. As a result, we have a loosely stitched cross-evolutionary view of cardiogenesis that leaves much to be desired by way of completeness. Thus, in order to move toward a comprehensive model of heart development, we have a critical need for global network views of heart development processes conducted within one species. Cardiac myogenesis, the development of heart muscle cells, is the earliest heart development process and is required for the formation of all adult heart structures. Key signaling pathways, and their precise timing and targets, have only recently begun to be defined. The downstream targets of these pathways and their timing of activation or repression remain largely unknown. To address this, I compiled data from three genomic microarray studies, each addressing a distinct aspect of cardiac myogenesis signaling and expression, to construct a global preliminary network of the primary inductive signals and their downstream targets in the chick model embryology system. The preliminary cardiac myogenesis network obtained from these studies generates far too many hypotheses to test experimentally. The challenge that lies ahead for elucidating the fine structure of this, or any network model, is in determining the next most enlightening experiments. Headway in sorting out more profitable experiments can be made by selecting from among the universe of known interaction data as well as taking advantage of a property selected for throughout evolution - robustness. Network robustness is loosely defined as the ability of a network to maintain input and output properties in the face of perturbation. It is unsurprising that evolution would sculpt such a characteristic into molecular networks required to perform a task in varied environmental and genetic circumstances. However the way in which evolution has engendered this quality has

opened the door to an exciting new avenue for in silico experimentation. I present in this dissertation the beginnings of a collaborative project for biological network elucidation software called BioNET. The long-term goal of BioNET is to take a description of a network model and phenotype as input and return a set of candidate network models capable of more robustly producing the phenotype. Fundamental to BioNET is the ability to acquire information from the universe of known molecular interaction data for in silico experimentation in any model system. To this end, I redesigned BioNetBuilder, open-source network integration software, to transfer any and all publicly available interaction data across species and serve them via the web. As these data grow in scale, BioNET will be increasingly useful for identifying the more plausible, among possible network architectures, such as the preliminary cardiac myogenesis network presented in this dissertation.

On Stress, Disease, and Evolution Mar 23 2020

Evolution of Cardio-Metabolic Risk from Birth to Middle Age Aug 20 2022 That precursors of adult coronary artery disease, hypertension, and type II diabetes begin in childhood have been clearly established by the Bogalusa Heart Study. This unique research program has been able to follow a biracial (black/white) population over 35 years from childhood through mid-adulthood to provide perspectives on the natural history of adult heart diseases. Not only do these observations describe trajectories of cardio-metabolic risk variables leading to these diseases but provide a rationale for the need to begin prevention beginning in childhood. The trajectories of the burden of cardio-metabolic risk variables in the context of their fetal origin and chromosome telomere dynamics provide some insight into the metabolic imprinting in utero and aging process. The observed racial contrasts on cardio-metabolic risk variables implicate various biologic pathways interacting with environment contributing to the high morbidity and mortality from related diseases in our population. To address the seriousness of the onset of cardiovascular disease in youth, approaches to primordial prevention are described focussing on childhood health education as an important aspect of Preventive Cardiology.

Evolution in Health and Disease May 05 2021 This work explores and analyses the ways in which our ancient genes contend with, and influence, modern human life. It offers coverage of the points of contact between evolutionary biology and medical science.

Etiology and Morphogenesis of Congenital Heart Disease Feb 14 2022 This volume focuses on the etiology and morphogenesis of congenital heart diseases. It reviews in detail the early development and differentiation of the heart, and later morphologic events of the cardiovascular system, covering a wide range of topics such as gene functions, growth factors, transcription factors and cellular interactions that are implicated in cardiac morphogenesis and congenital heart disease. This book also presents recent advances in stem cell and cell sheet tissue engineering technologies which have the potential to provide novel in vitro disease models and to generate regenerative paradigms for cardiac repair and regeneration. This is the ideal resource for physician scientists and investigators looking for updates on recent investigations on the origins of congenital heart disease and potential future therapies.

Myocardial Protection Dec 12 2021 Myocardial protection is regarded as one of the most important, yet also most controversial aspects of cardiac surgery. There has been considerable improvement in myocardial protection strategies over recent years, utilising a variety of new approaches to treat cardiac diseases, and this text is intended to embrace the state of the art in this field. The book summarises the state of knowledge on all aspects of myocardial protection, including the latest in the treatment of cardiac diseases, robotics, pediatric surgery and the treatment of cardiac failure. Robotic surgery, valvular surgery, pediatric surgery and coronary surgery are all covered by renowned experts, producing a comprehensive, forward-looking view of the field of myocardial protection. This book should function to update physicians and surgeons interested in the field of cardiac surgery on the current state of knowledge on myocardial protection.

Design in Nature Dec 20 2019 In this groundbreaking book, Adrian Bejan takes the recurring patterns in nature—trees, tributaries, air passages, neural networks, and lightning bolts—and reveals how a single principle of physics, the constructal law, accounts for the evolution of these and many other designs in our world. Everything—from biological life to inanimate systems—generates shape and structure and evolves in a sequence of ever-improving designs in order to facilitate flow. River basins, cardiovascular systems, and bolts of lightning are very efficient flow systems to move a current—of water, blood, or electricity. Likewise, the more complex architecture of animals evolve to cover greater distance per unit of useful energy, or increase their flow across the land. Such designs also appear in human organizations, like the hierarchical “flowcharts” or reporting structures in corporations and political bodies. All are governed by the same principle, known as the constructal law, and configure and reconfigure themselves over time to flow more efficiently. Written in an easy style that achieves clarity without sacrificing complexity, Design in Nature is a paradigm-shifting book that will fundamentally transform our understanding of the world around us.

Evolution of Adaptations to Cardiac Glycosides in the Hemipteran Subfamily Lygaeinae Dec 24 2022

- The Evolution Of Cardiac Surgery

- Development Of The Cardiac Conduction System
- Evolution Of Adaptations To Cardiac Glycosides In The Hemipteran Subfamily Lygaeinae
- Ontogeny And Phylogeny Of The Vertebrate Heart
- The Heart Of History
- Dawn And Evolution Of Cardiac Procedures
- Evolution Of Cardio Metabolic Risk From Birth To Middle Age
- The History Of Coronary Angioplasty
- Heart Development And Regeneration
- The Singing Heart Of The World Creation Evolution And Faith
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- Heart Teams For Treatment Of Cardiovascular Disease
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- Elucidation Of The Cardiac Myogenesis Regulatory Network
- Coronary Microvascular Obstruction In Acute Myocardial Infarction
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- Cardiovascular Pathology
- Dr Gundrys Diet Evolution
- Quality Measures
- Cardiac Mechanics And Function In The Normal And Diseased Heart
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