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# Stunning, Hibernation, and Calcium in Myocardial Ischemia and Reperfusion

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Edited by  
**Lionel H. Opie**



Kluwer Academic Publishers

# Stunning Hibernation And Calcium In Myocardial Ischemia And Reperfusion

**Patrick Vollmar**



## **Stunning Hibernation And Calcium In Myocardial Ischemia And Reperfusion:**

**Stunning, Hibernation, and Calcium in Myocardial Ischemia and Reperfusion** Lionel H. Opie, 2012-12-06 Stunning is potentially an important complication of myocardial reperfusion In contrast hibernation is an important complication of myocardial ischemia This book presents different viewpoints on these subjects taken from a series of peer reviewed articles which first appeared in Cardiovascular Drugs and Therapy and now in this book In addition a certain number of articles were directly invited for the book The introductory article is by Eugene Braunwald who with Kloner introduced the term myocardial stunning in 1982 The experimental phenomenon had first been described by Heyndrickx et al This important concept of stunning is examined from a number of points of view in a series of articles which clarify the experimental causes and the clinical implications The section on hibernation is introduced by Tubau and Rahimtoola the latter having first propounded the concept in 1989 The difference between stunning and hibernation is that stunning is essentially a post ischemic dysfunction of the myocardium temporary in nature occurring at a time when coronary blood flow is apparently normal or supranormal Hibernation on the other hand is a condition of reduced contractile activity the direct result of chronic ischemia and hence a sign of a tolerable reduction in blood flow Possibly the reduction in contractile activity of the hibernating heart balances the reduction in the oxygen availability the smart heart of Rahimtoola This non contractile heart is hibernating awaiting the return of summer after winter and willing to contract normally again whenever warm coronary blood is restored It is certain that the concepts of stunning and hibernation are here to stay that they have or will have clinical relevance and that the search for the most appropriate diagnosis and therapy for each condition is now under way Hence a greater understanding of the experimental work which underlies these two conditions is highly appropriate

### **Stunning, Hibernation, and Calcium in Myocardial Ischemia and Reperfusion** Lionel H Opie, 1992-09-30

*Myocardial Ischemia and Reperfusion* Michael V. Cohen, J.M. Downey, R.J. Gelpi, Jan Slezak, 2012-12-06 The articles collected in this volume largely arose from two related meetings held last spring The first was held in Buenos Aires Argentina on April 11-12 1997 and was titled Nuevos Avances en el Fenomeno de Isquemia y Reperfusion New Advances in the Phenomenon of Ischemia and Reperfusion The second meeting took place in Star Lesn located in the High Tatras Mountains of the Slovak Republic on June 27-30 1997 Both meetings were sponsored by several organizations including the International Society and Federation of Cardiology the International Society for Heart Research and The American Heart Association

**Myocardial Ischemia** Dennis V. P. Cokkinos, C. Pantos, Gerd Heusch, H. Taegtmeyer, 2006-03-08 Effective new treatments of heart disease are based on a refined understanding of cellular function and the heart's response to environmental stresses Not surprisingly therefore the field of experimental cardiology has experienced a phase of rapid exponential growth during the last decade The acquisition of new knowledge has been so fast that textbooks of cardiology or textbooks of cardiovascular physiology are often hard pressed to keep up with the most important conceptual advances

Witness the explosive increase in knowledge about signaling pathways of cardiac growth transcriptional regulation of cardiac metabolism hormonal signaling and the complex responses of the heart to ischemia reperfusion or ischemic preconditioning This book is meant to bridge the gap between original literature and textbook reviews It brings together investigators of various backgrounds who share their expertise in the biology of myocardial ischemia Each chapter is a self contained mini review but it will soon become apparent to the reader that there is also a common thread Molecular and cellular cardiology has never been more exciting than now but ever more exciting times are yet to come The Editors

**ACKNOWLEDGEMENTS** Publication of this book was generously supported by Sanofi Aventis Hellas Eikon creative team provided the technical assistance in preparing the manuscripts We thank Dr Bernard Swynghedauw for all his scientific support

**Myocardial Viability** A.E. Iskandrian, Ernst E. van der Wall, 2012-12-06 AMI E ISKANDRIAN we appreciate their commitments and contributions Almost all chapters have been radically modified Chapter 1 deals with pathophysiology of myocardial hibernation and stunning Chapter 2 with apoptosis Chapter 3 with the role of positron emission tomography Chapters 4 and 5 with the role of single photon emission computed tomography with thallium 201 and technetium agents respectively Chapter 6 with the role of SPECT fatty acid imaging Chapter 7 with the role of SPECT FDG imaging Chapter 8 with the role of cardiac catheterization angiography Chapter 9 with the role of echocardiography Chapter 10 with the role of magnetic resonance imaging and Chapter 11 with clinical applications Finally Chapter 12 provides a short summary

*Kirklin/Barratt-Boyes Cardiac Surgery E-Book* James K. Kirklin, Eugene H. Blackstone, 2012-10-26 Now in its 4th edition Kirklin Barratt Boyes Cardiac Surgery remains your indispensable source for definitive state of the art answers on every aspect of adult and pediatric cardiac surgery This dynamic medical reference thoroughly and systematically covers the full range of new and classic surgical procedures including the latest alternate and minimally invasive surgical techniques and presents the up to date clinical evidence you need to make effective management decisions Be certain with expert dependable accurate answers for every stage of your career from the most comprehensive definitive text in the field Get comprehensive coverage of all areas of cardiac surgery including ischemic valvular and congenital heart disease cardiac tumors constrictive pericarditis thoracic aortic surgery cardiac transplantation coronary artery disease aortic valve disease cardiac rhythm disturbances heart failure and transplantation disease of the thoracic aorta tetralogy of Fallot anesthesia and postoperative care Stay current with the latest advancements and practices Comprehensive updates throughout include new information on endovascular management of thoracic aorta disease new data on clinical outcomes the most recent minimally invasive procedures non invasive CT angiography new alternative surgical approaches to mitral valve surgery and many other hot topics Make the most well informed decisions and achieve optimal outcomes by exploring each condition s natural history diagnostic criteria indications for surgery operative techniques and follow up care Reference information quickly thanks to a new streamlined format Visually grasp and better understand critical information with the aid of a new full color

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**Sabiston and Spencer Surgery of the Chest, E-Book** Frank W. Sellke, Pedro J. del Nido, Scott J. Swanson, 2023-09-27 Selected for Doody's Core Titles 2024 in Thoracic Surgery The only text to cover the full range of adult cardiac thoracic and pediatric chest surgery Sabiston and Spencer Surgery of the Chest 10th edition provides unparalleled guidance in a single two volume resource This gold standard reference edited by Drs Frank Sellke Pedro del Nido and Scott Swanson covers today's most important knowledge and techniques in cardiac and thoracic surgery the information you need for specialty board review and for day to day surgical practice Meticulously organized so that you can quickly find expert information on open and endoscopic surgical techniques this 10th Edition is an essential resource not only for all cardiothoracic surgeons but also for physicians residents and students concerned with diseases of the chest Features short focused chapters divided into three major sections Adult Cardiac Surgery Pediatric Cardiac Surgery and Thoracic Surgery Presents the knowledge and expertise of global experts who provide a comprehensive view of the entire specialty Provides full color coverage throughout helping you visualize challenging surgical techniques and procedures and navigate the text efficiently Includes new chapters on dissection complications and percutaneous treatment of mitral and tricuspid valve disease Offers extensively revised or rewritten chapters on surgical revascularization acute dissection vascular physiology the latest innovations in minimally invasive cardiothoracic surgery and percutaneous devices the molecular biology of thoracic malignancy robotics in chest surgery congenital valve reconstructions novel hybrid procedures in pediatric cardiac surgery and 3D visualization of cardiac anatomy for surgical procedure planning Keeps you up to date with the latest developments in cardiothoracic imaging and diagnosis Provides access to more than 30 surgical videos online and features new figures tables and illustrations throughout

**Molecular Mechanisms of Cardiac Hypertrophy and Failure** Richard A. Walsh, 2005-11-29 This title reviews current knowledge of the mechanisms contributing to heart failure Editor Richard Walsh and an internationally renowned team of contributors discuss key advances in molecular and cell biology biochemistry and pharmacology focusing on advances that have a direct bearing on current clinical studies It highlights developments across a broad range of disciplines with in depth coverage of each topic providing background and perspective on current literature By setting new advances in a broader context this text allows readers to compare different ideas and evaluate their importance in their own areas of research or clinical practice

*Sabiston and Spencer's Surgery of the Chest E-Book* Frank Sellke, Pedro J. del Nido, Scott J. Swanson, 2009-12-16 Through seven successful editions Sabiston Spencer

Surgery of the Chest has set the standard in cardiothoracic surgery references Now the new 8th Edition edited by Frank W Sellke MD Pedro J del Nido MD and Scott J Swanson MD carries on this tradition with updated coverage of today s essential clinical knowledge from leaders worldwide Guidance divided into three major sections Adult Cardiac Surgery Congenital Heart Surgery and Thoracic Surgery lets you quickly find what you need while new and revised chapters reflect all of the important changes within this rapidly evolving specialty Expert Consult functionality new to this edition enables you to access the complete contents of the 2 volume set from anyplace with an Internet connection for convenient consultation where and when you need it This is an ideal source for mastering all of the most important current knowledge and techniques in cardiac and thoracic surgery whether for specialty board review or day to day practice Features short focused chapters that help you find exactly what you need Presents the work of international contributors who offer a global view of the entire specialty Covers thoracic surgery as well as adult and pediatric cardiac surgery for a practical and powerful single source Includes nearly 1 100 illustrations that help to clarify key concepts Features online access to the complete contents of the 2 volume text at expertconsult com for convenient anytime anywhere reference Covers the hottest topics shaping today s practice including the latest theory and surgical techniques for mitral valve disease advances in the treatment of congenital heart disease minimally invasive surgical approaches to the treatment of adult and congenital cardiac disease and thoracic disease stent grafting for aortic disease and cell based therapies Your purchase entitles you to access the web site until the next edition is published or until the current edition is no longer offered for sale by Elsevier whichever occurs first Elsevier reserves the right to offer a suitable replacement product such as a downloadable or CD ROM based electronic version should access to the web site be discontinued

*Handbook of Cardiac Anatomy, Physiology, and Devices* Paul A. Iaizzo, 2024-12-08 This book covers the latest information on the anatomic features underlying physiologic mechanisms and treatments for diseases of the heart Key chapters address preclinical animal models for cardiac research and clinical trials performed cardiac mapping systems heart valve therapies and other device based tools and technologies for cardiac diagnoses and treatments Once again companion of supplementary videos offer unique insights into the device tissue interfaces including those within beating hearts i e these supplemental videos enhance ones understandings of key points within the text The Handbook of Cardiac Anatomy Physiology and Devices the Fourth Edition is a comprehensive and state of the art resource textbook that should provide clinicians and biomedical engineers alike with the authoritative information and background they need to work on and implement tomorrow s generation of life saving cardiac therapies and devices

Kirklin/Barratt-Boyes Cardiac Surgery James K. Kirklin, Eugene H. Blackstone, 2012-10-26 Now in its 4th edition Kirklin Barratt Boyes Cardiac Surgery remains your indispensable source for definitive state of the art answers on every aspect of adult and pediatric cardiac surgery This dynamic medical reference thoroughly and systematically covers the full range of new and classic surgical procedures including the latest alternate and minimally invasive surgical techniques and presents

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**National Library of Medicine Current Catalog** National Library of Medicine (U.S.),1992     Cumulated Index Medicus ,1995     **Oxford Textbook of Medicine: Cardiovascular Disorders** David Warrell,Timothy Cox,John Firth,Jeremy Dwight,2016-06-03 The Oxford Textbook of Medicine Cardiovascular Disorders is selected from the cardiology section of the renowned Oxford Textbook of Medicine An authoritative resource on heart disease and beautifully illustrated in full colour it is an essential guide to best practice in managing and preventing a wide variety of cardiovascular disorders Chapters on arrhythmias acute coronary syndromes and cardiac surgery have been completely revised and updated together with new chapters on blood vessels and the endothelium cardiac physiology syncope and palpitations and cardio renal syndrome Heart failure and heart disease in pregnancy are thoroughly treated while imaging chapters evaluate the latest techniques and illustrate all clinical features with detailed images In 46 finely crafted chapters with clear essentials experts in cardiovascular disease review the essentials of diagnosis guidelines and practice and provide a wealth of practical advice for use in clinical situations In addition background information on epidemiology pathogenesis and pathophysiology encourages a fuller understanding of conditions and more than 350 full colour images help with diagnosis This essential reference tool supports all medical professionals seeking a general outline of

treatment and prevention of cardiovascular disorders and fills the gap between undergraduate teaching texts and specialist texts for cardiologists. Cardiologists and general physicians will find it immensely valuable when diagnosing and managing heart disease in their day to day practice. It is also of use for trainees in cardiology and general medicine especially those interested in applied cardiovascular pathophysiology.

**Clinical Nuclear Medicine Fourth Edition** Gary J.R Cook, M. N Maisey, K.E Britton, Vaseem Chengazi, 2006-11-24 The fourth edition of Clinical Nuclear Medicine highlights the continued growth in clinical applications for PET and other aspects of molecular imaging. With its problem oriented clinical approach the book presents relevant topics of current importance to the practicing clinician rather than providing a comprehensive review of all technical and basic science aspects. An initial section covers the broad principles and scope of important areas that are considered to have impacted more significantly on current and future clinical practice since the last edition. The second section covers all the clinical systems where nuclear medicine helps current clinical practice while a third section covers a number of relevant technical topics.

**Heart Disease and the Surgical Patient** Simon Howell, Chris Pepper, Donat R. Spahn, 2007-03-19 Cardiac complications are a leading cause of death after surgery. This all inclusive guide examines the epidemiology, pathophysiology, diagnosis and treatment of perioperative myocardial injury and infarction and provides an expert assessment of the latest methods and strategies for the optimal care of these patients.

**Mitochondrial Dynamics in Cardiovascular Medicine** Gaetano Santulli, 2017-05-25 This text covers the basic principles of mitochondrial dynamics in cardiovascular medicine with particular emphasis on their functional roles in physiology and disease. The book will include articles pertaining to mitochondrial fitness on a global basis providing therefore an update on the progress made in several aspects in the field. Thus it will assist scientists and clinicians alike in furthering basic and translational research. Organized in sections focusing on basic science, mitochondrial dysfunction in cardiac disorders, in vascular disorders, in metabolic disorders, in kidney disease, therapeutic challenges and options, this essential volume fills imperative gaps in understanding and potentially treating several cardiovascular disorders.

**Index Medicus**, 2004 Vols for 1963 include as pt 2 of the Jan issue. Medical subject headings.

**Coronary Graft Failure** Ion C. Tintoiu, Malcolm John Underwood, Stephane Pierre Cook, Hironori Kitabata, Aamer Abbas, 2016-03-24 Coronary artery bypass surgery has been developed since 1960s to overcome proximal coronary artery disease. Worldwide the number of patients that are undergoing coronary artery bypass surgery is steadily increasing. Depending on diverse risk factors one fifth of grafts are occluded at 1 year. For the remaining graft patency last usually 8-15 years. This book brings together the main specialists in the field to review the current evidence on epidemiology, pathophysiology, diagnostic new imaging techniques and specific therapeutic modalities. This volume aims to update a complex subject represented by coronary graft failure. The authors of this monograph are interventional cardiologists, cardiovascular surgeons and research scientists who will be creating four parts and 71 chapters that are divided in order to give a uniform interpretation of this condition including all aspects of coronary



graft failure This book not only provides the most up to dated scientific evidence in the field but in a two step manner Each chapter is divided into a at a glance part that reflects the basic evidence on the topic and a full picture part that brings all what the advanced reader should be brought with

**Comprehensive Insights into Acute Coronary Syndrome: Pathways, Interventions, and Holistic Recovery** Dr. Spineanu Eugenia, 2024-07-01 Comprehensive Insights into Acute Coronary Syndrome Pathways Interventions and Holistic Recovery delves deep into the multifaceted landscape of Acute Coronary Syndrome ACS offering a meticulous exploration of its intricate pathways comprehensive interventions and the crucial journey towards holistic recovery This treatise serves as an exhaustive guide meticulously crafted by medical experts and biochemistry scholars unraveling the complexities of ACS with precision and depth The treatise meticulously dissects the pathophysiology behind ACS unraveling the intricate mechanisms of atherosclerosis plaque rupture thrombosis formation and the ensuing ischemic cascade It illuminates the epidemiology risk factors and underlying genetic predispositions while exploring the interconnected role of lifestyle factors comorbidities and the structural intricacies of the heart and coronary arteries

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