

Contents

Part One. CARDIOVASCULAR REACTIVITY: LABORATORY AND AMBULATORY ASSESSMENT PROCEDURES

<i>Chapter One. A Conceptual and Methodological Overview of Cardiovascular Reactivity Research</i>	3
<i>Andrew Sherwood and J. Rick Turner</i>	
Introduction	3
The Biological Perspective	4
Assessment of Reactivity	7
Individual Differences	10
Psychosomatic Aspects of Cardiovascular Reactivity	14
Temporal Stability	17
Situational Stability	19
Summary and Future Directions	25
References	27
<i>Chapter Two. Sympathetic Nervous System Responses to Psychosocial Stressors</i>	33
<i>Paul J. Mills and Joel E. Dimsdale</i>	
Introduction	33
Considerations of Catecholamine Physiology	33
Individual Variability in Catecholamine Responses to Stressors	34
New Frontiers	38
Summary	44
References	45

Chapter Three. Individual Differences in Ambulatory Blood Pressure Patterns		51
<i>Gregory A. Harshfield and Derrick A. Pulliam</i>		
Introduction		51
What Is a “Typical” ABP Pattern?		51
Factors Associated with Individual Differences in ABP Patterns		52
Summary and Conclusions		58
References		58
 Chapter Four. The Ecological Validity of Laboratory Stress Testing		63
<i>Lorenz J. P. van Doornen and J. Rick Turner</i>		
Introduction		63
Lab Reactivity and Self-Monitored Casual Blood Pressure		65
Lab Reactivity and Average Ambulatory Levels		66
Studies Predicting Both Real-Life Variability and/or Average Levels		68
Studies Measuring Ambulatory Blood Pressure Invasively on a Beat-by-Beat Basis		73
Studies Predicting the Response to a Well-Defined Real-Life Stressor		75
Discussion		77
References		81
 Part Two. DETERMINANTS OF INDIVIDUAL DIFFERENCES IN CARDIOVASCULAR RESPONSES DURING STRESS		
Chapter Five. Genes, Stress, and Cardiovascular Reactivity		87
<i>Richard J. Rose</i>		
Introduction		87
Differential Reactivity: G × E Interaction		89
Selective Transaction: G × E Correlation		95
Summary		100
References		100

Chapter Six. Personality Characteristics, Reactivity, and Cardiovascular Disease	103
<i>B. Kent Houston</i>	
Introduction	103
Personality Characteristics Affecting the Appraisal Process	106
Personality Characteristics Influencing Emotional Arousal	107
Personality Characteristics Influencing Motivational Arousal.....	111
Characteristics Modulating Emotional and Motivational Arousal	113
Multifaceted Constructs.....	114
Issues in Conducting Research on Personality and Reactivity.....	117
References	118
Chapter Seven. Toward Understanding Race Difference in Autonomic Reactivity: A Proposed Contextual Model	125
<i>Norman B. Anderson, Maya McNeilly, and Hector Myers</i>	
Introduction	125
Black-White Differences in Reactivity.....	126
Predictors of Reactivity among Blacks	128
Summary of Research Findings	130
Augmented Reactivity in Blacks: A Contextual Model.....	130
Testing the Contextual Model: Directions for Research	139
Summary and Conclusions.....	139
References	140
Chapter Eight. The Role of Reproductive Hormones in Cardiovascular and Neuroendocrine Function during Behavioral Stress.	147
<i>Catherine M. Stoney</i>	
Introduction	147
Sex Differences in Adult Stress Responses	148
Investigations of Individuals through Their Reproductive Lives	150
Investigations of Individuals Receiving Exogenous Hormones.....	157

Conclusions.....	160
References	160
Chapter Nine. The Role of Cardiovascular Reactivity in Hypertension Risk.....	165
<i>William R. Lovallo and Michael F. Wilson</i>	
Introduction	165
Background Issues	165
Tasks and Response Types in Studies of Reactivity.....	166
Rationale for Behavioral Studies of Reactivity in High-Risk Normotensives.....	169
Parental History of Hypertension	169
Cardiovascular Function in PH+ and PH- Persons.....	170
Borderline Hypertension	174
Longitudinal Studies of Borderline Hypertensives and Other High-Risk Groups	177
Summary.....	180
References	181
Chapter Ten. Stress Reactivity in Childhood and Adolescence.....	187
<i>Bruce S. Alpert and Dawn K. Wilson</i>	
Introduction	187
Individual Differences in Genetic Background.....	189
Environmental Factors and Reactivity	193
Personality Factors and Reactivity	196
Conclusions.....	198
References	198
Chapter Eleven. Does Aerobic Exercise Reduce Stress Responses?..	203
<i>Roger B. Fillingim and James A. Blumenthal</i>	
Introduction and Objectives	203
Methodological Issues.....	204
Cross-Sectional Studies of Physical Fitness and Cardiovascular Reactivity	208

Longitudinal Studies of Physical Fitness and Cardiovascular Reactivity	210
Effects of Acute Aerobic Exercise on Cardiovascular Reactivity	212
Concluding Comments and Future Directions.....	213
References	214

Part Three. CARDIOVASCULAR STRESS RESPONSES AND CARDIOVASCULAR DISEASE

Chapter Twelve. Endogenous Opioids and Stress Reactivity in the Development of Essential Hypertension..... 221

*James A. McCubbin, Robyn Cheung, Thomas B. Montgomery,
Ronald Bulbulian, and John F. Wilson*

Introduction	221
Stress Reactivity and the Developmental Etiology of Essential Hypertension	222
Stress Reactivity and the Endogenous Opioid Neuropeptides	224
Experimental Studies of Individual Differences in Inhibitory Opioid Tone	225
Discussion.....	238
References	240

Chapter Thirteen. Differential Responses to Salt Intake–Stress Interactions: Relevance to Hypertension 245

Kathleen C. Light

Introduction	245
The Influence of Sodium Excretion and Retention on Blood Pressure	246
Stress Exposure Alters Sodium Excretion in Animal Models.....	248
Stress Exposure Alters Sodium Excretion in Man.....	250
Cardiovascular Responses on High- versus Low-Salt Diets	255
Summary.....	259
References	261

<i>Chapter Fourteen. A Biobehavioral Model of Hypertension</i>	
Development	265
<i>William R. Lavallo and Michael F. Wilson</i>	
A Model of Hypertension Development	265
Heritability of Resting Blood Pressure and Cardiovascular	
Reactivity in Humans	274
Relationship between Cardiovascular Reactivity and	
Hypertension Risk	275
Implications	277
References	278
<i>Chapter Fifteen. High Cardiovascular Reactivity to Stress:</i>	
A Predictor of Later Hypertension Development	281
<i>Kathleen C. Light, Andrew Sherwood, and J. Rick Turner</i>	
Introduction	281
High Pressor Response to the Cold Pressor Test Enhances	
Risk of Hypertension	282
High Diastolic Pressure Reactivity to Mental Arithmetic	
Predicts Early Hypertension	283
High Heart Rate and Blood Pressure Reactivity as Predictors of	
Resting and Ambulatory Blood Pressure on Follow-Up	286
Integration of Findings to Date and Recommendations for Future	
Prospective Studies	287
References	292
Index	295