Contents

Preface xi

Acknowledgments xv	
Part I Overview of the Research Process	1
Chapter 1 Introduction to Research in Physical Activity	3
■ The Nature of Research 3 ■ Unscientific Versus Scientific Methods of Problem Solving 10 ■ Alternative Models of Research 14 ■ Types of Research 17 ■ Overview of the Research Process 20 ■ Summary 22	
Chapter 2 Developing the Problem and Using the Literature	25
 Identifying the Research Problem 25 Purpose of the Literature Review 29 Basic Literature Search Strategies 31 Steps in the Literature Search 32 Summary 49 	
Chapter 3 Presenting the Problem	5 1
 Choosing the Title 51 Writing the Introduction 52 Stating the Research Problem 54 Presenting the Research Hypothesis 56 Operationally Defining Your Terms 57 Basic Assumptions, Delimitations, and Limitations 58 Justifying the Significance of the Study 59 The Differences Between the Thesis and the Research Article 61 Summary 61 	

Chapter 4 Formulating the Method	63
 How to Present Methodological Details 64 Why Planning the Method Is Important 64 Two Principles for Planning Experiments 64 Describing Participants 65 Describing Instruments 67 Describing Procedures 68 Describing Design and Analysis 73 Establishing Cause and Effect 73 Interaction of Participants, Measurements, and Treatments 74 Summary 75 	
Chapter 5 Ethical Issues in Research and Scholarship	77
 Seven Areas of Scientific Dishonesty 77 • Ethical Issues Regarding Copyright 83 • Model for Considering Scientific Misconduct 85 • Working With Faculty 86 • Protecting Human Participants 88 • Protecting Animal Subjects 90 • Summary 91 	
Part II Statistical and Measurement Concepts in Research	95
Chapter 6 Becoming Acquainted With Statistical Concepts	97
■ Why We Need Statistics 97 ■ Use of Computers in Statistical Analysis 99 ■ Description and Inference Are Not Statistical Techniques 99 ■ Ways to Select a Sample 99 ■ Justifying Post Hoc Explanations 101 ■ Difficulty of Random Sampling and Assignment: How Good Does It Have to Be? 101 ■ Unit of Analysis 102 ■ Measures of Central Tendency and Variability 103 ■ Basic Concepts of Statistical Techniques 107 ■ Summary 110	
Chapter 7 Statistical Issues in Research Planning and Evaluation	113
 Probability 113 • Meaningfulness (Effect Size) 115 • Power Using Information in the Context of the Study 119 • Reporting Statistical Data 122 • Summary 123 	116

Chapter 8 Relationships Among Variables	125
 What Correlational Research Investigates 125 Understanding the Nature of Correlation 126 What the Coefficient of Correlation Means 132 Using Correlation for Prediction 135 Partial Correlation 138 Uses of Semipartial Correlation 139 Proceds for Multiple Regression 139 Multivariate Forms of Correlation 1 Summary 144 	
Chapter 9 Differences Among Groups	147
 How Statistics Test Differences 147 Types of t Tests 149 Interpreting t 154 Relationship of t and r 157 Analysis of Variance 157 Analysis of Covariance 171 Experimentwise Error Rate 171 Understanding Multivariate Techniques 172 Summary 176 	
Chapter 10 Nonparametric Techniques	179
 Chi Square: Testing the Observed Versus the Expected 181 Procedures for Rank-Order Data 185 Correlation 186 Differences Among Groups 188 Summary 191 	
Chapter 11 Measuring Research Variables	193
 Validity 193 = Reliability 197 = Methods of Establishing Reliability 200 = Intertester Reliability (Objectivity) 202 Standard Error of Measurement 202 = Using Standard Scores to Compare Performance 204 = Measuring Movement 205 Measuring Written Responses 205 = Measuring Affective Behavior 205 = Scales for Measuring Affective Behavior 207 Measuring Knowledge 209 = Item Response Theory 210 Summary 211 	
Part III Types of Research	213
Chapter 12 Historical Research in Physical Activity	215
 Research Paradigms 215 • Lines of Inquiry and Topics 217 Designing the Research 220 • Working With the Evidence 220 	

■ Summary 228

Chapter 13 Philosophic Research in Physical Activity	231
 ■ Identifying the Purposes of Philosophic Research 232 ■ Locating a Research Problem 235 ■ Analyzing a Research Problem 236 ■ Summary 243 	
Chapter 14 Research Synthesis (Meta-Analysis)	247
 Using Meta-Analysis to Synthesize Research 248 Presenting Effect Size Data 256 Summary 257 	
Chapter 15 The Survey	269
■ The Questionnaire 269 ■ The Delphi Method 280 ■ The Personal Interview 281 ■ The Normative Survey 284 ■ Summary 284	
Chapter 16 Other Descriptive Research Methods	287
■ Developmental Research 287 ■ The Case Study 290 ■ Job Analysis 293 ■ Observational Research 293 ■ Unobtrusive Research Techniques 297 ■ Correlational Research 298 ■ Summary 299	
Chapter 17 Physical Activity Epidemiology Research	301
 Observational Versus Experimental Research 303 What Is Epidemiology? 303 Physical Activity Measurement Definitions 305 Assessment of Physical Activity 306 Epidemiologic Study Designs 309 Reading and Interpreting a Physical Activity Epidemiologic Study 318 Summary 320 	
Chapter 18 Experimental and Quasi-Experimental Research	321
 Sources of Invalidity 322 Threats to Internal Validity 326 Threats to External Validity 326 Controlling Threats to External Validity 329 Types of Designs 330 Summary 343 	

 Contrasting Characteristics of Qualitative and Quantitative Research 346 • Procedures in Qualitative Research 347 Analysis of the Data 352 • Concluding Remarks 362 Summary 363 	
Part IV Writing the Research Report	365
Chapter 20 Completing the Research Process	367
 Research Proposal 367 Describing the Method 368 The Proposal Process 369 Preparing and Presenting Qualitative Research Proposals 372 Writing Proposals for Granting Agencies 373 Submitting Internal Proposals 374 Completing Your Thesis or Dissertation 374 Results and Discussion 374 How to Handle Multiple Experiments in a Single Report 378 How to Use Tables and Figures 379 	
ese lables and rightes 575 - Sammary 500	
Chapter 21 Ways of Reporting Research	389
	389
Chapter 21 Ways of Reporting Research Basic Writing Guidelines 389 A Brief Word About Acknowledgments 390 Thesis and Dissertation Format: Traditional Versus Journal 390 Helpful Hints for Successful Journal Writing 397 Writing Abstracts 398 Making Oral	389 405
Chapter 21 Ways of Reporting Research Basic Writing Guidelines 389 A Brief Word About Acknowledgments 390 Thesis and Dissertation Format: Traditional Versus Journal 390 Helpful Hints for Successful Journal Writing 397 Writing Abstracts 398 Making Oral and Poster Presentations 401 Summary 404	
Chapter 21 Ways of Reporting Research Basic Writing Guidelines 389 A Brief Word About Acknowledgments 390 Thesis and Dissertation Format: Traditional Versus Journal 390 Helpful Hints for Successful Journal Writing 397 Writing Abstracts 398 Making Oral and Poster Presentations 401 Summary 404 Appendixes	405

345

Chapter 19 Qualitative Research

References 432

Author Index 448

Subject Index 450

About the Authors 455