



Contents

About the Author	ix
Preface	x

PART 1 The Context of Lactation and Breastfeeding 1

CHAPTER 1 The Political and Social Landscape of Breastfeeding 3

Initiatives	3
African American Families	8
Diverse Family Structures	10
The Surgeon General's Call to Action to Support Breastfeeding	10
Social Attitudes Toward Breastfeeding	11
Legislation	12
Lactation Personnel	15
Resources	15
References	16

CHAPTER 2 The Composition and Biospecificity of Human Milk 18

Lactation and Human Milk Composition	19
Colostrum	21
Microbiome of Breastmilk	24
Nutritional Components of Breastmilk	27
Water	27
Lipids (Fat)	28
Protein	31
Amino Acids	34
Enzymes	34
Cytokines	36
Nonprotein Nitrogen	36
Growth Factors	37
Hormones	38
Carbohydrates	38
Vitamins	42
Minerals	47

Defense Agents in Human Milk	52
Chrononutrition (or Can Breastmilk Tell Time?)	55
Human Milk Fortification	58
Breastmilk Treatment	60
Storage Containers	70
References	72
Appendix 2-1: Summary of Interventions Based on the Biospecificity of Human Milk	87

CHAPTER 3 Maternal Anatomy and Physiology of Lactation89

The Breast	89
Functional Anatomy of the Breast	95
Nipple Preparation	108
Breast Surgery	109
Physiology of Lactation	116
Prolactin	117
Oxytocin	121
Lactogenesis II	126
Lactogenesis III	133
References	141

CHAPTER 4 Infant Anatomy and Physiology of Breastfeeding152

Functional Infant Anatomy and Physiology Associated with Breastfeeding	152
Oral Cavity	152
Neural Control	160
Reflexes	161
Sucking Mechanisms and Mechanics	162
Clinical Implications	173
Putting It All Together	192
Clinical Usefulness of Breastfeeding Assessment Tools	206
References	208

PART 2 Infant-Related Challenges to Breastfeeding217

CHAPTER 5 Peripartum Factors, Birthing Practices, and Early Caretaking Behaviors219

Introduction	219
Birth Interventions and Breastfeeding	219
Prenatal Maternal Medications	220

Labor Medications 223

Separation 228

Supplementation 233

Hyperbilirubinemia (Jaundice) 244

Hypoglycemia 246

Maternal Request 249

Indications for Supplementation 250

What to Supplement 251

How to Supplement 254

Alternative Feeding Devices 258

The Design in Nature 262

References 262

Appendix 5-1: Guidelines for Breastfeeding During
the Hospital Stay 274

**CHAPTER 6 The First 48 Hours: Care
and Challenges. 278**

Introduction 278

Clinician Influence 278

Positioning of the Mother 284

Hand Positions 285

Positioning of the Infant 287

Sudden Unexpected Postnatal Collapse 293

Problems with Latch 296

State and Feeding Readiness 298

Previous or Concurrent Use of Artificial Nipples and Pacifiers 299

Gestational Age 302

Birth-Related Influences on Latch 303

Sensory Integration 305

Neonatal Abstinence Syndrome 307

Other Fetal Drug Exposures 310

Selective Serotonin Reuptake Inhibitors 313

Poor Fetal Sucking Movements 314

Nipple Shields 315

Reluctant Nurser 321

Sleepy Infant 322

Fussy Infant 329

Algorithms to Guide Bedside Care 332

Hypoglycemia 333

References 336

Appendix 6-1: Maternal Checklist of What to Know Prior
to Hospital Discharge 347

Appendix 6-2: Staff Breastfeeding Teaching Checklist Prior to Discharge 348

Appendix 6-3: Parent Information Sheet to Help Avoid Infant Readmissions 349

CHAPTER 7 Beyond the Initial 48-72 Hours: Infant Challenges 350

Introduction 350

Neonatal Jaundice 350

Dehydration and Hypernatremia 361

Neonatal Weight Loss and Slow Weight Gain 365

Breastfeeding Preterm Infants 373

Breastfeeding the Late Preterm Infant 401

References 407

Appendix 7-1: Summary of Interventions for Slow Infant Weight Gain 424

CHAPTER 8 Infant Challenges to Breastfeeding.... 426

Introduction 426

Twins and Higher-Order Multiples 426

Anomalies, Diseases, Conditions, and Disorders That Can Affect Breastfeeding 436

Cleft Lips and Palates 450

Syndromes and Congenital Anomalies 457

Upper Airway Problems 459

Gastrointestinal Disorders, Anomalies, and Conditions 462

Metabolic Disorders 469

Neurological Conditions and Disorders 476

References 482

PART 3 Maternal-Related Challenges to Breastfeeding 493

CHAPTER 9 Breast and Nipple Pathology..... 495

Sore Nipples 495

Engorgement 514

Plugged Ducts 520

Mastitis 521

Abscess 528

Additional Breast-Related Conditions 529

Nipple Discharge 530

Breast Pain 531

References 531

CHAPTER 10 Physical, Medical, Emotional, Cultural, and Environmental Challenges to Breastfeeding 542

Physically Challenged Mothers..... 542

Epilepsy..... 546

Maternal Visual or Hearing Impairment 547

Insufficient Milk Supply..... 548

Hyperlactation 558

Induced Lactation and Relactation..... 560

High Maternal Body Mass Index—Overweight and Obesity 562

Peripartum Mood, Depressive, and Anxiety Disorders 566

Autism Spectrum Disorder 571

Endocrine, Metabolic, and Autoimmune Conditions..... 572

Polycystic Ovary Syndrome 575

Hyperreactio Luteinalis (Theca Lutein Cysts) 578

Thyroid Disorders..... 579

Fibromyalgia..... 581

Cystic Fibrosis 582

Phenylketonuria/Phenylalanine Hydroxylase Deficiency 583

Multiple Sclerosis 584

Systemic Lupus Erythematosus 586

Rheumatoid Arthritis..... 587

Maternal Employment..... 589

Exclusive Pumping..... 594

Milk Sharing..... 597

Breastfeeding Products..... 600

LGBTQIA+ Families 603

Breastfeeding in Emergencies and Disasters 605

References 606

Appendix 10-1: Resources..... 623

Index 627