Contents

Preface  ◆ xvii
Contributors  ◆ xxi

Section I
General Aspects

Chapter 1
Introduction to the Study of Communicative Disorders in Cleft Palate and Related Craniofacial Anomalies  ◆ 3
Kenneth R. Bzoch

Simple Cleft Lip and Palate ◆ 5
VPI Without Overt Clefts ◆ 10
Craniofacial Disorders ◆ 11
Management over the Past Five Decades ◆ 11
Text for a Course of Study ◆ 12
Rationale for the Need to Study Cleft Palate ◆ 15
The Goal of Preventing Speech Disorders ◆ 17
The Potential Efficacy of Early Intervention ◆ 19
Cleft Palate Speech as a Functional Learned Disorder ◆ 21
Some Principles of Speech Pathology ◆ 23
Related Basic Embryology ◆ 36
Useful and Preferred Cleft Classification Systems ◆ 42
Guidelines for the Best Care and Treatment of Children with Cleft Lip, Cleft Palate, and Craniofacial Anomalies ◆ 51
Treatment Protocols for Optimal Standards of Cleft Palate Care ◆ 55
References ◆ 60
Chapter 2
Anatomy and Physiology of Normal and Disordered Velopharyngeal Function for Speech 67

Jerald B. Moon and David P. Kuehn

Normal Velopharyngeal Anatomy 68
Cleft Palate Anatomy 79
Physiology of the Velopharyngeal Mechanism 80
Conclusion 92
Acknowledgments 93
References 93

Chapter 3
Basic Genetic Concepts in Craniofacial Anomalies 99

Alison E. Winder, Robin Imagire, and Sally J. Peterson-Falzone

Terminology 103
Basic Human Genetics 109
Causes of Birth Defects 112
Conclusion 143
References 145

Chapter 4
Social and Psychological Perspectives on Cleft Lip and Palate 149

Ronald P. Strauss

Stigma and Appearance 150
Stigma and Treatment 153
Resilience and Health 156
Outcomes of Treatment 157
Cultural Issues 159
Birth and Diagnosis 161
Psychological Issues and Care 163
Neuropsychological and Cognitive Issues 168
Future Psychosocial Research 170
Acknowledgment 172
References 172
Chapter 5

Primary Surgical Correction of Cleft Lip and Palate ♦ 181

M. Brent Seagle

Anatomy ♦ 182
Timing of Surgery ♦ 183
Procedures ♦ 184
Complications ♦ 190
References ♦ 191

Chapter 6

Secondary Surgical Procedures to Correct Postoperative Velopharyngeal Incompetencies Found After Primary Palatoplasties ♦ 193

John E. Riski

Nasopharyngeal Anatomy and Physiology Relative to Secondary Surgical Management ♦ 194
History ♦ 196
Secondary Pharyngeal Flap ♦ 198
Posterior Pharyngeal Wall Augmentation by Muscle Transposition ♦ 206
Posterior Pharyngeal Wall Augmentation by Implants and Injections ♦ 215
Palatal Lengthening ♦ 216
Pharyngoplasty Procedures in Combination ♦ 218
Other Considerations in Managing VPI ♦ 219
Craniofacial Growth Following Pharyngoplasty ♦ 222
Hearing and Middle Ear Function ♦ 223
Complications Secondary to Pharyngoplasties ♦ 223
Conclusion ♦ 227
References ♦ 229

Chapter 7

The Use of Prosthetic Speech Appliances in Cleft Palate Management ♦ 237

Morton S. Rosen and Kenneth R. Bzoch

Purposes and Construction of Prosthetic Speech Appliances ♦ 240
Types of Speech Appliances ♦ 242
Counseling Parents ♦ 248
Chapter 8
The Craniofacial Team: Health Supervision and Coordination ♦ 259

John A. Nackashi, E. Rosellen Dedlow, and Virginia L. Dixon-Wood
Conceptual Health Care Models ♦ 260
Development of the Team Approach ♦ 263
The Clinical Team ♦ 264
The Cleft Lip and Palate Team ♦ 269
Primary Care Needs of Children with Cleft Lip and Palate ♦ 279
Overview of Health Supervision for Children with Cleft Lip and Palate ♦ 280
Conclusion ♦ 286
Appendix 8A ♦ 287
References ♦ 289

Chapter 9
Collaborative Clinical Research and the Craniofacial Outcomes Registry ♦ 291

Betty Jane Phillips
References ♦ 305

Section II
Diagnostic Aspects

Chapter 10
Etiological Factors of Cleft Palate Speech Disorders ♦ 309

Kenneth R. Bzoch
Basic Causal Factors for Evaluation ♦ 313
Major Organic Factors ♦ 317
Functional Factors ♦ 339
Speech Pathologist’s Role on a Cleft Palate Team ♦ 346
References ♦ 347
Chapter 11
Audiologic Management of Patients
with Cleft Palate and Related Disorders • 353

Brett E. Kemker and Patrick J. Antonelli

Hearing Loss and Otitis Media • 355
Eustachian Tube and Auditory Pathology Disorders • 356
Incidence of Hearing Loss and Auditory Pathology • 356
Extent of Hearing Loss • 357
Nature of Hearing Loss • 358
Hearing Loss as a Function of Type of Cleft • 359
Pre- and Postsurgical Findings • 359
Age at Surgery and Hearing Loss • 360
Sequelae of Hearing Loss • 361
Audiological Testing Procedures • 362
Method of Audiological Test Procedure • 362
Recommendations Regarding Audiological Tests • 365
Management of Hearing Problems • 366
References • 370

Chapter 12
A Battery of Clinical Perceptual Tests, Techniques,
and Observations for the Reliable Clinical
Assessment, Evaluation, and Management
of 11 Categorical Aspects
of Cleft Palate Speech Disorders • 375

Kenneth R. Bzoch

Clinical Perceptual Tests That Can Quickly Diagnose Velopharyngeal Insufficiency • 377
Energy Forms Involved in Speech Production • 388
Measurement of Emergent Language Development • 393
Evaluation of Receptive, Expressive, and Inner Language Developmental Functions • 395
Pragmatic Patterns and Stages of Emergent Language Development • 396
Problems in Classification and Terminology of Speech Errors • 403
Categorical Aspects of Cleft Palate Speech Disorders • 408
Recommended Clinical Test Battery • 410
Contents

Diagnostic Error Pattern Articulation Test  432
Management of Categorical Aspects of Cleft Palate Speech Disorders  436
Recording of Clinical Diagnostic Judgments  456
References  458

Chapter 13
Diagnosis of Specific Cleft Palate Speech Error Patterns for Planning Therapy or Physical Management Needs  463

Judith E. Trost-Cardamone
A Note on Terminology  464
Cleft Palate Misarticulations  465
Cleft Palate Speech Assessment  468
Appendix 13A  485
References  489

Chapter 14
The Use of Nasometry in the Assessment and Remediation of Velopharyngeal Inadequacy  493

Rodger M. Dalston
Listener Judgments  495
Acoustic Analysis  497
Summary  510
Appendix 14A  511
Appendix 14B  511
References  511

Chapter 15
Radiographic Assessment of Velopharyngeal Function for Speech  517

William N. Williams, Gunilla Henningsson, and Maria Inês Pegoraro-Krook
Normal Velopharyngeal Function  518
Velopharyngeal Insufficiency  519
Importance of Perceptual Measures and the Oral Exam  519
The Speech–Language Pathologist's Role in the Radiographic Assessment  521
Early History of Speech Research with Radiography  522
Chapter 16
Nasopharyngoscopy
Robert J. Shprintzen
Conceptual Basis for Nasopharyngoscopy
Instrumentation and Technique
Procedural Recommendations
Examination Interpretation
Summary
References

Chapter 17
Aerodynamic Assessments and Procedures to Determine Extent of Velopharyngeal Inadequacy
Donald W. Warren
Measurement of Pressure and Airflow
Application of Aerodynamic Principles for Measurement of Velopharyngeal Function
References
Section III
Cleft Palate Speech Therapy:
Early Preventive and Later
Rehabilitative Aspects

Chapter 18
Rationale, Methods, and Techniques
of Cleft Palate Speech Therapy • 631

Kenneth R. Bzoch

Methods • 635
Early Case Studies • 635
Recent Preventive Therapy Techniques • 649
Group Data from 50 Case Studies (1980–1983) • 655
Evaluation of Language Development Data • 657
Further Recent Case Studies (1990s to 2000) • 660
Recent Group Statistics • 664
References • 666

Chapter 19
Counseling and Early Management of Feeding
and Language Skill Development for Infants
and Toddlers with Cleft Palate • 669

Virginia L. Dixon-Wood

Feeding • 670
Counseling • 675
Early Language Development • 679
References • 681

Chapter 20
Correcting Retracted Articulation Error Patterns:
Recent Techniques • 683

Virginia L. Dixon-Wood

Myths About Treating Children with VPI • 684
Phonologic Development of Children with Cleft Palate • 686
Speech Therapy Techniques for Patients with VPI and Compensatory
Articulation • 688
Chapter 21

Therapy Considerations for Preschool-Age Children with Cleft Palate and Other Craniofacial Anomalies 705

Jane Scheuerle

Basic Knowledge of Child Development During Preschool Years (36 to 60 Months) 707
Preschool Differences Associated with CLP or CFA General Health 710
Clinical Decision Making 723
Conclusion 735
References 736

Chapter 22

Speech and Voice Therapy Techniques for School-Age and Adult Patients with Remaining Cleft Palate Speech Disorders 741

D. R. Van Demark

What Is the Goal? 742
Diagnostic Process 744
Diagnostic Evaluation 746
Articulation Therapy for Patients with Velopharyngeal Competence 748
Speech Therapy for Individuals with Borderline Velopharyngeal Competence 750
Speech Therapy for Individuals Who Exhibit Velopharyngeal Incompetence 755
Therapy for Resonance Disorders 756
Summary 759
References 760
Chapter 23
Considerations for Behavioral Treatment of Velopharyngeal Closure for Speech • 763

Dennis M. Ruscello

Neurophysiology • 765
Treatment Studies • 770
Critique of Palatal Training Studies • 781
Implications for Future Research • 784
Summary • 787
References • 788

Chapter 24
Research Considerations for Behavioral Treatments of Velopharyngeal Impairment • 797

Lucrezia A. Tomes, David P. Kuehn, and Sally J. Peterson-Falzone

Goals of Behavioral Treatments • 798
History of Behavioral Treatments • 800
Overview of Current Opinions and Evidence Concerning Behavioral Treatments to Improve Velopharyngeal Function • 822
Why Continue to Search for Effective Behavioral Treatments of Velopharyngeal Impairment? • 825
Clinical and Research Considerations for Testing the Effectiveness of Behavioral Treatments • 830
Conclusion • 833
Acknowledgments • 836
References • 836

About the Editor • 847

Index • 849