Contributors  xiii
Preface for Course Instructors  xv
Acknowledgments  xviii

PART 1: THE PERIODONTIUM IN HEALTH

1 PERIODONTIUM: THE TOOTH SUPPORTING STRUCTURES  1
   Jill Nield-Gehrig and Donald Willmann
   Tissues of the periodontium  3
   Nerve supply, blood supply, and lymphatic system  14
   Focus on patients  19

2 MICROSCOPIC ANATOMY OF THE PERIODONTIUM  21
   Jill Nield-Gehrig and Donald Willmann
   Histology of the body’s tissues  23
   Histology of the gingiva  27
   Histology of root cementum and alveolar bone  39
   Focus on patients  43

PART 2: CLASSIFICATION AND TISSUE DESTRUCTION IN PERIODONTAL DISEASES

3 THE PROGRESSION OF PERIODONTAL DISEASE  47
   Jill Nield-Gehrig and Donald Willmann
   The periodontium in health and disease  49
   Pathogenesis of bone destruction  57
   Periodontal pockets  62
   Focus on patients  65

4 CLASSIFICATION OF PERIODONTAL DISEASES AND CONDITIONS  67
   Jill Nield-Gehrig and Donald Willmann
   Introduction to disease classification  68
   Classification systems  70
   AAP Classification system for periodontal diseases  72
   Overview of periodontal diseases  76
PART 3: ETIOLOGY OF PERIODONTAL DISEASES

6 ORAL BIOFILMS AND PERIODONTAL INFECTIONS 95
Jill Nield-Gehrig and Donald Willmann
Bacteria in the oral environment 97
Bacteria associated with periodontal health and disease 101
The structure and colonization of plaque biofilms 106
Mechanisms of periodontal destruction 115
Control of plaque biofilms 117
Focus on patients 118

7 LOCAL CONTRIBUTING FACTORS 121
Donald Willmann and Jill Nield-Gehrig
Introduction to local contributing factors 122
Local factors that increase plaque biofilm retention 123
Local factors that increase plaque biofilm pathogenicity 128
Local factors that cause direct damage 129
Focus on patients 136

8 BASIC CONCEPTS OF IMMUNITY AND INFLAMMATION 137
Jill Nield-Gehrig and Donald Willmann
The body’s defense system 139
Leukocyte migration, chemotaxis, and phagocytosis 146
The inflammatory process 148
Focus on patients 154

9 HOST IMMUNE RESPONSE TO PERIODONTAL PATHOGENS 157
Jill Nield-Gehrig and Donald Willmann
The role of host response in periodontal disease 158
Pathogenesis of inflammatory periodontal disease 160
Focus on patients 169

10 SYSTEMIC FACTORS ASSOCIATED WITH PERIODONTAL DISEASES 171
Jill Nield-Gehrig and Donald Willmann
Systemic risk factors for periodontitis 173
Genetic risk factors for periodontitis 182
Systemic medications with periodontal side effects 186
Focus on patients 191
11 SMOKING AND PERIODONTAL DISEASE 195
Christoph Ramseier, Carol Southard, and Clemens Walter
Introduction to smoking and periodontal disease 196
Mechanisms of periodontal disease progression in smokers 198
Smoking cessation 200
Focus on patients 205

12 ETIOLOGIC FACTORS: RISK FOR PERIODONTITIS 209
Jill Nield-Gehrig and Donald Willmann
Risk factors for periodontal disease 210
Balance between periodontal health and disease 212
Focus on patients 218

PART 4: GINGIVAL DISEASE

13 CLINICAL FEATURES OF THE GINGIVA 223
Rebecca Sroda
Clinical features of healthy gingiva 224
Clinical features of gingival inflammation 226
Extent and distribution of inflammation 231
Focus on patients 233

14 DISEASES OF THE GINGIVA 235
Rebecca Sroda
Classification of gingival diseases 236
Dental plaque-induced gingival diseases 237
Non–plaque-induced gingival lesions 244
Focus on patients 250

PART 5: PERIODONTITIS

15 CHRONIC PERIODONTITIS 253
Jill Nield-Gehrig and Donald Willmann
Classification of periodontitis 254
Chronic periodontitis—The most common form 255
Focus on patients 267

16 AGGRESSIVE PERIODONTITIS 269
Jill Nield-Gehrig and Donald Willmann
Aggressive periodontitis—Highly destructive form 270
Focus on patients 276
17 OTHER PERIODONTAL CONDITIONS 277
Jill Nield-Gehrig and Donald Willmann
Periodontitis as a manifestation of systemic disease 278
Necrotizing periodontal diseases 284
Developmental or acquired deformities and conditions 289
Focus on patients 294

18 PERIODONTITIS AS A RISK FACTOR FOR SYSTEMIC DISEASE 297
Jill Nield-Gehrig and Donald Willmann
Periodontitis and systemic disease 298
Focus on patients 316

PART 6: ASSESSMENT FOR CLINICAL DECISION MAKING

19 CLINICAL PERIODONTAL ASSESSMENT 321
Donald Willmann and Jill Nield-Gehrig
Introduction to periodontal assessment 322
The periodontal screening examination 324
The comprehensive periodontal assessment 326
Clinical features that require calculations 336
Focus on patients 340

20 RADIOGRAPHIC ANALYSIS OF THE PERIODONTIUM 341
William Moore
Radiographic appearance of the periodontium 342
Use of radiographs for periodontal evaluation 345
Focus on patients 352

21 NUTRITION AND PERIODONTAL DISEASE 353
Rebecca Sroda
The influence of diet and nutrition on the periodontium 354
Nutritional counseling for a healthy periodontium 359
Focus on patients 361

22 BEST PRACTICES FOR PERIODONTAL CARE 365
Carol Jahn
What is best practice? 366
The role of evidence-based care in best practice 368
Finding clinically relevant information 372
Lifelong learning skills for best practice 377
Focus on patients 379
23 DECISION MAKING DURING TREATMENT PLANNING FOR PATIENTS WITH PERIODONTAL DISEASE 381
Donald Willmann and Jill Nield-Gehrig
Decisions related to assigning a periodontal diagnosis 382
Decisions related to treatment sequencing 387
Informed consent for periodontal treatment 389
Focus on patients 392

24 NONSURGICAL PERIODONTAL THERAPY 393
Donald Willmann and Jill Nield-Gehrig
Overview of nonsurgical periodontal therapy 394
Nonsurgical instrumentation 398
Decisions following nonsurgical therapy 407
Focus on patients 412

25 MOTIVATIONAL INTERVIEWING TO ENHANCE PATIENT MOTIVATION FOR CHANGE 415
Delwyn Catley, Karen Williams, and Christoph Ramseier
Introduction to human behavior change 416
Components of motivational interviewing 419
Implications for dental hygiene practice 424
Focus on patients 430

26 PATIENT'S ROLE IN NONSURGICAL PERIODONTAL THERAPY 433
Carol Jahn and Jill Nield-Gehrig
Patient self-care 434
Toothbrushing and tongue cleaning 435
Interdental care 438
Focus on patients 447

27 SUPRAGINGIVAL AND SUBGINGIVAL IRRIGATION 449
Carol Jahn
Patient-applied home irrigation 450
Professional subgingival irrigation 458
Focus on patients 460

28 CHEMICAL AGENTS IN PERIODONTAL CARE 463
Donald Willmann and Jill Nield-Gehrig
Introduction to chemical agents in plaque biofilm control 464
Use of systemic antibiotics to control bacterial plaque biofilm 467
Use of topically delivered chemical agents 470
Focus on patients 479
29 HOST MODULATION  483
Donald Willmann and Jill Nield-Gehrig
Introduction to the concept of host modulation  484
Host modulation as part of comprehensive periodontal management  488
Focus on patients  489

30 PERIODONTAL SURGICAL CONCEPTS FOR THE DENTAL HYGIENIST  493
Donald Willmann and Jill Nield-Gehrig
Introduction to periodontal surgery  495
Understanding the periodontal flap  503
Description of common types of periodontal surgery  507
Biological enhancement of surgical outcomes  535
Management following periodontal surgery  537
Focus on patients  549

31 MAINTENANCE FOR THE PERIODONTAL PATIENT  555
Donald Willmann and Teresa Butler Duncan
Introduction to periodontal maintenance  557
Procedures and planning for periodontal maintenance  560
Disease recurrence and patient compliance  565
Root caries as a complication during periodontal maintenance  569
Focus on patients  575

32 MAINTENANCE FOR THE DENTAL IMPLANT PATIENT  579
Archie Jones
Anatomy of the dental implant  580
Peri-implant disease  584
Maintenance of dental implants  586
Focus on patients  594

PART 8: OTHER ASPECTS OF PERIODONTAL THERAPY

33 PERIODONTAL EMERGENCIES  597
Donald Willmann and Jill Nield-Gehrig
Abscesses of the periodontium  598
Necrotizing periodontal diseases  606
Primary herpetic gingivostomatitis  610
Focus on patients  613

34 DOCUMENTATION AND INSURANCE REPORTING OF PERIODONTAL CARE  615
Dianne Glasscoe Watterson
Legal issues in the provision and documentation of care  616
Documentation of periodontal care  618
Contents

Computer-based patient records 623
Insurance codes for periodontal treatment 625
Focus on patients 629

35 FUTURE DIRECTIONS FOR MANAGEMENT OF PERIODONTAL PATIENTS 631
Donald Willmann and Jill Nield-Gehrig
Diagnostic technology for periodontal diseases 632
Periodontal disease/systemic disease connection 633
Protocols for maintaining dental implants 635
Treatment modalities in periodontal care 635

PART 9: PATIENT CASES

36 COMPREHENSIVE PATIENT CASES 641
Donald Willmann, Richard Foster, and Jill Nield-Gehrig
Case 1: Mr. Karn 642
Case 2: Mr. Wilton 649
Case 3: Mrs. Sandsky 657

PART 10: INTERNET RESOURCES

Internet Resources for students and faculty are available on the companion website at http://thePoint.lww.com

37 PATIENT CASES: RADIOGRAPHIC ANALYSIS
John Preece

38 PERIODONTAL RESOURCES IN DENTAL LITERATURE AND ON THE INTERNET
Jill Nield-Gehrig and Donald Willmann
Guidelines for reading dental literature
Procedure for searching the Internet
Periodontal Resources on the Internet

ONLINE STUDENT AND INSTRUCTOR RESOURCES
Margaret Lemaster, Erin Waugh, Rebecca Sroda, Donald Willmann, and Jill Nield-Gehrig

Glossary 663
Index 683