

Preface to the Second Edition vi
Preface to the First Edition viii
Contributors x
A Color Code Convention for Forces xi

Part I The Basics and Single-Force Appliances 1

1 Why We Need Biomechanics 3

2 Concurrent Force Systems 11

3 Nonconcurrent Force Systems and Forces on a Free Body 25

4 Headgear 39

5 The Creative Use of Maxillomandibular Elastics 63

6 Single Forces and Deep Bite Correction by Intrusion 91

7 Deep Bite Correction by Posterior Extrusion 119

8 Equilibrium 137

Part II The Biomechanics of Tooth Movement 161

9 The Biomechanics of Altering Tooth Position 163

10 3D Concepts in Tooth Movement 199

Rodrigo F. Viecilli

11 Orthodontic Anchorage 205

Rodrigo F. Viecilli

Part III Advanced Appliance Therapy 215

12 Lingual Arches 217

13 Extraction Therapies and Space Closure 263

14 Forces from Wires and Brackets 311

15 Principles of Statically Determinate Appliances and Creative Mechanics 357

Giorgio Fiorelli and Paola Merlo

Part IV Advanced Mechanics of Materials 381

16 The Role of Friction in Orthodontic Appliances 383

17 Properties and Structures of Orthodontic Wire Materials 407

A. Jon Goldberg and Charles J. Burstone

18 How to Select an Archwire 421

Part V Appendices 433

Hints for Developing Useful Force Diagrams 435

Glossary 441

Solutions to Problems 445

Bender's Tool Kit 491

Index 493