

## Book reviews

**Alex Jacobson, Associate Editor**

*Birmingham, Ala*

### Lingual orthodontics

*Giuseppe Scuzzo and Kyoto Takemoto, editors; Quintessence Publishing Company: [www.Quintpub.com](http://www.Quintpub.com); 264 pages, 885 illustrations (most in color), \$230*

**Reviewed by Alex Jacobson**

The introductory chapter discusses the increasing awareness and need for orthodontic treatment among all age groups and the desirability of inconspicuous tooth alignment with an occlusion correction system that meets these needs. Chapter 2 is an overview of the various lingual orthodontic appliance systems, including the recently available 100% customized invisible fixed appliance system. Chapter 3 introduces the reader to the “STb light lingual system,” which uses the small, smooth-surfaced Scuzzo-Takemoto bracket (STb). The authors claim that the low-friction STb, in association with extralight wires, is paving the way for a revolution in orthodontics. Using high-precision end-gauges, the authors tested slot sizes of a number of brackets available on the market. Shown in chapter 4 are the remarkable differences between the brackets supplied by various manufacturers. The results of the study indicated that the STb system is precise and can therefore be recommended for clinical use. Chapter 5 deals with biomechanical considerations in light-wire lingual orthodontics. Discussed are wire cross-section and stiffness, factors affecting the magnitude of the general force, factors affecting torque control, avoiding binding, and low-friction ligation. Chapter 6 considers the effect of force level on orthodontic tooth movement and focuses on the tissue reactions of the structures loaded by the orthodontic appliance, periodontal ligament, alveolar bone, and tooth roots. The reaction of the cellular and extracellular elements and the mechanical behavior of each structure, controlled by both local and systemic factors, are discussed. A short chapter describes new diagnostic concepts in orthodontic treatment with the STb low-friction system. Discussed are mandibular vs maxillary incisor systems, and orthodontic analysis based on the maxillary incisor position. Described in chapter 8 is the frictional force produced by the STb when bonded to a simulated dental arch. Frictional resistances of various bracket-wire-ligation combinations were compared. In chapter 9, “Biomechanics and comparative biomechanics,” the authors describe and evaluate the different forces applied to the maxillary and mandibular anterior teeth by the lingual and labial techniques in the 3 planes of space (vertical, horizontal, and sagittal).

A substantial chapter, the tenth, is devoted to “Improvements in laboratory procedures.” This section describes in detail the process of setup preparation, bracket placement, ideal arch bending, and construction of transfer trays that deliver the orthodontic prescription to the appliance, including the

addition of any overcorrections. Incorporated and described in chapter 11, “Extraction mechanics and anchorage control,” are the principles of extraction mechanics, diagnosis, and selection of teeth for extraction in Class I, Class II, and Class III patients, extraction and periodontal tissue, unusual extractions, anchorages (vertical and horizontal), treatment mechanics in both dental arches, comparisons between loop mechanics and sliding mechanics, and detailing. Chapter 12 describes and illustrates a series of STb extraction cases. STb nonextraction mechanics are further described and illustrated in chapter 13. This is followed by an illustrated series of treated STb nonextraction patients. In the 15th chapter, the authors focus on esthetic treatments for today’s demanding patients. They elaborate on the changing dynamics of the doctor-patient relationship, and the STb “Social 6” light lingual system, which was developed for esthetically demanding patients who need major to moderate corrections in the anterior arch segments. The Social 6 light lingual system gives the orthodontist an efficient treatment modality with maximum control of the treatment process. The lingual straight-wire method described in chapter 16 was developed by the editors in 1995. The procedure eliminates the earlier disadvantages of complicated wire bending and prolonged chair-side time. Shown are 2 case reports. Described in the 17th and final chapter, “KommonBase: new generation bracket bonding in clinical orthodontics,” is the use of miniature lingual brackets, flowable resin, and resin-reinforced glass ionomer glass cement. It is claimed to be a precise bonding system.

The editors, with 7 authors and 8 contributors, have produced a most distinguished text on lingual orthodontics. It is by no means a simple “how to” book; rather, it is a well-documented, well-illustrated scientific text, well suited for any orthodontist interested in lingual orthodontic treatment.

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### Non Ex Factors: 98.5% nonextraction therapy using coordinated arch development

*Raphael L. Greenfield, DachanNarae Publishing: [www.dhpub.com](http://www.dhpub.com); 1082 pages, \$297*

**Reviewed by Alex Jacobson**

Chapter 1 provides a historical review of extraction therapy in orthodontics before describing the evolution of the coordinated arch development technique of nonextraction treatment.

The coordinated arch development technique is a combined orthopedic-orthodontic approach that uses optimum periods of growth and development to produce results with long-term stability. Listed are the 10 criteria of coordinated arch development. Clearly shown and illustrated are the differences between the coordinated arch development philosophy and buccal expansion. The author maintains that extractions in orthodontics should be avoided when possible, although he recognizes that there is certainly a place for extractions during treatment, but only when most of the 10 criteria listed in the text are present.

Chapter 2, "Maxillary arch development," begins by describing fixed maxillary molar distalization with the Greenfield molar distalization appliance. The next section deals with a removable molar distalizer, or "Cetlin" appliance. Following is a section that describes and illustrates the effects and control of cervical, occipital, combined, and reverse headgear forces as they relate to the functional occlusal plane and direction of growth. A hefty section of the chapter is devoted to describing and illustrating the effects, the clinical indications, and the use of the transpalatal bar. Then come sequential photographs of patients treated by using the described procedures. Everything one needs to know about lip bumpers, including patients showing their use and versatility, is in a separate section of the chapter. Next is a section dealing with intrusion of the maxillary anterior teeth by using various methods with and without torquing. Also described is a sequence of space closure of the maxillary teeth by retraction. The goals of finishing and the procedures of finishing patients are described and accompanied by numerous diagrams and photographs. The final section of the chapter was written by a contributor, Young-Chel Park, who demonstrates how miniscrew application in the form of temporary anchorage devices can be strategically applied for specific nonextraction treatment.

Chapter 3, "Nonextraction case review," comprises comprehensive records of 48 completed patients. Each includes intraoral, facial, and study-model photographs as well as cephalometric analyses: 516 pages of records! After this are an additional 83 pages of similar records submitted by the Japanese Academy of Nonextraction. Absolute proof of the advantages of not extracting teeth in borderline cases would require reporting long-term results, which are not evident in the text. Presenting long-term results in this particular instance is somewhat unrealistic, since the author spent 4 years gathering and presenting the material in this form. Assessing long-term results in such cases could be a formidable challenge for an aspiring orthodontist or possibly even a team of investigators to undertake. This shortcoming in no way detracts from the value of the book. The editor and 4 contributors have produced a magnificently illustrated and informative 8.5-lb tome that is likely to be of great interest to clinical orthodontists, particularly to experienced practitioners who wish to further refine their clinical skills. It is a substantial contribution to the orthodontic literature.

## Ortodoncia lingual: Procedimientos y aplicación clínica

*Julia Harfin and Augusto José Ureña Rodríguez, Editorial Médica Panamericana; 300 pages, \$70 (approximately), in Spanish*

**Reviewed by Enrique Reyes-Retana and Alfonso L. Navarrete**

Julia Harfin and Augusto José Ureña Rodríguez wrote their recently published text, *Ortodoncia lingual: Procedimientos y aplicación clínica*, in Spanish. With the popularity of clear aligner therapy, clear brackets, and a desire for more esthetic treatment options, it is a welcome addition that gives the reader a well-organized book with many color photos, illustrations, and useful information backed up by literature. This text is organized into 13 chapters. Each chapter starts with an introductory history and review of the pertinent literature elaborated with clinical cases. The patients are all presented with treatment plans and objectives along with color photos of the initial presentation, progress images, and final photographs.

The initial chapter covers clinical and laboratory procedures used in lingual orthodontics. The type and placement of brackets as well as indirect bonding are discussed. The archforms used in lingual archwires and how to ligate these to the brackets and the bends for canines and molars are thoroughly reviewed with many color photos. The 3 phases of treatment—initial leveling and aligning, space closure and root alignment, and finishing—are also reviewed. Concluding this chapter is a section of clinical pearls that are helpful in addressing the challenges of lingual orthodontics.

The importance of the soft-tissue papilla in obtaining an esthetically pleasing outcome is the topic of chapter 2. The authors reviewed the literature, which shows that the level of bone dictates the level of the soft tissues, and how these relate to the treatment of diastemas. Chapter 3 covers a problem that affects almost 80% of the population: mandibular incisor crowding. The different types of crowding and the studies by Sinclair, Riedel, and Little are reviewed. The various treatment options to address this problem, from interproximal reduction to extraction of teeth from incisors to premolars, are nicely summarized.

Correction of Class II malocclusions in nongrowing patients is the subject of chapter 4. Biomechanics, anchorage control, extractions, and use of elastics in Class II treatment are all reviewed. Chapter 5 discusses the pendulum appliance in conjunction with lingual orthodontics to address mesially drifted and rotated maxillary molars. The nonsurgical treatment of Class III malocclusions is the subject of chapter 6. The different types of Class III patients and the cephalometric analysis of both hard and soft tissues are covered.

In chapter 7, the treatment of deep overbites is explored. Treating these patients with lingual orthodontics offers some advantages with bracket occlusal interference by passively extruding the posterior teeth. In chapter 8, appropriately titled "A chapter never before thought of," the authors show how lingual orthodontics can be used in growing patients with interceptive treatment and functional appliances.

A challenging malocclusion encountered in orthodontics—open bite—is the subject of chapter 9. The biomechanics used