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Should G.P.s Be Doing Orthodontics? The Twin Block™ - Appliance and Its Adjustment



Should G.P.s Be Doing Orthodontics?

(Continued from Volume 8, Issue 2)

Dr. Walters is the immediate past president of the Australian Association of Orthopedics and Orthodontics. He is actively engaged in the practice of Maxillofacial Orthopedics in Sydney Australia.

Conversely, it may soon be realized by a larger number of practitioners, from the work of Behrents (11), that dentofacial growth and change is not something which terminates at, or soon after, the advent of adolescence, but must be regarded more as a process which continues, albeit at a diminishing level, throughout life. A continuing development which can be harnessed, to a greater degree than previously thought, for orthopaedic modification of mandibular position, and the facial skeleton, in the older patient. Of course it is also a factor to be reckoned with in understanding the problems of long term occlusal stability.

In considering who should be providing orthodontic services, one can, with equal legitimacy, turn this title around and ask "Orthodontics: should specialists really be doing it anyway?"

If we take the era of modern orthodontics as starting about the turn of the last century with the advent of Angle and his school of orthodontia, we see that it has been a history fraught with controversy to this present day, a history full of so much promise and plagued with so many false starts, failures and disappointments.

The great extraction debates of 1912 and 1944 resulted from the failure of Angle's idealism and conviction that if only the teeth could be placed in the "true line of occlusion," then surely under the influence of improved function, the bone would develop appropriately, and the human face and dentition would achieve its true perfection. Angle had the ideal goal but lacked the means to achieve it, the knowledge of functional appliances and orofacial orthopaedics.

The non-extraction lobby won the first debate, but Tweed's paper dealing with his retreated cases, using bicuspid extractions, presented before the American Dental Association in Chicago in 1944, won the day for the extractionists (12). Tweed's only lament was that he felt on many occasions that he would have liked to remove 8 bicuspid teeth, but admitted that the juxtaposition of the canine with the first molar seemed a little extreme, even for him! Tweed's rejection of the philosophy of Angle and his disciples was due to their many failures through relapse. This was the necessary result of the movement of teeth by fixed appliances through the dentoalveolar complex without the knowledge or armamentarium of orofacial orthopaedics. This is essential to develop the necessary osseous infrastructure and reorganize skeletal relationships. The results were well intentioned but quite unacceptable. It led to what was described as the "folly of expansion and the tragedy of relapse." The remedy prescribed by Tweed and so effectively reinforced by the invalid assumptions of Peter Raymond Begg (13), led to an unprecedented assault on the human face and masticatory system, the true results of which were apparent two decades ago but are only now being grudgingly conceded by his devotees and others committed to frequent removal of premolar teeth. When one understands the clinical control of translative growth through the manipulation of the capsular matrix rather than being restricted to the orthodontic movement of teeth via the periosteal matrix, then bicuspid extractions can be restricted to severe bi-dental protrusions in which there is excessive anterior face height or deficient posterior face height. This results in lip strain and anterior open bite tendencies. Such cases comprise less than 5% of cases in Caucasian races in my experience.

The failures of orthodontics have been such as to lead competent observers to question its value and credentials as a science and discipline, and to seriously doubt the propriety of its continued practice in its more conventional forms. Even its artistic component is effectively challenged by Peck and Peck (14) who showed that the public's preferred facial forms were far removed from those conceptualized by orthodontists.

The Seattle studies of Little and his coworkers (15) showed in that part of the world at least, using edgewise treatment with first bicuspid extraction, two thirds of the cases had unsatisfactory lower anterior alignment after retention. Their conclusions were based on 65 cases treated in the permanent dentition stage, with 4 first premolar extractions, full records prior to treatment, at the

end of treatment and at a minimum of 10 years out of retention.

Professor Peter Vig (16) was of the opinion that the orthodontic community must face an agonizing reappraisal of what it does and what it teaches. He voiced the opinion that prior to proscribing or prescribing what others may undertake, "orthodontics must first put its own house in order".

Few orthodontists have better grounds for voicing their opinion than Charles Burstone from Hartford, Connecticut (17). In his paper, "Malocclusion: new directions for research and therapy", he remarks "that if we consider the traditional role of orthodontics to be the correction of malocclusions by harmonizing the dentition with the existing skeletal and muscular pattern of the patient, then an alarming percentage of all treated malocclusions are unstable." In some, he notes the facial appearance may be worse at the end of treatment than at its beginning. His prediction of the need for an entirely new approach made in 1973, involving the use of modulation and modification of growth by a change in the facial milieu, have a strangely prophetic ring today.

With the conquest of dental caries and a greatly reduced incidence of periodontitis and its ultimate control by bacteriologic, pharmaceutical or immunological methods, the increasingly intellectually competent undergraduate dentist must be educated, (never trained), to deal with problems of malocclusion and orofacial development and dysfunction. This can only be achieved by vertical structuring of the curriculum. Craniofacial biology, including embryology, morphogenesis and postnatal growth must be integrated with the basic sciences from day one of the undergraduate program through to graduation. The recognition and treatment of malocclusion and functional and developmental problems of the craniofacial region must be observed from the beginning of the educational process. ~Direct participation in orthopaedic and orthodontic treatment for the last three years of the program would then produce a graduate who would be highly competent to address these problems. This graduate would depend on a greatly reduced output of much better informed specialists to whom recourse would be needed only in extreme cases.

Perhaps we can leave the last word of Professor Robert E. Moyers who, in the introduction of his recent textbook "Handbook of Orthodontics" (4th edition 1988), has this to say,

"The complicated nature of dental occlusion, including its development, maintenance and correction, is the primary reason for the existence of dentistry... therefore basic knowledge concerning occlusal development, facial growth, and the correction of malocclusion should be part of the training of every dentist."

He proceeds to point out a common misconception, "Some see two ways in orthodontics: a high road and a low road. Highroad treatment is comprehensive, precise, well done, and limited to but a few the way of the specialist. Low-road treatment is thought appliances and compromised goals but providing some services to a large proportion of the population the way of family dentists. This myth of two quality levels in orthodontics is perpetuated by those who make extravagant or ill-founded claims, for example, 'if you use this appliance, you need never extract teeth', 'a cephalometric analysis is not necessary with this system', 'This is a general practitioner's appliance.'"

He concludes, "...of course there is only one way in orthodontics, a way open to all dentists. Some, because of more education and experience, can travel further along the same road, that is all. modern dentist, dedicated to the highest standards in all other branches of dentistry do not accept the invitation to lower their standards. They prefer to provide their patients with the best possible care, to travel the high road as far as their knowledge and skills permit. The purpose of this book is to help each dentist to do all the orthodontics possible of the highest quality."

THE TWIN BLOCK™ APPLIANCE AND ITS ADJUSTMENTS



John W. Witzig, D.D.S.

Dr Witzig received his pre-dental education at the College of St. Thomas, St. Paul, Minnesota. Upon graduating from Marquette University Dental School in 1962, he established a dental practice in Minneapolis.

Dr. Witzig was chosen the outstanding clinician of the year by the American Association of Functional Orthodontics in 1984. He is the honorary president of the Asian-American Association of Functional Orthodontics and TMJ.

Dr Witzig has co-authored with Dr Spahl: Orthodontic Mechanics, Volume I 1986. Dr Witzig and Dr Spahl have since authored Orthodontic Diagnostics, Volume II 1989, and The Temporomandibular Joint, Volume III 1991.

(Continued from Vol. 8, Issue 2)



Pre-Treatment Male, Age 11 yrs-4 months 11 mm Overjet, 9 mm Deep Overbite

At the completion of the first week of Twin BLOCK™ treatment, reduce the upper posterior acrylic mm to 1 mm per appointment. (See illustration).

The lower appliance is the keystone for maintaining vertical during treatment and should not be relieved. Also, during the acrylic relieving process, the 70 degree interface ramps should not be altered: alteration will interfere with function. Illustration-Lower Figure:

Presents the upper and lower appliances during the final stages of the active treatment phase. This buccal view shows the upper appliance fully relieved; its only function now is to maintain the forward mandibular position. The lower molars are developing the needed vertical and the pads on the lower appliance are functioning as the keystone for maintaining the vertical. The active phase ends when there is no further need for the upper and lower appliances.

This determination is made with the appliances removed. At that time, observe the anterior segment with the molars in contact.

Has enough vertical been developed so that the overbite will be maintained at a desirable depth? Some overcorrection is required to insure that the molars will be in solid contact. (If not, continue treatment until this has been done.) The occlusion presented in figure D shows the support phase appliance maintaining the ideal overbite and overjet.

During the support phase, an inclined anterior bite plane appliance is used to maintain the Class II correction. The support phase appliance is designed to allow buccal segment development.

Presents the upper support phase appliance when it is first seated. This buccal view shows the anterior ramp which maintains the mandibular Class II correction; the molars now maintain the vertical development. The lower bicuspids and cuspid are free to erupt into occlusion with the upper arch.

Presents the upper support appliance after the patient's teeth have settled into full occlusion. The Class II correction is complete; the patient has developed into a Class I. The support phase appliance is worn as a retainer for stability.

After the support phase, the patient was finished with six months of straight wire treatment. An upper retainer was made for retention.

You can observe that this patient has small teeth for the size of his dental arches. To prevent over-retraction of the upper anterior teeth, a small space was left distal to the upper cuspids. This case was treated non-extraction.

Active treatment with the Twin BLOCK™ took nine months. The support phase, which is like retention as there are no adjustments, took ten months. Six months of straight wire treatment completed the active treatment. An upper retainer was made for retention.

The patient's parents are extremely happy the way his facial appearance and profile have improved. The patient's mother reports that he played the saxophone with his Twin BLOCK™ appliance in his mouth. Doctor's using the Twin BLOCK™ in the United States and Canada are excited with their results and excellent patient cooperation. The European orthodontists again were the leaders with this appliance after Dr. Clark developed it and now it has made inroads into U.S. treatment.

I think the big reasons for its success with patients are the excellent comfort and patient satisfaction with the appliance, plus the 24 hour continual wear.

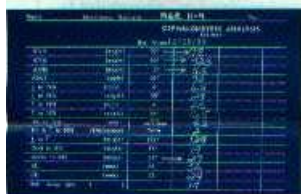
I feel the popularity with the doctors using the appliance is due to its rapid results.



SNA=78



SNB=72.5



ANB=5.5

Adjustments:

Illustration-Upper Figure:



Figure D

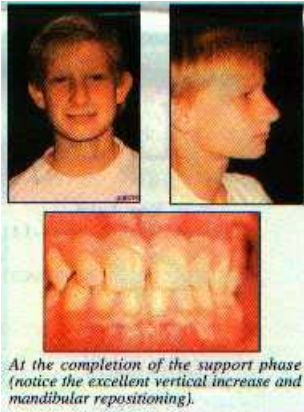
Stage 2-Support Phase



Figure D

Stage 2-Support Phase





Before treating with the Twin BLOCK™, it is essential that the doctor prescribes the proper design of the appliance to the laboratory technician. The correct construction bite for the Twin BLOCK™ should be sent to the laboratory technician.

The doctor must learn how to exactly adjust the Twin BLOCK™, because in adjusting the appliance, the vertical dimension can be increased very rapidly.

It can also be used and adjusted to reduce the vertical dimension and close some open bites.

The Twin BLOCK™ is preventing many orthognathic surgeries as well as TMJ surgeries.

Once the doctor has learned the mechanics of the Twin BLOCK™, and how to prescribe, manage, and adjust the appliance, the orthodontic and orthopedic treatment will be greatly simplified with superior results for the patient.

The next few years will be the best time in history to be treating orthodontically.