

JIOS Interview *Dr S Jay Bowman* on Esthetics in Orthodontics

Dr S Jay Bowman is an Adjunct Associate Professor at Saint Louis University, Missouri, USA, where he was honored with the Alumni Merit Award in 2005, and an instructor at The University of Michigan and Case Western Reserve University, Ohio, USA. He maintains a private practice at Portage, Michigan, USA. He has designed and created over a dozen orthodontic appliances and devices, including the widely popular Butterfly appliance and the Distal Jet appliance. He is reviewer/editorial board member for the American Journal of Orthodontics and Dentofacial Orthopedics, World Journal of Orthodontics, Journal of Clinical Orthodontics, Hellenic Orthodontic Journal, Orthodontic Products, and OrthoTribune. Dr Bowman has lectured in 33 US states and 27 countries, has had over 85 articles, book chapters, and a book—mini-implants in Orthodontics: Innovative anchorage concepts published. Our very own peer-review board member **Dr Nikhilesh R Vaid** had an opportunity to interact with him and get his views on a gamut of topics that Dr Bowman lectures on. Dr Vaid himself is the founder Editor of the IOS Times as well as the APOS Trends and maintains an exclusive orthodontic practice at Breach Candy Hospital, Mumbai.

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JIOS. *Who currently determines the facial esthetics for orthodontic patients?*

JB. In orthodontics, the final result of the end user's facial esthetics is largely determined by genetics and, to a lesser extent, the type of orthodontic treatment provided. The selection criteria for treatment methods may be based on esthetic values of the orthodontist that occasionally may have little in common with the desires of the patient. In our endeavors to "do good" and help the patient to "be all that they can be," we may produce some esthetic results that were not intended. For example, a nonextraction-at-all-costs approach will often produce fullness of smiles and profiles to an extent that we cannot pretend they look esthetic. In the other extreme, a focus on treating to specific cephalometric standards might yield overly upright incisors and lack of lip support. Instead of a balance between esthetics, stability and function, orthodontists have splintered into focus groups who toil on only one subject, such as putting condyles in specific locations, widening smiles, harmonizing dental arches, growing mandibles, treating to "the numbers" or treating early and often.

JIOS. *Who should determine facial esthetics? What should the standard be based on?*

JB. Beauty is in the eye of the beholder and, as Lysle Johnston has said, beauty is in the face of those beheld.¹ In other words, the subjective esthetic views from orthodontist to layperson are often different as educational background affects our esthetic opinions.² Specifically, the public has been demonstrated to be less discerning than professionals in terms of their concerns for facial profiles. Consequently, the patient

should be brought into the treatment planning process as a part of the informed consent process.² When explaining the alternatives to a patient in a "borderline" extraction scenario, we may indicate that we could resolve crowding and rotations without extractions but the teeth may be more protrusive with greater potential for relapse. As an alternative, appropriately applied extraction treatment (without arch development) could be used to resolve crowding with better stability while maintaining or improving incisor position and either improving or at least maintaining facial esthetics.³

JIOS. *Why has extraction "fallen out of fashion" with the orthodontic community?*

JB. Nonextraction treatment methods have gained popularity; not because of convincing evidence of superiority, but rather a combination of fear and fallacy have contributed to reduce extraction rates.⁴ In the last days of the 20th century, orthodontists were influenced by unfounded claims of superiority for early, expansive and jaw-growing treatments and we relented by accepting 19th century concepts due to a fear of reprisals; either in the form of lost referrals or lawsuits. Subsequent research has clearly demonstrated that treatments featuring extraction can produce exceptionally favorable results for patients requiring the removal of teeth (i.e. those that are crowded and/or protruded).² In contrast, there has been an overwhelming absence of reports demonstrating superiority for the many proposed alternatives for extraction treatment.^{5,6}

JIOS. *Why do many in the orthodontic community favor two-phase treatment?*

JB. The rise of two-phase treatment as the “growth industry” of the 80s was in response to a supposed busyness problem, anecdotal reports of superiority of these methods from the lecture circuit, and an influential belief that plastic appliances could stimulate jaw growth to an extent as to avoid extraction and surgery.^{5,6} Perhaps another factor was that early treatment provided a new method for enterprising orthodontists to differentiate themselves from colleagues and gain a market share before competitors corral the patient.

The goals and benefits of two-phase treatments have been said to be substantial and unobtainable by traditional means.^{5,6} It would seem to make sense that treatments predicated on early jaw development might produce unique results. Unfortunately, the proponents of said methods have been unable to derive much support from the referred literature. Given freedoms in orthodontic practice to select from a menagerie of treatment methods that have no substantial downside (i.e. death or disability), or in other words, left to our own orthodontic “devices”, we tend to follow the herd. Often good research continues to be either ignored or dismissed in the process, especially when acknowledging the evidence might require an uncomfortable change in thought or in practice.

JIOS. *How do you answer those who say that two-phase orthodontic treatment improves esthetic results (or that younger patients have more manageable soft tissue)?*

JB. There is no question that in some specific cases that an early phase of treatment may produce a favorable result (e.g. patients with severe protrusions) but it is also quite likely that these improvements may be achieved without the early treatment.⁶ Scientific evidence consistently supports the concept that equally favorable “jaw growth” and esthetics are produced for the vast majority of patients by traditional methods, such as shorter, one-phase treatments, applied after the late mixed dentition.^{5,6}

JIOS. *Are there any rules of thumb that point to whether a case requires extraction? Or: How do you suggest that orthodontists approach treatment diagnosis to determine, if a case is extraction or nonextraction?*

JB. In 1991, Paquette et al⁷ used the discriminant statistical analysis to determine diagnostic measurements that were significant in making the extraction decision for a group of “borderline” patients; those for which the selection of opposing treatment alternatives would not be readily apparent at first glance. The six factors found to be significant in the extraction decision included a measurement of each of the following: Maxillary dental protrusion (e.g. U1/NA), mandibular dental protrusion (e.g. L1/NB), maxillary crowding, mandibular

crowding, soft tissue protrusion (e.g. Z-angle or Ricketts’ E-plane) and lower irregularity (e.g. irregularity index).

In terms of improving facial esthetics, the fuller the patient’s initial lip protrusion, the more extraction treatment was seen by panels of dentists and laypersons to have produced an improvement (Figs 1 to 3).^{1,2,8} In contrast, nonextraction treatments, on average, appear to have little effect on facial esthetics, regardless of the initial profile protrusion.

JIOS. *What do you see as the future of extraction vs nonextraction debate?*

JB. There appears to be the most contention when there are the least number of reasons for it. It would seem that in the face of our continued pursuit of (or, in some cases, reluctant acceptance) evidence-based practice there should be little contention left to debate. It would seem apparent that extractions in a concave face and the lack of extraction in a patient with some combination of crowding or a full profile are both likely to yield an

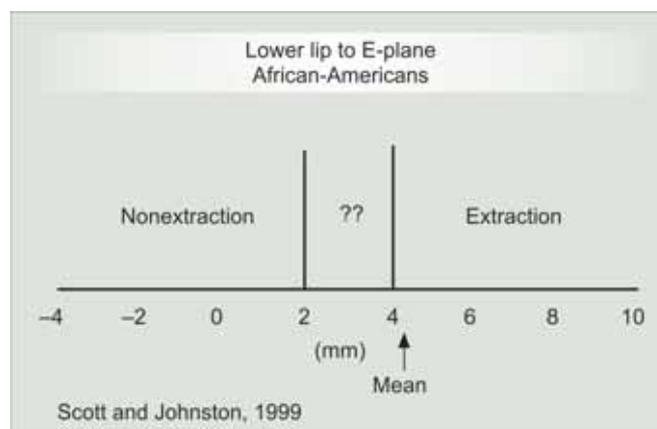


Fig. 1: Panels of observers saw extraction as preferable for Caucasians when the pretreatment lower lip is more protrusive than 2 to 3 mm behind Ricketts’ Esthetic Plane

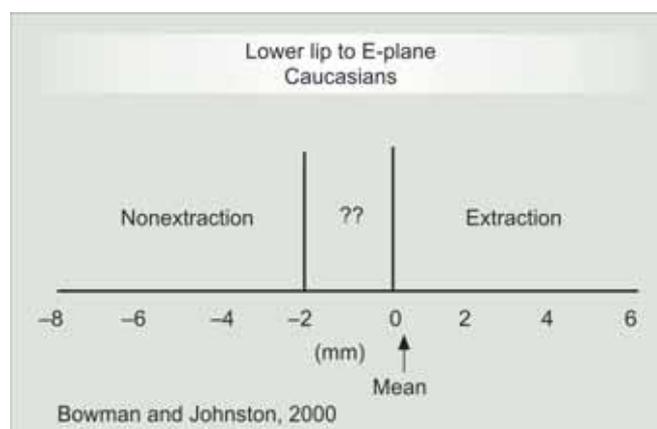


Fig. 2: Panels of observers saw extraction as preferable for African Americans when the pretreatment lower lip is more protrusive than 2 to 4 mm in front of Ricketts’ Esthetic Plane

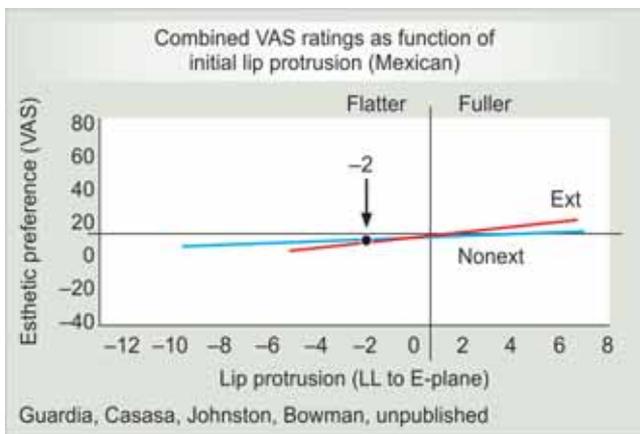


Fig. 3: Panels of observers saw extraction as preferable for Mexicans when the pretreatment lower lip is more protrusive than 2 mm behind Ricketts' Esthetic Plane



undesirable result.⁴ Considering our desires to produce not only an esthetic but also a stable result, perhaps the best available evidence, rather than a blind acceptance of a particular stance on either side of the issue, should guide us.

In contrast to the extraction decision, there are a variety of orthodontic treatments that produce nearly identical treatment results (e.g. treating class II in two phases or in one; using molar distalization, mandibular protraction, or extraoral traction/elastics) but the decision to select

one of these treatments over another may be more a practice management issue (like picking a practice location or the kind of bracket you will employ). With a predicted shortage of orthodontists and academics to train them, combined with an increase in demand for orthodontic services, it seems reasonable that only treatments that are highly effective, efficient and provided in a timely-manner will survive. Interestingly enough, treatments predicated on early, expansive and prolonged treatments might again be found only in historical orthodontic texts.

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