

Interview with Lysle E. Johnston Jr.

- Graduated in Dentistry from University of Michigan School of Dentistry and in Orthodontics from Michigan's Horace H. Rackham School of Graduate Studies.
- Specialist in Anatomy from Queen's University of Belfast.
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- Former head of the Department of Orthodontics and Pediatric Dentistry at the University of Michigan.
- Program Director of Orthodontics at Case Western Reserve University (1971-76) and Saint Louis University (1976-91).
- Professor at the University of Michigan, Saint Louis University and Case Western Reserve University.
- Member of the American College of Dentistry, the International College of Dentistry and the Royal College of Surgeons, England.
- Former director of the Edward H. Angle Society of Orthodontists.
- Editor of several journals, including the American Journal of Orthodontics and Dentofacial Orthopedics and the British Journal of Orthodontics.



Lysle E. Johnston Jr. is Professor Emeritus in Dentistry at the University of Michigan and in Orthodontics at Saint Louis University. He graduated in Dentistry from Michigan School of Dentistry in 1961, and in Orthodontics from Michigan's Horace H. Rackham School of Graduate Studies, 1964. He specialized in Anatomy at Queen's University Belfast (Northern Ireland, 1961-62) and also received his PhD in anatomy at Case Western Reserve University in 1970. Before returning to the University of Michigan, where he was head of the Department of Orthodontics and Pediatric Dentistry, he directed the Department of Orthodontics at Case Western Reserve University (1971-76) and Saint Louis University (1976-91). Currently, he teaches Statistics, Cephalometry, Facial Growth, Occlusal Development and History of Orthodontics in these three schools. Throughout his academic career, Dr. Johnston supervised more than 100 master's theses and participated in the graduation of over 500 specialists in orthodontics. He has made numerous speeches and received several awards and titles, including the prize Albert H. Ketcham/American Board of Orthodontics, the Jarabak Award/American Association of Orthodontists Foundation, the Dewey Award/American Association of Orthodontics and the 5th International Prize of the Italian Society. He delivered several keynote lectures: The Mershon and Salzmann/American Association of Orthodontics, the Angle Memorial Lecture/EH Angle Society of Orthodontists (twice), the Northcroft/British Society for the Study of Orthodontics and Arthur Taylor Memorial/Australian Society of Orthodontics. Member of American and International College of Dentistry and a member-elect of the Royal College of Surgeons (England), Dr. Johnston was director of the Edward H. Angle Society of Orthodontists and also member of the editorial boards of several journals including the American Journal of Orthodontics and Dentofacial Orthopedics and The (British) Journal of Orthodontics. Currently resides in Torch Lake, a small town in northern Michigan.

Cristiana (Kika) Vieira de Araújo

In your opinion, were there any major changes in orthodontic education in the past 50 years? If you believe so, what were they? How about in the practice of orthodontics? Are you disappointed at these changes?

Our sustaining mythology has changed. When I was a student, I was taught that orthodontics is a biologically-based medical specialty. Almost all of our orthodontic departments were staffed by people of great substance. They were powerful role models who believed that orthodontics belonged in the university. They had toiled in the vineyards of orthodontic research and had made substantial contributions to the literature. Although it wasn't clear how it would transpire, we assumed that if we piled up enough data, concepts would emerge that would advance the practice of orthodontics and enhance its reputation as the "thinking man's specialty." Under these circumstances, there were always a few who were attracted to the challenge of creating and husbanding knowledge—the true role of the academic.

Speaking personally, I was inspired by Robert Moyers at Michigan and James Scott at the Queen's University of Belfast, Northern Ireland. The probable economic penalty of an academic career meant nothing to me. My lack of concern argues that committed academics actually may be quite selfish. Alongside the excitement of a career in research, money was a secondary concern; however, my research wasn't equally exciting to my family, who no doubt would have been better served by more money and more of my time and attention.

In the article *When everything works, nothing matters* you said that "our major controversies are immortal". What are some of these controversies? Why do you say that "we really don't want them to be resolved"? Do you foresee any other "immortal controversies" on the rise?

The existence of God is an immortal controversy. Do you think the world's religious leaders would be eager to be told, say, by a superior intelligence from outer space, whether or not there is a God and, if there is, which religion—if any—is the True Faith? Somehow I doubt it. I think a similar dynamic is at work in orthodontics. Now and for the foreseeable future, the major controversies, at least in theory, are extraction, "jaw-growing," and the relationship between orthodontics and TMD. (I say "in theory" because I think the literature may now contain sufficient evidence to decide all three.) We really don't want them resolved because a final answer would expose some treatments—some popular treatments—as being inferior. Given that many successful practices are based on treatment "philosophies" that would be endangered by serious research or even a cursory examination of the literature, it is easier to pretend that the "jury is still out," no matter what. In short, a supposed lack of evidence one way or another ("we just don't know") grants perpetual license to treat any way you want.

This apparent fear of reaching a consensus has ignited a potentially more significant controversy: should contemporary treatment be evidence-based? Amazingly, the argument involves the need for evidence, rather than the evidence, itself. This basic controversy threatens the status of orthodontics as a learned calling. Here then is the problem as I see it:

- 1) Evidence-based treatment won't add to the "bottom line." Indeed, it may even cost money.
- 2) Evidence-based treatment probably would lead to better outcomes, no matter how "better" is defined.

3) The patient, however, will rarely know one way or another.

How then is the specialty to respond? When nobody dies from anchorage loss, when everything works well enough to pay the bills, orthodontic practice becomes an interesting test of personal ethics and resolve.

In one of your lectures at SLU, you stated that if we (the 14 residents present) were to design a treatment plan for a given patient, we would have 14 different treatment plans, but only one of them would be the best one for that patient. If everything works, how do we know which one is the best treatment?

That is an interesting question. Clearly, “best” can be defined in many ways: most stable, best looking (as defined, say, by the opinion of contemporary observers), least painful, cheapest, etc. Note that these definitions are based on the patient. Today, it is common instead to define “best” from the standpoint of the orthodontist: quickest, most popular (with referring dentists, patients), easiest, etc. Given a multitude of definitions of what is best (many of which may be mutually exclusive), the trick would be to determine which ones are appropriate to a given patient. Given that treatment is a gamble, both from the standpoint of the patient and the orthodontist, the precepts of game theory would come into play: from the standpoint of any given definition of “best,” what treatment has the greatest “expected” gain? The much-maligned call for “evidence-based treatment” presumably would lead to research, whose results would support informed, individualized treatment-planning decisions.

What would you say were the best advances in our field in the past 50 years?

A single word: materials. Tied for second place would be pre-adjusted appliances and direct bonding (a mixed blessing, given that banding was a powerful impediment to comprehensive treatment by non-specialists). The significance of TADs has yet to be decided, although if they really can let us put the teeth anywhere we want, then “wherever the appliance *du jour* happens to put them” will no longer be good enough. We will instead be faced with the challenge of figuring out where we want to put the teeth in each individual patient. If this be true, treatment planning may once again become an important part of day-to-day clinical practice. It would perhaps herald a new “Golden Age” that would have nothing to do with money.

What do you see in the future of our specialty? Are the technological advances going to make orthodontist obsolete?

I am not an orthodontic Luddite (*q.v.*); I don’t fear or dislike technology. I don’t think that technological advances will make clinicians obsolete; however, technology seems to have had the effect of distancing the clinician from the patient. CAD-CAM appliances, cephalograms digitized by an assistant, internet marketing, and an increasingly popular reliance on a single treatment (say, non-extraction “bone growing”) will modify the status of the orthodontist. If we come to rely on technology heavily and mindlessly, we won’t become obsolete. Instead, our treatments will be indistinguishable from those of non-specialists employing the same technologies. Orthodontics by orthodontists will cease to be something special.

Are you disappointed at the course of contemporary orthodontics? How about the course of orthodontic education?

Actually, I think it would be presumptuous of me to pass judgment on the specialty's evolution. It is what it is. I wish, however, that there were more of a thirst for evidence, the real work product of orthodontic academics. If clinicians were to want an evidentiary basis for day-to-day practice, there would be no problem in staffing our departments. In my experience, it isn't laziness or "bad hands" that attracts people to "teaching," but rather the challenge of creating new knowledge. Although there obviously is more to orthodontic academics than research, it is the activity that attracts the kind of people who can survive in a tenure-track university environment and, at the same time, be successful teachers, role models, and leaders in the specialty.

What advice would you give to a recent orthodontic graduate that reading your article understands you wanting to go into practice (had you been a recent graduate too) but still wants to go into academics? How does one become an academician, not merely a teacher?

When I started out in academe nearly 50 years ago, research seemed like a game that would be fun to play. Further, I assumed that there would be a "market" for my findings. After all, I thought, why wouldn't clinicians be eager to know what works, what doesn't, and why? To prepare myself, I went on for a PhD (six years, full time; in the process, most didn't know I was a dentist, let alone an orthodontist). When I finished and started my academic career, I

soon discovered that my colleagues in practice weren't as eager to be guided by evidence as I had hoped. In other words, in the game of research, the members of the specialty really weren't keeping score to decide whose ideas, hypotheses, data, etc. were the winners. Given this realization, research became a private game in which I was the score-keeper. For example, I think I have figured out how mandibular growth is controlled and how functional appliances work.

Accordingly, in my personal scoring scheme, I have won these two games, even though it is doubtful that many in the specialty have given much thought to my "explanations." On the plus side, I have been well treated by my colleagues, even those who may not think my work particularly important. I have had a very large coterie of talented and successful residents. I have been honored to teach at three great universities. I am pleased with my career; I would change nothing. Orthodontics, however, was very different when I made my career decisions. What about today's graduates?

If you are interested in research, are willing to get advanced education to prepare yourself to be a real scientist (this is an important step), and do not need ongoing, effusive affirmation from the rank and file, a career in academics is worth considering. You spend long hours; however, what you do is interesting and challenging. You work with colleagues throughout the world; you interact with generations of talented residents; you have the opportunity to make a real contribution to the specialty. Finally, contrary to what you might have been led to expect, you won't starve. For those who have "the calling," it's a great life.

How can we objectively improve orthodontic education?

I think the answer is simple, but definitely not easy: if the specialty truly values research — an important part of the job description of a serious, tenure-track academic — then there will always be a

few who will self-identify and who will take the necessary steps to prepare themselves for an academic career. To paraphrase “Field of Dreams,” if you want evidence, they will come. If the specialty doesn’t care, I can’t see any effective solution. After all, there always will be a good market for straight teeth.

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Submitted: September 19, 2011
Revised and accepted: October 26, 2011

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