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The Social Six Redux. Is That Really All There Is?#

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RESUMO

Introdução: Há uma crescente divisão dentro da nossa profissão que sofre com várias controvérsias perpétua, incluindo aquelas relativas ao tratamento precoce e expansivo, estética e ética, evidências e perícia e uma ênfase no aspecto econômico. Infelizmente, é o público que deve pagar, em um variado número de formas, proporcionais ao nível de diálogo e aviltado casal holandês. Dependência de depoimentos, direto ao consumidor, publicidade, publicações exclusivas, e grande grupo de métodos de treinamento substituindo as regras de evidência e do método científico.
Objetivo: Revisar o atual estado da arte da especialidade de ortodontia a luz da ênfase tanto no consumismo com na evidência.
Conclusão: Cuidadosa avaliação das necessidades e desejos de nossos pacientes e do nosso negócio deve ser embasada com um tratamento ético e baseado em evidências.

DESCRITORES

Ortodontia; Odontologia Baseada em Evidências; Ética.

ABSTRACT

Introduction: There is a growing schism within our profession that suffers at its core from several perpetual controversies including those of early and expansive treatment, esthetics and ethics, evidence and expertise, and an emphasis on economics. Unfortunately, it is the public that must pay, in a number of ways, commensurate to the level of debased dialogue and double Dutch. Reliance upon testimonials, direct-to-consumer advertising, proprietary publications, and large group awareness training methods are replacing the rules of evidence and the scientific method. If we no longer ask questions, then soon any old treatment will do.
Objective: To review the current state of the art of the specialty of orthodontics in light of today's emphasis on both consumerism and evidence.
Conclusion: Careful assessment of the wants and desires of our patients and our "businesses" must be tempered with ethical and evidence-based treatment.

KEYWORDS

Orthodontics; Evidence-Based Dentistry; Ethics.

INTRODUCTION

There is a growing schism within our profession that suffers at its core from several perpetual controversies including those of early and expansive treatment, esthetics and ethics, evidence and expertise, and an emphasis on economics. Unfortunately, it is the public that must pay, in a number of ways, commensurate to the level of debased dialogue and double Dutch. Reliance upon testimonials, direct-to-consumer advertising, proprietary publications, and large group awareness training methods are replacing the rules of evidence and the scientific method. If we no longer ask questions, then soon any old treatment will do.

Patients often ask orthodontists, "Can you fix just this one tooth that is crooked?" Or they may pose the question, "Do you have to put braces on all of my teeth?" Would you not assume, despite these innocent inquiries, that these patients truly would like all their teeth to be properly aligned? But what is proper alignment? Can we all agree on a definition? By the way, what really are straight teeth, and can we all agree on a definition?[1].

How often have we been subjected to case reports in which the end results are justified with the inane and seemingly harmless statement, "But the patient was happy"? Is that enough? Is it sufficient justification for questionable treatment methods? If so, then why would we ever bother with removing teeth, dispensing headgear or elastics, driving tiny screws in bone, or "breaking" jaws to fit the teeth together? If patients are only focused on esthetics and not function[2], why bother? More importantly, why would we need an orthodontic specialty to deal with just lining up the social six teeth?

LITERATURE REVIEW

Compromise or Shortchange

Certainly, compromises are required during the daily practice of orthodontics. In the recent past, compromise often meant a camouflage alternative to surgery or drastically altering plans if extractions were refused. But in reality (or on "reality TV"), today's patients might frequently elect not to have their back teeth straight, despite the fact that they might really benefit from it. As a simple analogy, patients prefer an esthetic change with a rhinoplasty, but they also frequently appreciate (and would likely expect) normal function accompanying their nose job.

So, does the fit of the back teeth really matter? Proper posterior occlusion was one of Edward H. Angle's most fundamental tenets, so it would still seemingly be one of the most basic precepts in orthodontic residency. But once our matriculation is complete, does our quest for proper fit of teeth simply end? It appears that we may stop to think (cogita tute) but occasionally forget to start again[3]. Perhaps it's because we are subjected to what Snelson[4] described as an ideological immune system where "educated, intelligent and successful adults rarely change their most fundamental presuppositions." Quite possibly, we need to revise our assumptions that "critical thinking has any correlation with education or professional accreditation"[5].

The American Board of Orthodontics[6] is still concerned with proper fit of all teeth, including second molars[7]; however, as interest in early treatment became de rigueur, this concern necessitated extremely long treatments, until these teeth erupted. Could it be that we've focused so much on nearly routine, early treatment that the basics of fitting teeth together has become an afterthought?

Attention to Detail, Due Diligence, Prestidigitation

When the treatment results of patients treated by orthodontists were compared with those completed by general dentists (using the ABO index) the specialists' results were significantly better, especially in terms of posterior occlusion[8]. In fact, patients appear twice as likely to receive board-quality treatment from a specialist[8]. Unfortunately, it has also been reported that many patients never experience a bracket on their second molars[6,9] nor the effects of a wire that fills the bracket slot[10].

This approach begs a simple question: Why would you buy a specific bracket prescription if you never use the properties of what you're paying for? Andrews[11] said, "As a teacher, I find it interesting how unconcerned some orthodontists are about the design features of the appliance they use." And Sernetz[12] noted, "For the orthodontic manufacturer, it is always amazing to see how non-critical the practitioner can be". The same may be true of the gurus, armed with case reports (bar-room anecdotes) and testimonials (from them or their patients), competing within the world of general dental products, often under the guise of continuing education.

Socrates said, "Virtue is knowledge"; however, Walker et al.[13] countered, "It is possible for a student to accumulate a fairly sizable science knowledge base without learning how to properly distinguish between reputable science and pseudoscience".

> *When people are free to do as they please, they usually imitate each other*. Eric Hoffer, Sociologist.

There appears to be more concern for appliances than science these days. Slick brochures and proprietary newsletters cross our desks each day, touting so-called "squarer jaws; fuller faces; wider smiles,"[14,15] often flashing expensive magic braces and special light wires, or recommending that we flap gums, cut holes in bone, or carve up the teeth, while promising so-called "short-term ortho" and "high-speed braces" or "braces treatment in only 6 to 12 months[2] and with no wire-bending"[10]. All of this is said to be achievable with no reports of efficacy or long-term stability ("pay no attention to that man behind the curtain"). It seems that with the accumulated effects of all of these advents, treatment will soon become so efficient that we'll actually be going "back-in-time".

Celebrities are often trotted out as examples of the desired look, but interestingly, these luscious-lipped folks also feature flatter profiles (for example, Angelina Jolie, Paris Hilton, Gisele Bündchen, Milla Jovovich, Katie Holmes, Denise Richards, Jessica Garner, Nick Lachey, Jessica Simpson, Prince William, Halle Berry, Anna Nicole Smith, Charlize Theron and George Clooney) and without ever having been subjected to extraction orthodontics. It seems glaringly apparent that bimaxillary protrusive profiles are in the vast minority on Hollywood's red carpet.

In 1887, the Scottish rationalist Saladin wrote, "The amount of evidence must be proportionate to the improbability of the event for which the evidence is adduced"[16]. In other words, extraordinary claims of today's entrepreneurs (that is, avoiding extractions, no orthopedic expansion of the maxilla, no headgears or molar distalization for Class IIs, and dramatically shortened treatments with more esthetic and stable results)[15] demand extraordinary proof. These assertions are especially bewildering when most often the only substantial difference is the brand of braces used.

In the short-term, the necessary research pales in the face of direct-to-consumer advertising (for example, I don't know what the "purple pill" is, but I want one). The effectiveness of this type of persuasion seems a bit less perplexing when compared to the peculiar Mardi Gras phenomenon where "well-brought-up ladies will do just about anything to acquire "shiny beads"[17], or when reasonably intelligent men paint their bodies and faces in team colors to attend a sporting event.

You think we'd just know better. It appears, however, that patients may soon succumb to seductive sales pitches and fads[18] and even dictate the brand of braces used for them (that is, "Want a Damon smile? Ask for it by name"[15]). Perhaps, as orthodontists, we have conveniently forgotten that light forces and slippery braces are nothing new (for example, Case light-wire, Johnson twin wire, Begg, Jarabak light wire, etc.) and, in the past, all demonstrated a modicum of success (at least enough to pay the bills) before receiving an unceremonious kick to the curb.

More disconcerting are some claims that a certain kind of orthodontics is preventing future plastic surgery by "better aging"[19] or that we are "not merely moving teeth, we are sculpting faces by harnessing natural bone growth and directing its trajectory toward full, natural [sic] epigenetic development"[20]. All this (a headgear or palate expander) and a bag o' fries and you have a Happy Meal. But wait, didn't I just say that with magic braces we don't need an expander or headgear?[15] Confusion abounds.

Early and Often

In stark contrast, it has also been recommended that we treat earlier and often, in the hope of doing good things for small children, despite the fact that this often requires longer, more expensive and mostly redundant treatments. Perhaps the intent is to utilize devices to retain patients in practice rather than retain proper alignment of their teeth?[21] Certainly, after examining research results[3,22-28] from the past two decades, it seems apparent that the routine use of early treatment has been a blind evolutionary path in the continuing development of an already mature specialty. In contrast, detractors can be heard saying, "Oh, that's what you get for listening to those academics; they just don't want to learn". Consequently, there appears to be a fundamental conflict between science and the fiduciary responsibilities of entrepreneurs[29] that has nothing to do with the quality, cost or duration of a patient's treatment. That's the problem with mixing business and science[30,31].

Turpin[32] correctly predicted many of our present concerns when he said:

"It is our business as dentists to clarify and prioritize for our patients what they need for long-term well-being. How long will it be before we are subjected to the wants of our patients based on (newpaper[29], television[19,33] or Internet[2,10,34]) advertising that has the ability to make every good thing seem as simple as securing a cold Pepsi?".

Kida described the resulting "paralyzing confusion for the consumer" as the "paradox of choice"[35]. For example, what's the difference for the end-user between mutilating enamel between anterior teeth to fix crowded and rotated teeth with braces[2], plastic aligners or by filling in those same gaps with bonding adhesive or blocks of porcelain[36], so-called instant orthodontics? Why not simply dispense a Snap-OnSmile or even a gold-plated grill? Instead, your patient might elect to hit the road as a

dental tourist[37] to satiate his or her specific desires. Do we simply bend to the whims of the patient without providing proper informed consent and careful consideration of the long-term consequences? Should quality of care be close enough for country music or precise enough for Prokofiev? Tuncay[38] once said "The problem with much of the unorthodox orthodontic treatment provided is more serious: The susceptible patients are diverted and never make it to effective conventional care"[38].

> "I'm a believer, I just need a cause". From Uniform, Bloc Party, A Weekend in the City, 2007.

It is rather curious when ardent followers of particular treatment philosophies argue fervently about the significance of fractions of millimeters in condylar and/or bracket position, yet, in the same breath, find it perfectly acceptable to sell straightening or cosmetic dentistry for just the "billboard teeth," despite other dental needs. Perhaps this phenomenon is due, in part, to the fact that smart people believe weird things because they are skilled at defending beliefs they arrived at for non-smart reasons[39].

Although cognitive researchers have identified many thinking biases, "most of our cognitive tunnels share the common trait of imposing patterns on the information we receive"[5]. In other words, "our minds are better at simplistic pattern recognition than statistical logic"[5], often resulting in cognitive tunnel vision. A little "truthiness," as comedian Steven Colbert is wont to say, has crept up stealthily on our specialty: "the quality of preferring concepts or facts one wishes to be true, rather than concepts or facts known to be true"[40]. As the Roman slave and comedy writer Terence once said, "You believe that easily which you hope for earnestly".

Another disquieting situation confronts today's orthodontic consumer as an abbreviated treatment to line up just the front teeth with plastic aligners costs dramatically more compared to two to three years of cheaper, but more comprehensive, treatment required to achieve an ideal alignment of all teeth. Can we really do "just about everything with plastic aligners?"[41]. If ever questioned, the party line is, "Now if you want your teeth really straight, we'll need to do more work with other devices or treatment methods (like braces)." Orthodontics is simple; it's just not easy[42].

Anecdotal case reports, often accompanied by a testimonial from a happy patient who flashes straight, bleached teeth, are hardly impressive, especially when hope of long-term stability is flippantly discarded. This attitude is especially unfortunate for patients, as they cannot even tell the difference between results produced by specialists and those of general dentists just by looking at the social six[8].

Orthodontists: More than Just Tooth Regulators?

Ackerman, Kean and Ackerman[43] have recommended that orthodontists "[re-]define their role in the health system and their societal role more accurately" and focus on patient's desires, that is, "individual enhancement" of esthetics within the marketing milieu of today's "extreme makeover." If that's our destiny, then let's at least be honest with ourselves and up front with patients.

Johnston[44] said, "Despite the inference that orthodontics may not be a conventional health care service, it is, however, a service that is valuable, valued and governed by the laws of biology" and expectantly based on ethical principles[45,46]. If this isn't the case, then we need to brush away all the associated trappings, such as research, refereed journals and university-based residencies. Instead, perhaps, we should embrace proprietary[47] trade schools and instead of attending postgraduate educational symposia[29], we need just a few loosely organized tented sales rallies. P.T. Barnum would approve.

> But the lack is not intelligence, which is in plentiful supply; rather, the scarce commodity is systematic training in critical thinking. Carl Sagan.

Are Fuller and Wider Better?

Interestingly enough, today's sales pitches beg important questions like: Do truly light, so-called biosensible forces[14,15,48,49], just fool the bone50 and muscles into stable "bio-adaptive" expansion? Are the osteocytes and sarcomeres perceptive enough to tell the difference between the types of brackets[49] or appliances pushing or tugging on the teeth?[41]. If, in fact, we're just uprighting lower posterior teeth with Phase I expansion[51], what happens later when we place a preadjusted appliance with 20 degrees to 35 degrees of posterior lingual crown torque, rolling molars back in? Besides, expanded cases have consistently demonstrated more incisor crowding after retention than untreated controls[51-53] (But in clinical practice who selects no treatment for patients with crowding anyway?). Yet words like "increase" and "benefit" are used to describe the outcomes[41,54] when, actually, those expanded most often end up more crowded than they started[52,53]. Perhaps the enveloping oral musculature, or the "viscoelastic mask," didn't get the memo that they should change – just for us.

If routine bimaxillary expansion in the mixed dentition is little more than a practice management

decision, that is, parents are said to demand it and younger kids are easier to treat[51], and the results might be found to be about the same[51] as if it weren't done, then the decision to expand becomes one of economics[55], convenience (credo consolans) and esthetic outcome. But can we really pretend that all expanded faces, including the often attendant alar base and interorbital increases, and smiles look natural that wide or profiles look better that full?[14,56,57] It's an easily testable hypothesis that, apparently, those who provide those types of treatments are curiously reluctant to prove.

Now in an alternate, that is, vertical, dimension, it was said on a TV news program (CBS's "60 Minutes")[33], that untoward esthetics, from making faces longer, are an inevitable result of traditional orthodontics and only early and—longer—treatment, perhaps with a specific chunk of plastic, will grow ideal "full faces"[33,58]. Yet, on another show (ABC's "The View"), it was demonstrated that a headgear or expander, used to intentionally produce a longer face, acts as a makeshift, but pre-emptive face-lift[19] (some are even using the paroxysm-inducing endearment: "Brace-lift"). So, what's a mother to do? Perhaps we can look to another major network--NBC or FOX-- or another celebrity (possibly Oprah?) to provide us with the definitive answers, that is, "The Secret"for our profession.

In this expanding universe, we have been busy inventing new vocabularies, filled with neologies like bio-something forces, dental autokenesis, survival instincts of teeth, waking-up the tongue, biologic dentistry's neuralgia-inducing-cavitational-osteonecrosis, orthotropics, chirodontics, craniosacral therapy and bi-digital O-ring testing. Often we are promoting the idea that devices or therapies commonly used in decades past are imbued with special properties--for example, tissue engineering or sentient teeth, muscles and bone[20] - so that the previously impossible is now believed possible. Tell me, was it the Hippocratic or hypocritical oath that formed the basis for health care? Besides, do data exist to support any of the previous claims?[59-61]. Isn't it the scientist's job to help the public separate the scientific wheat from the voodoo chaff?[62]. Remember, skepticism is not a rejection of new ideas but, rather, "a provisional approach to claims; more exactly, it is a method, not a position." The acronym used in the casino surveillance business when something suspicious attracts undivided attention is JDLR, or, it just doesn't look right. A healthy dose of skepticism[63] when something JDLR wouldn't hurt in dentistry either.

Unfortunately, we've been told that 20 years of experience and successful results outweigh the need for research[64] because if science applies clinically, it's an accident[65]. It's even been said of research, "That's O.K. for those of you pointy-headed academics, you have time to think." It's also been touted that you simply can't base a philosophy of clinical treatment on the scientific literature (said by some to be moderated by some kind of international conspiracy or academic mafia[66]). The editor of the Journal of the American Dental Association[67] has described these concerns: "For the clinical expert to have a place in the hierarchy of evidence-based dentistry, the clinician expert's knowledge and experience must be based on some kind of evidence".

It seems that EBD (evidence-based dentistry) rather than reliance solely on POEMs (patient-oriented evidence that matters) should define our experts. It may be a bitter pill for some of the nonpareil, but scientific evidence is not just a theoretical nicety. You might say that, they once laughed at innovative thinkers ("mavericks?"[33,68-70]) like Galileo, Copernicus and Columbus," but, actually, more folks laughed at Bozo the Clown. Why worry about such things as research or proof, especially when inconvenient results (truths?) might be bad for business? And if things don't quite work out the way you reckoned, then aggrieved and vituperative letters to the editors of journals[64,65,71,72] or threatening letters from lawyers are cheaper and easier to churn out than research and publication.

Better yet, when things aren't quite square with your beliefs, simply create your own professional organization with an accompanying proprietary journal. Perhaps it's all to be expected when a calling becomes more business than science[73] Angle and the other fathers of their beloved orthodontia must be spinning in their graves.

> The credulous man is father to the liar and the cheat. W.K. Clifford, The Ethics of Belief, Lectures and Essays Vol. II, 1879.

Tales from the Dark Sides

One casus belli for expansive treatments is said to be the elimination of the noxious problem of dark buccal corridors on the sides of the smile--the other black triangle disease[15,20,33,51,71,72]. There is, however, no evidence that premolar extraction treatment routinely produces narrower arch forms[74,75] or poor smile esthetics[76-81]. Unfortunately, research does not preclude anecdotal criticism based on fanciful observations[48,66-72]: "Wouldn't you rather have a nice, wide smile like Julia Roberts, rather than dark corners like Goldie Hawn?"[72].

A descent to this level of investigation, that is, examining photos in fashion magazines and tabloids, failed to support these notions. Interestingly, none of the celebrities to whom dark corridors have been ascribed[71,72]

actually appeared to have had extractions or larger, darker corners when compared to the so-called ideal pop icons (Drew Barrymore, Meg Ryan and Goldie Hawn vs. Julia Roberts and Mary Tyler Moore). In fact, those with the most popular wide, Hollywood smiles (Brad Pitt, Angelina Jolie, Farrah Fawcett, Cameron Diaz, George Clooney and, above all, Julia Roberts) also display the largest negative spaces[82]. Therefore, recommending questionable treatments for the expressed purpose of preventing dark corridors is a dubious business at best ("These aren't the droids you're looking for"), especially when the public doesn't find them particularly alarming[83].

Envoi

Although we have no universal standard for what constitutes straight teeth[84], if the practitioner does not self-assess with mid-course progress records, evaluation of post-treatment records or even peer assessment of cases[1,8], then, how can the orthodontist determine that he or she is consistently meeting, at the very least, his or her own interpretation of straight teeth? If we never evaluate any objective criteria[1,6,8], that is, outcomes assessment, then we're simply back to using the number of case starts and patient satisfaction surveys as a measure of clinical success, despite the possibility that suspect treatment methods may occasionally be in use[1,8].

We are certainly driven to produce beautiful, stable and healthy results and, yes, a happy end-user. Yet there is another unusual dichotomy: The demand for orthodontics has never been higher, but patient compliance has never been lower[85]. Consequently, we hope to find treatments that are highly effective and efficient, while trying to maintain satisfied consumers. It is a difficult balance, to say the least.

Ackerman[60] warned that the challenge facing orthodontists in the 21st century is the need to integrate the accrued scientific evidence into clinical orthodontic practice[86] (For a start, scrutinize the references[87] listed below.) Ismail and Bader[88] recommended that we "should combine the patient's treatment needs and preferences with the best available scientific evidence, in conjunction with the dentist's clinical expertise"[88].

Hannapel and Johnston[89] have cautioned that the treatment plan is the patient's destiny and that regret is the difference between what a patient gets and what he or she could have had, given the best available treatment. It appears that reducing regret for both doctor and patient should be a significant goal of our professional endeavors.

Confucius said, "The superior man seeks what is right; the inferior one, what is profitable"[90]. Consequently, finding a balance, as an average man, would seem to be a reasonable goal. Unfortunately, that may be just plain bitter medicine[49] for some of us.

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