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CHANGING DENTISTRY. CHANGING LIVES.

EDITORIAL
MARK DUNCAN, DDS, LVIF



Creating Your Passion Filled Purpose



“Happiness is an attitude. We either make ourselves miserable, or happy and strong. The amount of work is the same.”

Francesca Reigle

A couple of years ago, Dr. Bill Dickerson delivered a powerful presentation titled “10 Steps Up The Path To Success, Talent Is Never Enough”. There were several messages in this lecture and although it is a disservice, I want to boil it down to a couple critical points: Passion Filled Purpose and Love & Gratitude.

Passion Filled Purpose and Love & Gratitude apply to every aspect of life. As you reflect on your goals and your Purpose in this life journey, it is finding a Passion Filled Purpose and Love & Gratitude that will carry you through. We have all witnessed people who seem to have the Midas touch. The question is; what makes that happen? How is it that some people seem to get all the breaks? Some people seem to be perfect and loved by every-

one while others seem to be perpetually stuck in the shadows and searching for themselves. Is there really a difference between those two people’s abilities? Is one smarter or funnier or better looking or can one run faster or spit further? Perhaps, but none of those things is the difference.

In looking at the people who make things happen, there is one characteristic that is of paramount importance that most people seem to lack. A Passion Filled Purpose is the engine that overcomes obstacles and cuts through confusion. There is no question there will be problems and detours in life, but keeping a clear focus on the end of the journey is the only way to stay on the path long enough to get there. The clear and unobstructed view of the end will create our Purpose; still missing

is the Passion Filled component.

Every one of us has aptitudes and abilities that are not yet realized. Whether it is as a planner or as a designer or as a pilot or as a parent, we all have abilities that are unexplored. This puts us in a position of so many options that it may be difficult to focus on any single thing; the ‘Jack of All Trades and Master of None’. Having superficial expertise in a variety of things is an asset, but to have Passion Filled Purpose a direction must be selected.

In a world mired with options, how do you select one? Oddly enough, you simply pick it. It doesn’t really matter which one you pick, what matters is that you pick one and invest in it. It could be a hobby or your profession or a reconnection with your partner

“There are only two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle.”

Albert Einstein

or children. The way you do it is to simply decide. Then, back that decision up with action. It is easy to invest your time in the things that you love; it is tempting to wait around to find something that you love and then invest your time and energy in it. The idea that ‘once I find my Purpose, then I can start working toward it’ or ‘they are so lucky to have found their passion’ begins to identify why some people are so driven while others simply are not. Those ideas seem to make sense, but in reality are absolutely backwards. The way that humans work is they love what they invest their time in. The simple act of giving creates the need to give and the reward. The simple act of loving creates the love. The simple act of investing time and energy into something, of focusing your energy and your actions on something will make that more important to you. It seems counter-intuitive, but it has been backed up time and again.

The way to find the Passion Filled part that drives your Purpose is to decide to do it. Then, do it again and again. You will soon find that you are working consciously and subconsciously on this particular aspect of your life all the time. It becomes important to you because you decided it was. This is true whether you are talking about your dental practice or your relationships or fly fishing. Where you focus your energy and attention will

determine what is important to you, not the other way around.

There is tremendous power in realizing the way that Passion works. It can be created where it doesn’t seem to exist. It can drive your practice or life forward. It can be ignored to the peril of your practice or it can be embraced and exploited to create success. Once you know you are in control of your destiny, that you are responsible for the outcome; then you exude the power and confidence to be successful in what you do. Take a long look at a part of your life where you stumbled and see what happened. It might have been your kids or your practice or perhaps the relationship with a team member. Most likely you will find that you ignored the power you hold. You create the Passion by creating the attention. Life coaches and inspirational speakers talk about how it is not ‘what’ you do but ‘how’ you do it that makes the difference. This is all about your attention and your intent.

As one of dentistry’s greatest speak-

“There are exactly as many special occasions in life as we choose to celebrate.”

Robert Brault

ers and coaches, Bill Dickerson has said the same thing. Passion Filled Purpose was his key. Now we have the ingredients to create that Passion Filled Purpose. You decide what you want and then you invest your energy and time in that Purpose. You will find that not only are you making progress toward it, but that it will become an all consuming love and driving force in your life. The beautiful thing is that it gives us control and options. Invest in educating your team and learning new procedures and channel your energy and attention on your practice and you will find the Passion will Fill the Purpose. Look for ways to invest time with your kids and you will find that it feeds the relationship and brings you closer. Look for ways to let the people on your team know they are special to you and you will find that they become special to you (or more special I hope!). It starts with a decision followed by action and the result is Passion that will Fill your Purpose.

Love & Gratitude is the other tenet that you need to incorporate. One of the most important things you can do to keep your feet planted is remember where you are. Carrying an attitude of Love & Gratitude everywhere you go will keep you solidly focused on what you bring to the table. As the leader in the practice or the doctor (as those two people may not be the same) it is easy to slip into the role of the overlord. As the one who signs the check

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and lays out the final treatment plan, the final word carries a lot of responsibility. Obviously part of that responsibility is to ensure that payroll is met and that the treatment is appropriate and complete. However, the most important part is about the attitude you take to the practice.

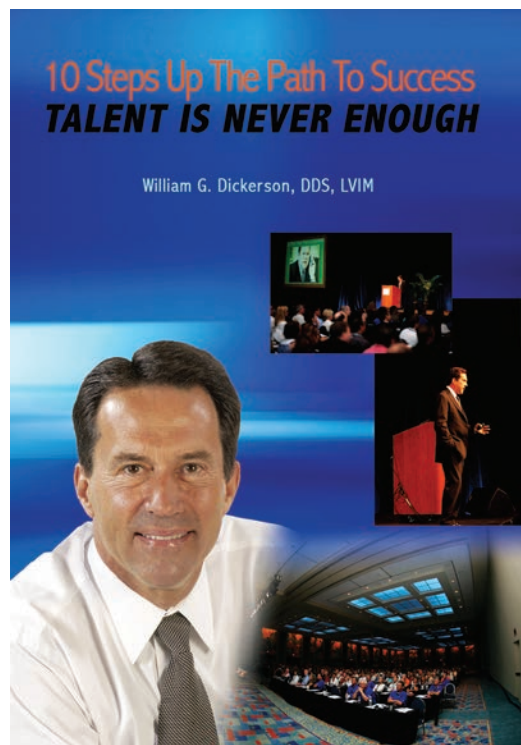
The simple reality is that, in the big picture, not a single thing we do will amount to a terribly important moment. Sure, there are some things that have very far reaching impact both good and bad, but not a single thing will redefine the world. It is a collection of things together combined with their consequences that will shape the world we live in. If our basic approach to life were one of callous indifference, then we would find that very few people or things matter to us. If our basic approach to life were one of entitlement and self-indulgence, we would find that we would matter to very few people. On the other hand, being humble and open with who you are, and holding your attitude as one of Love & Gratitude will redefine your world. As simple as it seems, the attitude of Love & Gratitude will do more for how the world treats you than anything else you can do.

Human nature will dictate the way people interact with you, and human nature, like physiology, will always prevail. It has been said that people like people they trust, and people trust people like themselves. The thing is we are all completely different, and yet all essentially the same. People like to feel valued and important. People like to be heard and supported. People like to know that they matter. Holding your attitude to one

of Love & Gratitude will ensure that you do exactly that. The simple reality is that in order to be important to other people you need to make them important to you. To have someone else hear you, you must first let them know they are heard. Caring about what is important to them and caring about who they are is the most powerful way to demonstrate your love for them, and being interested in what they do will bring their focus to you. That engenders trust and moves the relationship to the next level, allowing them to openly listen and honestly consider your recommendations. Being grateful for them being a part of your life will allow them to trust that you are looking out for their best interest first. At the end of the day, the things that are truly important are the things you focus on. Not because of what they are, but because of what you put into them. Invest yourself

into something and foster that growth and the reward is rich and colorful. If you invest in something that is in line with your Purpose, then you literally create the fuel and Passion to achieve it. If you treat the other players with Love & Gratitude then you have created an army of people all working together to build each other's Purpose and create each other's vision. In our families and in our practices we have the opportunity to create the team that drives us forward. We have a collection of people who love and trust each other and will move the whole toward whichever direction they decide. The key is to have a clear Purpose that everyone can believe in, and to find ways to fuel that Purpose and repay the players.

Here's to your Purpose; may it be driven by Passion.
Love & Gratitude
Mark

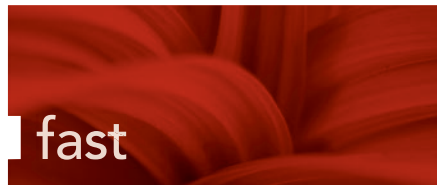


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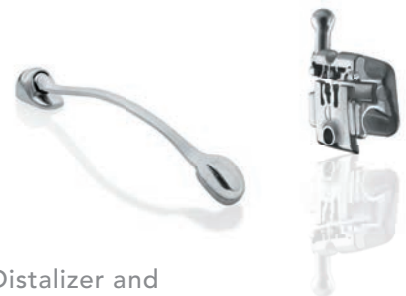
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STRAIGHT

Facial, Postural and Skeletal Determination

In Neuromuscular Dentistry, much of the treatment emphasis is based on whole body care including cervical posture. Many of the courses at LVI Global place a great deal of importance on modification and correction of abnormalities. The information disseminated during the TMJ/occlusion programs and now the airway/sleep classes relate to postural compensations. Orthodontic patients are another concern when it comes to the evaluation of facial skeletal components as many suffer from the compensations found in Upper Airway Obstruction (UAO).

It has been widely documented that UAO patients compensate through a complex mechanism that results in Forward Head Posture (FHP). It is this autonomic process that allows one to maintain a functional airway. Physical Therapists, ENTs, AO and

other specialists are now being called upon to assist dentists in the corrective therapies. Even during his very informative presentation at the recent IACA conference in Boston, Prof. Mariano Rocabado, DPT stressed in his diagnostic protocol the need for a comprehensive radiographic evaluation. Upper cervical and craniocervical relations are critical to long-term occlusal stabilization according to Dr. Norman Thomas at LVI. Thomas stresses that masticatory muscle fatigue is made worse by these postural compensations.

Many LVI doctors include K7 Myotronics instrumentation assessment. These evaluations include detailed studies of Mandibular Range of Motion (ROM) and electromyographical studies (EMG). All of which assist in evaluating the functional status of the patient at any stage before or during treatment. In other words, one

can accurately evaluate the stability of the muscles and the occlusion at any time.

Most dentists do not have the capability to provide these bioelectrical exams so I suspect that this is an area that needs improvement in many offices. Those that are providing orthodontics already have the necessary imaging devices. Interestingly most panoramic instruments can be easily modified with a Cephalometric add-on that has the ability to take the generally required films including those that Rocabado suggests.

These Cephalometric films are applied to orthodontic patients for the facial AP and Vertical Skeletal diagnosis at anytime before, during and after treatment. The airway can also be evaluated as a diagnostic tool that allows the clinician to form an impression as to the patient tendencies. Many experts have devised complex

TRACKS

RECOMMENDATIONS
BASED ON A
NEUROMUSCULAR
PERSPECTIVE

JAY GERBER, DDS, FICCMO, ABPM, FIAO

“It is in this new day that dentists must be cognizant of patient conditions that can and often negatively affect long-term occlusal treatment outcomes.”

and detailed measurements that evaluate space for the airway. Specific soft tissue measurements are often controversial and lead to debates over their accuracy whereas hard tissue evaluation is less debatable.

Cervical and postural images (skeletal) are often more reliable as these pathologic or adaptive skeletal changes are representative of both soft and hard tissue compensations. Craniomandibular and craniocervical

measurements also use hard tissue evaluations. Physical Therapists and Chiropractors understand these films and communication with these health care providers is made more understandable when relating treatment.

It is in this new day that dentists must be cognizant of patient conditions that can and often negatively affect long-term occlusal treatment outcomes. Cervical posture is affected by airway obstruction and it is well

documented that UAO is more prevalent in the population. While dentists often ignore posture, other specialists are eager to treat. With more comprehensive occlusal therapies being offered; dentists must begin to immediately incorporate Craniomandibular correction into their protocols. Modern treatment has become multidisciplinary so it is imperative to develop a team of providers that are reliable and competent.



Dr. Gerber is the Director of Neuromuscular Orthodontics at LVI Global and serves as the Clinical and Educational Director of the Center for Occlusal Studies. Dr. Jay has clinically treated 1,000's of patients since the early 1980's using the principles of Neuromuscular Dentistry. Dr. Gerber is recognized as one of early innovators of neuromuscular functional

orthodontics and for the applications of the 'EMG Guided' bite registrations.

Dr. Gerber has made a commitment to stable, pain free neuromuscular correction and long-term occlusal stability. He currently maintains a private practice in Parkersburg, West Virginia.

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INTERVIEW



**J. BRIAN ALLMAN, DDS, DABDSM, DAAPM, FAGD,
FAACP, FICCMO, FASGD, FAAFO, FIAO**

Dr. Allman is the founder of the TMJ Therapy and Sleep Center of Nevada and is dedicated to the advancement of Dental Sleep Medicine in general dental practice. He is co-founder of Dental Sleep Digest, a magazine dedicated to clinical DSM practice and The OSA: Online Sleep Academy, a monthly interactive webinar series for dentists serious about advanced patient therapy education.

His journey includes 8 Fellowship and Diplomate awards, Senior International Association for Orthodontics Instructor, 5,000 + hours of continuing education, 25 years of dental practice and the loss of his mother due to untreated OSA. Dr. Allman's mantra is "Airway is King and Tongue Volume is Queen" and it is his hope that all dentists become proficient Dental Sleep Physicians. Dr. Allman is a featured instructor of Dental Sleep Medicine programs at LVI.

There is no doubt that most dentists don't understand their life-saving role in screening patients for obstructive sleep apnea. Why do you think that is?

Unfortunately, I don't think that dentists are knowingly neglecting such a deadly disease. As is the case with our medical colleagues, we received very little undergraduate dental school education regarding sleep disorders. It is estimated that undergraduate dental students attend less than three hours of didactic sleep instruction while medical students hear less than four hours. Encouraging is the fact that dental schools, such as my alma mater, UCLA Dental School, are working diligently to mainstream undergraduate dental sleep medicine curricula.

Oral appliance therapy (OAT), well supported in medical literature though not widely practiced, is first line therapy for mild and moderate obstructive sleep apnea. Unfortunately, OAT is not taught in undergraduate dental school and has been, until recently, considered a boutique quasi-subspecialty of TMD practitioners. Isn't it interesting that neuromuscular dentistry had similar beginnings with a few forward-thinking, seemingly fringe dentists blazing the trail for the rest of us?

I also believe that with the quantity and quality of medical research identifying OSA as a root cause of serious cardiovascular, cerebrovascular and metabolic pathologies, both medical and dental undergraduate programs will need to "make room" for sleep education. It is time that we appreciate the impact that OSA has and will have on the health of future generations especially, with the dramatic increase in worldwide obesity gluttonously fueling in part the OSA pandemic.

Why is it important that every dentist have at least an understanding of diagnosing and treating OSA?

First of all, dentists are not in a position to diagnose OSA. In fact, I hope that responsibility is NEVER included in our diagnostic arena. OSA, by definition, harbors on average at least six co-morbid factors. Take a look at the assessments of our medically diagnosed sleep apneic patients and you will quite often find a common and unsurprising list of co-morbidity. Dentists are not trained to manage diseases such as refractory hypertension, diabetes and dyslipidemia, but are well able to screen, refer and co-manage suspected and diagnosed OSA sufferers rather effectively as part of a multidisciplinary regimen.

Dentists must learn to recognize the often overlooked signs and symptoms of OSA. By understanding related diseases, prescriptions and craniofacial

How did you get involved with Dental Sleep Medicine and why are you so passionate about it?



anatomy, OSA patients are fairly easy to identify with high sensitivity and specificity. Now, whether or not dentists choose to become members of a multidisciplinary OSA management team will be up to the individual. However, it is my goal to help educate and motivate all dentists to screen and refer appropriately. Changing lives is one thing, but saving lives is certainly another.

I've spent my twenty-five year career in dentistry trying to answer the question, "Why?" Why, for instance, does treatment randomly seem to fail? Why do some people suffer from severe attrition and others don't? Why do some orthodontic cases relapse quickly and others remain stable? Why do some people suffer from nocturnal bruxism and others don't? Why do some people resolve TMD symptoms and others get worse or only improve minimally? I always wondered why and have spent my career trying to find answers through continuing education and a long list of gifted and generous mentors.

After thousands of hours of continuing education and investing in numerous electrodiagnostic instruments thinking I was an up-and-coming "TMJ guy", I still had patients that failed to reach maximum medical improvement to my satisfaction. Then, I remembered the lectures I had heard from a guy named Dr. Jim Garry; airway, airway, airway.

Eventually, I started treating TMD as just another symptom of OSA and developed an examination protocol which includes OSA screening for all of my patients whether TMD, orthodontic, reconstruction or just new dental patient. When I realized that OSA is often a root cause of TMD, my cluster of lackluster results began to improve dramatically. While I enjoyed changing lives, I had become a dental sleep physician and was now saving lives.

Not long after my thick-headed-slow-on-the-uptake epiphany, I turned my attention to my mother. During my youth, I had witnessed the slow erosion of my mother's health having spent many weeks and months visiting her in the hospital. By the time my mother passed away two years ago, she had endured adult onset diabetes, blindness from diabetic neuropathy, colostomy, renal failure (dialysis three times weekly), cardiovascular disease, numerous corrective surgeries, several debilitating automobile accidents with serious orthopedic sequelae and all totaled, 27 major operations. Looking back I sadly realized that my mother, father and I had needlessly spent too many days and nights in San Jose, California area hospitals.

As you might imagine, the quality of my mother's life and that of her family and grandchildren were adversely affected. Before Mom finally passed and "went home" we had spent many Thanksgivings and Christmases bringing the holidays to her infirmary. Now, as a family we are not complaining as we are very, very blessed and I am truly very thankful for our health, many gifts and opportunities. However, I am embarrassed to admit that I am very bitter and



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**Sam Kherani,
D.D.S., F.A.G.D., L.V.I.M.**



Questions? Email: info@conbio.com, Call: 800.532.1064, or Visit Online: www.conbio.com



You are also a neuromuscular dentist; can you explain the connections between treating OSA and NM dentistry?

angry. Angry because my mother had been examined, treated and often surgerized, by dozens of medical specialists and none had identified what was likely the root cause of her lengthy, tortuous and premature demise. Bitter because of the quality of our lives at the time and now because we are forever, irreversibly motherless.

Though Mom always recovered from her surgical insults with a smile and an “I’m feeling fine”, healthcare had failed to screen and test my mother for this obvious, insidious and treacherous slow killer. Retrospectively, I asked my father if Mom had ever snored. He replied, “Yes, since the day we got married.” He added that, “I always heard your mother gasp for breath while she slept.” There you have it. How easy would it have been to ask a few questions and put snoring together with hypertension and diabetes and suspect OSA? Pretty damn easy if you were to ask me now though, I too was oblivious after my dental school education. By the time I had figured it out, it was far too late to benefit her therapeutically. It was kind of like in TOPGUN when the fighter jet suffered a flat spin and Goose was killed; not much could have prevented the inevitable course of my mother’s life altering disease.

Subsequently, my passion lies deeply in the fact that my profession, though fairly adept at mitigating headaches, ugly smiles and dental pathology, should now include screening for OSA to help prevent this heinous disease so easily identified and treated. My goal is to prevent sufferers from needlessly being robbed of a quality of health and life. They say adversity breeds opportunity, so I guess it was the misdiagnosis of my mother that has ultimately guided my passion, my profession and my desire to teach.

OSA and mandibular discrepancy to cranial base pathologies are both diseases of anatomy: anatomy that is less than it should be. Dental arches are dimensionally less than they should be. Tissues of the upper quarter are also in less-than-they-should-be relationships. As a result, the bony box of the teeth and supporting skeleton are deficient leaving the attached soft tissues inadequately and inappropriately supported. This is the concept of the bony box-soft tissue box mismatch.

In addition, add the allergenicity of our environment and food supply, bicuspids extraction retraction orthodontics and failure to identify airway discrepancies with the susceptibility of the compliant human airway multiplied by skyrocketing human obesity and we are now becoming craniofacially challenged causing a plateau in future life expectancy. We are not getting healthier; we and our environment are decaying rapidly.

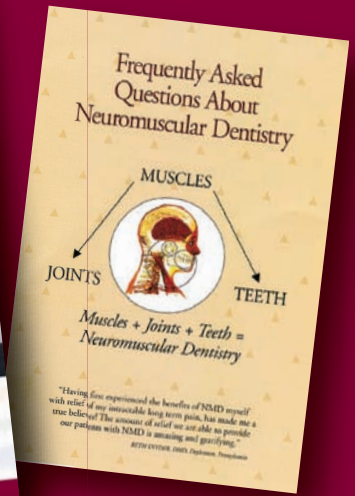
My thoughts for those NM dentists treating debilitating craniofacial discrepancies: Assume every TMD patient is a sleep apneic until proven otherwise. Also, hold dear that airway is king and tongue volume is queen!

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Is it true that conventional dentistry has actually created OSA problems or made them worse?

This is a very explosively emotional, or is it emotionally explosive, subject with me. My beloved profession has in many ways inadvertently and naively manipulated dental therapeutics resulting in insufficient airway space. While this is not a problem when we are awake, it has deadly consequences when we sleep.

As I mentioned earlier, if we do anything to distalize or narrow the boney box, and this includes failure to recognize craniofacial developmental issues in developing skulls, we compromise airway space. Retraction orthodontics is guilty. Restoring or promoting CR relationships is ridiculously guilty. I had bicuspid extraction retraction orthodontics as a kid and am permanently handicapped by what I consider now to be orthopedic child abuse. We must consider more than just straight teeth and healthy gums as a measure of oral health.

In our defense, understand that what we do today is better than what we did yesterday and what we will aspire to tomorrow will be better than what we do today. While we all agreeably nod to that tidbit of wisdom, the sting of the orthopedic and systemic sequelae of airway-impinging dental therapeutics is, in my opinion, criminal with a class action lawsuit waiting to unfold.

What frustrates you the most about our profession?

Before I answer, I want all of you to know that I wanted to be a dentist ever since I was eight years old. There was never a question in my mind as to what I was going to do with my life. I may have been counter intuitively inspired by my childhood experiences going to a dentist who failed to offer anesthetic to restore my decayed teeth. Or possibly, it was the oral surgeon who made room for my overbite by taking my bicuspids. I don't recollect for sure. All I know is that all I ever dreamed of becoming was a dentist though I don't remember why.

That being said, I believe that dentists, for the most part, practice in a very definite comfort zone rarely peeking around the corner or over the fence to see what lies beyond. After four years of dental school, I believe we have only a license to learn, having actually mastered very little. Continuing education has been a journey for me for twenty-five years and I am still truckin' down that road to knowledge today. Dentists, in my opinion, should invest more of their resources in their education and the empowerment of their team for the betterment of their communities and practices. The day I stop my journey of learning, I'll stop the dentistry.



What do you see in the future of dentistry?



What I sincerely HOPE to see is a trend toward multidisciplinary and collaborative health care effectively bridging dentistry and medicine. All NM dentists understand and appreciate the link between oral stability and overall health while physicians understand the fundamental practice of working together as an interdisciplinary team. Astute dentists, pursuing advanced education, can no longer practice in a vacuum fearing criticism from our unknowing and unwashed dentist brethren while we actively work to establish state-of-the-art, evidence-based diagnostic standards, treatment protocol and better health for our patients.

By adopting the medical collaborative model, differing dental philosophies will hopefully someday begin to co-exist synergistically shedding current adversarial posturing propelled mostly by ego and revenue. Evidence-based dentistry needs to guide us rather than popular opinion or marketing schemes. Most dentists started their educations as scientists to one degree or another so it is imperative that we relearn what “relevant science” is and rely less on anecdotal posturing.

Dentistry is no longer teeth and, in my opinion, dental school alone is no longer adequate. Dentists must maintain a vigilant, evidence-based journey continually learning how to better diagnose and manage patients. Whether we, as individuals, choose to perform all possible dental procedures is irrelevant. We must admit the fact that we are taught to be technicians rather than diagnosticians and begin to raise the educational bar.

Over the years I have had the privilege to speak to thousands of practitioners and during breaks in the lecture have often been subject to polite “I have this patient who...” questions entertaining a laundry list of symptoms followed by a series of unsuccessful treatments and a query as to the nature of the poor outcome and what to do next. I often rudely interrupt the enthusiastic delegate with a question asking, “What was your diagnosis?” More often than not, the barrage of patient history and appliance design continues and I again butt in with, “Doctor, please tell me what was your diagnosis?”

Most of my colleagues yield a blank stare and quickly ask, “What do you mean?” Therein lies the essence of where dentistry needs to go. It is time to embrace the medicine-dentistry connection and learn to diagnose before we treat and to learn to grow together. Our patients’ lives depend on it.

I would like to invite you all to get involved with my passion; dental sleep medicine. I truly believe that our sleep courses at LVI will be the best in the world and look forward to the privilege of working with the best of the best at LVI.

Attend. Learn. Implement. Make the difference!

Richard W. Greenan

Volumetric Cone-Beam Tomography (CBCT) in Neuromuscular Dentistry

3D(3-Dimensional) imaging for Dentistry is here and has already proven to be the practical alternative to conventional traditional 2D Radiodontics expected. A single Volumetric CBCT scan can now replace the conventional Cephalogram, Panoramic, PA skull and tomograms of the TMJs, Implant sites and Paranasal Sinuses in one 10-20 second scan. The advent of Volumetric CBCT has overtaken conventional medical CT in both its reduction of radiation, significant increase in restorative detail and at a lower cost to both the clinician and patient. This new technology is already redefining Cephalometrics.

HISTORY

CT was invented in 1972 by British engineer Sir Godfrey N. Hounsfield of EMI Laboratories, England with the first “CAT-Scans” patent granted to Robert S. Ledley on November 25, 1975. Most conventional medical MDCT’s incorporate a fan shaped beam (Figure 1₁) whereas Dental CBCT systems today utilize a cone shape beam (Figure 1₂).

With conventional CT, X-ray is produced as the gantry rotates the X-ray tube and detector around the patient (Figure 2) producing an image or “slice” with each 360 degree rotation and then stacks the multiple scans and slices. In a cone-beam CT (CBCT) geometry, the entire subject is exposed just once from a single point source using an amorphous silicon (aSi:H) flat-panel sensor, Csi, CMOS or CCD as its detector. A single rotation CBCT scan results in a volumetric scan of the entire subject with complete data acquisition in just two to three minutes.

In March 2001, the NewTom™ QR-DVT 9000 became the first CBCT system to receive FDA approval in the US (Figure 3).

Followed in 2003 by the Imaging Sciences International i-CAT™ incorporating similar CBCT technology but in a sit down and relatively affordable system (Figure 4).

In 2008, NewTom introduced the upright VG system (Figure 5) utilizing their exclusive Smart Beam Technology with its significant reduction in radiation dosage.

With a single 10-20 second CBCT scan and a large FOV (field of view),

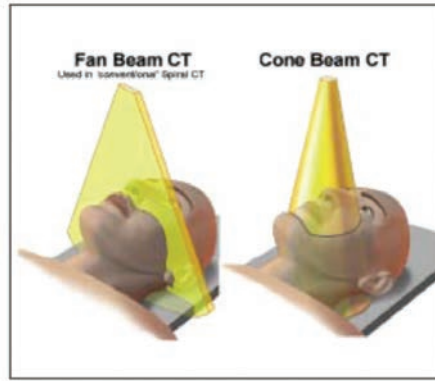


Figure 1: The fan beam on which spiral computed tomography (left) is based interrogates only a slice of tissue, whereas the cone-beam of cone-beam computed tomography (right) interrogates a 3-dimensional region within a 360° rotation. (Reproduced with permission from MacDonald-Jankowski and Orpe.²²)

we now have the full 3D volume of the head and neck from Nasion down to C4 including a Panoramic, TMJ’s, Pharyngeal airway, Paranasal and Maxillary sinuses, etc., with a single scan. 3D rendering and the MIP (maximum intensity projection) in Figure 6 will undoubtedly demand new Cephalometric landmarks and analyses (Figure 7) in addition to enhancing patient understanding and acceptance.

3D data will continue to enhance our existing knowledge, now with:

1. A measureable assessment of bone quality and density (Hounsfield units)
2. The ability to measure before and after treatment arch widths (Figure 8)
3. Actual impacted dentition orientation in 3D (Figure 9)
4. Upper airway evaluation (Figure 10)
5. Pharyngeal volumetric airway evaluation, before and after treatment (Figure 11)
6. TMJ morphology and condylar position (Figure 12)

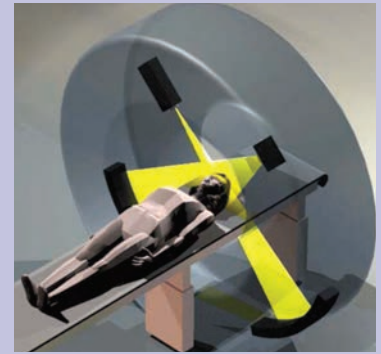


Figure 2



Figure 3: NewTom™ QR-DVT 9000



Figure 4: i-CAT™



Figure 5: NewTom VG™

MAPPING

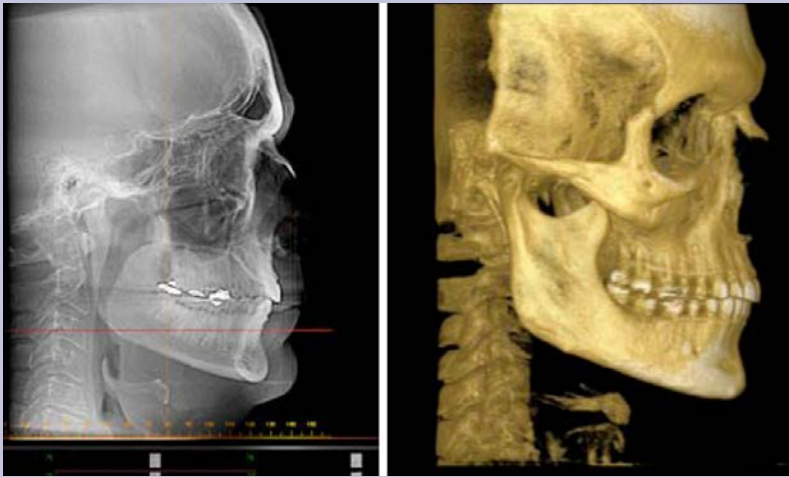


Figure 6

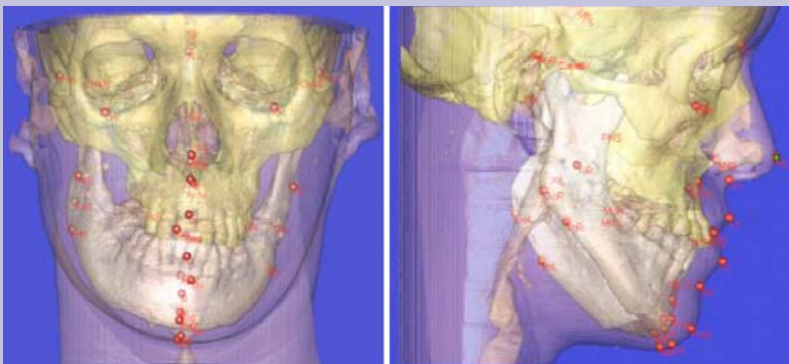


Figure 7

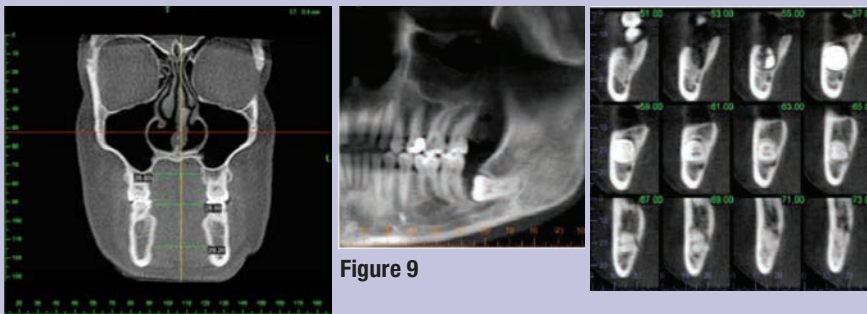


Figure 9

Figure 8

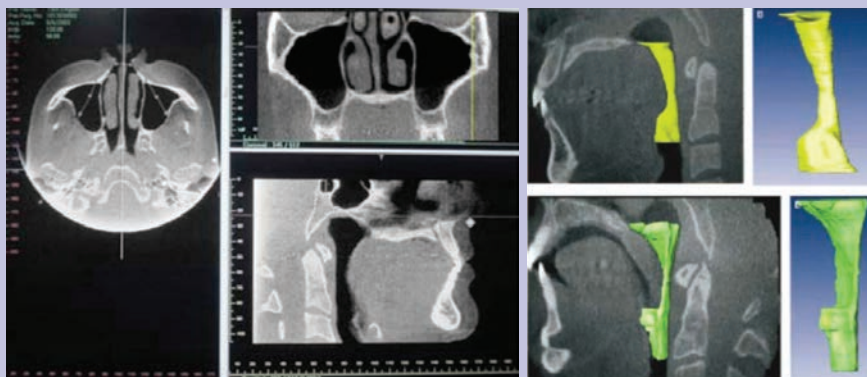


Figure 10

Figure 11

Yet, with this new technology comes the personal responsibility to further one's education on 3D anatomy - an absolute necessity for a proper, comprehensive neuromuscular diagnosis. We must also learn how to accurately create the necessary images from this single scan. For example, with 3D pans, we must increase the reconstructed cut plane width to incorporate the coronoid processes to assess potential hyperplasia and impingement and to incorporate maxillary bone as well as basal bone for potential ossifications of the stylohyoid ligament (Eagles syndrome). Failure to do so will result in a myriad of false negatives and potential misdiagnoses.

Proper mapping of the anatomy is no more critical than for the temporal mandibular joints, best illustrated in the axial views. The three axial images (Submental view) in Figures 13-15 are actually on the same patient but demonstrate three different and distinct condylar morphologies. Which one would you map for your TMJ study? The answer is Figure 13.

Figure 13 demonstrates bilateral kidney shaped condyles with both Figures 14 and 15 indicative of potential osteogenic degeneration. Too often Figure 14 is mapped with the straight TMJ tool (Figure 16) creating the false positive of bilateral avascular necrosis as seen here in the bilateral coronal views (Figure 16), an artifact with invasive consequences! The operator should have

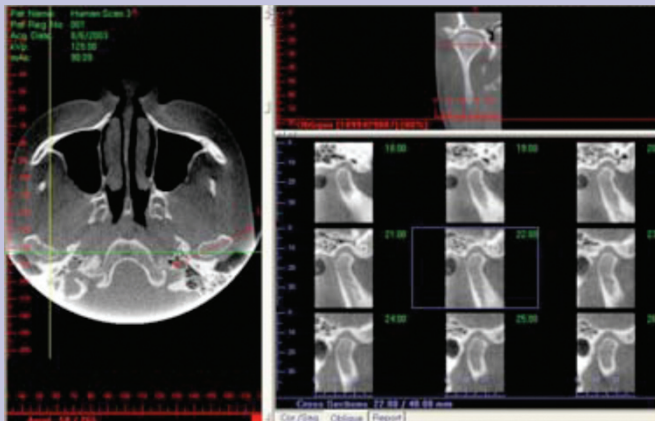


Figure 12

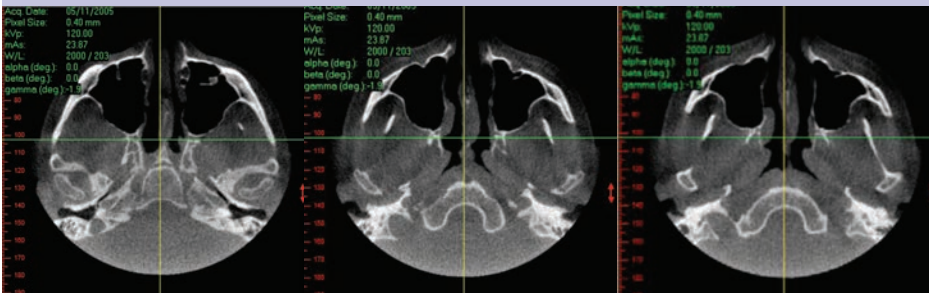


Figure 13

Figure 14

Figure 15

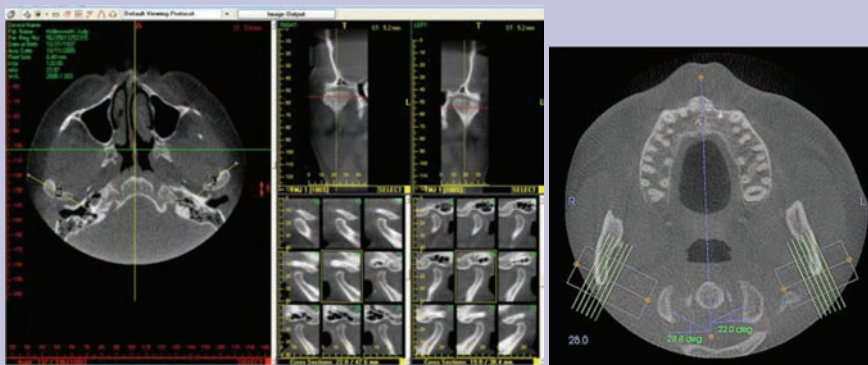


Figure 16

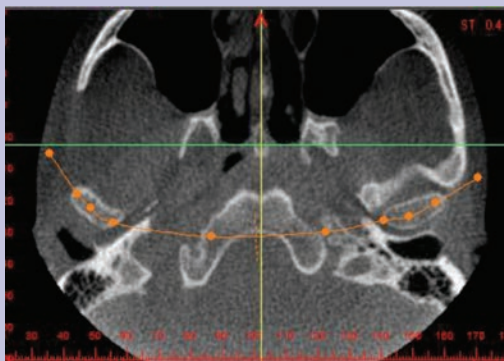
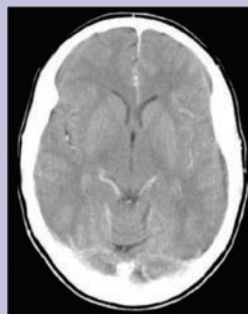


Figure 17



Normal Axial medical CAT scan with intravenous contrast (Figure 17)₆

continued scrolling to Figure 13 and using the oblique or panoramic tool, drawn the necessary Bezier curve incorporating both lateral and medial poles (Figure 17).

SOFT TISSUE LEGALITIES

There has been a great deal of discussion and unwarranted fear being disseminated by a few self-serving oral and maxillofacial radiologists in addition to the manufacturers of smaller FOV systems. Implying that we are now responsible for diagnosing brain tissue! 3D does not change the fact that brain tissue maladies and diagnoses are not taught in dental school and that CBCT systems by their very nature are NOT to be used in lieu of a medical CT or MRI for soft tissue diagnoses.

With the Cephalograms I read, an image encompassing more cranial anatomy than the typical large FOV CBCT scan, I see one or two fibrosarcomas in sella and the thyroid every few months because I look for them. But I see few articles in our Dental journals that address these very issues and I suspect that our Medical Radiology journals also devote little ink to periodontal disease.

A review of the current literature suggests, "In comparing cone beam technology with conventional CT, it should be kept in mind that cone beam systems dedicated to maxillofacial diagnostics by their physical nature do not provide enough low-contrast resolution to discriminate soft tissue structures."₂ And "Where it is likely that evaluation of soft tissues will be required as

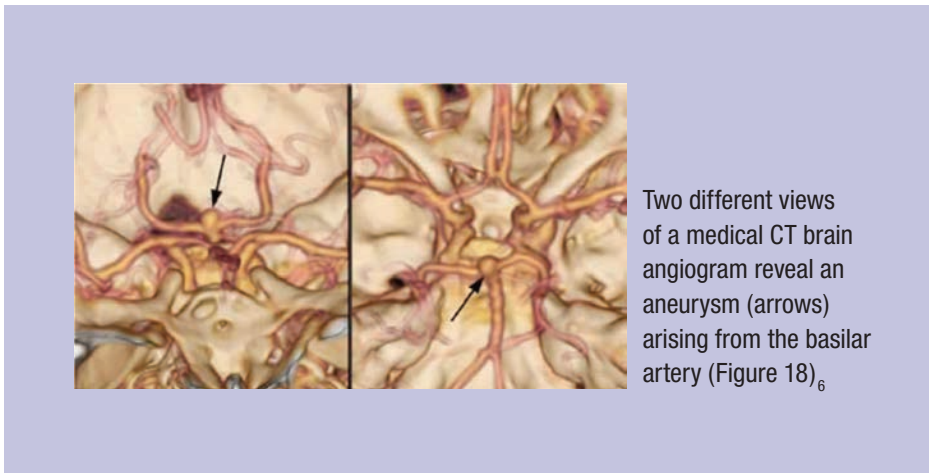
part of the patient's radiological assessment, the appropriate imaging should be conventional medical CT or MR, rather than CBCT. Statement 8 comes close to this in recommending that CBCT not be used where soft tissue assessment is a significant aspect of the need for imaging.”³

CONCLUSIONS

CBCT has been responsible for a significant reduction in radiation as compared to medical CT (68 uSv vs. 1200-3300 uSv₄). One CBCT scan is equivalent to approximately five plain film panoramic radiographs, significantly less than a full mouth series. CBCT images can be saved and viewed

as native DICOM, PDF and JPEG compressed files and imported into most third-party patient management software programs. As a result of this evolution there are now numerous free DICOM 3D multi-view readers available₅ for both PC and Mac platforms

yet this author prefers the Anatomage Invivo_{TM7} 3D software for its ease of use and options. CBCT has also been responsible for making CT technology affordable while opening up paths for future research and innovation, particularly in Neuromuscular Orthopedics.



References:

1. Imaging Systems, Inc., Peachtree City, GA 800-628-1302, www.goodxrays.com
2. "Diagnostic quality of multiplanar reformations obtained with a newly developed cone beam device for maxillofacial imaging": *Dentomaxillofacial Radiology* (2008), Volume 37, 1-9, The British Institute of Radiology
3. "Basic principles for use of dental cone beam computed tomography: consensus guidelines of the European Academy of Dental and Maxillofacial Radiology", *Dentomaxillofacial Radiology*, May 2009, Volume 38, 187-195 The British Institute of Radiology
4. Dr. Sharon Brooks, Dept. of Radiology, University of Michigan
5. <http://www.psychology.nottingham.ac.uk/staff/cr1/dicom.html#links>
6. www.radiologyinfo.org
7. Anatomage Invivo, www.anatomage.com/product-Invivodental.html

Mr. Greenan is an internationally known X-ray authority and President of Imaging Systems, Inc., the Academy for Advanced Radiographic Studies, author of *A Practical Atlas of TMJ and Cephalometric Radiology* and has publications in numerous journals and textbooks on Dental Implants, Orthodontics and TMJ Radiology. He is a member of the American Academy of Oral and Maxillofacial Radiology, the International Association of Dentomaxillofacial Radiology, the International College of Cranio-Mandibular Orthopedics, the Academy of Osseointegration and the International Association for Orthodontics.



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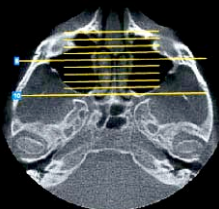
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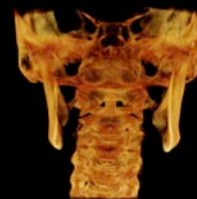
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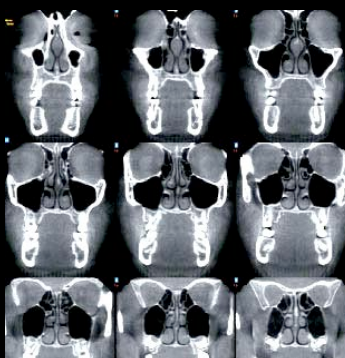


PA Cervical Spine

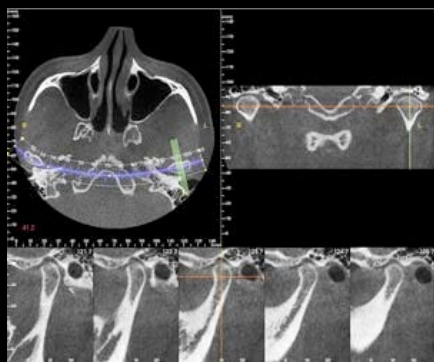


Soft Tissue
Filters

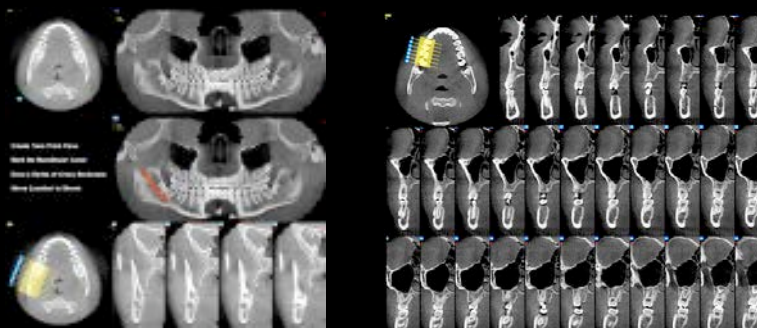
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WATCHING DENTAL PATIENTS DIE:

*Are you asking
the right questions?*

Dr. J. Brian Allman

Admittedly, the title of this article is a bit edgy and at the same time chillingly relevant. Are dentists again guilty of supervised neglect? First it was periodontal disease and now it may become Obstructive Sleep Apnea (OSA); an often unrecognized but well researched and publicized (medical literature) disease of craniofacial anatomy. Dentists now have a tremendous opportunity to recognize, refer and if interested, co-treat properly diagnosed sufferers with medical-dental collaboration. “Changing lives” has, for OSA aware dentists, become “saving lives.”

Dentists are well trained to review medical and dental histories yet, are ill-equipped to recognize the obvious signs and symptoms of this sleep disrupting pandemic killer of mankind. A 1980's OSA prevalence article estimated that OSA affected 2% of adult women and 4% of adult men with a paltry 10% effectively diagnosed and managed. Current research now estimates that over 40% of adult American men and women are now slowly decaying from the effects of this insidious and treacherous disease with fewer than 10% diagnosed and even fewer adequately managed.

As dentists aspiring to become dental elite, what are we to do now? We continuously funnel tremendous resources into equipment and education. Although this is very well invested, are we now expected to accept one more important challenge? The answer is an unquestionable, yes!

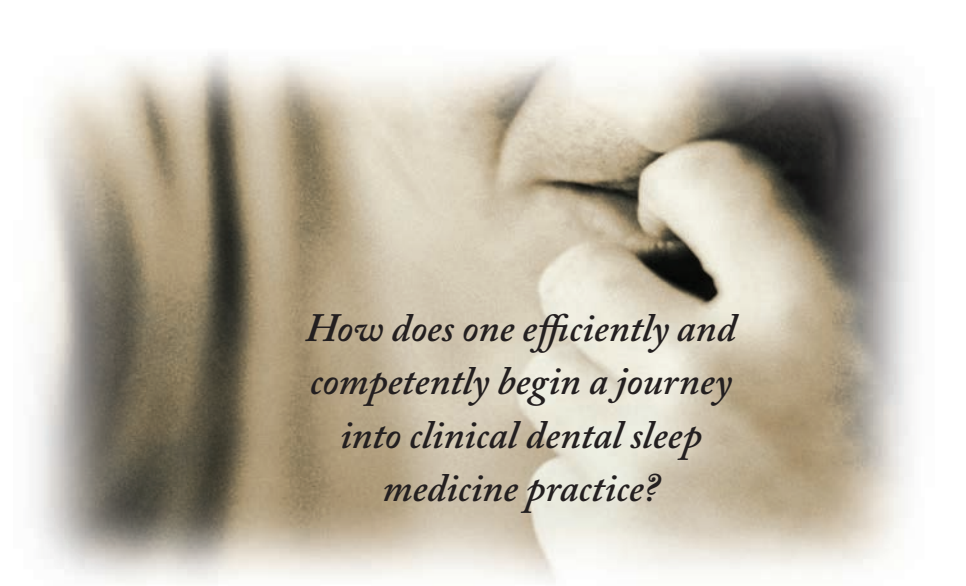
Fortunately, screening for this most debilitating and compromising disease is relatively simple offering a short learning curve within reach of every interested dentist. In fact, every dentist should aspire to further educate themselves and their team to

recognize and refer suspected OSA sufferers. It is also time to reframe the fundamentals of dental diagnoses. As Julius Erving, a Los Angeles Lakers luminary once remarked, “I had to spend countless hours, above and beyond the basic time, to try and perfect the fundamentals.” And, as respected physician, Dr. Martin H. Fischer wrote in 1944, “Diagnosis is not the end, but the beginning of practice.”

What can dentists do to “get up to speed”, prevent supervised neglect and embrace the practice of dental sleep medicine? How should we approach our patients with newfound life saving knowledge and clinical competence in an effort to effectively manage this known root cause of stroke, heart attack and metabolic malady? Perhaps you feel you are too busy to tackle one more thing today and will promise to devote more time to this subject next time or next year. Maybe you think that OSA isn't that big of a deal. Why not ignore CPAP intolerant patients looking for dental alternatives and just focus on craniomandibular relationships with a sub-par diagnostic acumen? Yes, that's what you should do, because OSA will only influence

your diagnostics next year when you (choose to) have more time to learn. In fact, you should start saving lives next year and ignore the stark reality that in fact, TMD is not a primary problem but often, just another symptom of OSA. Yep, your results are pretty good without dental sleep medicine. It probably isn't that big of a deal anyway. Yeah, maybe later.

Sound familiar? Are you guilty of putting on diagnostic blinders with regard to one of dentistry's most influential medical maladies which assuredly influences diagnoses, treatment plan development and ultimately, treatment outcomes? It should be the goal of every elite dentist to understand, screen, educate and refer identified patients for sleep disordered breathing conditions starting NOW! Hopefully, OSA-myopic dentists will work to develop the necessary clinical skills and office treatment, examination and communication infrastructures necessary to co-treat diagnosed victims of OSA. These same dentists should also be willing to collaborate with medical colleagues to maximize conventional pressurized air therapies and avoid surgical failure.



How does one efficiently and competently begin a journey into clinical dental sleep medicine practice?

A review of medical literature is very clear; OSA is a disease of craniofacial anatomy linked to multiple systemic diseases. While a paucity (by comparison) of articles and awareness are presented in dental literature, who should be key opinion-leaders in the head-and-neck-anatomy arena? Dentists, of course. Conceivably, every general dentist should be screening for this deadly disease whether they choose to treat with oral appliance therapy or not. Those of us understanding and embracing the importance of proper craniomandibulocervical relationships should lead this paradigm shift. Dental sleep medicine should be embraced by dental orthopedists with the goal of clinical implementation. But, how does one efficiently and competently begin a journey into clinical dental sleep medicine practice?

As with any worthy endeavor, it is important to have a methodical action plan. To start your journey of DSM mastership and successful practice implementation, begin with these six proven recommendations:

- 1. Cultivate Dentist-Patient Awareness**
- 2. Provide Team Education**
- 3. Screen Existing Patients**
- 4. Develop Physician Referral Relationships**
- 5. Refer, Refer, Refer**
- 6. Follow-up**

1. Cultivate Dentist-Patient Awareness

Recognizing the signs and symptoms of obstructive sleep apnea (OSA) requires an appreciation for the well documented sequelae of this deadly disease. Hypertension, diabetes and cerebrovascular insult are three conditions associated with OSA and should raise the level of OSA suspicion when reviewing patient medical histories.

Patients and or bed partners may complain of snoring. Does this complaint initiate further query during dental examination and patient interview? For example, if we review a

new patient medical history with two current medications for hypertension with a current systolic blood pressure of 142 mm Hg and diastolic blood pressure of 96 mm Hg, does this information raise our level of concern? A patient remarks that they have difficulty staying asleep commenting that they wake exhausted or not refreshed. Does this mean anything to us?

Patients often list numerous prescriptions but, do we evaluate their medications discriminatively or only casually in an attempt to prevent adverse local anesthetic outcomes? Might it be interesting to think diagnostically beyond teeth, porcelain and periodontal tissues curiously answering the questions what or why? What, for instance, might have caused such systemic pathology or why are medications necessary?

Dentists must embrace an added responsibility to include screening for OSA by evaluating patient histories discriminatively. Dentists should begin their journey into dental sleep medicine by learning the clinical cues and medical clues necessary to competently screen for sleep disordered breathing conditions. Further understanding of the relationships between cerebrovascular, cardiovascular, metabolic disorders and sleep disorders may for some clinicians be shockingly illuminating.

Once identified, suspected OSA sufferers must be referred for medical diagnosis and may subsequently be treated with oral appliances fitted by qualified dentists. The medical-dental collaborative healthcare model now directly links the diagnostic responsi-

bility of medicine with the oral appliance therapy (OAT) of dentistry.

One welcoming by-product of providing OAT for OSA patients is vertical dentistry (VD). Like our physician colleagues, we are beginning to enter a realm of being paid to think as well as perform manually. OAT procedures can be completed comfortably without contortions of the cervical spine while fishing with an endo file for a second mesiobuccal canal in tooth number 16. Dentists incorporating DSM into their general dental practices will immediately appreciate the reduced physical demands of providing OAT and welcome the merits of VD.

2. Provide TEAM Education

Critical to a successful dental sleep medicine practice is a well trained team. Team can be instrumental by helping identify and educate likely OSA sufferers and also provide the lion's share of oral appliance therapy procedures, including follow-up assessment by managing titration adjustment issues. Following the initial patient consultation, depending upon the practice philosophy of the DSM Physician, almost all subsequent patient interaction can be team supported.

It is rather uncommon to talk with someone without some connection to snoring, sleep apnea or CPAP (continuous positive airway pressure) experience. Just ask. By continuing to review the signs and symptoms of OSA with your staff, all eyes in your office will be aptly trained to recognize and discuss the common sequ-

lae of OSA and OAT. Not only will your patients be impressed with the level of knowledge and advanced care provided, but, will ultimately have a definite advantage trying to manage their OSA with a superiorly trained medical-dental collaborative office.


Oral appliance fabrication requires impression taking, impression pour-up, model management and obtaining a comfortable inter-occlusal bite registration. At the insertion appointment, the appliance is fitted, photographed and adjusted to comfort, titration education and appliance maintenance reviewed and chew toy indexed with instructions. Well trained and motivated staff can provide these services easily without dentist involvement. Even follow-up appointments are usually well managed by team, relieving dentists of intense patient face-to-face time required of procedures involving diamond burs, endodontic files and scalpels.

From a practice management point of view, dental sleep medicine is a perfect adjunct to any dental practice. First, by raising office aware-

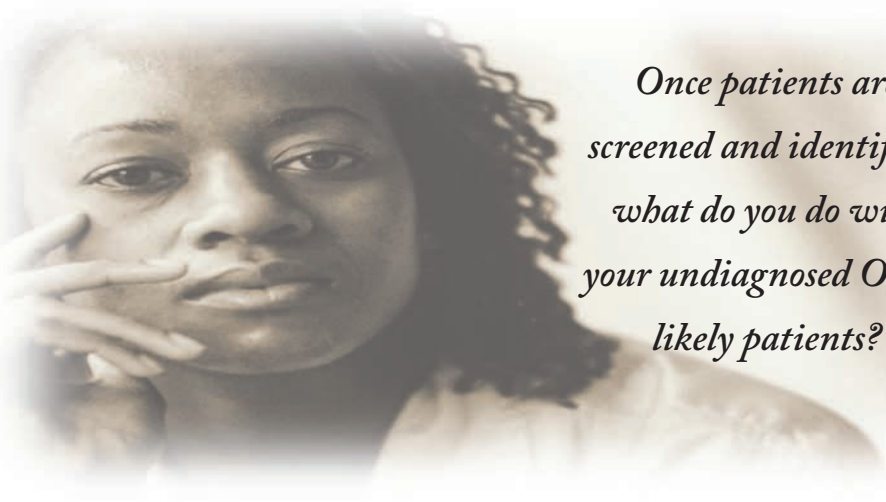
ness, more patients will be screened, diagnosed, and ultimately treated for a deadly condition helping to avoid OSA's debilitating consequences. Second, with medical referral sources for oral appliance therapy established, patients seeking treatment are anxiously looking for health and/or CPAP alternatives you can provide. Third, by implementing team-driven procedures, offices become more productive. Clearly, dental sleep medicine with team assistance is a Win-Win-Win scenario. A win for the diagnosed OSA patient, a win for OSA therapy compliance and a win for the DSM practice.

3. Screen Existing Patients

Perhaps the very best way to jump start your dental sleep practice is to start screening your existing dental patients. Current estimates suggest that up to 40% of American adults are impaired by sleep disordered breathing conditions, so it is likely there are many unidentified sleep apneics entering your office each day.



*Does your medical history form
include questions regarding
difficulty with sleep
quality, insomnia, and excessive
daytime sleepiness or snoring?*



Once patients are screened and identified, what do you do with your undiagnosed OSA-likely patients?

Does your medical history form include questions regarding difficulty with sleep quality, insomnia, and excessive daytime sleepiness or snoring? Clearly, as with post orthodontic TMJ clicking and headaches, if you don't ask, you don't know. Screening for OSA begins with a thorough medical health history form including sleep quality questions. More in depth information regarding sleep disabilities can be gathered using questionnaires such as the Epworth Sleepiness Scale, Bed Partner Survey and Bed Partner Reported Epworth Sleepiness Scale. These forms should accompany all new patient packets and be added to annual health history update review at hygiene re-care appointments. Initially, it will be surprising how many of your patients and patients' bed partners indicate sleep habits that are disturbing such as a bed partner who repeatedly stops breathing and then loudly snorts and gasps for air while seemingly asleep.

Clinical examination of OSA patients will reveal possible OSA due to poor or inadequate oropharyngeal relationships. By evaluating the bony box of the teeth and dental arches as

they relate to the skeleton-supported soft tissues of the airway, much can be learned about the potential for night time airway collapse. Simple tests such as the Mallampati provide a compelling screening tool for the likelihood of OSA. The Mallampati is performed by having the patient open their mouth wide and stick out their tongue. By visualizing the posterior oropharynx, patients are graded as to the space between the tongue and the soft palate on a scale of one to four. A score of one indicates complete visualization of the posterior wall of the oropharynx while a score of four indicates complete obliteration by virtue of a combination of high tongue posture and low drape of the soft palate. Scores of two and three indicate varying degrees of oropharyngeal patency. Research shows that for every increase in Mallampati score, there is a two-fold increase in the prevalence of OSA.

Much has been written showing the relationships between craniofacial anatomy, obesity and OSA. Obesity plays an important co-morbid role in reducing airway caliber due to fat deposition in the neck and tongue. BMI

(body mass index), neck, waist and hip-to-waist ratio measurements are also useful screening tools. For example, men and women with a neck circumference greater than 17 inches and 16 inches, respectively, have a greater incidence of OSA. These measurements are easily obtained with an inexpensive tape measure and should be correlated with the patient's medical history, medication regimen and report of clinical manifestation of OSA. These indicators further define, with a great degree of sensitivity and specificity, the likelihood you are interviewing an undiagnosed OSA sufferer. It is intuitive that as BMI increases, so does the prevalence of OSA.

4. Develop Physician Referral Relationships

Once patients are screened and identified, what do you do with your undiagnosed OSA-likely patients? Protocol dictates that you refer your patients to an ABMS (American Board of Medical Specialties) Board Certified sleep specialist in your community or similar designation internationally depending upon the country. Be aware that not all physicians practicing sleep medicine have achieved board certification or specialist status.

Once you identify a local sleep specialist, initiate a collaborative relationship by calling to schedule an informal meeting such as a luncheon. The object is to establish a relationship with a medical specialist in an effort to:

Refer your patients appropriately for diagnosis.

Establish referral objectives.

Define the role of OAT in treating OSA patients.

Receive OAT referrals.

Develop interoffice communication.

Discussion should begin with your need to refer likely OSA patients for diagnosis and a critique of your in-office OSA screening protocol. Ask questions regarding further screening recommendations to further establish a good foundation for accurate assessment and referral. Oral appliance therapy practice parameters should be established in an effort to understand the role each clinician should play in

this diagnosis-therapy arrangement. Also, it is important in the initial phases of interoffice collaboration to define scheduling limitations and timelines for medical diagnostics and OAT procedures. Determine the expected length of time in-lab sleep studies require to perform and interpret. Be sure to convey clearly that OAT often requires four to six months of acclimatization, titration and healing before follow-up lab studies should be performed. When referring patients to each other, it is helpful to be able to appropriately frame patient expectations.

By defining the professional expectations of each provider, multidisciplinary relationships develop quickly becoming powerful referral sources.

Be patient. Valuable medical-dental relationships take time to blossom and can be nurtured with regular meetings to discuss patient follow-up and treatment outcome issues. Face-to-face time is necessary to create a virtual Mayo Clinic model that will benefit your patients and your dental sleep medicine practice.

5. Refer, Refer, Refer

One of the most frustrating aspects of starting a dental sleep medicine practice is waiting for OAT patients to start scheduling. As was stated earlier: Be patient! The referral-referral turnaround time is often two to three months for OAT. Diagnostic evaluations and consultations move



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a bit more slowly in medicine and it is important to keep referring when appropriate regardless of your initial re-referral experience.

In an effort to not be forgotten by your sleep physicians, be sure to spend time educating your patients being sent for medical evaluation about sleep apnea and the treatment options available. Emphasize that not all patients require CPAP and that if a diagnosis of mild or moderate OSA is revealed, they will return to you for OAT as first line therapy. Further, inform your patients that if they indeed are prescribed CPAP, oral appliances are also helpful to reduce therapeutic air pressures making the “hose-to-the-nose” more comfortable by effectively reducing pneumatic side effects and improving mask fit.

By staying in regular communication with your sleep physicians you can quickly address a lack of re-referral. Do not hesitate to be upfront about the imbalance of patients being referred to you for OAT, especially if you discover mild and moderate OSA patients are being fitted with PAP masks and machines. If necessary, re-

address referral protocol and therapy regimens often. Communication is the only means by which these issues can properly be rectified. Oftentimes, it is a matter of also educating their staff and lab technicians regarding new OA therapies. Be persistent with medical relationship building as medical diagnosis is a critical element to



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and what treatment
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Beginning your dental sleep medicine journey requires the knowledge to identify and treat patients effectively as well as developing medical referral relationships.

DSM practice. Let your medical sleep colleagues know you are serious; refer, refer, refer.

6. Follow-up

Dental patients referred for OSA evaluation will initially fall into a pool of CPAP therapy if not monitored by the referring dentist. Be sure to follow-up with your referrals by asking the following questions:

How long did it take to receive an initial consultation?

If a sleep study was recommended, how quickly was it scheduled and performed?

How long after your sleep study was your consultation appointment?

What was your diagnosis and what treatment options were presented?

By asking these four simple questions of your referred dental patients, referring DSM dentists can readily assess the continuity of the medical-dental relationship. If diagnoses of mild and moderate OSA continue to receive a prescription for a CPAP, further meetings to clarify OSA therapies are necessary.

Medically referred patients for OAT require that communication be conveyed either by fax, email or snail mail to the physician. Failing to provide narrative follow-up is a referral killer. Physicians live and die by communicating clinical recom-

mendations and results to each other. Not doing so is frustrating to a physician, especially if they are seeing a mutual patient for follow-up and are wondering what you are doing, what you have done and what is the current disposition of your therapy. DSM offices must develop a communication infrastructure to provide referring physicians dental OAT updates. Incidentally, preferred mode of communication is a great first lunch topic.

Follow-up also refers to patient monitoring. Whether or not the DSM Physician is, becomes, or is not the treating dentist of record, OAT patients should be scheduled for annual check-ups. It is important to evaluate the integrity of the appliance, fit and patient compliance, yearly, just as we schedule our dental patients of record for regular re-evaluation. Don't forget to forward a progress report to the referring physician following annual OAT check-up.

In Conclusion

Beginning your dental sleep medicine journey requires the knowledge to identify and treat patients effectively as well as developing medical referral relationships. Medical sleep specialists are an integral part of comprehensive dental sleep medicine practice and hopefully, these six recommendations, paramount to DSM success, will help get every dentist started in the right direction avoiding many DSM pitfalls.



Dr. Allman is the founder of the TMJ Therapy and Sleep Center of Nevada and is dedicated to the advancement of Dental Sleep Medicine in general dental practice. He is co-founder of Dental Sleep Digest, a magazine dedicated to clinical DSM practice and The OSA: Online Sleep Academy, a monthly interactive webinar series for dentists serious about advanced patient therapy education.

His journey includes 8 Fellowship and Diplomate awards, Senior International Association for Orthodontics Instructor, 5,000 + hours of continuing education, 25 years of dental practice and the loss of his mother due to untreated OSA. Dr. Allman's mantra is "Airway is King and Tongue Volume is Queen" and it is his hope that all dentists become proficient Dental Sleep Physicians.

Level 1: Dental Sleep Medicine Foundations

December 15-17, 2010

March 23-25, 2011

Level 2: Dental Sleep Physician Advancement

November 17-19, 2010

February 16-18, 2011

The Keys to Understanding NM, OSA and PPM Philosophy

Part II

**Norman R Thomas, BDS; M.B.BSc (Hons Anat/Physiol); PhD; FRCD;
Certs OMFPath.O.Med;MICCMO.**

**Director of Neuromuscular Research,
Las Vegas Inst. Adv. Dent. Studies**

INTRODUCTION

As observed in Figure 1, the head of the myosin molecule is composed of four light chain (MyLC) and two myosin heavy chain (MyHC) subunits.

The human masticatory system performs a much larger variety of motor functions than the limb or trunk motor systems such as; mastication, incision, swallowing, head and jaw postural mechanisms, speech and upper airway maintenance in external respiration by virtue of the attachment of the superior constrictor muscles of the pharynx to the pterygomandibular raphe and body strength and endurance that stem from homonymous postural muscle alpha gamma coactivation with masticatory motor neurons. Several or even all of these functions are known to be dysfunctional in temporal joint disorders in terms of the masticatory muscle contraction tension and fatigability which may be measured by time related electromyography amplitude (uV) and frequency (Hz).

While the immune histochemical and histological features of the muscle tissue may be assessed to measure health and functionality, they involve invasive procedures wherein the biopsy is technique sensitive and results in interpretative difficulties particularly in the areas of muscle oxygenation and time domain. Thus there is considerable controversy as to the pathogenesis and progression of the TMD condition.

For example, it is now well recognized that the masticatory muscles consist of multiple myosin isoforms such as types I, IIa, IIx, IIb and their hybrids. These difficulties can be measurably avoided by on line analy-

sis of the electromyographic signals in terms of amplitude and frequency which avoids damage to the myosins during biopsy. While velocity and frequency increase in the order Type I (slow aerobic SO) > Type IIa (moderately fast aerobic glycolytic FOG) > Type IIx (fast aerobic glycolytic FOG) > Type IIb (fastest glycolytic FG), so does their inability to resist fatigue. By equating the voltage of muscular tension against frequency and hence fatigability, one is able to gain a clearer idea as to the adaptability of the muscles in health and disease as in the TMD condition where neuromuscular occlusal registration, muscular power and obstructive sleep apnea are dependent functions. For instance, during clenching at different load levels the high frequency IIx fibers interchange with the slower and more enduring Type I and IIa muscle fibers.

In Figure 2, we see a table showing the comparative properties of the masticatory heavy chain myosins. It is noted from this table that Type I fibers are able to endure low contraction power by reason of its mitochondrial and capillary density and myoglobin content for hours while the type IIa, IIx and IIb fibers may provide the greatest power for shorter periods of less than 30, five and one minutes respectively. Thus dependent on the patient's occlusion and the presence of chronic parafunction and varying availability of oxygen; the hybrid isoforms type I/IIa;IIa/IIx and IIx and IIb of the myosin heavy chain are more or less expressed or upregulated by the action of the stimulus at the gene switch demonstrated in Figure 3. Homeostatic perturbations such as load-

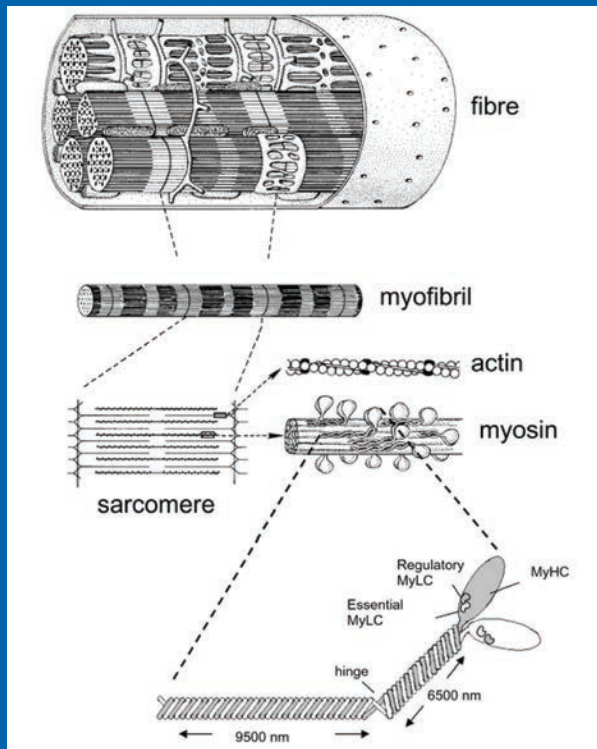


Figure 1

Masticatory Muscle Fiber Types

Fiber Type	Type I fibers	Type II a fibers	Type II x fibers	Type II b fibers
Contraction time	Slow	Moderately Fast	Fast	Very fast
Size of motor neuron	Small	Medium	Large	Very large
Resistance to fatigue	High	Fairly high	Intermediate	Low
Activity Used for	Aerobic	Long-term anaerobic	Short-term anaerobic	Short-term anaerobic
Maximum duration of use	Hours	<30 minutes	<5 minutes	<1 minute
Power produced	Low	Medium	High	Very high
Mitochondrial density	High	High	Medium	Low
Capillary density	High	Intermediate	Low	Low
Oxidative capacity	High SO	High FOG	Intermediate FOG	Low FG
Glycolytic capacity	Low	High	High	High
Major storage fuel	Triglycerides	Creatine phosphate, glycogen	Creatine phosphate, glycogen	Creatine phosphate, glycogen
Myosin heavy chain, human genes	MYH7	MYH2	MYH1	MYH4

Skeletal muscle fibers are not all the same. Traditionally, they were categorized depending on their varying color.

Figure 2

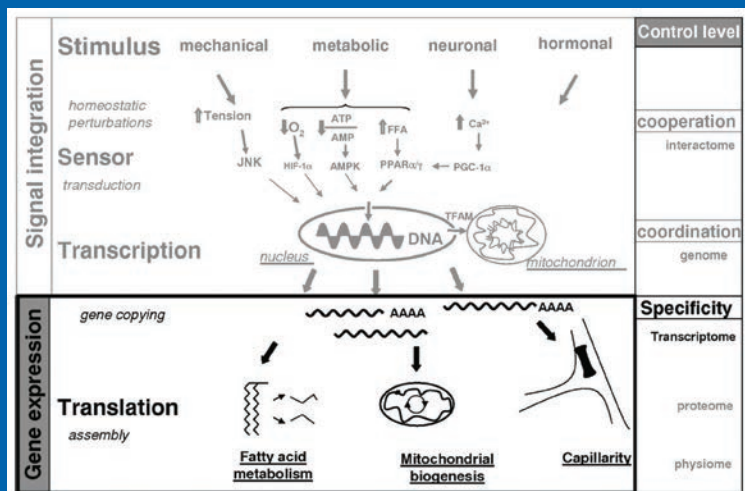


Figure 3

Spectrum of Masticatory Muscle Types

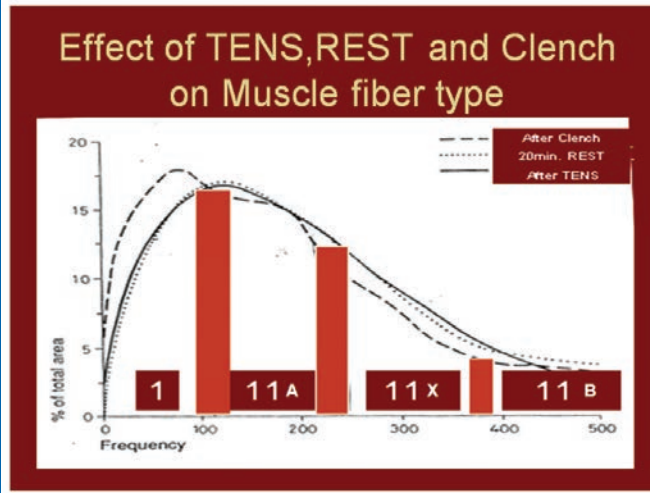


Figure 4

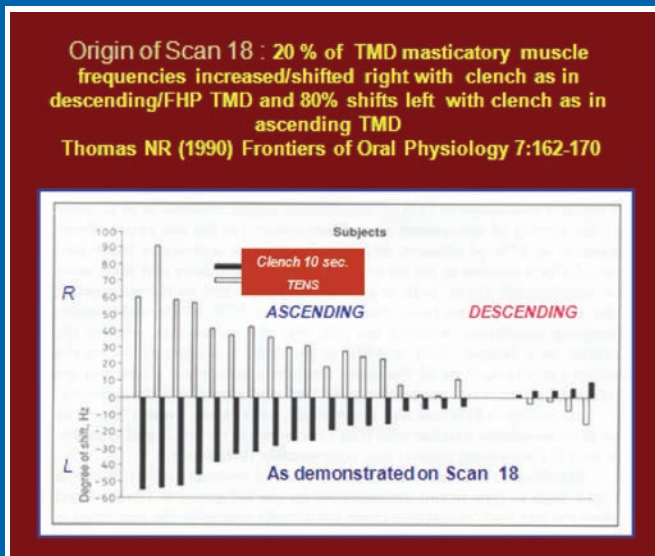


Figure 5

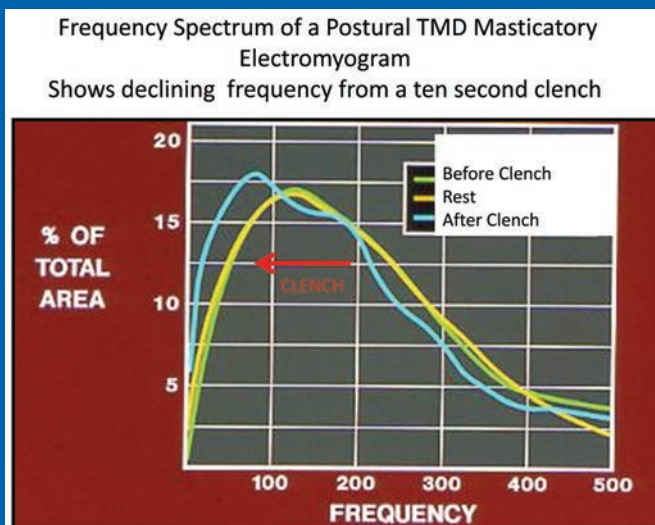


Figure 6

ing (tension), metabolic flux, neuronal and hormonal alterations activate the gene transcript to produce RNA transcripts. The later leads to protein (myosin) production by RNA translation in the ribosomes with DNA/RNA expression or upregulation signal of specific sensory molecules. These ultimately control muscle fate. The coordination between muscle tension, hypoxia, ATP generation neuronal and hormonal stimulation of the mitochondrial genomes are consummate with the needed muscular adaptations. In Figure 3, the stimuli signals are for mechanical tension JNK c-jun N terminal kinase; for drop in oxygen HIF hypoxia inducible factor; for ATP/AMP change AMPK5'activated protein kinase; for flux in fatty acids by PPAR peroxisome proliferator –activated receptor alpha; for neuronal action potential flux of the calcium ion PCG-1alpha peptide peroxisome proliferator – activated receptor gamma and for hormonal stimulus the specific hormone.

In my study of masticatory myosins at the University of Alberta, I tape-recorded the frequency spectrum of masticatory heavy chain activity under resting, fatigued, after 10 second clench under pre and post TENS conditions and performed a Fourier analysis (Thomas NR *Frontiers of Physiology* vol 7:162). Figure 4 is the frequency spectrum of the masseter muscle at rest which we correlated with the known properties of the myosin isoforms and their hybrids. The correlation was represented by seven peaks conforming to types 1;1/1la(1lc);1la;1la/1lx;1lx;1lx/1lb;1lb separated by breaks or pauses at the base of

bars where there is a dip between the active fiber peaks .

The early frequency Scan 18 produced by Myotronics, unlike the original research undertaken at the University of Alberta, had a spectrum which only extended over the range 0-300Hz and hence we do not see the change in frequencies due to llx/llb and llb isomers. However, Myotronics has now produced a spectrum similar to that of the U of A study, extending over the range of 0-500Hz, revealing the presence of llx/llb and llb isomers as demonstrated by Dr. Anne Maree-Cole BDS (Hons LVIM , Brisbane, Australia).

In the U of A study, thirty serial patients exhibiting ascending and descending posture were submitted to frequency analysis in the presenting rested and clenched conditions (Figure 5). The patients cluster into two groups: the ascending, approximately 80%, which shifted left to lower frequencies with a fatiguing ten second clench and the descending (FHP) 20% group which shifted upward to the right with a fatiguing clench. It should be noted that the (FHP) intermittent hypoxia patients are increasing due to endemic obesity causing non compliance of the neck and airway structures with resulting airway collapse.

Examples of the individual spectra

Frequency Spectrum of a FHP TMD Masticatory Electromyogram Shows Inclining Frequency with 10 sec fatigue clench

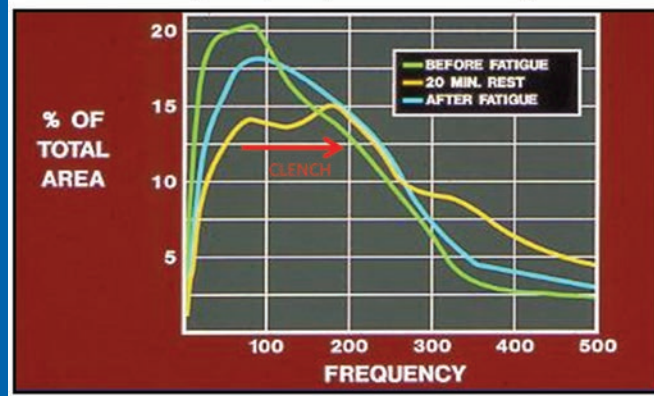


Figure 7

showing shift to the left and right are illustrated in Figures 6 and 7.

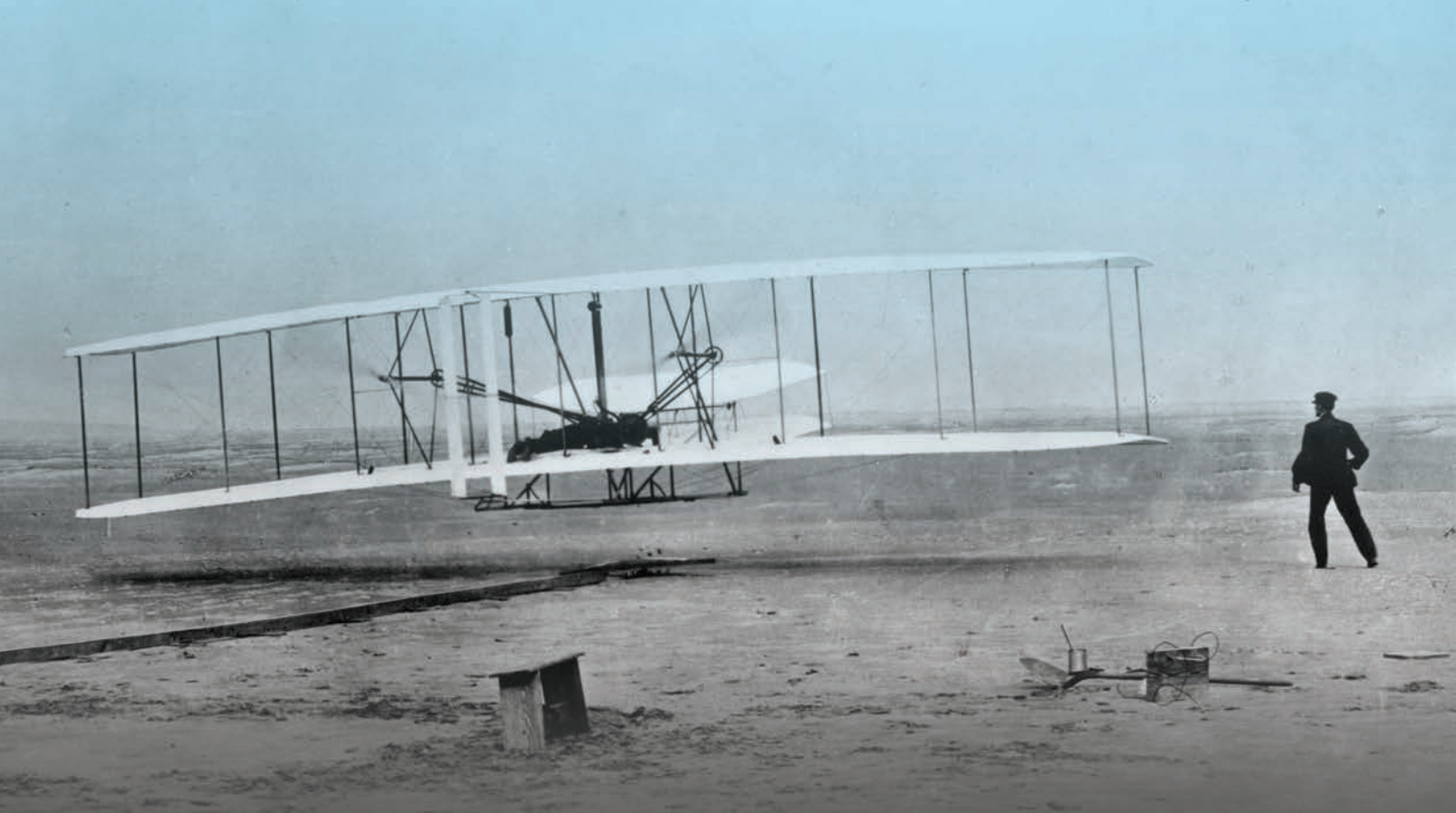
From these two examples, it should be noted that there are not only differences in the shift of the spectra of ascending and descending (FHP) to the left and right respectively but there are considerable observable changes in the spectra over the upper frequency range at 300-500Hz. In brief, these differences explain the marked effects that apnea has on high frequency fiber types llx;llx/llb and llb. This clearly indicates that the orthotic treatment of the apneic and power patient requires TENs of the suboccipital musculature to relax the airway and achieve maxi-

mal bite correction for which Dr. Cole has designated the term Six-Star bite. This Six-Star bite is, of course, life saving because it opens the airway while correcting the bite.

Part three of this article will address the importance of obtaining concentricity of the occlusal registration with the upper cervical complex with relief of atlanto occipital subluxation and hence the absolute necessity to obtain orthostatic orientation of the dental casts on the stratos articulator to HIP plane before constructing the maxillomandibular orthotic for bite correction, the pure power mouth-piece, and the apnea appliance.



Norman Thomas graduated as a Doctor of Dental Surgery with honors and double Gold Medals in 1957. Dr. Thomas was awarded a Nuffield Fellowship (Oxford) to complete an honors degree in medical sciences in 1960. Between 1960 and 1974, he pursued residency and research programs at the Bristol Royal Infirmary, The Royal College of Surgeons of England, the Medical College of Virginia, and the University of Alberta, where he is now Professor Emeritus. From 1970 to 2002, Dr. Thomas served on the Medical Research Council of Canada, the National Institute of Health, USA, and the Canadian Dental Association, gaining a Certificate of Merit from the latter and several Fellowships in medical sciences and dentistry. He is a Life Member of the Alberta Dental Association and retired from dental practice in 2002. In 1998, he was appointed Chancellor of the International College of Head and Neck Orthopedics and, in that capacity, has lectured in the U.S., Europe, Australia, and Asia. He was awarded a Ph.D. degree in Oral Medicine for research on the process and mechanism of tooth eruption. Dr. Thomas is currently the Director of Research at LVI.



THE IMPOSSIBLE IS NOTHING

The Reality of Lasers for Everyday Dentistry

Dr. Lorne Lavine & Dr. L. Don Wilson

If we determine something to be impossible, our vision for the future is blind. It only lasted 12 seconds. It only went 120 feet. It was one of the greatest moments in history because it was Impossible before that moment. December 17, 1903 the first controlled, sustained flight in a heavier-than-air craft occurred in Kitty Hawk, NC because Wilbur and Orville Wright believed the Impossible was Possible! Orville was quoted as saying, "Isn't it astonishing that all these secrets have been preserved for so many years just so that we could discover them."

“Isn't it astonishing that all these secrets have been preserved for so many years just so that we could discover them.”

Think of all the things that have occurred in our lifetime that were considered impossible. Man set foot on the moon. Telephones evolved into cell phones that accomplish so much more than just conversation. Typewriters became computers that required the space of an entire room that have now become compact, portable laptops. There is the explosion of “at our fingertips” information thanks to the internet. All things that we once considered impossible are now every day, commonplace, no big deal. The Impossible is Nothing!

The very idea that using only light energy from lasers could remove tooth structure, cut soft tissue, reshape bone, kill bacteria, and provide healing better than our blades and burs; Impossible? Nothing! Lasers are now a part of everyday, every-way dentistry. Whatever your preconceived notions might be relative to lasers in dentistry, just open your mind to the possibility. It could be practice and life changing.

Lasers are all about solutions to the everyday problems and obstacles we encounter in our practices. You don't see the problem unless you have a solution! What if the armamentarium in your operatory consisted of only extraction forceps? What solution would you see to the problems that patients bring into your office each day? Of course, extractions. Now, if you added handpieces and restorative material you could consider placing fillings as well as doing extractions. But if you had the

necessary equipment to perform endo, the possibility of saving teeth with root canals becomes an option. With the addition of a laser for soft tissue we could expand our solutions to include all kinds of soft tissue procedures. The ultimate would be to add to our operatory a laser that will accomplish both soft and hard tissue procedures, the all-tissue laser. Now the problems we see are endless because we have a solution for any problem that might come our way. From a simple filling to the treatment of an aphthous ulcer: the sterilization of a canal to a surgical extraction without laying a flap or a crown lengthening to an apicoectomy. We now have a solution!

Lasers allow us to treat “basic and beyond” operative, endo, perio, and surgical procedures. Stop referring out “basic procedures” to the specialists when you could be providing that same service in your own office. If you don't feel empowered with the skills and equipment necessary to complete these basic procedures, it is time to invest in the equipment and educational process to broaden your horizons. Please understand we are not talking about the exotic procedures performed by specialists; we are concerned with basic and routine procedures that are currently being referred out. Lasers are now a part of the “standard tray” for everyday dentistry. Dental lasers allow us to provide a better patient experience and increase practice production while doing common dental procedures.

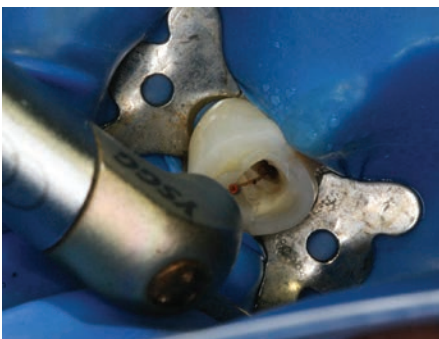
Dentists who use lasers differentiate themselves as progressive and patient friendly. Lasers reassure anxious patients and make them feel more at ease, thus transforming patients' anxiety into a pleasant experience. Our goal is not only to satisfy each patient, but to exceed their expectations in order that they might refer other patients. Lasers create a better patient experience and allow for higher case acceptance and increased practice production. By efficiently treating the conditions that present most frequently in our practices, lasers increase the production of common dental procedures. Highly successful practitioners use lasers day in and day out. Surveys show that dentists who use lasers in their practice produce 25% more dentistry than those who do not own a laser.

A laser will not make a bad dentist good, but it will make a good dentist great. Through the use of lasers for everyday dentistry, we establish ourselves as the technologically advanced practice in our area. Without the use of a laser today, you are just not as up-to-date as patients expect. Many patients consider lasers to be the norm. Practices that offer compassionate care using technology such as lasers will be the offices that experience the biggest influx of new patients. This is especially important during the current economic times.

The following laser procedures once seemed impossible but are now routine procedures:



The turbo laser preps a class II removing the smear layer, killing bacteria, and providing a 50% stronger bond, all without anesthesia.



A radial fire laser tip sterilizes the canal and removes the smear layer for a better bond of the sealer.



A laser with a soft tissue tip completes a frenectomy in an almost bloodless environment.



The diode laser provides for a great impression without packing cord.

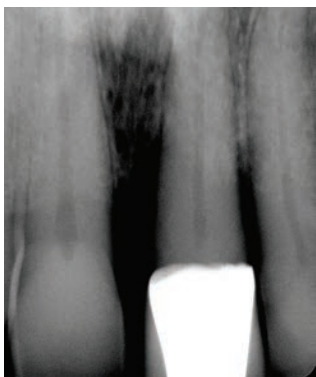


A combination of lasers completes a flap-less crown lengthening to provide golden proportions in preparation for 6 veneers.

“The reality of lasers for everyday dentistry has arrived.”



The radial fire perio laser tip completes a "no-cut, no-sew" perio surgery. Three months post-op with a temporary crown in place, the results are awesome.



Fillings without anesthesia, sterile canals, almost bloodless soft tissue surgery, great impressions without packing cord, crown lengthening while preserving the papillae, golden proportion cosmetic cases, and perio surgery without incisions or sutures; Impossible? Nothing! Thanks to lasers.



Lasers provide beautiful cosmetic results in this 6 veneer, 4 crown case.

The reality of lasers for everyday dentistry has arrived. Lasers are not just for the exotic procedures, a passing fad, off the radar, or a niche. They are "next level" dentistry because the Impossible is Nothing!



Dr. Lorne Lavine, founder and president of Dental Technology Consultants, has over 26 years invested in the dental and dental technology fields. A graduate of USC, he earned his D.M.D. from Boston University and completed his residency at the Eastman Dental Center in Rochester, NY. He received his specialty training at the University of Washington and went into private practice in Vermont until moving to California in 2002 to establish DTC, a company which focuses on the specialized technological needs of the dental community. Dr. Lavine also teaches the Digital Dental Practice course at LVI.

Dr. Lavine has vast experience with dental technology systems. He is a CompTia Certified A+ Computer Repair Technician, CompTia Network+ certified and will soon be a Microsoft Certified Systems Administrator. As a consultant and integrator, he has extensive hands-on experience with most practice management software, image management software, digital cameras, intraoral cameras, computers, networks, and digital radiography systems.

The Digital Dental Practice

October 1-2, 2010



Dr. L. Don Wilson graduated from the University of Alabama School of Dentistry. He holds Standard and Advanced Proficiency Certification, as well as Educator Status through the Academy of Laser Dentistry, and the Associate Fellowship within the World Clinical Laser Institute. Dr. Wilson has conducted over 300 laser seminars.

Revolution



The International Association of Comprehensive Aesthetics (www.theIACA.com) held its sixth annual conference in Boston at The Westin Boston Waterfront, July 22-24. The conference once again marked a record attendance for the quickly growing organization that was founded to promote openness in dental treatment philosophies for those dentists who have a desire to learn with an open mind.

Doctor Anne-Maree Cole of Australia, 2010 president of the IACA, welcomed the over one-thousand attendees on Thursday morning by saying, “For me, the most humbling honor of all is to stand before all of you, my friends – you are the giants of dentistry – you who care so deeply

for your patients that you would not miss this opportunity to continue to become the best that you can be so that they can become the best that they can be. It is with those thoughts that I declare the sixth Annual IACA meeting here in beautiful Boston officially open.”

Opening the conference, Doctor Steve Rasner spoke about overcoming obstacles. He related how he overcame obstacles in his practice and his



private life. He shared private moments to encourage all attendees to realize they too will be able to overcome obstacles and go on to succeed in dentistry and in life!

An example of the diversity of the IACA conference, Dr. Mariano Rocabado, a physical therapist, spoke to a filled room about “The Cranio-Vertebral Centric Relation Concept.” This may not sound exciting – but those who were there will attest that it was.

Doctor Brian Allman was challenged to speak in another room at the same time as his friend Dr. Rocabado. Dr. Allman’s subject was “Heart Attack, Stroke, Obesity: Is Dentistry to Blame?” He indeed rose to the challenge. It was standing room only for the entire presenta-

in Boston!



**Dan Jenkins, DDS, LVIF, FICD,
Certified Dental Editor - AADE**

tion. Many experienced an awakening when he said, “With OSA and TMD considered diseases of craniofacial anatomy, we must now appreciate the fact that airway is King and airway always trumps teeth. All TMD patients should be screened for OSA and all OSA patients should be screened for TMD.”

A typical, yet unique attribute of the IACA conference is the absence of people in the hallways and exhibit area during lectures. I walked around these areas from time to time during the conference and each day noticed I was the sole traveler. No fellow members were to be found.

Other topics presented included practice management for the dentist and team, investment strategies

from Mr. David Keator of the Keator Group, and developing sleep medicine dentistry into your practice by Dr. Volinder Dhesi. Volinder was impressed with the feeling among the attendees. He said, “My wife and team members commented on how incredible the camaraderie was at this meeting.” Dr. Manisha Patel, a dentist and doctor of pharmacology, presented a unique topic on drugs used for



migraine treatment in medicine. She pointed to concerns about these medications we should have as dentists.

This year, there were reports on research being done by IACA members. Dr. Anne-Maree Cole gave a presentation on her research in T.E.N.S.ing at the occipital condyles and interpreting scan 18. She provided an outstanding anatomy and physiology background of the various muscle fibers and how they affect that interpretation. When finished, she was honored with a standing ovation by the crowd! Dr. Shamshudin Kherani delivered a report regarding three ongoing research projects with the dental school at the University of Nevada in conjunction with the Las Vegas Institute for Advanced Dental

“This was a great example of how things do not remain stagnant but, rather, are continuously being improved upon.”



Studies. He is optimistic that the projects will be completed by the time of next year's meeting in San Diego.

Deep Bleaching is a treatment developed by Dr. Rod Kurthy and he was at the meeting to teach how his technique works and what improvements he has made on his system since first presenting it. This was a great example of how things do not remain stagnant but, rather, are continuously being improved upon.

For many dentists, case presentation is the most frustrating part of dentistry. Quite often dentists hire a "treatment coordinator." However, Dr. Michael Sernik of Australia has shared his "Prime Speak" method to hundreds of IACA members over the past years. Team members can also

utilize this technique – but it takes practice. IACA attendees were able to get an idea of just how this works during Michael's presentation.

Another frustration in dentistry can be dealing with third-party payers – insurance companies. A panel comprised of Drs. Kurt Doolin, Jeffrey Haddad, Amy Norman, John Pawlowicz, Ed Suh, and Shahin Safarian was moderated by Dr. Bill Dickerson. Because each panelist was in a different situation with insurance in their offices (insurance free, one PPO, off and on and off insurance, and many PPO's), they had differing views about the role of insurance in dentistry. The consensus was that it is an individual decision whether to be involved with insurance but if the deci-

sion is to not be involved, it should be done at a slow pace – not all at once.

A dynamic duo of educators, Dr. Norman Thomas and Dr. Heidi Dickerson, experienced overwhelming attendance for their presentation. The subject was "The Signs and Symptoms of TMD." You might not think this would draw a crowd but the wrinkle was that Heidi would explain in "simple" language what Norm was saying. She did an outstanding job – even without the Welsh accent! This became an eye opener to understanding tinnitus, migraine headaches, and ascending-descending issues for many in the audience.

Doctor Ron Jackson is a regular at the IACA conference and each year his lecture is packed – this year was

"This group of dentists shows more energy and excitement than any other dental group I have ever lectured to."



no exception. (People were standing outside of the open doors just to hear what he had to say!) He lectured on "Immediate Dentin Seal" which included the latest updates. IACA members were exposed to the current scientific and clinical information on how to get the best adhesion and longevity for their procedures.

Doctor Bruce Christopher, a psychologist, has lectured at many dental meetings including the ADA and various state associations. His Saturday morning presentation addressed "Why are Women so Strange and Men so Weird?" He was humorous and provided great education at the same time. Bruce managed to get almost all of the men in the room to consult with each other in small groups about

what was wrong with women. (Of course, this was while most of the women were consulting about what was wrong with men!) He brought up a female attendee and demonstrated how two ladies would interact while sitting across from each other. Then, he brought up a male attendee and demonstrated the difference. One difference was eye contact. Women will hold eye contact with people for about 12 seconds. Men will tend to only hold eye contact for three seconds! The problem is with the interpretation of the opposite sex as to what that means. The things he discussed would facilitate communication between the sexes not only in a dental office, but also socially and personally between a wife and husband. Dr. Christopher's talk

was so outstanding that Dr. Yves DelleSSERT, prosthodontist from Geneva Switzerland said, "This lecture alone was worth my tuition and airplane fare." (I tried not to look him in the eye for more than three seconds!) And in turn, Dr. Christopher made the comment to Dr. Randy Jones, IACA board member, "This group of dentists shows more energy and excitement than any other dental group I have ever lectured to." This is why you have to attend the IACA Conference in order to experience what it is like!

For the remainder of the final day, presentations included practice management, periodontal treatment for hygienists, high tech offices by Doctor Lorne Lavine, office efficiency by Ashley Johnson, myofunctional



"Definitely the best ran meeting I've attended."

therapy by Barbara Greene, dental materials with Doctor Mark Duncan, and smile design by Doctor David Buck. Other topics were implants by Dr. Leo Malin, improving the team by Tim Twigg, avoiding mistakes using the K7 SEMG, and the PPM neuromuscular sports mouthguard. That is the same mouthguard developed by Dr. Anil Makkar that the Super Bowl Champions, the New Orleans Saints, wear. Anil's PPM is really penetrating the world of sports – especially golf!

The evening kicked off with a celebration marking the 15th Anniversary of LVI's inception. Many of the members of IACA are also alumni of LVI so the energy continued through the evening. During the reception the new board members were announced – Drs. Jim Harding and Chong Lee

will be serving on the board the next two years while Dr. Chuck Flume and Dr. Sam Kherani leave the board. Dr. Prabu Raman, of Kansas City, Missouri, USA, is the new IACA president for the upcoming year.

After the reception, the third installment of "IACA After Dark" was held. The first night was comprised of performances from "IACA's Got Talent." Dr. Scott Wagner of Jacksonville, Florida, USA won the talent contest for his vocal performance and accompanying himself with harmonica and a borrowed guitar – great job Scott! The second evening was themed 70's night. Attendees wore apparel that reflected fashions of the 1970's with bell bottom trousers, psychedelic prints, and even wigs. They danced the night away and into the

early morning. Dr. Drew Markham (Toronto, Canada) and his wife Janet, (former competition figure skaters), won the dance contest – they were fabulous! Saturday night's theme was Karaoke – even "Elvis" and the "Spice Girls" showed up! Each night was packed with enthusiastic participants. This is a testament to the "IACA After Dark" producer and board member, Dr. Manisha Patel (Belmont, New Hampshire, USA).

This meeting was so exceptional that even the Westin Boston Waterfront's employees could tell. As one board member was checking out of the hotel, a concierge commented that the employees all agreed the IACA Boston meeting was the best, most enthusiastic, courteous, positive, and fun loving people that they have ever



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“If the dental school experience was anything like that at the IACA meeting, the competition to get into dental school would be off the charts.”



had there. First time IACA conference attendee Dr. Robert Berkowitz said, “If the dental school experience was anything like that at the IACA meeting, the competition to get into dental school would be off the charts.” Dr. Mark Perry was excited about his first IACA conference, in particular the denture lecture by Dr. Brad Durham. Mark said, “Definitely the best ran meeting I’ve attended.”

Presenter, Dr. Jeff Haddad, pointed out another uniqueness of the IACA meeting by saying, “I think the coolest thing about the IACA weekend is the genuine sharing of ideas and knowledge, inside and outside of the lectures.” Another speaker, Ginny Hegarty of Bent Ericksen observed, “Having been in dentistry for over 25 years, I’ve been to many, many meetings but never known the friendship



IACA Aesthetic Eye: (from left to right) Mr. Ulf Broda with Aurum Ceramic, Best of Show recipient Dr. Theodore Hadgis and Aesthetic Eye Chair Dr. David Buck

The Aesthetic Eye of the IACA recognizes exceptional dentistry by IACA members. Submitted cases in the categories of Anterior Aesthetics, Full Mouth Aesthetics and Glamour Portrait are featured in a gallery style booth display at the IACA Annual Conference. Many thanks and congratulations to everyone who participated.

Special recognition goes to:

Dr. Theodore Hadgis,
Gross Pointe Woods, Michigan
Best of Show

Dr. Jim Hey, Dixon, Illinois
Honorable Mention in Anterior Aesthetics

Dr. Kurt Doolin, Rochester, Michigan
Honorable Mention in Full Mouth Aesthetics

Dr. Jerry Hu, Soldotna, Alaska
Honorable Mention in Glamour Portrait



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"IACA meetings keep getting better every year."

and camaraderie of the IACA and LVI family." Long distance traveler, multi-IACA attendee, and heart surgery survivor dentist from Sydney, Australia, Dr. Brett Taylor made this poignant comment on the meeting; "If being dead for a while has taught me anything, it's that life is too precious not to enjoy, and outside of my family, there is nothing I enjoy more than the IACA meetings. Nothing! There is no meeting better than the IACA, and no place in the world I'd rather be than with my LVI buddies." That says a lot!

The IACA 2011 conference will be another exciting meeting. IACA president, Dr. Prabu Raman says, "IACA meetings keep getting better every year." Under the leadership of Dr. Anne-Maree Cole, IACA Boston was a great success on all accounts. There is unanimous agreement among all those that attended, including seasoned dental veterans, that IACA has proven to be the most positive, inclusive, and leading-edge organization in dentistry. The IACA annual meetings are THE dental meeting to attend in any given year.

In 2011, the association returns to San Diego, California where IACA was inaugurated just six years ago. It is time for us to take this organization up to the next strata. With concerted effort from ALL members, we will grow IACA to the pinnacle that it is destined to reach. Dental professionals and all those that we treat would be better served by that.

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EFFECT OF THREE DIFFERENT MANDIBULAR ADVANCEMENT DEVICES AND TWO DIFFERENT BITE TECHNIQUES ON THE RESULTANT SLEEP METRICS

Shamshudin (Sam) Kherani DDS, FAGD, LVIM



Sam Kherani, DDS, FAGD, LVIM is a graduate of University of Western Ontario and has been in general practice since 1981 with a special interest in adhesive dentistry. He currently serves full-time as the Vice President of Educational Advancement at LVI. Awarded fellowship from the Academy of General Dentistry, and appointed Trustee of Public Colleges Foundation by the government of Alberta, Dr. Kherani is also one of a handful of recipients of the coveted Mastership designation from LVI.

As a life-long student, he has been exposed to many different philosophies in dental occlusion throughout his 25-year dental career. He teaches dentists from all over the world in the latest treatments for cosmetic dentistry, full-mouth reconstruction, and neuromuscular occlusion.

Background

It has been documented in the literature that nearly 20% of the American population suffers from Sleep Apnea (Obstructive, Central and Mixed). A majority of cases are comprised of the Obstructive type of Sleep Apnea. As such, it is considered to be a major health hazard. Furthermore, it is documented that 85-90% of these patients have not been diagnosed yet. Therefore, this is an area that needs further research and study as to how to better serve our populations.

Most physicians prescribe the cPAP (continuous Positive Air Pressure) since it is the gold standard for the majority of cases. The problem with this avenue of treatment is that over 70% of those with cPAPs do not wear them. Therefore, physicians are looking to the dentists to help with devices in the oral cavity that might improve the airway when the patient is asleep. Mandibular Advancement Devices (MADs) are therefore gaining ground in their use as the first order treatment for many patients. Almost all MADs are made using an arbitrary bite technique where the mandible is protruded to 70% of maximum possible protrusion. By their very design, almost all MADs impinge upon the precious tongue space which pushes the tongue back resulting in further reduction in the airway volume. Therefore, MADs are either made to or further tritrated to a highly protrusive position. In many instances, this protrusive position leads to TMJ problems, bite changes, etc.

It is the belief of many physiologists that arbitrary bites promote further torquing of the mandible leading

to torquing of the C1, C2 around the brain stem where the respiratory center resides. Such resultant force on the respiratory center leads to Central Sleep Apnea (CSA). Many physiologists believe that many cases of Obstructive Sleep Apnea are actually a combination of both Central and Obstructive Sleep Apnea namely Mixed Sleep Apneas.

Materials and Methods

Participants in a course of study at LVI were asked to participate in the study if interested. This course made it necessary for them to come to the campus on two different visits. The following was accomplished on the first visit.

1. The LVI Sleep Study was started by completing and signing Medical and Dental History forms as well as an Informed Consent Form.
2. A baseline CT scan was taken to record the airway and bony position information.
3. Participants were then given instructions on how to perform a sleep study at home (hotel) using the Watch-PAT 200 "ambulatory" sleep devices.
4. Participants were asked to avoid alcohol as it further suppresses the autonomic system that helps maintain a patent airway during sleep.

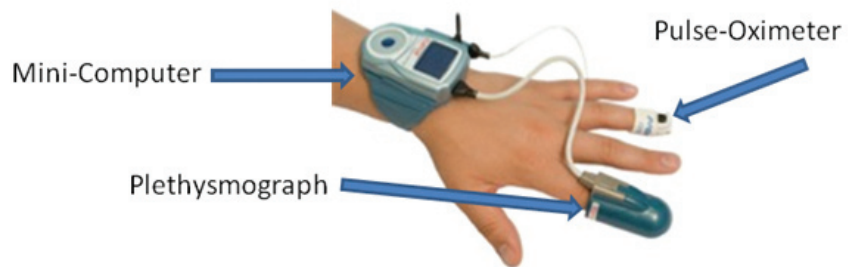
The following diagnostic information was noted from the studies:

- Apnea-Hypopnea Index (AHI)

- Respiratory Disturbance Index (RDI)
- Oxygen Desaturation Index (ODI)
- Snoring (Frequency & Time)
- Body Position
- REM, Non-REM, Light or Deep Sleep

After this baseline data was obtained, the participants who were diagnosed (based on the sleep metrics) as having some type of sleep apnea were asked to attend the clinic where a standard George Gauge bite was taken at 70% of maximum protrusion and 5 mm opening to allow enough room to construct the acrylic appliance. Subsequent to that, the participant was hooked up to the TENS unit in order to TENS Cranial Nerves V, VII and XI. After 45 min to one hour of TENS, at a predetermined scheduled appointment time, a TENS Sleep Appliance bite was taken which was very similar to a normal TENS bite except that the patient did not close as much as normal so as to allow more room for the acrylic. Generally, there was a 3mm clearance between the upper and lower anterior teeth. The models and bites (George Gauge bite and TENS bite) were sent to the lab for the fabrication of three different appliances for each participant.

The evening prior to the second visit to the campus, three different appliances were delivered to each participant and Cone Beam CT scans were obtained with these appliances in the participant's mouth.





The participants then took all three appliances back home and continued the study. This portion of the study was named the “Longitudinal Portion”.

Materials and Methods Longitudinal Portion

Appliance #3 was worn for one month every night and a sleep study was performed using a Watch PAT-2, supplied by LVI. Following that the patient was asked to titrate the appliance in the order of three turns every three days and when the participant felt good and was happy that the snoring had stopped as indicated by the bed partner, or that one month had passed, another sleep study was performed. If snoring was still present or the sleep metrics as per the most recent sleep study showed that the patient still had sleep apnea, the participant was instructed to titrate the appliance even further and then another sleep study was performed.

The same procedure as mentioned above was then requested from the participant using Appliance #2 and finally with Appliance #1.

The Study – Summary

2 variables

1. Standard arbitrary George Gauge Bite vs TENS Bites
2. Lingual Flange present vs Lingual-less design

10 different Sleep Studies

1. Base line
2. George Gauge bite SomnoDent with Lingual Flange (App # 3)
3. George Gauge bite Lingual-less SomnoDent (App # 2)
4. NM Lingual-less SomnoDent (App # 1)
5. One month study with Appliance # 3
6. One month study with Appliance # 3 with titration every three days until snoring cessation
7. One month study with Appliance # 2
8. One month study with Appliance # 2 with titration every three days until snoring cessation
9. One month study with Appliance # 1
10. One month study with Appliance # 1 with titration every three days until snoring cessation

The participant was instructed to wear the Protrusive SomnoDent (Appliance #3) on the first night and perform a sleep study using the Watch-PAT that was given to him/her earlier that day.

The next night the same thing was accomplished except that the participant wore the Protrusive Lingualless SomnoDent (Appliance #2) and performed the sleep study.

The last night the participant wore the NM Lingualless (Appliance #1) and performed a sleep study.

Results:

Initial three days with each appliance worn one night each

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG
1	BASELINE																#3 PS				#2 PSL				#1 NMLS								
2	RDI	AHI	ODI	NADIRS	MEAN PULSE	REM	DEEP	LIGHT	RDI	AHI	ODI	NADIRS	MEAN PULSE	REM	DEEP	LIGHT	RDI	AHI	ODI	NADIRS	MEAN PULSE	REM	DEEP	LIGHT	RDI	AHI	ODI	NADIRS	MEAN PULSE	REM	DEEP	LIGHT	
3	C	21.0	18.0	9.6	91	57	23.8	11.9	64.2	63.5	63.5	45.0	71	56	9.5	12.2	78.4	9.0	5.5	0.8	94	53	13.7	16.1	70.3	10.3	1.6	0.4	93	49	19.3	13.3	67.4
4	D	16.8	11.4	3.6	91	58	22.6	13.8	63.6	14.2	8.2	2.2	91	65	34.6	17.7	47.7	12.9	9.4	2.0	91	72	17.7	14.4	68.0	18.4	17.3	4.9	90	67	18.1	19.9	62.0
5	G	12.0	1.4	0.2	93	57	25.0	16.3	58.7	15.1	0.5	0.0	n/a	51	21.5	13.5	65.1	13.6	4.3	0.6	94	57	15.7	22.1	62.1	15.9	6.6	0.9	94	59	26.2	22.2	51.7
6	I	24.2	22.2	12.6	90	63	38.5	14.0	49.5	14.9	6.7	2.9	92	67	30.0	19.0	51.0	11.0	11.0	4.2	93	63	9.4	18.3	72.2	17.4	14.3	5.5	92	60	13.8	14.7	71.5
7	J	47.2	46.1	28.2	88	80	27.9	18.3	53.8	23.5	19.2	10.8	89	82	35.6	22.3	42.1	26.2	22.6	11.6	89	74	31.0	16.3	52.7	20.1	18.4	7.6	87	96	28.6	17.9	53.5
8	M	36.9	35.1	22.5	90	79	10.3	10.3	79.5	29.5	27.4	14.3	92	72	28.3	19.5	52.2	27.4	26.2	14.6	91	79	32.1	22.0	46.0	34.4	32.6	20.5	91	77	23.7	14.1	62.2
9	N	27.5	20.2	4.9	92	54	26.5	18.3	55.3	19.5	16.0	4.5	91	62	25.6	13.1	61.3	24.3	20.9	4.4	91	64	31.1	11.4	57.6	25.7	23.8	4.4	92	65	26.6	15.2	58.2
10	P	21.9	14.5	6.0	93	60	5.8	22.7	71.5	26.2	22.0	7.9	93	66	15.8	25.3	59.0	20.9	17.0	9.6	92	70	24.6	23.5	51.9	21.2	15.2	3.9	91	74	10.6	16.9	72.5
11	Q	11.7	8.3	4.7	91	67	12.5	13.9	73.7	7.7	4.2	1.2	94	60	14.1	16.1	69.8	9.3	8.8	4.1	92	65	20.9	19.4	60.0	9.1	5.7	2.5	91	65	18.3	15.8	65.9
12	R	14.6	10.8	6.5	90	61	31.4	14.5	54.2	11.1	7.2	3.7	93	65	34.1	22.0	44.0	9.1	7.0	3.0	93	63	31.4	23.9	44.7	20.3	18.7	7.9	91	69	30.8	21.2	48.0
13	S	15.6	14.1	4.1	91	66	37.4	22.2	40.4	20.8	7.7	2.6	93	59	30.1	20.8	49.1	15.6	15.3	7.3	91	75	11.0	20.1	68.9	25.9	22.4	11.6	91	75	17.5	22.0	60.5
14	T	24.9	24.0	19.8	87	70	15.6	29.3	55.1	29.9	28.8	19.1	87	69	29.2	15.0	55.8	24.1	23.7	14.9	86	67	33.2	30.1	36.7	35.3	33.9	24.6	85	65	34.0	16.9	49.1
15	V	13.3	12.0	8.5	91	47	35.0	18.9	46.1	15.1	11.9	6.5	91	60	27.6	21.8	50.6	14.6	6.7	3.9	91	64	30.1	13.9	56.0	19.5	15.7	10.7	91	58	25.1	11.3	63.6
16	W	12.3	9.5	3.2	89	63	27.5	31.9	40.6	16.2	13.8	7.4	90	62	17.8	25.0	57.3	15.0	10.1	5.5	90	67	23.1	18.7	58.2	13.2	11.1	6.5	90	65	17.0	35.0	48.1
17	Y	22.8	22.0	14.3	87	66	16.4	10.6	73.0	27.6	26.1	14.9	91	63	18.3	10.0	71.7	22.1	21.1	8.5	90	62	26.6	15.1	58.2	29.4	28.0	18.2	89	63	20.7	5.9	73.4
18	Z	19.1	12.9	3.6	92	68	27.3	14.9	57.8	10.2	3.2	1.1	93	76	19.4	19.0	61.6	15.2	10.8	4.2	92	78	34.6	22.5	42.9	14.3	6.7	1.4	92	77	20.7	16.1	63.2

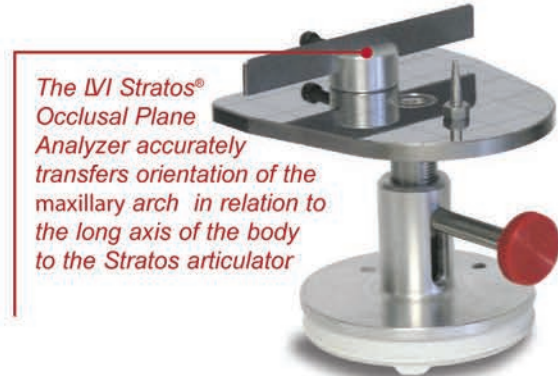
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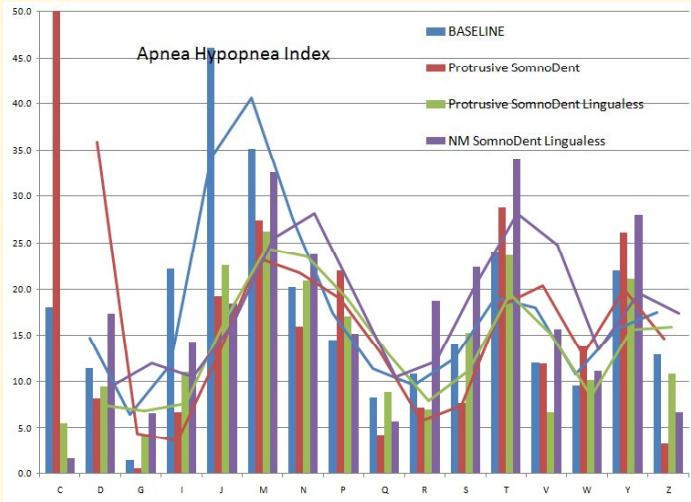


Figure 1 Results after one night wear

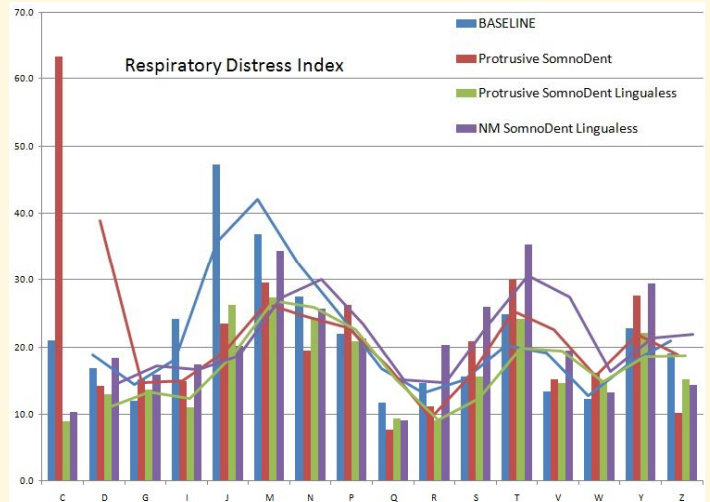


Figure 2 Results after one night wear

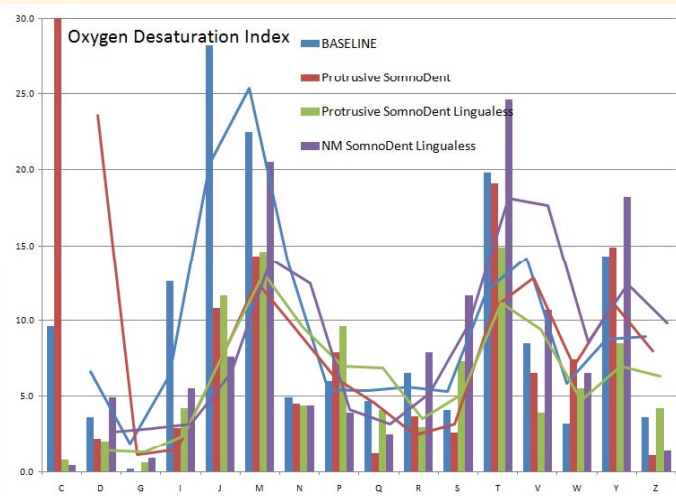


Figure 3 Results after one night wear

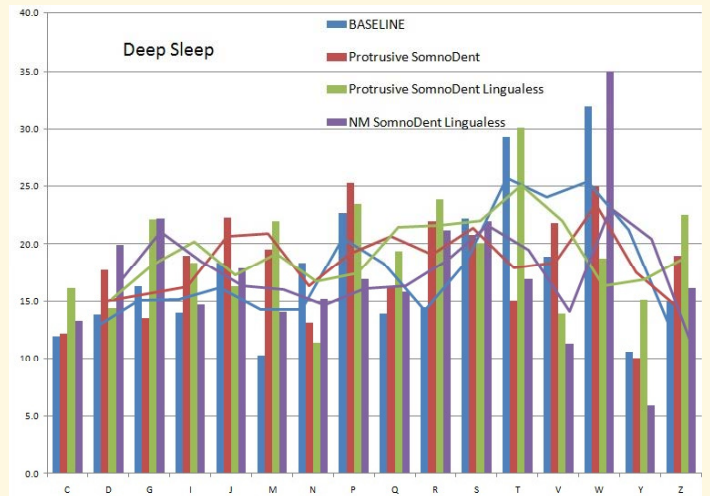


Figure 4 Results after one night wear

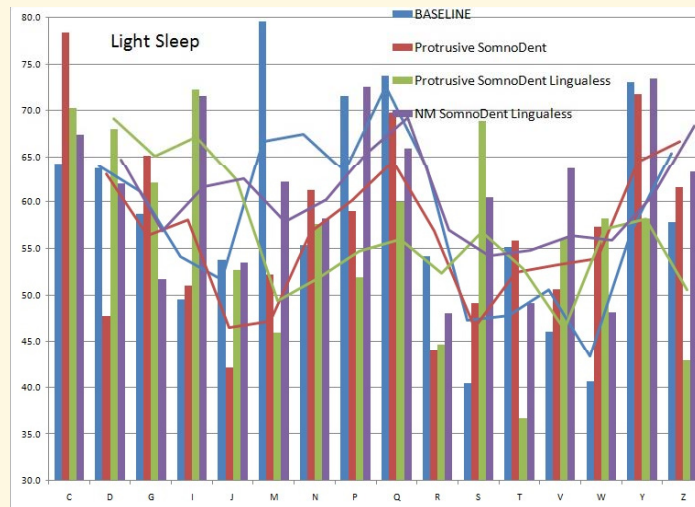
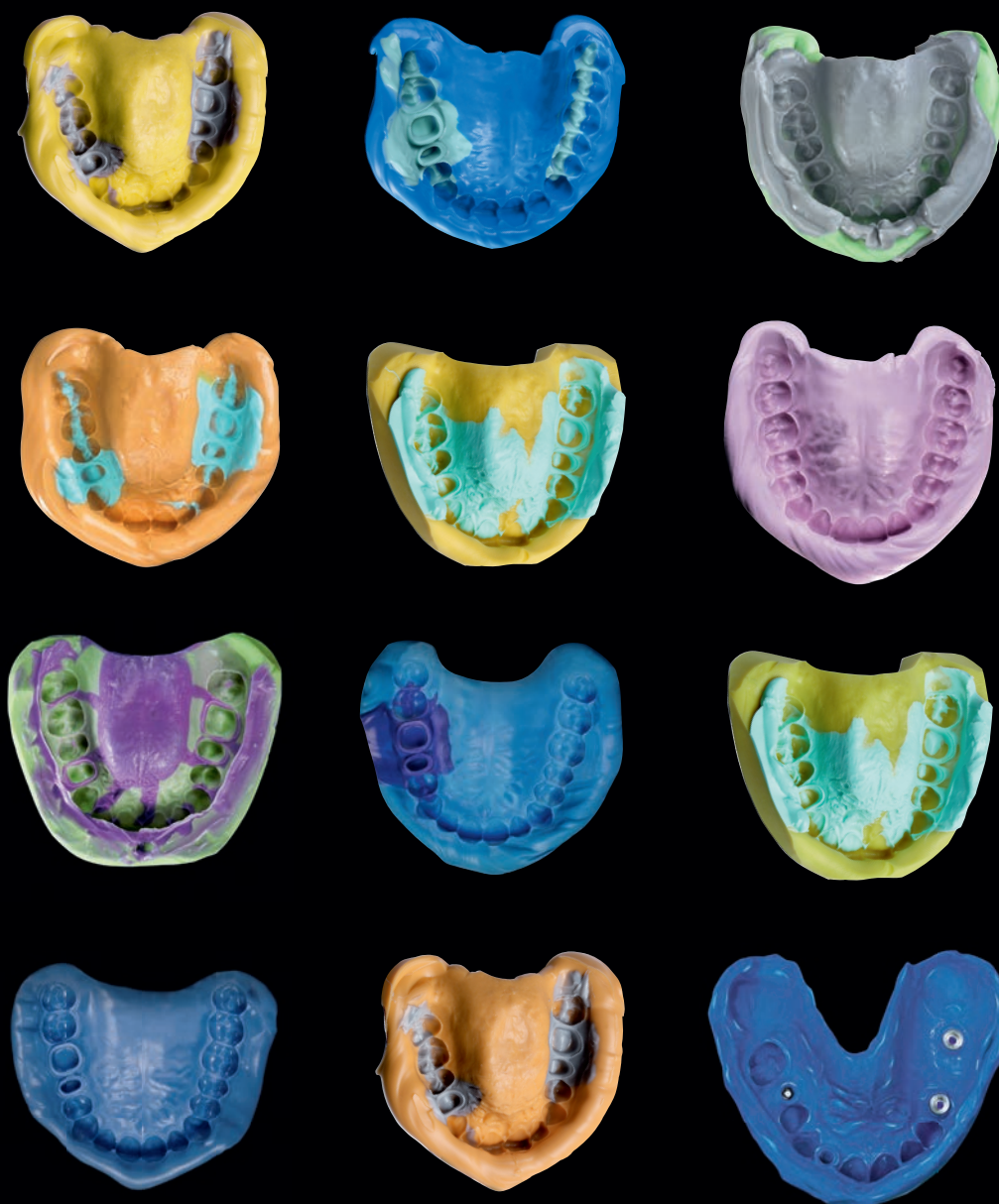


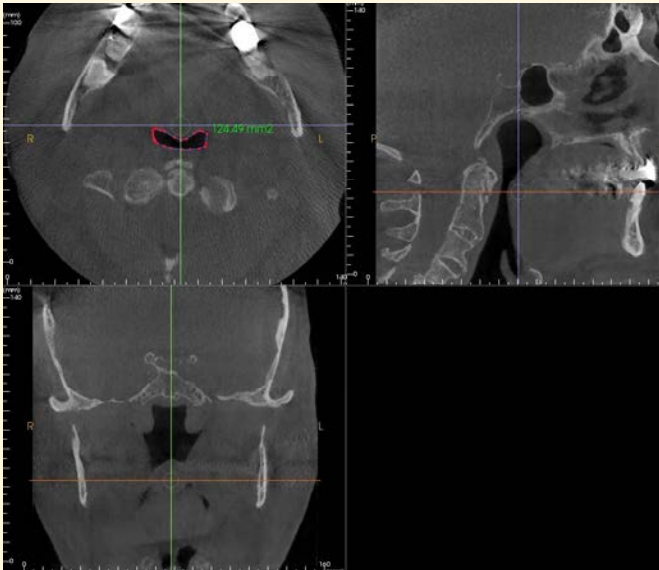
Figure 5 Results after one night wear

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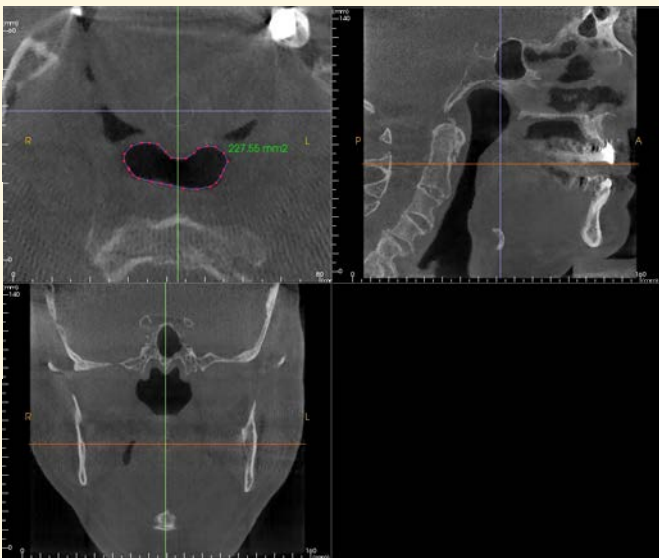
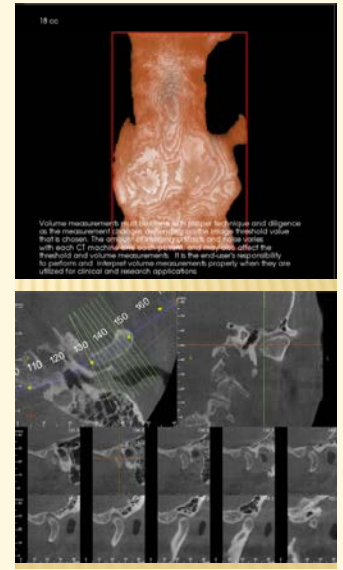
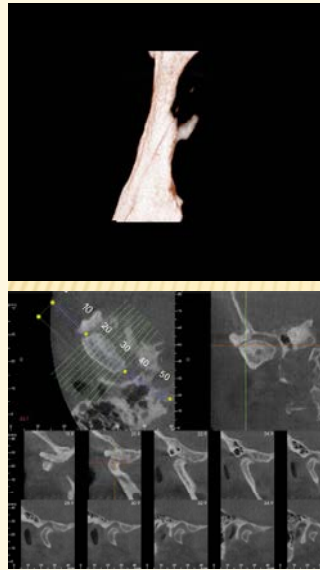


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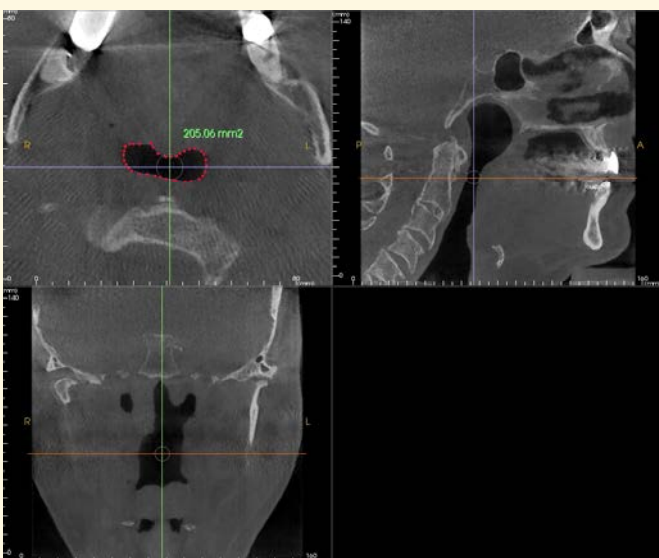
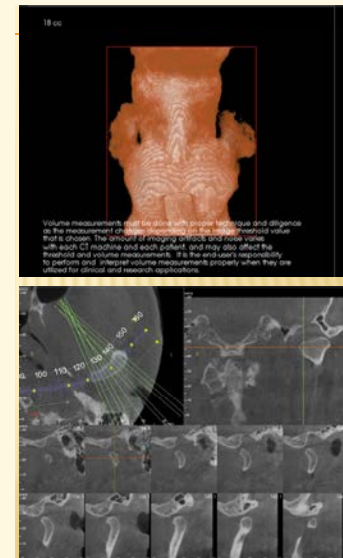
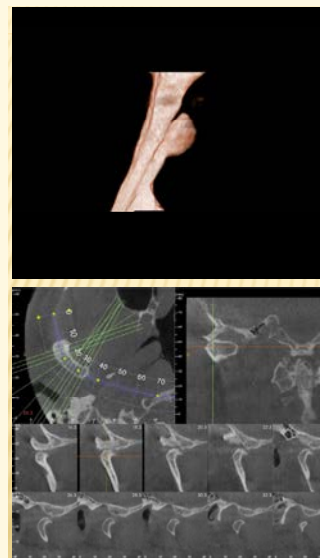
Two and three dimensional airway measurement results using Cone-beam tomography



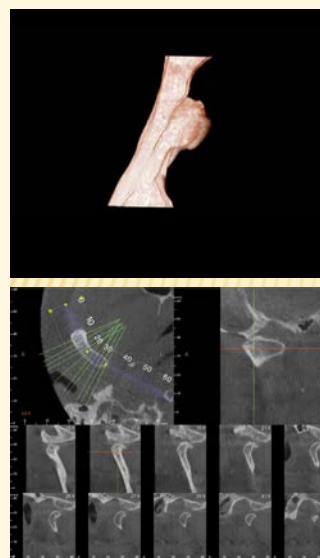
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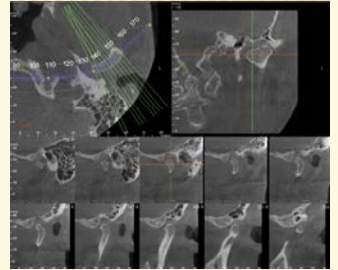
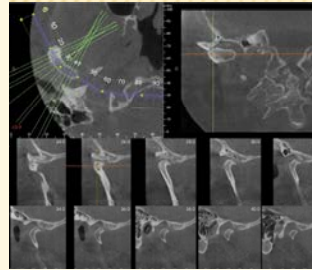
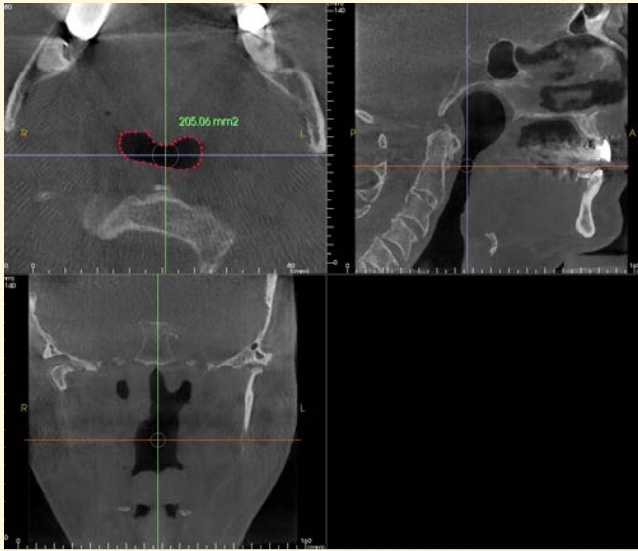


Protrusive Somnodent

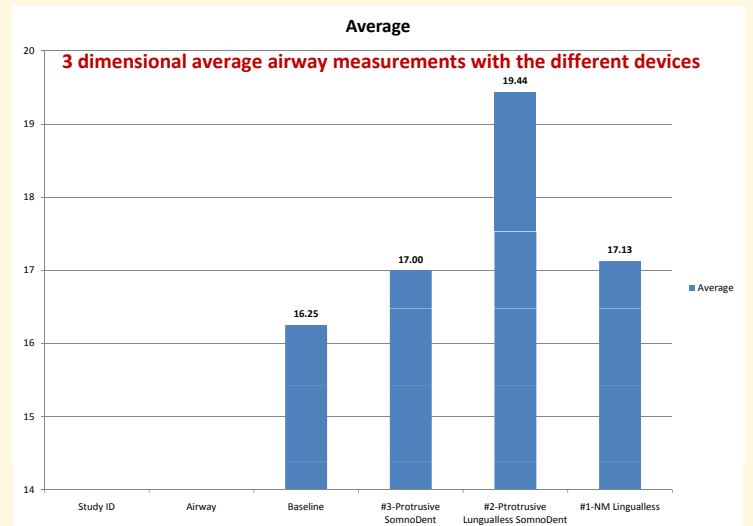
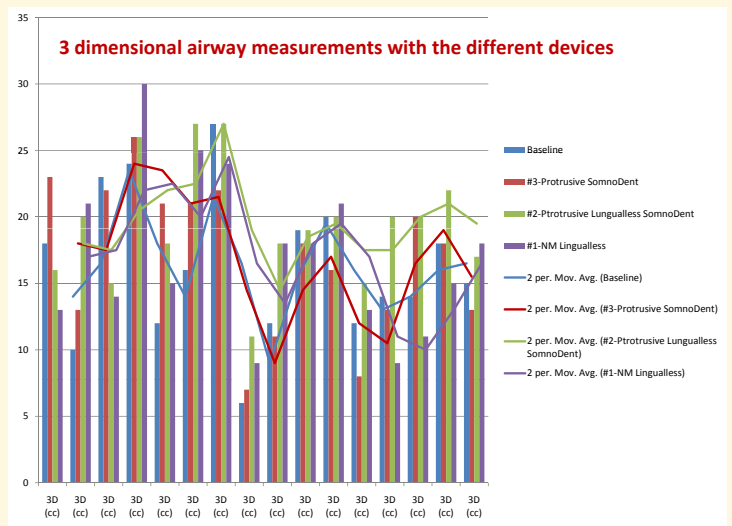
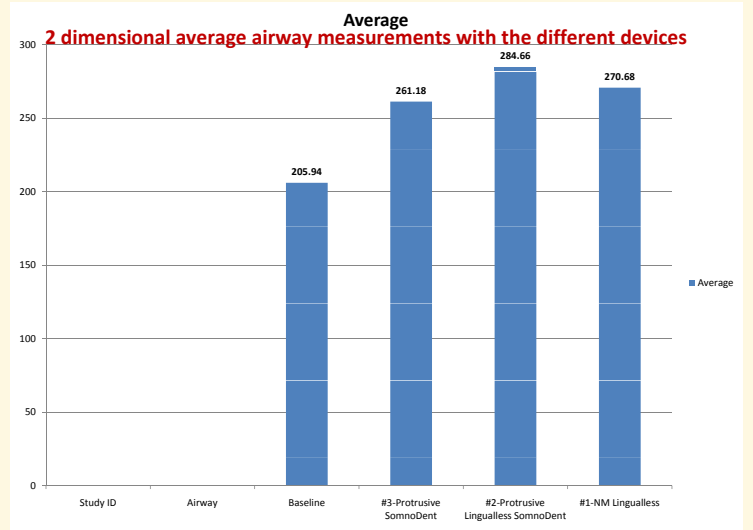
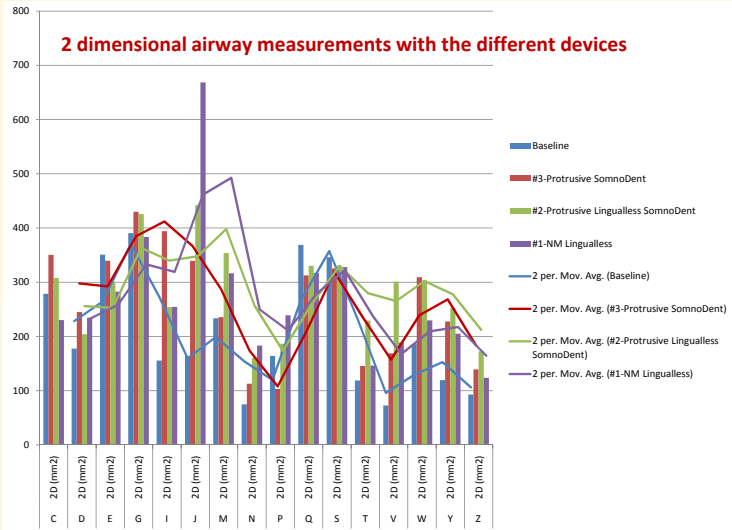


Protrusive Lingualless





NM Lingualless



Protrusion Analysis

Study ID	Baseline	Baseline #3	in 10th of mm	Oxygen Desaturation Index (ODI)				in 10th of mm	#1 1 month	#1 T1	in 10th of mm
			PROTRUSION	Baseline #2	Baseline #1	#3 1 month	#3 T1	TURNS			TURNS
J	28.2	10.8	60	11.6	7.6	22.6	13.2	21	12.8	12.1	28
M	22.5	14.3	50	14.6	20.5	21.9	12.4	33	22.0	13.9	9
N	4.9	4.5	60	4.4	4.4	7.0	6.6	30	8.7	1.4	36
P	6.0	7.9	70	9.6	3.9	7.0	4.2	29	3.1	2.1	45
Q	4.7	1.2	60	4.1	2.5	2.3	2.0	18	2.9	3.2	18
S	4.1	2.6	80	7.3	11.6	1.0	2.9	6	5.1	13.0	24
T	19.8	19.1	70	14.9	24.6	8.4	12.9	18	16.8	20.0	54
Y	14.3	14.9	80	8.5	18.2	4.4	11.0		15.0	12.8	
Z	3.6	1.1	50	4.2	1.4	2.4	2.6	6	1.1	2.6	3
Average	12.0	8.5	64.4	8.8	10.5	8.6	7.5	20.1	9.7	9.0	27.1

It was noted from the protrusion analysis that the mandible on average was protruded nearly 6.4 mm with an average titration of 2.0 mm for the Protrusive SomnoDent where as the mandible was titrated on average nearly 2.7 mm from the NM bite position. Therefore, the protrusion difference between the two appliances was in the order of nearly 5.7 mm minus the advancement of the mandible during the physiologic TENS bite.

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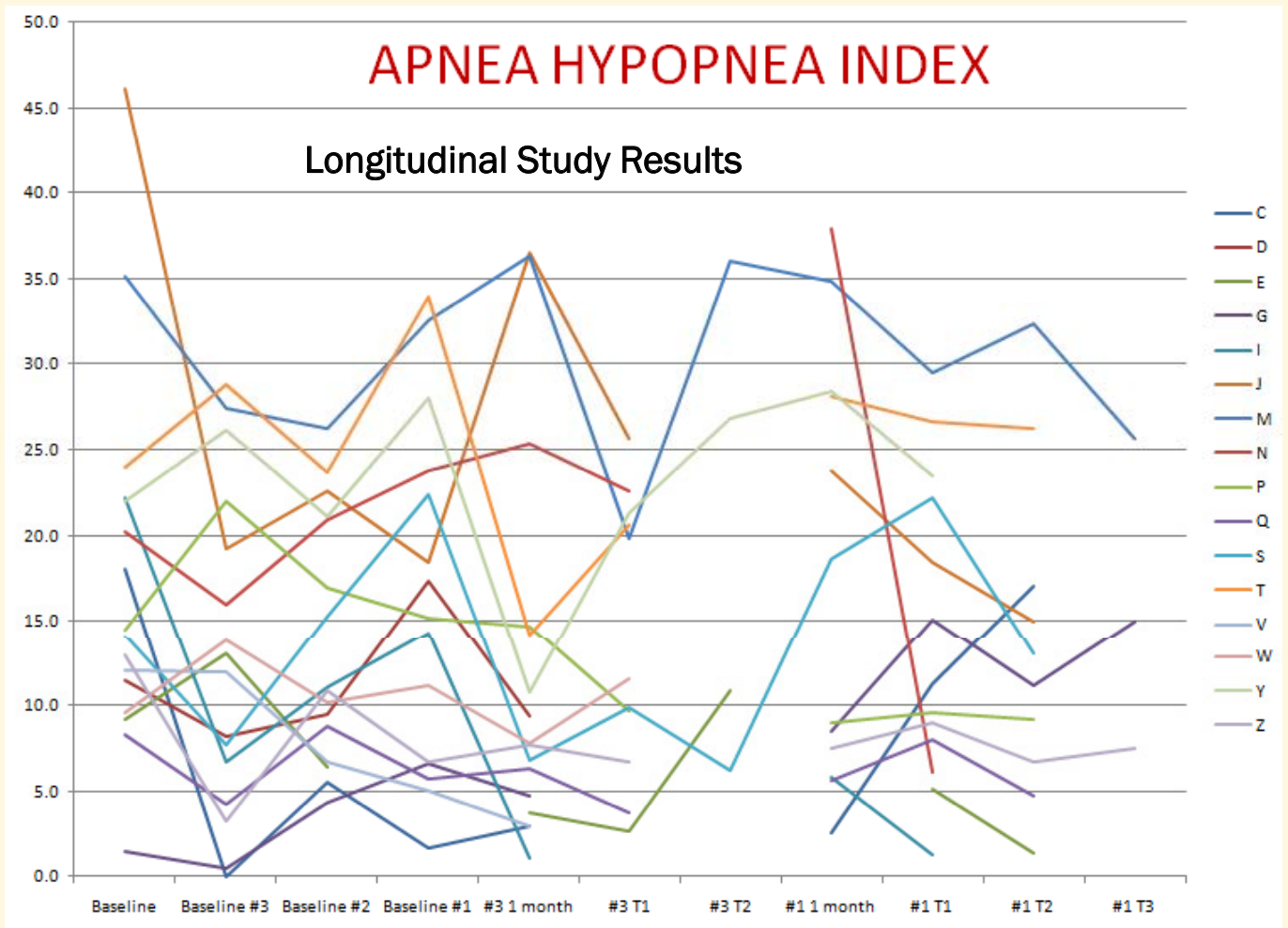


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Apnea Hypopnea Index

Study ID	Apnea Hypopnea Index (AHI)										
	Baseline	Baseline #3	Baseline #2	Baseline #1	#3 1 month	#3 T1	#3 T2	#1 1 month	#1 T1	#1 T2	#1 T3
C	18.0		5.5	1.6	2.9			2.5	11.2	17.1	
D	11.4	8.2	9.4	17.3	9.3			5.5			
E	9.1	13.0	6.4		3.7	2.6	10.8		5.1	1.3	
G	1.4	0.5	4.3	6.6	4.7			8.5	15.1	11.1	15.0
I	22.2	6.7	11.0	14.3	1.0			5.8	1.2		
J	46.1	19.2	22.6	18.4	36.5	25.6		23.8	18.4	15.0	
M	35.1	27.4	26.2	32.6	36.3	19.8	36.0	34.8	29.5	32.4	25.6
N	20.2	16.0	20.9	23.8	25.3	22.6		37.9	6.1		
P	14.5	22.0	17.0	15.2	14.7	9.6		9.0	9.5	9.1	
Q	8.3	4.2	8.8	5.7	6.3	3.7		5.6	8.0	4.7	
S	14.1	7.7	15.3	22.4	6.8	9.8	6.2	18.6	22.2	13.0	
T	24.0	28.8	23.7	33.9	14.2	20.6		28.1	26.6	26.2	
V	12.0	11.9	6.7	5.0	2.9				5.8		
W	9.5	13.8	10.1	11.1	7.8	11.5					
Y	22.0	26.1	21.1	28.0	10.7	21.3	26.8	28.4	23.5		
Z	12.9	3.2	10.8	6.7	7.7	6.7		7.5	9.0	6.7	7.5
Average	17.6	13.9	13.7	16.2	11.9	14.0	20.0	16.6	13.7	13.7	16.0

Longitudinal Study Data



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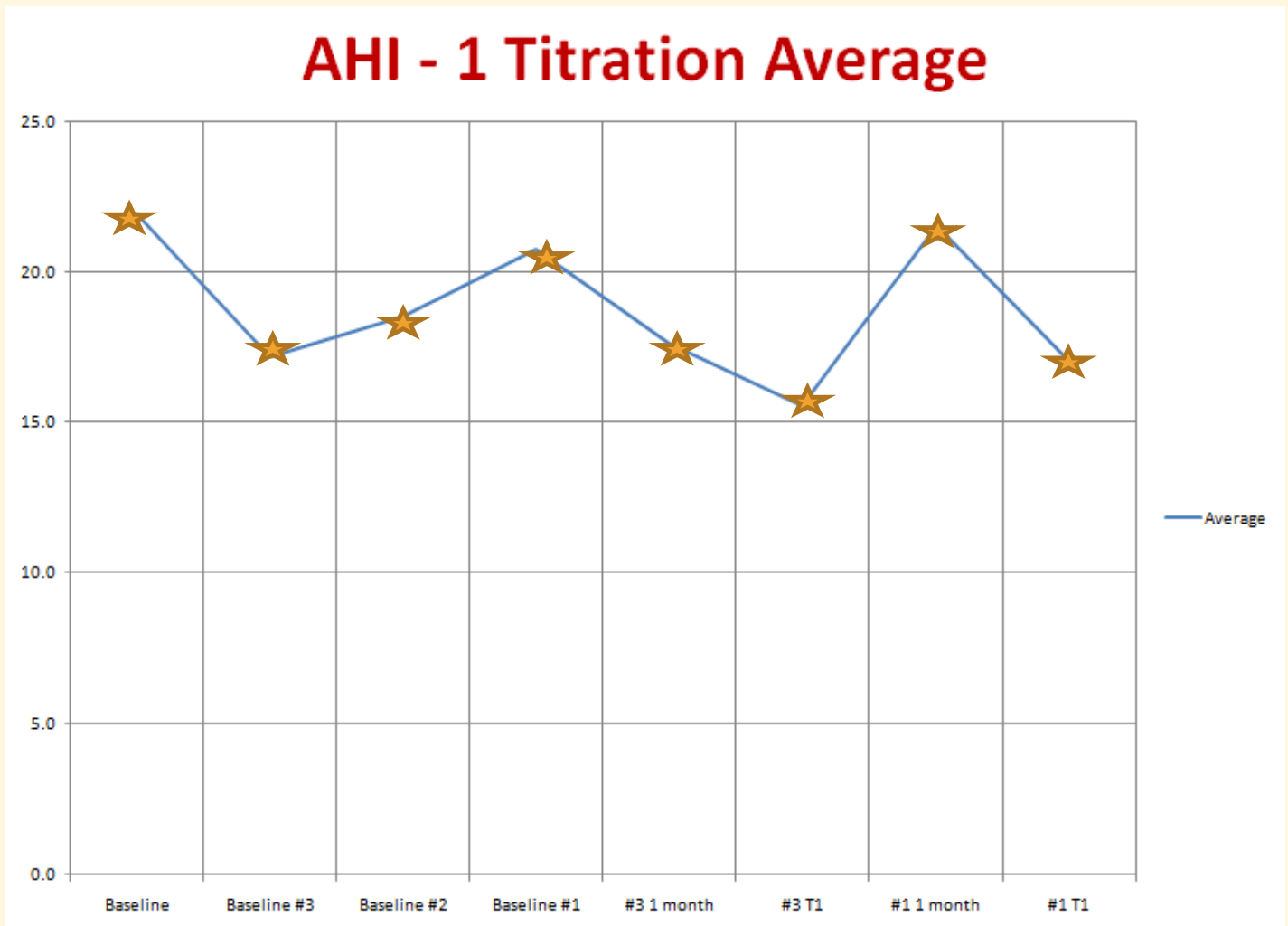
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Apnea Hypopnea Index - 1 Titration cycle

Apnea Hypopnea Index (AHI)								
Study ID	Baseline	Baseline #3	Baseline #2	Baseline #1	#3 1 month	#3 T1	#1 1 month	#1 T1
J	46.1	19.2	22.6	18.4	36.5	25.6	23.8	18.4
M	35.1	27.4	26.2	32.6	36.3	19.8	34.8	29.5
N	20.2	16.0	20.9	23.8	25.3	22.6	37.9	6.1
P	14.5	22.0	17.0	15.2	14.7	9.6	9.0	9.5
Q	8.3	4.2	8.8	5.7	6.3	3.7	5.6	8.0
S	14.1	7.7	15.3	22.4	6.8	9.8	18.6	22.2
T	24.0	28.8	23.7	33.9	14.2	20.6	28.1	26.6
Y	22.0	26.1	21.1	28.0	10.7	21.3	28.4	23.5
Z	12.9	3.2	10.8	6.7	7.7	6.7	7.5	9.0
Average	21.9	17.2	18.5	20.7	17.6	15.5	21.5	17.0

Use Average to plot graph

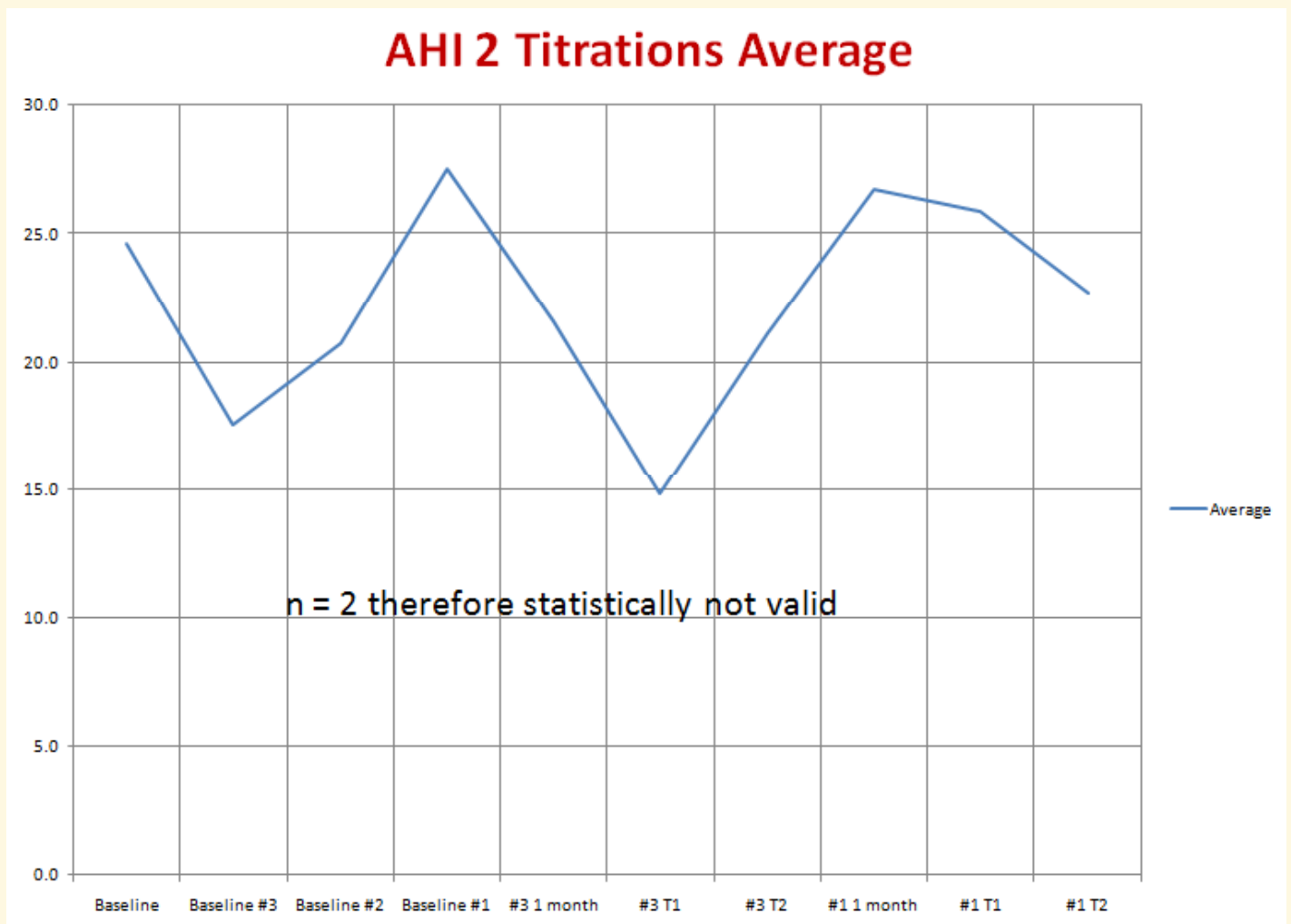


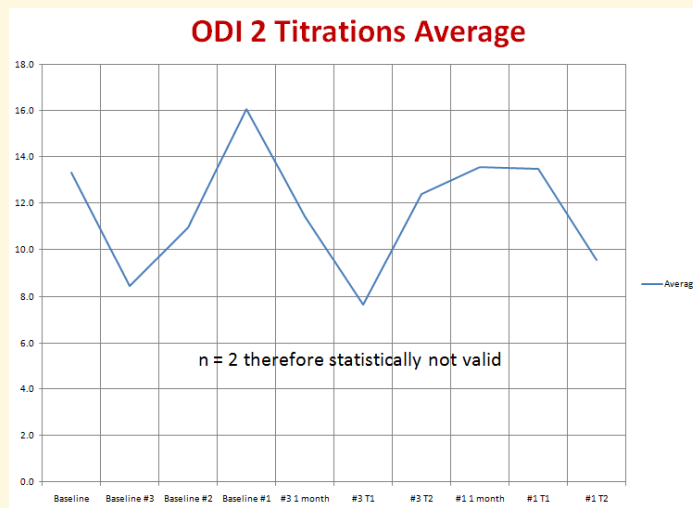
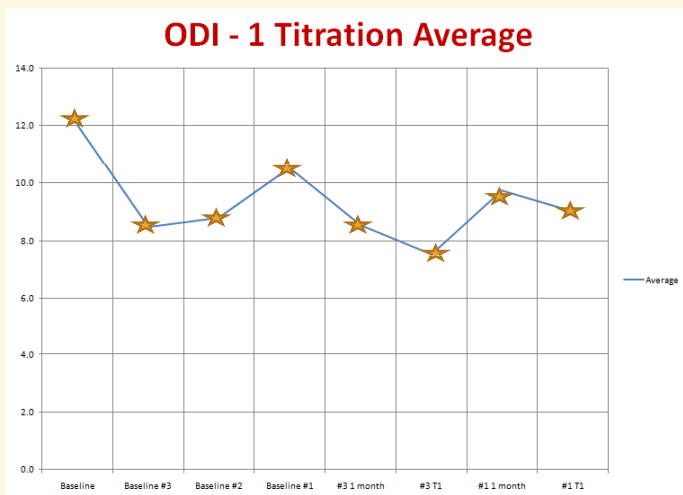
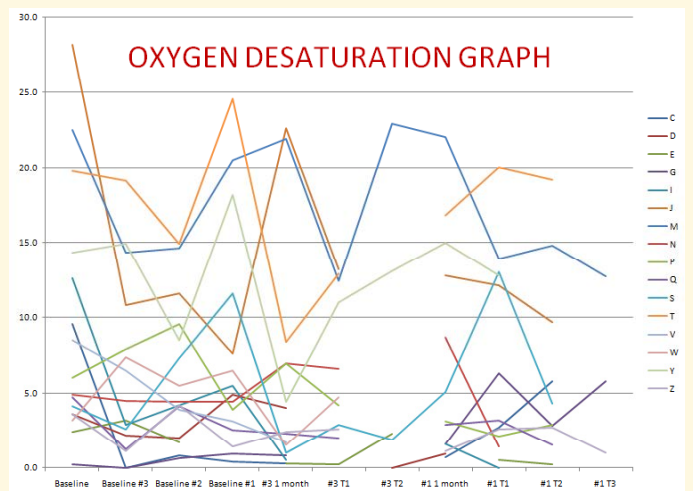
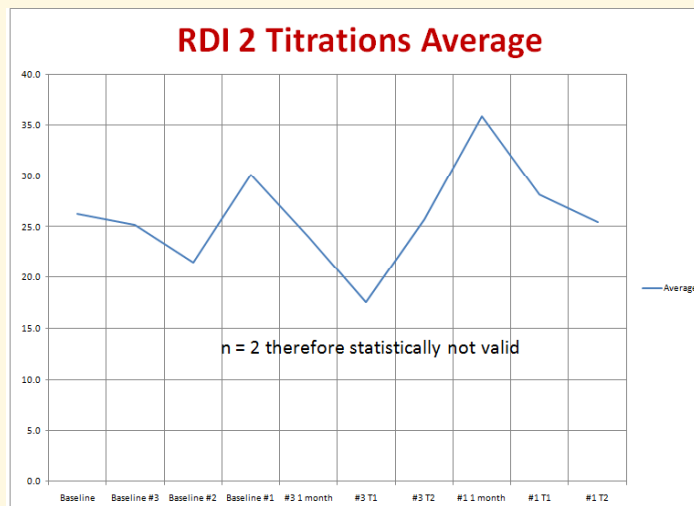
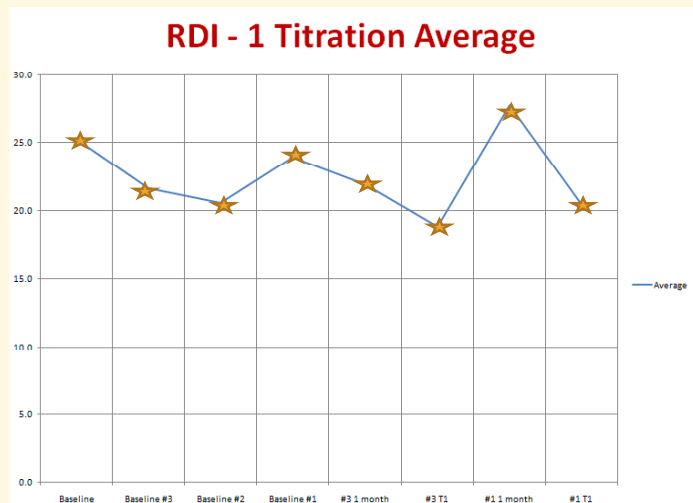
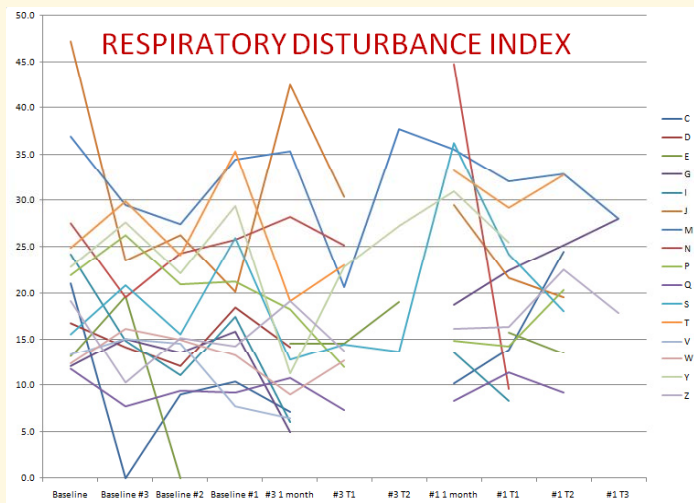
Apnea Hypopnea Index - 2 Titration cycle

Apnea Hypopnea Index (AHI)

Study ID	Baseline	Baseline #3	Baseline #2	Baseline #1	#3 1 month	#3 T1	#3 T2	#1 1 month	#1 T1	#1 T2
M	35.1	27.4	26.2	32.6	36.3	19.8	36.0	34.8	29.5	32.4
S	14.1	7.7	15.3	22.4	6.8	9.8	6.2	18.6	22.2	13.0
Average	24.6	17.6	20.8	27.5	21.6	14.8	21.1	26.7	25.9	22.7

Use Average to plot graph





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Variables that were controlled in the study:

- Bite taking (70% of max protrusion or TENS)
- Appliance design (Lingual or Lingualless)

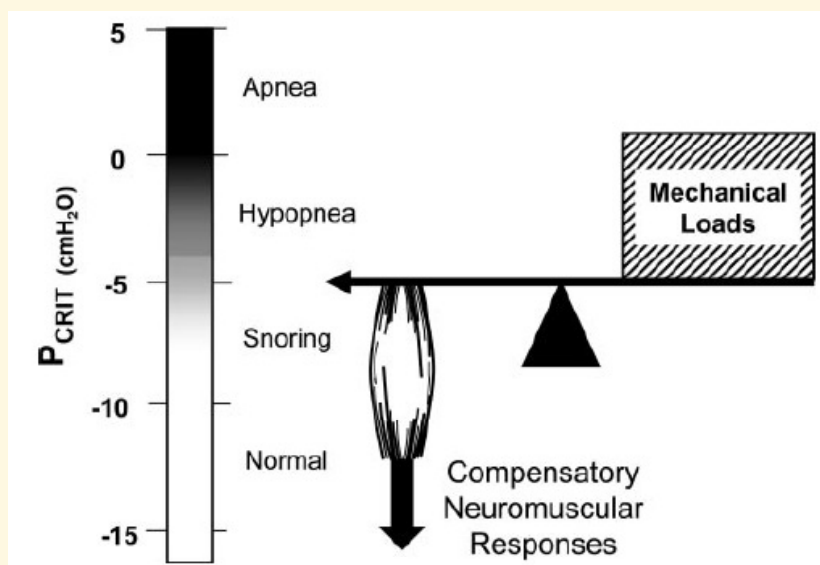
Variables beyond the control of this study:

- Tongue Volume
- Body Mass Index
- Neck Size (Circumference)
- Mallampati Classification
- Tongue height
- Tonsils
- Adenoids
- Alcohol intake
- Other drugs taken
- Fatigued NM complex – leading to physiologic load on system**
- Other factors such as posture, sleep habits, emotional stress, lifestyle issues, etc.

Observations

1. A single night wear of a sleep appliance does not give any obvious correlation to the sleep metrics obtained. Participants need to wear such appliances for a period of time before sleep metrics can be reliable to offer conclusive correlation between the appliance worn and the sleep metrics obtained.
2. There is generally an increase in the airway volume when any of these appliances were worn compared to standard.
3. The highest increase in airway volume was with the Protrusive SomnoDent with NO lingual flange.
4. It was interesting to note that the NM Lingualless SomnoDent had a higher airway volume than the regular Protrusive SomnoDent underscoring the importance of the Lingualless design.
5. The average Protrusion obtained using the George Gauge was in the order of approximately 6.4 mm. Furthermore, such appliances were titrated a further 2.0 mm.
6. The average titration of the NM appliance was in the order of 2.7 mm. There was no arbitrary protrusion of the appliance.
7. In the Longitudinal portion of the study, the sleep metrics obtained after two months of titration were not statistically relevant for comparison since only two participants continued such titration since their sleep metrics were high enough to warrant such further titration.
8. In the Longitudinal portion of the study, the sleep metrics obtained after one month of titration showed the best sleep metrics with the Protrusive SomnoDent with the NM Lingualless trailing close behind. It should be noted that since there was no arbitrary protrusion of the NM Lingualless SomnoDent, there was much more room left to further titrate this appliance.
9. It is believed that the NM Lingualless SomnoDent would bring about a balance within the stomatognathic system and therefore unload the NM complex leading to lower possibility of central sleep apnea.
10. The arbitrary nature of protrusion in the Protrusive SomnoDent and the Protrusive Lingualless SomnoDent was cited by the participants as the reason for the discomfort and as such no one wanted to titrate the Protrusive Lingualless SomnoDent. Therefore, this device was only worn for one month.

Fatigued NM complex – leading to physiologic load on system**



11. Certain variables cause a load on the physiologic system of the patient. Such a load can lead to NM fatigue which can further diminish the compensatory NM responses as discussed in the paper by Susheel P. Patil et al from Johns Hopkins University.
3. The NM design reduces Neuro-Mechanical load on the patient.
4. This allows the autonomic system (particularly the Parasympathetic system) to work optimally in maintaining a patent airway during sleep
5. This can be accomplished by a NM orthotic or a NM reconstruction/orthodontics/combination
6. It is obvious that there are many significant factors that need to be addressed when treating sleep apnea. Therefore, use of the “Medical Model” to treat the patient for sleep apnea is strongly indicated.
7. It is highly recommended that the most comfortable appliance is placed as a first course of action in the patient’s mouth after diagnosis that also allows a significant improvement in the sleep metrics. This should be followed by the incorporation of all possible unique variables for each unique patient using the “Medical Model” that would involve other health practitioners from medical specialists to physiotherapists.
8. Finally, it should be understood that the airway in an ambulatory patient who is erect may be very different from the airway in a patient that is supine and asleep. Hence, the sleep metrics are a more reliable predictor of sleep apnea than the cone beam airway volume analysis.

Conclusions

1. The Lingualless design has a significant positive impact on the sleep metrics and airway volume as it minimally impinges on the precious tongue room.
2. The Protrusive SomnoDent produced the best sleep metrics but this was at the expense of discomfort.

LVI would like to thank all of those who willingly participated in this important study.

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Art Mowery, DMD

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IPS Empress Direct is a light-curing, nano-hybrid direct composite which demonstrates exceptional handling properties for achieving

consistent anterior esthetics similar to those of ceramics, but with the on-demand ease of composites. This is accomplished with IPS Empress Direct's broad range of true-to-nature dentin and enamel shades, as well as different translucencies and opacities. These options give me the ability to create infinite opportunities to realize outstanding esthetic results for every indication, including posterior restorations.

Unfortunately, it was difficult in the past to restore the original optical properties of natural teeth when using a singular shade of composite. This resulted from the fact that dentin tends to be more opaque than enamel. The IPS Empress Direct Dentin and Enamel shades, however, feature calibrated translucencies that work together to create exceptional

esthetics, with an accurate color match every time. With the IPS Empress Direct composite, I can easily mimic the optical effects of natural tooth structures in a way similar to ceramics, all with the ease of use of direct composites.

For example, according to the manufacturer (Ivoclar Vivadent, Amherst, NY) the Dentin shades demonstrate a more opacious (7.4 – 7.9%) saturated chroma, which produces the basic color of the tooth from within. This allows the translucency of the Enamel shades to provide a natural depth to the restoration. The Enamel shades also diffuse the color of the dentin in the way natural tooth structure does. Additional gradations in translucency may also be achieved using the Translucent and Opalescent shades.

The manufacturer notes that IPS

Empress Direct demonstrates a high radiopacity compared to a natural tooth, making it clearly visible on radiographs for enhanced diagnosis. The composite is also less sensitive to light than other materials, which gives me ample working time for sculpting the anatomy of restorations.

Due to the fact that IPS Empress Direct is a nano-hybrid composite, it retains its gloss similar to a micro-fill or nanofill. However, because it is a hybrid, it also demonstrates a higher strength and modulus of elasticity, which is why it is appropriate for posterior indications. I can polish restorations created with IPS Empress Direct quickly and easily as a result of the material's filler particle distribution, making a clean finish even better.

Case Presentation

I have chosen to demonstrate the placement technique and simplicity of using IPS Empress Direct by presenting the case of a 45-year-old woman who came to my office to enhance her smile (Figures 1 through 3). Her chief complaints were the color and shape of a composite filling that had been placed on her upper right canine, approximately one year prior to the following procedure. I discussed various treatment plans with her, but ultimately we decided that the best treatment would include routine hygiene procedures, in-office whitening, and replacement of the composite resin restoration. I also decided, and the patient agreed, that treatment would also include conservative recontouring of her anterior teeth.

IPS Empress Direct is a light-curing, nano-hybrid direct composite which demonstrates exceptional handling properties for achieving consistent anterior esthetics similar to those of ceramics, but with the on-demand ease of composites.



Figure 1
Preoperative right-lateral unretracted view of the patient's upper right dentition.



Figure 4
View of the tooth upper right canine being prepared following proper isolation and retraction.



Figure 2
Preoperative retracted facial view.



Figure 5
Alternative view of the tooth as it is prepared for a conservative IPS Empress Direct restoration.



Figure 3
Preoperative close-up right-lateral view of the patient's dentition.



Figure 6
View of the completed preparation.

Clinical Protocol

When presented with a case such as this, it was important to prepare the tooth being restored properly and conservatively. After adequate isolation and retraction was ensured, I removed the prior restoration, and the tooth was prepared conservatively for the new restoration (Figures 4 through 6). Then it was necessary to try and match the shading and translucency of the natural teeth. Thankfully, IPS Empress Direct provides shade matching guides for both enamel and dentin composites (Figures 7 and 8). Once I had taken the correct shade, I tried it onto the preparation (Figure 9).

After choosing the correct shade, I performed a total etch technique using an etchant gel. I performed the total etch technique on the enamel and dentin to condition the preparation for the restoration (Figure 10). This was followed by a rinse with copious amounts of water for 10 seconds and a light air drying. The air drying was a necessary step, as it leaves a light sheen on the dentin.

I then applied the bonding agent after the preparation was rinsed and dried. The bonding agent (Excite, Ivoclar Vivadent, Amherst, NY) was applied to the preparation for 5 seconds (Figure 11). I light-cured the bonding agent for 20 seconds and checked to ensure a total cure (Figure 12).

The next step in this procedure was to begin applying the IPS Empress Direct composite. I applied the correct shade of enamel composite to the preparation (Figure 13), after which I manipulated and sculpted it into correct form (Figures 14 and 15). The



Figure 7
View of the Dentin shades being matched using the kit provided with IPS Empress Direct.



Figure 11
The bonding agent (Excite, Ivoclar Vivadent, Amherst, NY) was applied to the preparation.



Figure 8
Alternative view of the shade matching process using the IPS Empress Direct shade matching kit.



Figure 12
The bonding agent was light-cured.

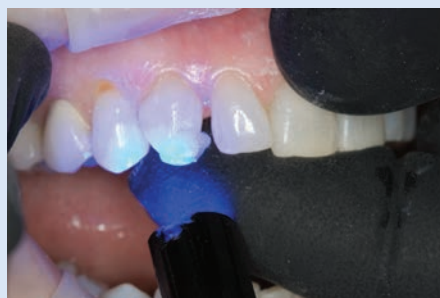


Figure 9
The material shade for the case was selected and tried on the preparation.

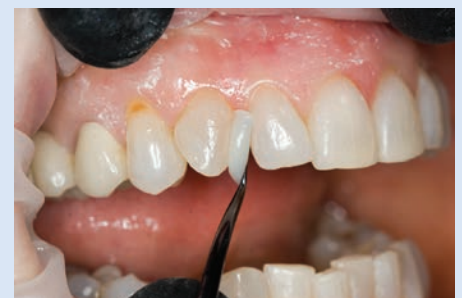


Figure 13
View of the initial IPS Empress Direct composite placement.



Figure 10
A total etch technique was used to condition the preparation surface.



Figure 14
After placement, the IPS Empress Direct enamel composite was manipulated into place.

Cases such as this are simple, use conservative dentistry, and provide a great service to the patient. These qualities are among the most important in the field of dentistry.

composite was light cured for 20 seconds, after which the restoration was finished and polished.

After I confirmed that the restoration had been cured properly, I polished the restoration by first polishing and grooving the surface using a diamond pointed polisher (Astropol, Ivoclar Vivadent, Amherst, NY) (Figure 16). Once the restoration had been grooved, a second polish was completed with a polishing disc (Astropol, Ivoclar Vivadent, Amherst, NY) (Figure 17). A final polish was completed using an Astrobrush (Astropol, Ivoclar Vivadent, Amherst, NY) to create a vibrant shine and make the restoration appear even more natural (Figure 18). With this final polish, the restoration was completed (Figures 19 through 25).

Conclusion

Cases such as this are simple, use conservative dentistry, and provide a great service to the patient. These qualities are among the most important in the field of dentistry. In the past, achieving optimal esthetics on single anterior tooth restoration had always presented a challenge. Now, thanks to the IPS Empress Direct system, single tooth restorations have become convenient and predictable. With its many shades and translucencies, IPS Empress Direct has changed dentistry, and the world of direct composite esthetics, for the better.



Figure 15
The IPS Empress Direct composite was sculpted into correct form prior to light curing.



Figure 18
A final polish was accomplished using an Astrobrush. (Ivoclar Vivadent, Amherst, NY)



Figure 16
The first step in the polishing process was accomplished using a fine polishing point. (Astropol, Ivoclar Vivadent, Amherst, NY)



Figure 19
Postoperative retracted front view of the completed restoration.

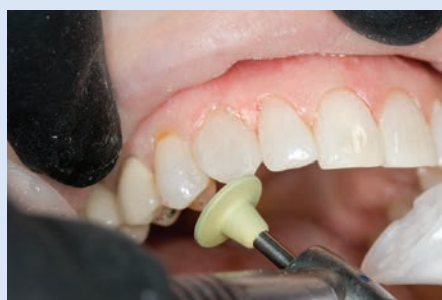


Figure 17
Following the initial polish, a second round of polishing was completed using a polishing disc. (Astropol, Ivoclar Vivadent, Amherst, NY)



Figure 20
Postoperative retracted close-up right lateral view of the restoration.



Figure 21
Retracted right lateral view of the completed restoration.



Figure 23
Postoperative unretracted right-lateral view of the restoration.



Figure 22
Postoperative unretracted frontal view of the completed restoration and contouring.



Figure 24
Postoperative full-facial view of the patient's smile.



Art Mowery, DMD

Dr. Art Mowery is a 1996 graduate of the University of Florida College of Dentistry. He completed a General practice residency at the Gainesville Florida V.A. Hospital and an externship at Baylor College of Dentistry Dallas, TX.

Dr. Mowery serves as an adjunct clinical professor at the University of Florida, Gainesville; and is Co-Founder of the "Achieving Extreme Success" lecture series. Dr. Mowery is a former clinical instructor at Las Vegas Institute for Advanced Dental Studies. Dr. Mowery is a published author in communication techniques and lectures internationally on case presentation and esthetic clinical excellence.

Dr. Art Mowery maintains a full-time private practice in Gainesville, Florida emphasizing comprehensive aesthetic reconstructive excellence

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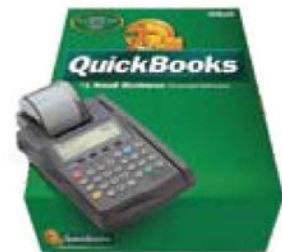
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PRODUCT

REVIEWS

Mark Duncan, DDS, LVIF

A. Titan Implant Scaler

Generally, the Product Review column focuses on new technologies in dentistry and that typically involves some sort of chemistry or software innovation; a new monomer carrier for something or a new way of evaluating diagnostic information. While it does include some of the most exciting aspects of our continually evolving profession, there is more to dentistry than a new cement or new laser technique. This brings me to the introduction of a company that many dentists are most likely unfamiliar with. The company manufactures a very broad range of surgical and specialty instruments and they are, quite simply, dedicated to providing you with unique and high quality tools for your success.

The company, A. Titan, is built on over three decades of dedication to

state of the art manufacturing and has positioned themselves to be an innovative leader in specialty dental instruments. A. Titan is constantly looking for innovative ways to facilitate our practice chair-side and improve the quality of the care we deliver. They are building their success based on high quality products created to provide unique solutions to challenges



in dentistry and support clients with a focus on exceptional customer service. Like most companies that we meet through LVI; A.Titan has been very eager to supply the appropriate tools for a successful dental practice.

A. Titan has deliberately built a reputation for using only the finest materials and taking the extra steps to ensure attention is paid to every detail. Using the highest quality steel, A. Titan, crafts instruments based on innovative patterns to create a very useful and predictable instrument. Their product line includes a wide array of surgical, operative, diagnostic, and periodontal instruments; however it is their new implant hygiene instruments that are the subject of this review.

As dentists are well aware, one of the issues with maintaining implants is the hardness mismatch between

traditional scalers and the implant abutments and fixture platforms. A traditional scaler is simply too hard and will scratch the titanium. Several attempts have been made for a solution to this problem including plastic and resin scaler tips. A plastic tip is simply not sharp enough to make a difference and it is impossible to autoclave as well. Technique changes have also attempted to address the issue, and rather than an up and down stroke, the implants should be addressed in a circular motion so that any scratches that are left on the abutment will not seed bacteria to the bone. The joke is that the bacteria will simply run in circles until they

get dizzy and fall off. This solution is not effective because it is a very unnatural stroke for the hygienist to master and it is exceedingly easy to damage the tissue or still perpetuate scratches down the implant and abutment. And, of course, bacteria doesn't actually get dizzy.

A.Titan has managed to avoid the hardness mismatch by utilizing 6AL-4V titanium alloy, the same material used in the construction of the implants and abutments. The tips maintain sharpness through a series of steps in the hardening process, and the result is a tool that can address hard deposits on the implants and abutments. With the incredible

success implants have seen and acceptance by the body as a long term prosthetic tooth root, it is imperative that instruments are available to address the particular needs of long term periodontal management of the implant and abutment. The titanium implant scalers and curettes available from A.Titan meet that need incredibly well.

I encourage you to utilize these instruments in your practice for the routine management of implants. While you are looking at A.Titan, take a look at their broad line of specialty instruments. This is a company that you want to work with; a company that is working hard to make you successful.

Excite F VivaPen

There is no question as to the science and engineering that is invested in the chemistry that supports our restorations. A leading company in dentistry has long held one of the most useful and predictable adhesive resins. Clinical products must have several key attributes to come together to make them both useful and durable, and Ivoclar has a long track record of engineering those qualities into their products.

There are several key ingredients in the recipe for a successful and functional adhesive that have nothing to do with bond strength. To start, the first thing to be determined is what kind of substrate is being bonded? If the restoration is primarily being bonded to enamel then a total etch or etch and rinse approach would be ideal. On the other hand, if the primary tooth struc-



ture being bonded to happens to be dentin, particularly deep dentin, then the ideal product would utilize weaker organic acids but also carry the primer/adhesive with it so that there is no potential to over etch or under prime. What will be addressed in this review is a material used for total etch procedures rather than in deeper preparations. This material is ideally used in cases with ample enamel available for bonding such as inlays and onlays.

The Excite F is a resin adhesive with a fantastic track record for a number of reasons. It combines a wide variety of optimal attributes in one simple-to-apply material. Obviously, the material has to have solid bond strength numbers and it has to be durable over time. The exciting thing about bonding to enamel is the bond strengths created

can be quite strong and durable. The bond to enamel is the ace bond and the one that all others are measured against, assuming the proper material is used. It simply is not possible to create a durable and long lasting self etch bond to enamel as it does not properly etch unprepared enamel or prepped enamel that is not fresh. In order to create a bond to enamel, the tooth needs to be treated first with phosphoric acid and rinsed. Once this is done, the material must be one that is simple to apply and predictable.

There are a number of physical properties that are necessary to ensure application is done efficiently and adequately. To start, the carrier for the resin must be alcohol based. The acetone based products will work and it is easy to evaporate off the carrier, but because the acetone is so volatile, it is unpredictable and very particular in how it is evaporated. An alcohol based material, such as ExciTE, is more user-

friendly in this regard. It is also important to have a low film thickness. The thicker the layer of resin is, the more likely it is that it will create a seating issue for the final restoration. ExciTE is dramatically thinner than something like Optibond Solo and many of the other materials that are on the market.

As you apply the resin to the tooth, it is critical to know that you have the surface completely coated and protected. If you leave gaps or holes it makes bonding to the tooth much less predictable. Although the resins are typically clear, it will lay down a shiny coat over the dentin and adequate coverage can be determined. Once applied, it is also important that the curing light will completely cure the material. ExciTE is susceptible to curing with a broad spectrum of wavelengths ensuring that whichever light you use in your practice will adequately cure the material.

The real advantage with ExciTE is the new delivery system. A few years

ago Ivoclar introduced the VivaPen. This delivery vehicle is far and away the most user-friendly and straight forward of any system on the market. It is pen shaped with a click pad on the side so that you can use it and manipulate it in a typical pen fashion. It is easier to apply and control and there is less wasted material as it is immediately dispensed in the appropriate amount as needed.

The VivaPen now comes in two total etch packages - ExciTE F and ExciTE F DSC. The two packages allow use in applications where the restoration and luting resin can be completely accessed via curing light as well as applications where the restoration would be better seated with a self curing cement material. The system now includes micro application tips for endodontic use as well. Ivoclar has created the ideal delivery for an outstanding product. If this material is not already in your armamentarium, it should be.

Dexis Platinum

For many dental practices, digital radiography is not a new and earth-shattering revolution in dentistry. These same dental practices have been enjoying the countless reasons that it is a better diagnostic and treatment tool than conventional radiography. On the other hand, several other practices across the country are experiencing an evolution due to the recent implementation of digital radiography. Digital Radiography is faster, safer, better di-

agnostically, and more useful in treatment. Quite simply, it is the future and for very good reason.

There are a variety of digital solutions to radiography including wired sensors and the phosphorus plate. In practice, there is a significant jump on detail and precision using a sensor rather than a plate, but the issue has always been the hard case component of the sensors. It is not impossible to become very adept at using the hard sen-

sors without hurting your patient, but it is a skill that takes focus and time.

The good news is that with the release of the new Dexis Platinum sensor that is no longer a worry or concern. The new sensor is significantly more comfortable, and it was among the most comfortable before! The new sensor has corner notches to allow room to more accurately place the sensor for the ideal image, and the edges are all rounded to reduce

the chance of tissue trauma. In addition, it is so thin and small that it is quite easy to place and manipulate to create the perfect angle and the perfect image. The secret to digital X-ray success is in the sensor, and DEXIS® Platinum's combination of technology and comfort blend to make it a marvel in the dental practice.

The main draw of this remarkable sensor is in the image itself. PureImage™ Technology combines hardware and software technologies that produce extremely clear and detailed images. A design that includes a Caesium Iodide scintillator and fiber optics results in images with virtually no visual noise. Other technological innovations include an exclusive pixel architecture that maximizes the sensor's active area and 2.2 megapixel images can be expanded and zoomed in on, without losing image quality. The capacity to generate 16,000 shades of gray reveals even more details.

Since all of the electronics are integrated into the sensor itself, no docking station is needed. The result is direct USB connectivity, or what the company aptly calls "plug-n-ray." Besides the image quality, the sensor's TrueComfort™ design has resulted in a slimmer profile, and refined beveled corners. The "single sensor solution" obtained by PerfectSize™ technology allows capture of vertical and horizontal bitewings and all periapicals. This not only saves on the cost and hassles of buying and using multiple sensors, the patented Wise-Angle™ cable exit makes the sensor easier to move around the mouth, and

reduces stress on the cable.

All of this technical jargon translates into clear, more detailed images that are easier, quicker and more comfortable to capture. With a blend of clarity, convenience and comfort, the DEXIS Platinum sensor lets you see the details that make a difference in your diagnosis. The DEXIS Platinum takes radiography to a new level – you should use it to take your practice to a new level too!



Several LVI colleagues shared their firsthand "sensor-y" experiences with me.

Dr. Brad Durham who practices in Savannah, Georgia, found that the Platinum "has become such a part of the practice, that using it is a "no-brainer;" its durability is evidenced in its use in "four rooms, including a hygiene room, all day long, every day."

Dr. Theodore Hadgis, of Grosse Pointe Woods, MI, who made the

most out of his digital X-ray experience by adding high resolution 32-inch monitors to each of his four operatories, finds the clarity of digital X-ray helpful in detecting “areas of decay, periapical abscesses, and endodontic problems. It helps in measuring the length of the implant and the available amount of bone.” Its “ease of use eliminates lost time when doing root canals or placing implants.” He continues that visually, the Platinum provides “Better images that are simple to enlarge, and physically, the sensor is “easy to store and convenient to transport between operatories.” The digital imaging software coordinates with practice management software, and when the Platinum detects radiation,

the image is automatically saved, dated, tooth numbered and oriented. “When I want to look at a patient’s x-rays from years ago, I don’t have to rummage through the chart looking

for little envelopes and hoping that they didn’t fall out of the mount,” says Hadgis. “I can compare the current digital x-rays side-by-side with those saved from five years ago.”



A 1995 graduate of the University of Oklahoma, Dr. Duncan vigorously pursued continuing education to grow beyond what was taught in dental school; twice being recognized as the leader in Oklahoma for Continuing Education. He completed the surgical and prosthetic sections with the Misch Implant Institute earning a Fellowship with the Institute as well as holding Diplomate status with the International Congress of Oral Implantologists. He has also earned the Fellowship with the Academy of General Dentistry in the shortest time period allowed by the Academy. He considers his real advance in education to have started with his journey through LVI where he earned a Fellowship and currently works full-time as Clinical Director. Dr. Duncan is a member of the International Association of Comprehensive Aesthetics (IACA) and holds a position on the Board of Directors.

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1. Please see Laser-Lok Clinical Overview (BioHorizons document ML0606).

2. Human Histologic Evidence of a Connective Tissue Attachment to a Dental Implant. M Nevins, ML Nevins, M Camelo, JL Boyesen, DM Kim. The International Journal of Periodontics & Restorative Dentistry. Vol. 28, No. 2, 2008. SPMP10130 REV A FEB 2010

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THE WEATHERERS' REPORT



Arthur "Kit" Weathers, Jr., DDS

Six Simple Secrets for Painless Endodontics

After watching a number of my Root Tips of the Week, a dentist emailed me the following question. "I really love the pearls I get from your weekly root tip videos, but I was wondering if you could share your Top Ten Techniques for making endodontic therapy painless." After giving this question a lot of thought, I decided I could summarize everything in six simple secrets. I call them secrets, because so many dentists are ignoring one or more of these techniques, and as a result, they are creating needless pain for their patients, their team and themselves.



Secret Number One Learn Painless Anesthesia

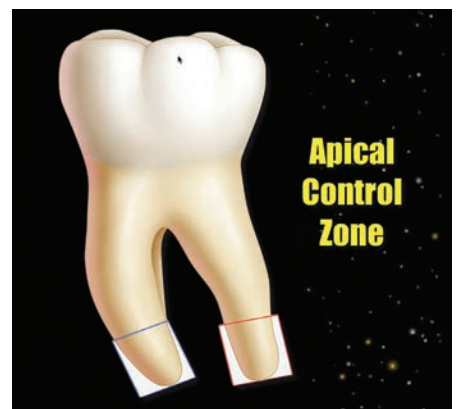
Your patients do not know if you do a perfect root canal, but they certainly know if you hurt them. Therefore, one of the very best practice builders is to become known as a painless dentist. To that end, secret number one is to learn how to administer painless dental anesthesia every time.

Painless anesthesia starts with a little psychology. Root Canals are among the most dreaded procedures in dentistry, so the very first thing I say to a patient to help them relax goes something like this: "If I promise not to hurt you, what else would you like to know?"

And at the end of the treatment I say, "You will probably have a 'two-aspirin' toothache. Take what you normally take for a headache, and if you need something stronger call me, and here is my unlisted, private phone number." There is a lot of psychology in these suggestions.

Then, for a completely painless injection, start with three percent mepivacaine, without vasoconstrictor, and as soon as the patient feels numbness

in the lip, give one cartridge of lidocaine, 1/100,000 epinephrine. The first cartridge without epinephrine spreads quickly, the second cartridge with vasoconstrictor increases the duration, and the combination equals quick, painless injection.



Secret Number Two Prepare The Apex Last

Painless anesthesia starts with a little psychology.

Do not measure the working length until the coronal portion of the canal has been cleaned and debrided. If you measure the working length too soon, you risk pushing necrotic material through the apex, which can inoculate the periapical tissues causing post-op pain. The apical few millimeters a.k.a. the Apical Control Zone can be the most difficult area to instrument, unless you save it until last and then it becomes the easiest.

Measuring too soon can create an even worse problem. Most root canals are curved, and instrumenting the root canal tends to straighten out curved canals. The shortest distance between two points is a straight line, so straightening a curved canal can shorten the working length. If, for example, you measure the working length at 21 mm, the shaping of the canal might shorten that measurement to 20 mm. If you continue to use 21mm as your working length, you might wind up preparing the periodontal ligament and apical bone. Patients hate that.

The crown down instrumentation technique removes the majority of diseased or necrotic tissue prior to instrumenting the apical third of the canal. Preparing the apex last makes the preparation much easier and reduces the potential for extruding debris, which reduces the likelihood of postoperative sensitivity.



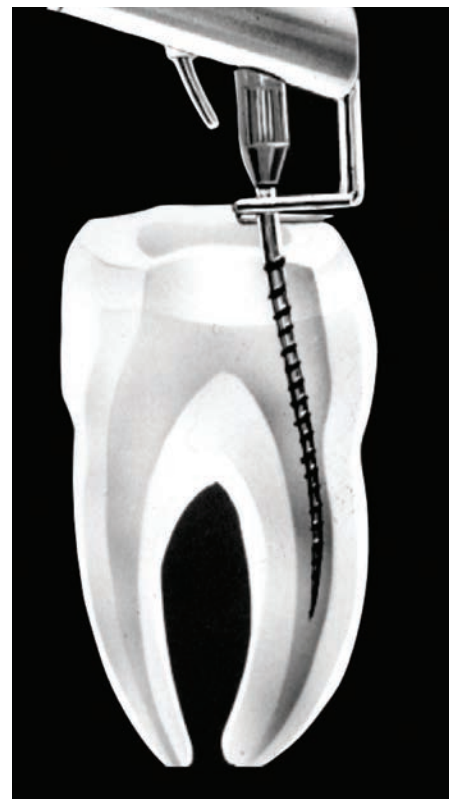
Secret Number Three **Trust Your Apex Locator**

When you dry your root canal, do you frequently find the apical two millimeters of your paper points are red? Canal walls do not bleed, so you probably are over-instrumenting many of the canals. Apex locators are very accurate if you use them properly, and if your x-ray and apex locator do not agree, I would trust the apex locator.

Here are a few tips for using an apex locator. Make certain the pulp chamber is dry. The canals should have fluid in them but fluid in the pulp chamber can lead to incorrect readings. If the measurements seem to be jumping around, try a larger file. If the file is too small, it might slip through the apex without touching the periodontal ligament, so use the largest file that will go to length.

Advance the file until the apex locator reads “apex” and then subtract one millimeter from that measurement to use as your working length. Also, do not use rubber stops for measuring the working length as they tend to slip when the file is removed and they make it difficult to see the canals. Use a small hemostat or needle holder to grab the files and your measurements will be much more accurate.

Not obtaining proper working length measurement is one of the most common errors in endodontics, and a frequent cause of post operative pain.



Secret Number Four **Use Sonics for Preparation and Irrigation**

I used to say that a sonic hand piece was a nice adjunct to rotary, crown-down instrumentation, but I now believe that it should be used in all cases. Not only does sonic irrigation facilitate thorough irrigation, the sonic hand piece can help you get down canals your rotary files cannot easily negotiate. If a file gets stuck in the canal, it's usually not the tip of the file that is getting stuck. Usually, the file will bind somewhere along the shaft, and 30 or 40 seconds with a sonic file will remove most interferences.

I have been using the Shaper Sonic files from Medidenta for more than 20 years and I would not consider doing a root canal without sonics. Incidentally, studies have shown that there is no significant difference between sonic and ultrasonic irrigation, but preparation with a sonic hand piece is reportedly slightly more efficient and usually less expensive.

Don't start something you cannot complete

**Secret Number Five
Don't Start Something
You Cannot Complete**

Never start a root canal until you know you can finish it. Nothing is more embarrassing than starting an endodontic procedure and discovering that you cannot locate all of the canals. This will cost you time and money and the patient may lose confidence in your diagnostic and treatment skills. The solution is very simple.

If there is any doubt that you might not be able to locate all of the canals, which might include everything except upper anterior teeth, schedule an "Infection Control" appointment, access the pulp chamber and set a timer for 15 minutes. If you cannot locate all of the canals before the timer goes off, refer the patient to your favorite endodontist. Life is too short to waste time searching for canals that

you may or may not locate.

Bill the patient for a D3221, pulpal debridement for primary and permanent teeth. It used to be that you could not bill for a D3221 and a root canal on the same patient, but now it is okay if the endodontic treatment is not completed on the same day.

**I'm working on a Pie Chart
to eliminate procrastination**

**Secret Number Six
Don't Procrastinate**

Secrets one through five are useless unless you actually use them. Dentists procrastinate for three major reasons.

Habit: it's easier to keep on doing what you've always done than try something new. The problem is you will keep on getting what you've always got.

You don't want to rock the boat. You don't want to go through the hassle teaching your team new techniques. The two types of people who welcome change are politicians and wet babies, and frequently they need changing for the same reasons.

Perfection paralysis: Dentists don't want to change until they have "analyzed" every possibility prior to taking action. Do any of these excuses sound familiar?

It has been proven that if you do not take action within 72 hours of learn-

ing new information, the odds are you will not apply what you have learned. There are ten secrets for eliminating procrastination that I teach at all of my "Root Camps," but I will have to cover them at another time. Meanwhile, the six simple secrets in this article will help make your endodontics "pain free" and it is now up to you to implement these techniques into your root canal therapy.



For more than thirty years, Dr. Arthur "Kit" Weathers has lectured worldwide on technologies, products and processes designed

to simplify the practice of endodontics by the general dentist. The developer of a range of dental products, Dr. Weathers pioneered the EndoMagic! Nickel-titanium file system for general dentists seeking to improve both the quality of care and the economics of the endodontic services they offer. As the clinical technique developer of the X-tip Intraosseous Anesthesia System, he has assisted practitioners in need of patient-friendly anesthetic application methods.

Dr. Weathers is the founder of the Practical Endodontics "Root Camp," Dr. Weathers offers numerous two day, hands-on training sessions at LVI and his facility in Griffin, GA.

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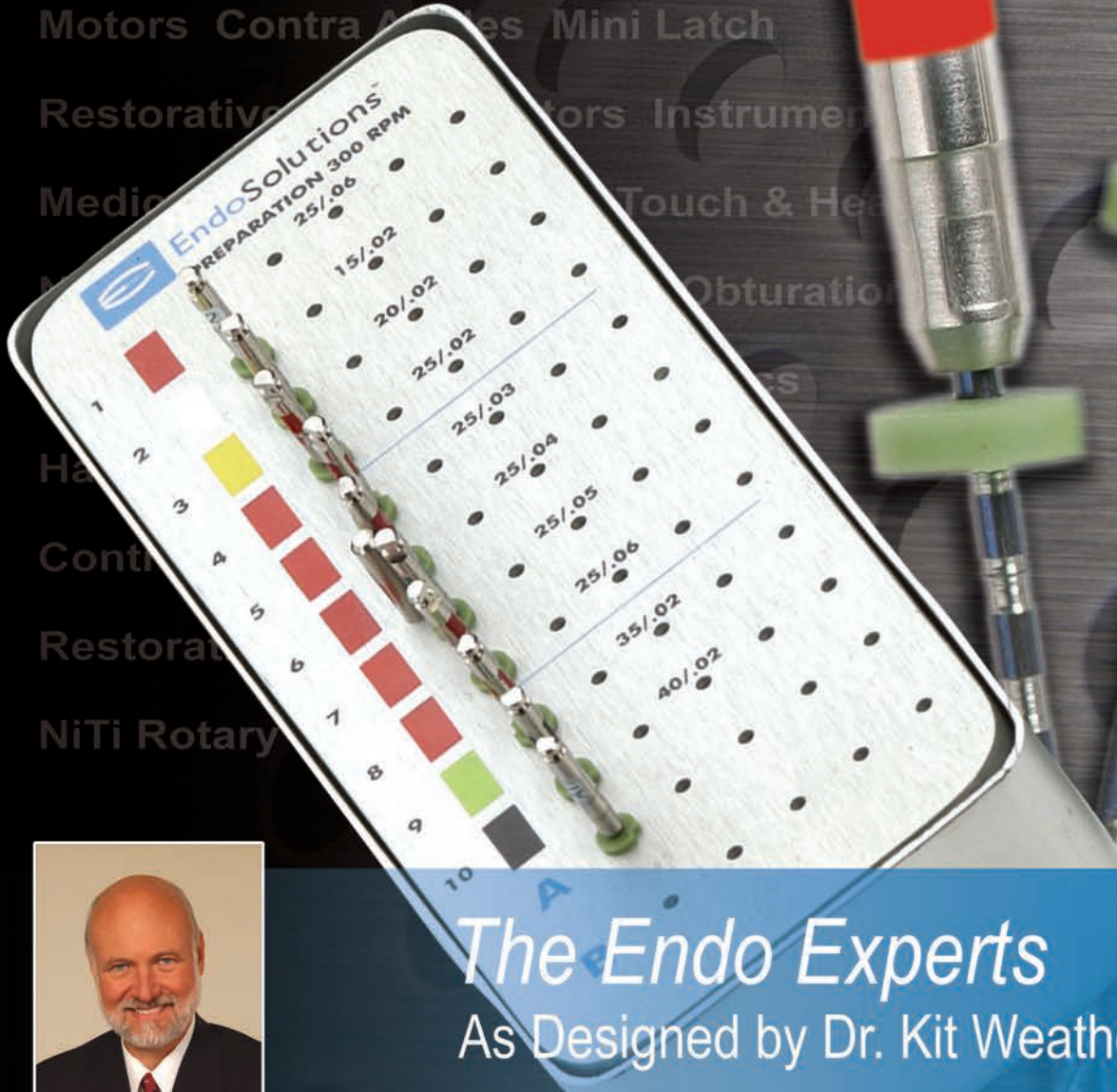
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The Endo Experts

As Designed by Dr. Kit Weathers

Legal Considerations with Cone Beam Imaging

David B. Miller, DDS



The additional data that 3-D imaging provides allows for adjustments to the treatment plan and implementation so as to avoid many complications.

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Legal issues concerning Cone Beam Computer Tomography (CBCT) were the topics of two recent papers in the Journal of the California Dental Association. The first article was entitled “Cone Beam CT —Anatomic Assessment and Legal Issues: The New Standards of Care.” The first author was Arthur Curley JD, a well known defense attorney and counsel to malpractice insurer, TDIC. The second author was David Hatcher DDS, MSC and MRCD, a well known Oral and Maxillofacial Radiologist. The second article was entitled “Legal Considerations in the Use of Cone Beam Computer Imaging”. Not only did it grab my eye because of the “legal” subject matter, but also because the first author was Edwin Zinman DDS, JD. Dr. Zinman is a periodontist who became an attorney and made his reputation years ago suing numerous dentists, often for failure to diagnose/treat/refer for periodontitis. He is a plaintiff’s attorney. Another author is professor emeritus in the Section of Oral and Maxillofacial Radiography at UCLA. The third author is a professor and chair of the Section on Oral and Maxillofacial Radiography at UCLA.

Curley and Hatcher listed many areas of dentistry where CBCT exceeds traditional imaging or provides information unavailable before CBCT.

Informed consent may not be a defense in cases where a dental implant contacts a nerve or penetrates the si-

nus cavity, or where orthodontic treatment is stalled due to a mesiodens not visible on standard imaging, or where the roots of an impacted asymptomatic tooth can’t be visualized. If CBCT 3-D imaging was not offered to the patient in such cases, the patient may have a claim that they would have agreed to such imaging had it been offered, and in litigation will be able to produce expert witnesses who will state that the injury at issue could have been avoided with use of such imaging. The additional data that 3-D imaging provides allows for adjustments to the treatment plan and implementation so as to avoid many complications. Therefore, the standard of care by definition requires that, in such cases, patients be offered the option of 3-D imaging, and, if they decline after being informed of the risks, benefits, and alternatives, then informed refusal should be obtained and documented¹

Cone Beam Computer Tomography has been used in dentistry for over ten years. Costs for the equipment have come down significantly to be reasonably affordable to place in private dental offices. CBCT is rapidly replacing tomography in radiographic labs to the point that CBCT is becoming the dominant imaging for implants, oral surgery and TMDs. CBCT three dimensional imaging increases the visualization of anatomic structures, anatomic variations and pathologic conditions.

As I read the Zinman article, I found

several disturbing aspects to it. First, the authors seemed to be proposing the expansion of the standard of care to make dentists responsible for recognizing/diagnosing EVERY PATHOLOGY in the WHOLE SCAN! In other words, they favor expanding the standard of care in a manner never required with prior radiography. Drs. Zinman et al. advocate that dentists assume the legal requirement to read entire scans and recognize abnormalities/pathologies to the same standards as Oral and Maxillofacial Radiologist (OMR) or even a medical radiologist. No longer would dentists be responsible for just the area of interest or even the traditional scope of dental treatment. This forces dentists owning a CBCT to send all their scans to be read by an OMR or face a malpractice suit should pathology be later discovered in any area of scan field. A cynical person could reasonably interpret these proposals as being the OMR full employment act and the plaintiff’s bar attempt to open a lucrative new field for lawsuits. Zinman et al. state: “It can be argued that in many ways CBCT technology has transitioned from a paradigm shift in orofacial imaging to a standard of care for dental practice for diagnosing or managing some conditions.”²

They go on to ask a series of leading questions concerning matters of the standard of care concerning CBCT. Of course, their answers lead to the conclusion that dentists should be

held responsible for reading the entire scan. The experts cited are, surprise-surprise, Oral and Maxillofacial Radiologists. They also support their position by citing the California Dental Practice Act which defines dentistry to include “diagnosis or treatment, by surgery or other methods of diseases and lesions” of the “jaws or associated structures.”² They cite as an example a tumor in the anterior maxilla found in the course of implant planning. However, they recognize that much of the scan would be outside of the traditional scope of a dental license. They suggest the law will expect to “always prudently err on the side of caution and presume a dentist is obligated to recognize pathosis in the entirety of the CBCT scan...”² In my opinion this would be a large expansion of the risks and responsibilities inherent in practicing dentistry.

Zinman et al. further state:

Peer-reviewed literature and numerous dental specialties who support the concept that a dentist must identify suspicious conditions within the entirety of a CBCT scan may provide the greater weight of expert opinion to

any future court ruling that a dentist practices within the scope of the practitioner’s dental license when identifying abnormalities in the CBCT scan’s entire volume and/ or referring for a final diagnosis.²

These statements amount to a warning of how future plaintiffs’ attorneys may attack the defendant to establish a new legal standard of care in court. Since the standard of care is alternatively defined as being established at “the first time a doctor is successfully sued for not doing something,” it behooves prudent dentists to act defensively in their practices. If this means ordering CBCT scans to practice defensive dentistry, the costs may be added to the ever growing list of procedures done based on actions by the plaintiffs’ bar.

***Unfortunately,
Hatcher and Curley state:***

The term “standard of care” is generally defined as what a reasonable and prudent health care provider would do or should have done. The law requires that a dentist meet or exceed the standard of care. Failure to do so is considered professional negligence, com-

monly called malpractice.¹

A dentist must use a “level of skill, knowledge and care” that other reasonable practitioners would use in diagnosis and treatment under similar circumstances. This requires dentists to stay current with the advances in techniques and technologies. Hatcher and Curley further state that because CBCT meets the legal tests for admissible scientific evidence for legal testimony that the “CBCT meets the legal definition for a standard of care for imaging.”¹

While I know of NO CASES where dentists have been held liable for diagnosing in areas outside of the traditional scope of dental practice, it doesn’t take a crystal ball to see that sooner or later, as the usage and private dental ownership of CBCT equipment increases, cases will emerge holding dentists liable for diagnosis or recognition beyond the traditional scope and training of a dental license. Zinman et al. state that the dentist ordering the CBCT scans is the responsible party concerning diagnosis. This puts on the dentists, squarely, to be aware of these increased risks and to act to limit legal exposure. There are several things that can be done to mitigate the risks. First, when ordering a scan, ask that the smallest FIELD OF VIEW (FOV) possible be used.

Zinman et al. state:

CBCT scanners can be categorized according to the field of view, FOV, as large, medium, and small FOV units. A large FOV can include intracranial structures, the base of the skull, para-



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nasal sinuses, cervical spine, neck, and airway. A small FOV is typically limited to the maxilla or mandible, exposes fewer anatomic structures, produces less scatter, creates fewer artifacts and in general provides a higher resolution image. Thus, the smallest FOV of a CBCT available that covers the area of interest should be chosen.²

Second, have all your scans read by an Oral and Maxillofacial Radiologist. Also, when referring out to a

radiological lab, write "Read Entire Scan" and "Use Smallest FOV" on the orders. This will probably not prevent you from being named in a suit if a patient has a complaint of a missed diagnosis of some pathology. However, it provides an affirmative defense in that you relied on the superior knowledge, skill and responsibility of the specialist in reading the scans.

Third, I strongly recommend that if you use CBCTs in any form that you

read these articles from the Journal of the California Dental Association. They are very informative about not only the legal aspects of CBCT usage but the technical aspects as well. There are a number of additional risks discussed beyond those of this article that are worth being aware of to protect yourself. The articles are available free online at the website of the California Dental Association: www.cda.org. Knowledge is the best defense!

References:

1. Curley A, Hatcher DC, Cone Beam CT – Anatomic Assessment and Legal Issues: the New Standards of Care. J Calif Dent Assoc 37(9) 653-62, 2009
2. Zinman EJ, White SC, Tetradis S, Legal Considerations in the Use of Cone Beam Computer Tomography Imaging. J Calif Dent Assoc 38(1) 49-56, 2010



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