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IMHO

The Psychology of Change

I'm sure many of you out there reading this are wondering why there are critics of Neuromuscular dentistry if it's so logical? Why they ignore the THOUSANDS of research articles supporting NM dentistry and say there is no science behind it? Why they ignore the heartfelt testimonies of patients whose lives have been dramatically changed by eliminating a lifetime of pain through neuromuscular treatment? Why they ignore the thousands of dentists whose practices have been enhanced through the patient benefitting powers of NM dentistry and thus have become raving fans? Truth is, it's a one way street. Thousands of CR trained dentists have come over to the logic and science behind NM dentistry and yet no NM dentists are converting to CR dentistry. Doesn't that make you wonder? We at LVI have been involved in NM dentistry for the past 12 years. The logic, science and advancements that we have seen in the past 12 years are remarkable. There are two volumes (a third one on its way) of thousands of scientific abstracts that support NM dentistry that one can acquire by calling LVI or going on our website, www.lviglobal.com. And the question that we often get from those being introduced to NM dentistry is, "It just seems so logical! Why do some people (usually referring to CR experts) not see that?" Well, the answer is... They have never been here to find out the truth. They have heard things from CR experts who have a vested interest in NM being wrong. And those experts, even though personally invited by me to come out as my guest, have never been to LVI to find out for themselves either. Some have outright refused to come and listen. How open minded is that? Change is difficult for anyone. It is human nature to resist change. Personal change requires action or energy. It is easier to do nothing than to do something. Usually there is also a monetary cost so people look for reasons not to change. They will grab on to the one thing that may seem to justify their inaction. The problem is that their patients don't receive the beneficial treatment they might have if their doctors had "changed" and the dentists miss out on a wonderful, empowering way to practice dentistry.

Thomas Jefferson described the three stages of CHANGE:

Ridicule
Violent Opposition
Acceptance

Don't be the last to "accept" the logic and science of NM dentistry. Don't let the ignorance of others or your own reluctance to "change" prevent you from enjoying your profession and providing a life changing benefit to your patients. Don't prevent yourself from having a rewarding, satisfying and exciting way to practice. Watch dentistry become your "hobby". In an independent survey, 99.7% of LVI dentists LOVED being a dentist. How about you?

Love and Gratitude,

William G. Dickerson, DDS, FAACD, LVIM

contents



on the cover

Kim Bradshaw

Kimberly Bradshaw, President and CEO joined MicroDental/DTI in November 2007. Ms. Bradshaw has over 21 years of customer service, sales support, warehouse management, and logistics experience, primarily in the medical device industry. She is a qualified management professional combining cross-functional management talent with experience strengthening global, organizational infrastructures within core disciplines of manufacturing, operations, service and sales.

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Heidi is the VP of North American/ Australian Operations at LVI Global. She has helped share the Neuromuscular philosophy by her clinical teachings and her international lecturing. In 2010, she was named one of the Top 25 Women in Dentistry.



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Sherry is the Director of the Dynamic Team Program at LVI Global. She has more than 33 years of experience in most forms of practice management, dental systems, as well as a strong focus on patient satisfaction, which make her uniquely qualified to enhance any dental practice.



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Dr. Lachman earned his D.D.S. degree from University of Toronto 1996. He is a solo family practitioner in Lethbridge, Alberta, Canada. Dr. Lachman has completed extensive training at LVI.



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Dr. Malin received his D.D.S. degree from Marquette University in 1991. He maintains a private practice in Sparta Wisconsin. Dr. Malin's dental practice is exclusively limited to the surgical and restorative phases of Implant Dentistry. Dr. Malin is also the Director of the Implantology and Bone Grafting Courses at the LVI Global.



J. Brian Allman, DDS, DABDSM, DAAPM, FAGD, FAACP, FICCMO, FAGD, FAAFO

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 the director of the Dental Sleep Medicine courses at LVI Global in Las Vegas.



Tim Twigg, Bent Erickson & Associates

Tim is the President of Bent Erickson & Associates. For over 30 years, the company has been recognized as the leader and most trusted name for human resources, products, services, and support for health care providers.



Lee Culp, CDT

Lee Culp, CDT is the CTO Chief Technology Officer at DTI Technologies, where he guides the development of the DTI digital technologies program, and their applied applications to restorative dentistry.



Dan Jenkins, DDS

Dan Jenkins D.D.S. is the President-elect and Editor of the IACA. He is a graduate of Loma Linda University School of Dentistry. He is a Fellow of the American College of Dentists and the International College of Dentistry. Dr. Jenkins is a clinical instructor for the Las Vegas Institute for Advanced Dental Studies.



S. David Buck, DDS, LVIM

Dr. Buck maintains a full time private practice in Seattle, WA dedicated to neuromuscular TMJ/TMD, cosmetic dentistry and biocompatible dentistry. Dr. Buck treats complex neuromuscular full mouth cases, and provides NM based treatment for TMJ pain patients. Dr. Buck is a Regional Director and Clinical Instructor at LVI.



LVI INTERVIEW

Kimberly

How did you end up working at MicroDental/DTI?

I am from the medical device industry where I spent the majority of my career working in the spine and cardiology sectors. I was working for one of HealthpointCapital's portfolio companies in Carlsbad, California when I was introduced to John Foster, the Chairman of HealthpointCapital. Shortly after Healthpoint acquired MicroDental and DTI, John identified that this unique industry was a relationship business and asked that I look at it from a service perspective.

I found the business really interesting. While it had many similarities to the medical community, it was also very different. I had some work to do to thoroughly understand the nuances. The process started by surveying, visiting, or talking to over 700 customers in my first year. I couldn't believe how willing our customers were to tell me the truth about what they needed (and weren't getting) from their laboratory. Some days were pretty rough; after every tough call I would say to myself "this is the opportunity". The feedback I collected became action items and deliverables to the organization.

The work has been hard. The changes were tough on the company, the employees and its customers. There is no substitution for hard work and facing challenges head on. Within a year we started to see real change take shape.

In July of 2009, I assumed the role as President and CEO of MicroDental and DTI. The last 24 months have been the experience of a lifetime for me. I had three goals that I focused on in my first months at the helm. 1. To build a values-based culture where our customers receive great value and superior products and services;

whose employees thrive and prosper. 2. To build one of the industry's strongest management teams; a team with fortitude, business acumen, values, technological depth and industry experience. 3. To build a cutting edge strategic plan that would catapult the company to lead the digital revolution.



Bradshaw

Micro DTI has been involved with LVI for well over 10 years. Can you explain to everyone why you decided to join the LVI mission as one of its major sponsors?

The opportunity to be associated with the prestigious, postgraduate teaching institute, LVI, offers many opportunities for a progressive lab: education for dentists, training for lab employees, recognition from the association and its affiliates, and the ability to grow together for the greater good of dentistry. We are very proud to be a part of something as special as LVI.

What are some of the new materials/technology out there today that many practitioners may not be aware of?

MicroDental has always been at the edge of material introductions to the industry. We were one of the first proponents of the aesthetic/cosmetic revolution that occurred in the 1990's with our commitment to Empress. Building upon the success of Empress, today we are one of the industry leaders in the fabrication of eMax restorations.

We find a general lack of awareness of the new digital technologies that are available to fabricate dental restorations. MicroDental's commitment to the digital revolution leads us to develop advanced digital communication and digital manufacturing platforms. We are working with several digital developers to further improve and create technologies that foster an even better working relationship between the dentist and the laboratory.



How has the economy affected the type of restorations general dentists are asking for? Versus LVI dentists?

We find that dentists associated with LVI, have a greater understanding of clinical dentistry. The dentist who provides advanced treatment options and possesses business savvy attracts and works on patients who need and want comprehensive dentistry. We see that dentists who have not invested in their education react to the economy by lowering their prices, which leads to a host of other practice challenges. Some of our clients are treating the "perceived" economic status of their patients rather than doing the dentistry that their patients' truly need.

LVI can show you how to stay ahead of the curve

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your business

invest
your time

receive
education

save
your money

register

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- Define the options for porcelain restorations and the preparation and temporization necessary to accomplish the restoration.
- Implement better cementation techniques and more efficient administering of anesthetics for the patient.
- Understand the best procedures for diagnosis and treatment planning and better communication with the patient.
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- Define the four categories of marketing.

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How do you see the relationship between the doctor and the dental lab technician? What advice can you give the doctor and team as to their interaction w/ the lab for optimum results?

There is no doubt that the key to success in the technician/doctor relationship is the quality and level of communication between both.



We work with two different types of dentists. The first, which we prefer, is a relationship built from respect, understanding, communication, education and occlusal philosophy. It is important that both the technician and the clinician are trained in the same philosophy which paves the way for predictable restorative success. Education is a two way street; the MicroDental technical team is expected to take ongoing LVI lab coursework to stay current and relevant with the changing neuromuscular advances that are taking place.

The second client is one who does not follow a particular restorative or occlusion philosophy. Many of these clients see fewer rehabilitation cases, and experience frustration with their restorative outcomes because they struggle to communicate through the complexities of difficult dentistry.

How should a dentist choose a lab? There are a lot of them out there... what makes your lab special?

"Education is a two way street..."

As with most service businesses, it is not only more cost effective but also more efficient to the dental practice to work with a company that provides the total solution. The ideal lab should not only offer specialized products encompassing all aspects of prosthetic dentistry, it must understand the operations of a dental practice and offer services to help that practice grow and become more successful.

MicroDental understands the importance of education to its dentists and is committed to advanced education. We partner with dentistry's most prestigious postgraduate dental institutions; LVI ranks as a best in class. MicroDental is recognized as an industry leader in education and has assembled a world-class educational platform.

MicroDental is committed to the overall success of their Dentist partners.

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What is the best way for dentists to learn the materials your lab has to offer and how can they receive training on how to use them properly?

In our endeavor to serve our clients, we have many avenues to provide outstanding technical and administrative support. Any given year, MicroDental hosts programs in different regions of North America where we cover topics ranging from materials, technique, practice management, new products and technology.



If a client is unable to attend one of our programs, that's okay. Internally we have the Tech Services Division along with a strong Technical Leadership team available to handle the most difficult questions.

Additionally, if a client prefers a more intimate educational environment, the organization has invested in the deployment of a team of Laboratory Resource Consultants who can coordinate a product debrief in their office. We currently have coverage in most of the contiguous US states with multiple reps in many of the larger metropolitan areas.

Finally, our Corporate Ambassador for LVI is Vickie Reisman. Vickie coordinates the regional events and their marketing efforts. The information she collects gets filtered into the corporate support systems to continuously improve our products and services for our LVI clientele.

Can anyone send a case to your lab?

"Commit to a life of learning."

In short, yes, but allow me to elaborate. Although MicroDental specializes in high-end restorations, we understand that there are different needs for different patients. To that end, MicroDental offers three product tiers to help every dentist find the perfect solution for each patient. The MACSTUDIO line was developed with the philosophy of treating the complete smile, and is ideal for the patient who wants the highest level of aesthetics with an artisan's touch. The MicroDental Classic line was developed with the knowledge that many patients are looking for a highly aesthetic outcome at an affordable price, and was designed for the patient who requires a combination of restoration of function and aesthetics. Finally, the MicroDental Essentials line provides an economical solution for the patient who needs to restore function with nice aesthetics.

What are some of the advances that you see happening in the laboratory aspect of our profession in coming years?

Thanks to Lee Culp, our Chief Technology Officer, we are capitalizing on the capabilities and the many uses of CAD/CAM. It is no longer “a nice to have” product, it is a requirement for any lab in existence today. Our commitment to innovation has us layering in technologies that have been tried and used in other industries for years. The term Digital Dental Laboratory is loosely used today; many believe they are a digital laboratory because they have a scanner and/or an output device.

The model we are building combines both aspects of a conventional dental laboratory with the technological advantages of an internal “technology center”. This model takes advantage of the speed, versatility, precision and total vertical integration that having an internal CAD/CAM center can offer. By having an internal technology center, MicroDental/ DTI retains exclusive control of the restoration fabrication processes, both digital and conventional, while offering customers exciting innovative services that will give them an edge.



What is the biggest challenge in dentistry today?

The economy and the availability of disposable income is certainly a challenge for many of our clients today. That said, I do believe that the patient(s) not only need, but want what we offer; they just don't know it yet. It's up to us to present options in a compelling way; we can all do a better job at that.

The off-shoring of dental restorations has posed a real challenge for both the industry and its customers. We have clients whose practices are struggling, and are doing what they can to generate profit so they send their impressions overseas to save a few dollars on the front end. I can't tell you how many come back after they've had their first challenge. All too often I hear that a case was lost, or it got stuck in customs, or what they saved on the cost of the unit was spent on shipping, or the lead times are too long, or the communication was difficult.

I believe that both our doctors and their patients have a right to know where their products are manufactured. Some are not always forthright with the information, it's a real shame. Selecting a laboratory is an important decision for a practice; they should interview a lab just like they would a prospective employee.



What do you think
the future of
dentistry is and
why?

There are amazing opportunities for the dental profession to grow and prosper in the coming years. We have seen more technological changes in the last five years than we did in the previous 50. Innovations

in digital dentistry from intraoral impression systems to the robotic manufacturing of dental restorations offer unprecedented advantages for both the dentist and dental laboratory. Working in a digital format will not only offer more predictable restorative outcomes, but will offer a 3-D communication forum, where dentists, specialists, and laboratories can all meet and collaborate to offer patients the best outcomes. Digital design, manufacturing, and processing have offered a new way of thinking in material development. Materials that were once considered irrelevant to our industry because of past fabrication methods have become available with digital technology. It is all very exciting.

"Change is the law of life and those who look only to the past or present are certain to miss the future."

If you could give a
piece of advice to
dentists out there
what would it be?

Commit to a life of learning. Euripides was quoted as having said "Whoso neglects learning in his youth, loses the past and is dead for the future". With each learning experience we deepen as human beings. Learning applies to all aspects of life whether that is advancing clinical knowledge, adding a new technique or service, learning a new communication style, reading a book or taking a dance class. Learning is a prerequisite for growth. If we stop learning, we stop growing, and we stop living.

Successful clinicians understand the importance of keeping their skills current and relevant by investing in continuing education at institutes such as LVI while embracing technology and insisting that partner dental labs do the same. These are truly exciting times and opportunity abounds—for those willing to embrace change. To quote John F. Kennedy: "Change is the law of life and those who look only to the past or present are certain to miss the future."

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GEAR UP

TO PRESENT COSMETICS:

Want to stir the interest of cosmetic procedures with your patients? Gather together all those verbal and non-verbal communication tools, boost your team's enthusiasm and let's get moving. No more excuses about the economy. An article written by Jack Cafferty, CNN, on March 10, 2010 reported that: "despite record unemployment, rising health care costs and sinking home values - Americans shelled out more than \$10 billion on cosmetic surgery and other procedures last year." Some insist there's a direct connection to the lousy economy. One plastic surgeon says; a lot of people have cosmetic procedures done to increase their chances of finding a job; he says "people think if they look better, they're more likely to get work, and beat out someone who doesn't look as good." So let's help those patients that want to be helped!

By: Sherry Blair





EVERY DENTIST IS A
COSMETIC DENTIST.

EDUCATION:

The Dental team, by far, has more opportunity to educate the patients than the Doctor. However, they can't create value in a dental procedure that they don't value themselves. It's usually not resistance but more of a lack of understanding. After all, every dentist is a cosmetic dentist. If you don't believe me, open the yellow pages. Why are you "truly" a cosmetic dentist? Does your team know? Have you shared with them the 10 steps to a smile design? Do they understand golden proportions, and color mapping? Do they know how much continuing education you have or is their perception that you went to a weekend course for cosmetic dentistry? Sure, your assistant "gets it". He/she sits side by side with you day in and day out. But what about your hygienists and your administrative team? Why not do a presentation for your team at your next team meetings so they can get fired up about changing a patient's life.

A woman with blonde hair, wearing a black blazer and pants, is jumping joyfully with her arms raised and a wide smile. Next to her, a man in a white shirt and dark tie is also jumping, holding a camera up to his eye as if taking a picture. The background is plain white.

A PICTURE IS WORTH A THOUSAND WORDS.
COMMIT TO TAKING PHOTOS

PRESENTATION TOOLS:

1. **A picture is worth a thousand words.** Commit to taking photos, including smile photos on each and every new patient that walks into your practice and on all existing patients coming in for their continuing care visit.
2. **Use your before and after photos** but make sure each team member is familiar with not only the photos, but the patients story. Use similar photos and stories as your patient is present in the chair. Don't show the 35 year old female that wants longer teeth a photo of a 58 year old male that wanted straighter teeth.
3. **Before and after models/wax ups of other patients** are also a great visual aid. Hand the models to your patient and get them to hold them for a while.
4. **Have your patients fill out a Smile Survey.** Keep the conversation light. When they come in for their continuing care visit just let the patients know that we are updating their file and want to put the Smile Survey into their records and ask if they would mind taking a minute to fill it out.

PEOPLE BUY ON EMOTIONS NOT LOGIC.

PEOPLE THINK IN PICTURES.



PRESENTATION VERBIAGE:

1. **Never ask a patient if they want to change their smile.** People smile with their whole face; their eyes, cheeks, lips. If your patient has received lots of compliments on their smile because they have a cute dimple, they may say “no, I get lots of compliments on my smile.” Instead ask “Is there anything about the appearance of your teeth that you might want to change.” That’s a different question.
2. **People think in pictures.** Get them to “see” their perfect smile by asking more questions. If they say they want whiter teeth, ask “how white?”. What about the shape of their teeth? How much longer? How much wider?
3. **Start with where the patient “is”, not where you think they are.** By asking more questions you will discover if they have already done a lot of research on whitening procedures, or veneers, or if they know nothing about them. Those would be two different conversations with a patient. If you don’t find out what they already know you might bore some of your patients or not give enough information to others.
4. **Remember that people buy on emotions not logic.** Get the patient to talk about how this new appearance would change their life. Would it help them to get a new job or that promotion? Would it make them feel **better about their social life?**

By “Gearing Up” on education, presentation tools and verbiage, you will increase the interest of cosmetic procedures with your patients.

A Sunsational
IACA MEETING
in San Diego

DAN JENKINS DDS, LVIF, CDE-AADE





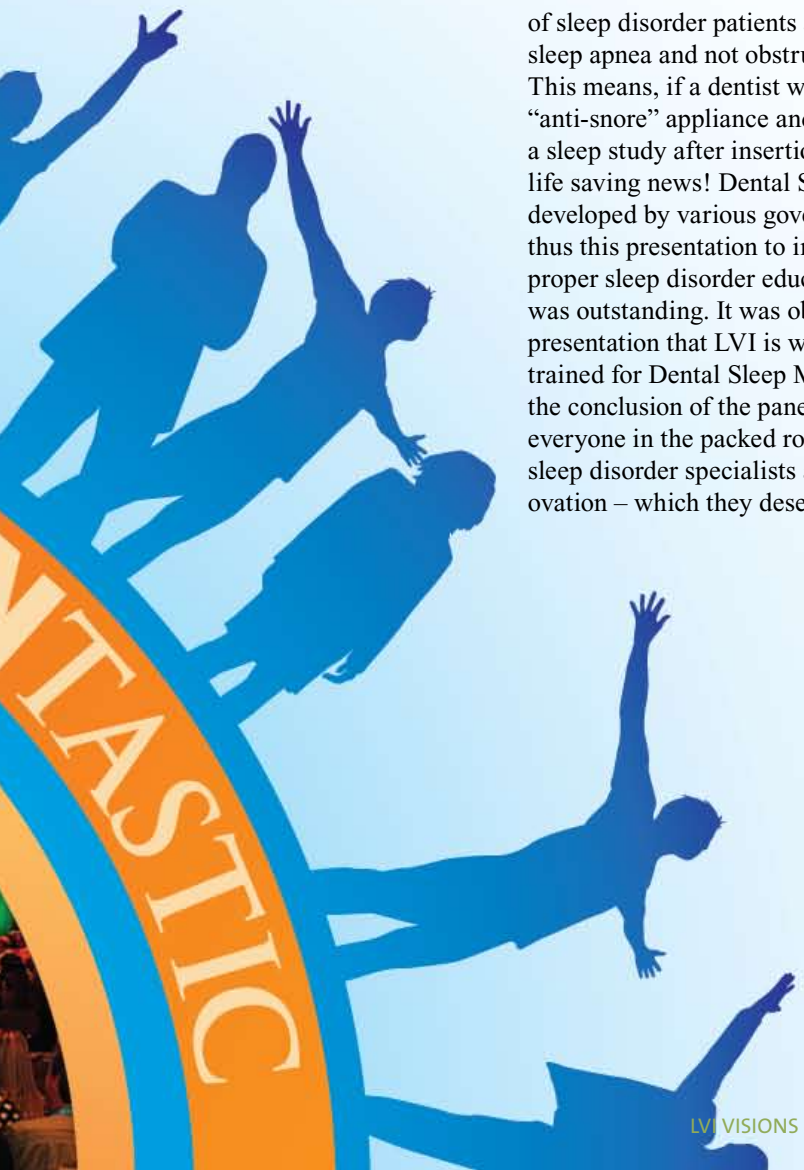
The IACA president Prabu Raman opened the 2011 International Association of Comprehensive Aesthetics in San Diego California with a burst of enthusiasm by having comic-speaker, Mr. Tim Gard, provide the opening address. Mr. Gard told his stories to produce gallons of endorphins from the laughter among the attendees who came from all over the USA, Canada, Australia, and Russia. He showed them his personal “policy manual” to get his way in the world. This year’s increased number of attendees were so “pumped” afterward that they were inspired for the whole three-day meeting.

One of the most popular topics in the conference was on new concepts in sleep apnea treatments, (Dental Sleep Medicine). Dr. Brian Allman and a panel of physician specialists, (Dr. Michael Lucia, a pulmonologist, Dr. Samir Damani, a cardiologist, and Dr. Ronald Mathiasen, a rhinolaryngologist), discussed the concepts of integrating dentists into the treatment of sleep disorders. One of Dr. Lucia’s comments that stood out was that “30-40% of sleep disorder patients actually have central sleep apnea and not obstructive sleep apnea.”

This means, if a dentist were to just give a patient an “anti-snore” appliance and not have them checked with a sleep study after insertion, it could make them worse. This was life saving news! Dental Sleep Medicine guidelines are being developed by various governmental regulatory bodies and thus this presentation to inspire the need to receive proper sleep disorder education and training was outstanding. It was obvious from this presentation that LVI is where to be properly trained for Dental Sleep Medicine. At the conclusion of the panel’s presentation everyone in the packed room gave these sleep disorder specialists a long standing ovation – which they deserved!



... they were inspired for the whole three-day meeting.



One of the major areas of emphasis of the IACA is TMJ Dysfunction.

Dr. Peter Pang and Dr. Jay Ohmes provided two presentations on lasers in dentistry. More and more dentists are getting into laser use. Currently, about 30% of dentists in the USA use a laser in their offices. Due to the increased type of procedures possible with the all-tissue lasers it is now possible to not only do hard tissue contouring, but also soft tissue contouring for achieving the desired golden proportion for top cosmetic results – with ease. Dr. Pang stressed the importance of abiding by safety guidelines when using lasers as well as updating on the ever ongoing improvements in dental laser technology – including low level laser therapy, (lllt). Dr. Ohmes went into great detail on how to use the all-tissue laser for both hard and soft tissue crown lengthening and contouring – it was outstanding!

One of the major areas of emphasis of the IACA is TMJ Dysfunction. Presentations on TMJ Dysfunction and Craniofacial Pain were provided by Dr. Gary Wolford, Dr. Jay Gerber and Dr. Tony Pensak. Because the IACA embraces the comprehensive practice of dentistry the areas covered at this meeting also were; practice management for dentists and the team members, (Ms. Ginny Hegarty); laboratory techniques for the dental lab technicians; (Mr. Mike Milne and Mr. Jurgen Seger); top level dental hygiene protocols that will distinguish your practice from others while providing the best prevention of dental and medical disease for your patients – if you wish to achieve that, (Ms. Jill Taylor); communication and relationships among the team, (Ms. Sherry Blair), patients, (Dr. Amy Norman; Dr. Drew Markham; and Ms. Debbie Castagna and Ms. Virginia Moore), and other dentists, (Dr. Omer Reed); implants, (Dr. Leo Malin); posterior composites, (Dr. Ron Jackson); new dental products, (Dr. Mark Duncan); pathology vs. ageing connection between nutrition and collagen, (Dr. Norman Thomas); and efficient endodontics, (Dr. Kit Weathers).

While most of the presentations were scientific in nature many at the conference felt the typical camaraderie of an IACA meeting.



The Friday morning keynote presentation by Mr. Dave Weber got everyone “stoned.” After telling his allegory of the slaying of Goliath and encouraging everyone how to have the confidence to slay the “Goliaths” in their lives he provided small stones from the “Valley of Elam” for each of the attendees. These were to remind them of their ability to overcome their own Goliaths. These Goliaths may be personal ones such as fears of flying or insects. They may be professional Goliaths such as being able to do implants or learn Dental Sleep Medicine. They may be the Goliaths of those who oppose our own treatment philosophies – and like David, we will prevail!

The camaraderie continued during the nighttime activities with dancing, going to a San Diego Padres baseball game in a reserved suite for IACA members, (unfortunately...the Padres lost!), and an “Oscar Night” for those who recorded “Karaoke” type video’s of various movies. The person would be imaged into a character in a scene and read that character’s lines – or ad libed. The videos were played on Saturday night and winners were determined by those present.

Saturday’s closing reception was aboard the USS Midway for a tour – and a party to celebrate the new board member election on the flight deck overlooking San Diego Harbor for sunset. Dr. Randy Jones was inducted as the 2012 president of the IACA and Dr. Dan Jenkins was inducted as president elect. Dr. Sholina Kherani was elected as a new board member. Dr.

Prabu Raman, Dr. Joe Barton, Dr. Manisha Patel, Dr. Anne-Maree Cole, Dr. Jim Harding, Dr. Dianne Benedictson, Dr. Mark Duncan, Dr. Drew Markham, Dr. Chong Lee, and Dr. S. David Buck remain on the board.

Dr. Terry Yacovitch from Canada stated a common feeling about this meeting: “From the opening day launch, to the after-hours festivities, to the closing event on the USS Midway, and then the After Dark party afterwards, this San Diego IACA welded the new, with the die-hard into one cohesive, friendly, supporting family.

The legends like Dr. Jankelson, Dr. Reed, Dr. Thomas, Dr. Gerber, Dr. Jackson, Dr. Weathers, Drs. Bill and Heidi Dickerson, Dr. Durham, Dr. Wolford, Dr. Kherani, Dr. Duncan, Dr. Malin, Dr. Pang, Dr. Allman, Ms. Sherry Blair and so many more were approachable and engaging whenever a chat occurred.



*The relationships...
this IS the true spirit of the IACA.”*



ask
Heidi

Q

Dear Heidi,

Can I use my Diode to cure my toe nail fungus?

Dr. Cass

Georgia

A

Dear Dr. Cass,

To my knowledge, dental diodes are not FDA approved for this particular procedure, **HOWEVER**, these same diodes are used in the practice of Podiatry. So, they should work.

Search the subject online and you will learn much, much more.

Hope it helps you,

Heidi



Q

Dear Heidi,

I am having an issue with my hygienist. She will NOT use her Piezo at all... and claims she does a better job hand scaling. We are a very progressive, high tech office. How can I convince her to step it up and use the Piezo? Any advice would be appreciated,

Dr. Hayat

Texas

A

Dear Dr. Hayat,

Thank you for your question, it is one I have received many times and needs to be addressed. We need to have the best possible treatments available for our patients. Although hand scaling is effective, use of Piezos and/or Cavitrons are both tools of choice in regards to the research in biofilm debridement. They are MUCH more effective than hand scaling!

Training is also very important. Perhaps she will not use the technology because she has not been properly trained? Many hygienists DON'T use the right and left tip/inserts, only because they have not been trained on how to use them. They learn to use ONLY the straight universal tip. Both the Magnetostrictive and Piezo technology has right and left perio insert/tips now.

Your game plan would be to have her take a hands-on course so that she learns how to properly use the instrumentation, she will then feel more confident implementing it. I'd also sit down with her and let her know 'why' it is important to use it and how it will benefit the patient. Lastly, remember that you are the 'leader' of your office. Present to her what YOU expect her to do regarding perio therapy, provide the correct training and support, and watch that part of your practice soar!

Keep us posted on your progress,

Heidi

Q

Dear Heidi,

This is embarrassing to admit, but some of my patients can literally turn my stomach! I am the kind of person that does not do well with 'smells' and if a patient comes in and has really bad halitosis I almost feel sick! My team giggles when they sense this is about to happen (after all, I am a dentist, it's hard to get away from bad breath!)... however, it really isn't funny. Through the years I have tried many things to get over this -help!

Sincerely,

Dr. J. (I'm keeping my name obscured!)

Colorado

A

Dear Dr. J.,

I am definitely not laughing at your plight, as I too have issues with 'smells'! Anyone that knows me will tell you that the slightest malodor grosses me out! I have had experiences just like you in my dental office from more than halitosis. Once I had a new patient come in from a hot day of horseback riding, the smell of horse, barn, sweat, and obvious periodontal disease was all I could bare. I excused myself from the operatory and the team placed a cotton 2x2 (dipped in Listerine) inside my mask, as a 'filter'! I made it thru the appointment, yet still wonder why the patient didn't shower prior to coming in!

Unfortunately, we deal with smells all the time. Halitosis is our greatest issue and one we can do something about. Halitosis has a number of causes: food odors, periodontal disease, tooth decay, stomach problems, sinus problems and even certain diseases can cause halitosis.

Once we know the cause we can then provide the proper treatments and/or referrals.

One quick thing you can do prior to a new patient visit is have the patient brush and floss their teeth and then rinse/gargle with CloSYS II for several minutes prior to your coming in to do the exam.

Most bad breath is caused by volatile sulfur compounds (VSC) which are formed by the breakdown of bacteria and cells. Plaque is a common source of VSC's. CloSYS II destroys the sulfides which cause the halitosis odor. Unlike most mouthwashes, it will have a sustaining affect throughout your exam.

Lastly, you might want to consider doing an initial exam to diagnos the patient's periodontal condition. Create your treatment plan and then have the therapy performed by the hygienist. After the completion of perio therapy, carry on with your comprehensive exam and restorative phase. This way, YOU are working on the patient when they are disease and 'odor' free!

Good luck!

Heidi



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-Dr. Curtis Westersund, DDS
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DENTAL SLEEP MEDICINE: A NEW PARADIGM!

J.Brian Allman, DDS, DAADSM, DAAPM, FAGD, FICCMO, FASGD, FIAO, FAAFO, FAACP

“Sleep medicine is the fastest growing specialty in medicine. And, it is about to change quite dramatically!” attests Dr. Teofilo Lee-Chiong, world renowned sleep specialist and keynote speaker at LVI’s upcoming Level 3 Dental Sleep Medicine Sleep Symposium (October 12-14, 2011). Dr. Lee-Chiong further contends that due to the prevalence of obesity (primary risk factor for obstructive sleep apnea), the demand for sleep specialist’s services will rise dramatically while reimbursement rates for related medical services will fall. “Sleep medicine may soon become a primary care physician’s burden with portable monitoring replacing polysomnography (PSG) in an effort to ease budgetary constraints.”

While diagnoses of sleep-disordered breathing conditions, such as obstructive sleep apnea (OSA) and upper airway resistance syndrome (UARS), are reaching a hockey-stick like increase, driven by pandemic obesity, public awareness, primary care physicians interest and education, peppered with a demand to “stop the snoring,” the dental profession remains, for the most part, idle. Unanswered are medical sleep specialists’ requests for competent oral appliance therapy (OAT) provided by competent and collaborative dentists; they know OAT works, do we?

Luckily, though inadequate in numbers, dental opinion-leaders are slowly starting to realize that medical and dental clinicians need to collaborate to optimize therapeutic outcomes. For example, an uncontrolled type 2 diabetic’s periodontitis would be better served by consultation with an endocrinologist in collaboration with a dentist. Similarly, medical sleep specialist’s management of obstructive sleep apnea must include mandibular advancement devices (MAD) fitted by dental sleep medicine physicians. It is time to nurture a multimodal approach to managing OSA and no longer is it acceptable to harbor a CPAP versus MAD approach. Often, it is necessary to provide combinations of therapy including CPAP, OAT, behavioral therapy (e.g., weight loss) and surgery (e.g., airway and bariatric). As part of a multidisciplinary team, dental sleep medicine physicians are responsible for the mechanical management of airway with FDA approved appliances.

An example of a successful OAT outcome is the following case of Emilia, a 63 year-old-female referred for oral appliance therapy by her sleep specialist due to CPAP intolerance. It is always important to ascertain the nature of a patient’s CPAP difficulty. In Emilia’s case, she suffered from extreme claustrophobia and multiple attempts to wear the pressurized apparatus proved futile. Emilia was originally diagnosed with severe OSA with an apnea-hypopnea index (AHI) of 52 events per hour, well above normal (AHI 5/hour).

Referral from a sleep physician for OAT is the first step when treating a patient with oral appliances for OSA (See fig.1). Dental consultation should include patient education regarding OAT maintenance and side-effects, titration regimen and follow-up protocol. It is also advisable to entertain the possibility of combination therapy should OAT require complementary therapy. Many patients benefit greatly from both low pressure CPAP (5 cm H₂O) to splint airways laterally and OAT to posture the mandible and related structures anteriorly.

Emilia was fitted with a SomnoDent MAD (See fig. 2) and given appropriate titration instructions. In addition, a 3 millimeter Bioplast (Great Lakes Orthodontics) “Chew Toy” (See fig. 3) was heated and indexed intraorally. The soft morning exercise appliance aides repositioning of habitual craniomandibular and dental relationships following OAT tractioning and clinically has demonstrated a significant impact minimizing occlusal changes and TMD side effects. Supportively, medical literature clearly reflects the contention that OAT side effects are manageable, self-limiting and of minimal consequence. Considering the sequelae of unmanaged OSA, occlusal changes, when they occur, are a pale consequence.

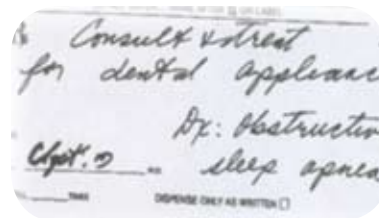


Figure 1
MD prescription and referral for oral appliance therapy.



Figure 2
Emilia with her SomnoDent appliance in place.



Figure 3
The morning-after 3.0 millimeter Bioplast “Chew Toy” covering Emilia’s lower teeth ready for indexing.

Luckily, though inadequate in numbers, dental opinion-leaders are slowly starting to realize that **medical and dental clinicians need to collaborate** to optimize therapeutic outcomes.

Following 6 months of monitoring and patient acclimatization and titration, Emilia reported complete elimination of snoring episodes, waking more refreshed, vivid and regular dreaming, and fewer nocturnal awakenings. Overall, Emilia reports clearer memory and better afternoon stamina, which is important to Emilia as she is an intensive care nurse. On her follow-up questionnaires, Emilia indicated a 100% satisfaction with her oral appliance and was very pleased with her results.

Portable monitoring (PM) studies of MAD efficacy, following an appropriate titration period, is recommended by the American Academy of Sleep Medicine (AASM) as published in the Journal of Clinical Sleep Medicine in December, 2007 (See Clinical Guidelines for the use of unattended portable monitors in the diagnosis of obstructive sleep apnea in adult patients: Portable Monitoring Task Force of the American Academy of Sleep Medicine J Clin Sleep Med. 2007 Dec 15;3(7):737-47.). Per AASM guidelines, Emilia was prescribed a PM study while wearing her MAD to sleep and provided instructions on proper instrument application. The following morning, Emilia returned her Level 3 instrument, the collected data was downloaded and evaluated algorithmically with software provided.

Emilia's overnight study revealed an AHI of 4.6 events per hour with an unremarkable oxygen desaturation nadir (SpO₂ 93%). It is important to remember that the goals of OAT are to provide oral appliance comfort and compliance, manage clinical symptoms (snoring, EDS, restorative sleep), maintain adequate SpO₂ levels during sleep and, reduce apneas and hyponeas to acceptable levels (AHI 5 per hour) as measured by Level 3 PM. Use of OAT follow-up questionnaires and Level 3 PM during and after appliance titration effectively demonstrate a high level of OAT and sets a definite standard for your medical community.

Whether Emilia's sleep numerics measured OSA positive (AHI " 5 or SpO₂ nadir below 90%) or negative, it is advisable to send two reports, both clinical narrative and PM data, to the referring sleep physician for review. Precious time should not be squandered in an attempt to re-tweak the oral appliance. It is likely that further medical diagnostic

testing is necessary as other sleep pathologies, such as circadian rhythm disorder, narcolepsy or central sleep apnea, may co-exist. Numerous medical conditions (e.g., anemia, renal failure) and issues with medication side effects may also exacerbate sleep fragmentation. Lastly, patient questioning may reveal sleep hygiene issues such as self imposed sleep deprivation, exercising too soon before bedtime, working or texting with electronic devices in bed and, excessive caffeine, alcohol or illicit drug consumption all of which can have a deleterious effect on needed deep sleep.

Our efforts are focused providing OAT to those patients medically referred for OAT to help manage sufferers' OSA and morbidity, mortality and quality of life issues. Unfortunately, intraoral stabilizing appliances may not fully manage one's OSA due to the complex nature of this disease of craniofacial anatomy, ventilatory control and respiratory chemistry. Considering the numerous co-morbidities associated with sleep-disordered breathing, it is necessary to develop collegial relationships with your medical colleagues and nurture a collaborative multimodal approach to managing OSA; The new dental sleep medicine paradigm! How lucky are we dentists to have found a conduit for multidisciplinary healthcare?

Dr. J. Brian Allman's Upcoming Dental Sleep Medicine Courses at LVI:

**Dental Sleep Medicine – Level I
(Foundations)**

November 30-December 2, 2011
April 11-13, 2012
August 22-24, 2012

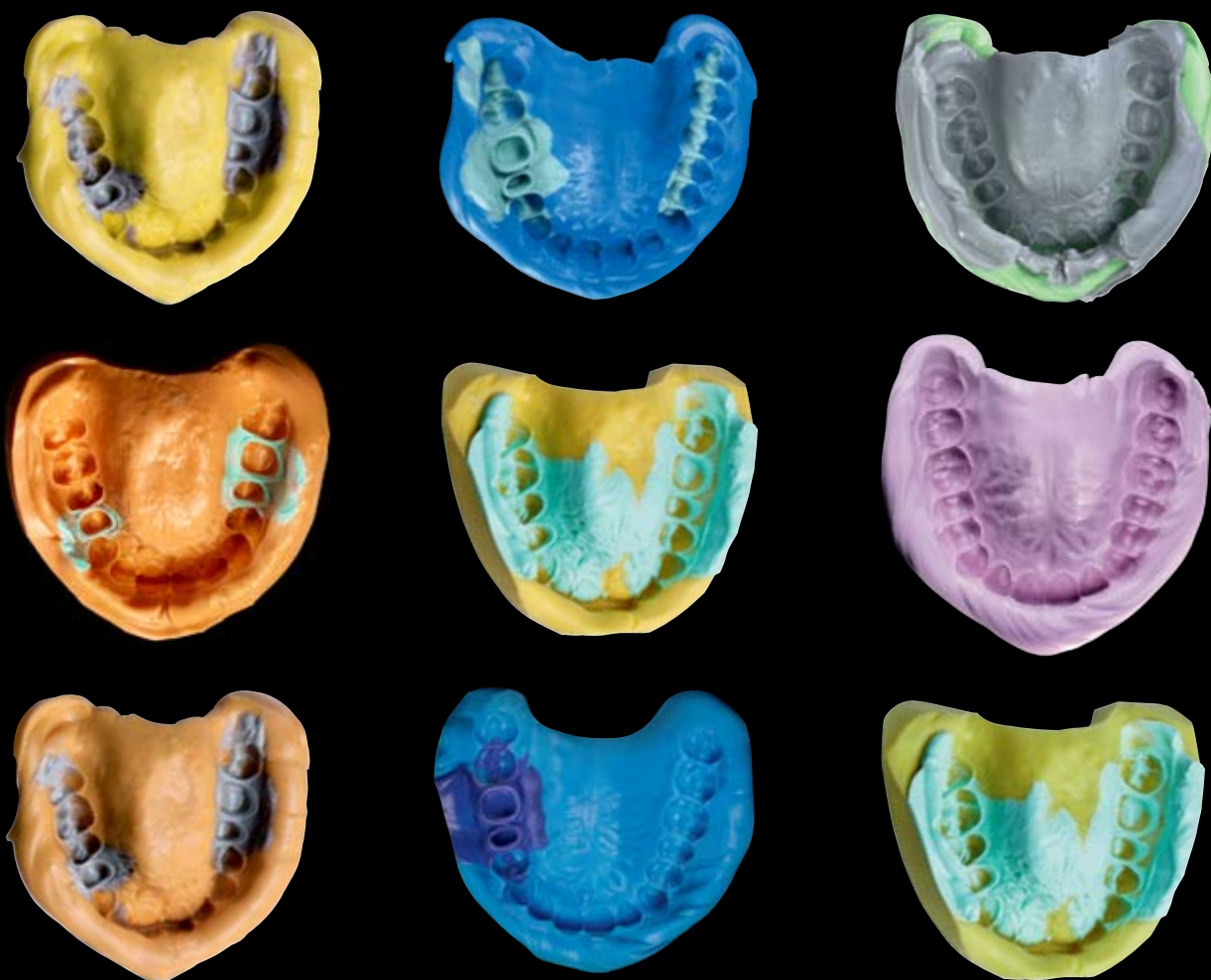
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Methods Used to Minimize *Aesthetic Implant* Challenges.

By: Dr. Leo Malin

Conceivably every implant patient treated has a functional and aesthetic challenge. At the very least they have one missing tooth that needs replacement. The aesthetic challenge to replace a single missing tooth or multiple missing teeth is highly variable.

Many times, replacing a single tooth with an implant and crown, and achieving an acceptable aesthetic result can be more challenging than replacing several teeth in the same arch. Aesthetic success or failure has little to do with the number of teeth missing, but rather is usually directly proportional to the degree of compromise that the patient presents with. The clinicians challenge in implant dentistry is to successfully remove or minimize those compromises, or at least mask the defects enough to achieve an acceptable aesthetic result. Unfortunately, we as clinicians occasionally add to the compromise by making inappropriate treatment decisions and choices, which lead to disastrous aesthetic results. Implant aesthetic success or failure is predictable, but it is also multi-factorial. Appropriate decisions must be made in the diagnostic, surgical and restorative process to be successful. In this article I will discuss what I feel are the most important considerations when evaluating an implant patient in order to achieve predictable aesthetic results.

The most important and potentially the most overlooked factors in implant aesthetic success are quite basic. The first and biggest mistake a clinician can make is to not adequately evaluate the existing hard and soft tissue support presented by the patient. Any patient that has lost a tooth has a high probability of having some bone loss as well. Bone volume is obviously needed to successfully place a dental implant, but it is equally as important to have adequate bone to support the soft tissue needed to produce an acceptable aesthetic result. Lack of adequate bone support causes vertical and/or horizontal tissue defects. Not identifying and managing those hard and soft tissue defects can destroy an aesthetic implant case before it gets started. There is not an implant on the planet

that will grow bone or soft tissue once it is placed. It's imperative to evaluate the hard and soft tissue prior to placing an implant in order to insure a predictable esthetic result.

Proper evaluation is quite simple. A soft tissue evaluation can be done simply by doing a good

The most important and potentially the most overlooked factors in implant aesthetic success are quite basic.

clinical exam, and a proper diagnostic wax up. If the size of the teeth in the wax up our inappropriate or unacceptable, soft tissue support is inadequate and the final restorations will be unacceptable following implant therapy. The hard tissue is easily evaluated

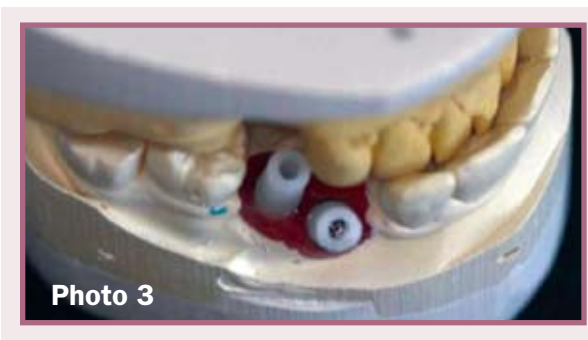
by doing a proper radiographic workup. A three dimensional view of the bony anatomy is the most diagnostic radiograph available. If the patient or clinician is not satisfied with the soft tissue profile, implant therapy should not be initiated. In those cases bone and/or tissue augmentation is an appropriate treatment choice, prior to implant therapy. On the other hand, once the defect is identified and the patient and clinician understand the limitations imposed by that defect, and are willing to accept the compromise treatment can begin. The clinicians challenge then will be to mask or minimize the defect as much as possible through the entire implant process. Techniques on how to mask those defects will be discussed later in this article. Again every implant patient is compromised. Aesthetic success depends primarily on our diagnostic capability, and our ability to minimize those compromises once identified.



(Photograph number one and two identify a good clinical example of implant case with a vertical bone and tissue defect that was easily identified in the diagnostic phase. The patient was not concerned about the defect and subsequently not interested in a grafting procedure to correct the aesthetic challenge

prior to implant placement which predictably result in a compromised aesthetic outcome.)

The second biggest challenge in aesthetic implant dentistry is caused by improper implant placement position. For example implants placed in the embrasure area between two adjacent restorations or at obtuse angles in the aesthetic zone are virtually impossible to restore with acceptable aesthetic results. In these cases the compromise is guaranteed once the surgery is over and it is virtually impossible to recover. Fortunately with the introduction of current technologies such as CT scans and treatment planning software those mistakes can be completely eliminated. A significant amount of time and effort is spent understanding and implementing these treatment modalities in the LVI Implant Program, simply because it is the only solution that I am aware of that eliminates this massive historic implant challenge. It would be impossible for me to overstate the importance of proper implant placement to ensure long-term functional and aesthetic success. (Photo three)



The third significant challenge to implant aesthetics is peri-implantitis and bone loss around the implant over time. Die back of bone around the implant following the placement and the restoration of the integrated implant is a very significant aesthetic challenge. In fact in my clinical practice it was the biggest challenge that I confronted with seemingly no solution for too many years. Unfortunately still today, many clinicians expect and accept bone die back in their cases and offer no solution to their patients. It is my judgment based on 18 years of clinical experience in implant dentistry that bone loss around the implant over time is almost entirely dependent on the implant

Fortunately technology has again come to our aid and a solution is now available.

abutment junction and its degree of micro-gap and micro movement of that implant system under load. The connection between the implant and the abutment for many systems has a significant micro-gap that is a reservoir for bacteria. The implant abutment connection is almost solely responsible for bone loss around the implant when the connection is not reachable and cleansable by the patient with daily hygiene. Fortunately technology has again come to our aid and a solution is now available. For the last seven years in clinical practice I have been placing implants that have a tapered connection in the implant abutment junction interface and the problem of bone loss around the implant has virtually been eliminated. A tapered connection with the appropriate length and degree of taper affords a much tighter connection between the implant and the abutment. The connection is so tight that it cannot be invaded by bacteria and the clinical result is that bone does not pull away from that connection once integrated. Peri-implantitis and bone die back is eliminated. It is relatively obvious why the long-term aesthetic results in implant cases that maintain bone health and tissue support are superior.

(Photograph numbers four and five compare two similar implant cases that have been restored for approximately 7 years. Both cases have multiple implants placed adjacent to each other. It is quite apparent in photograph three that the bone is dying back and the tissue is pulling away from the implant and restoration as well. Aesthetics are becoming severely compromised. The patient in the fourth photograph in comparison has an individual implant placed and restored for each tooth in the upper arch. The bone and tissue stability is remarkably better. The patient in photograph four was treated with a standard hexed implant system. Comparatively the patient in photograph five was reconstructed with a conical implant abutment connection system.)

When bacteria invade or pools in the periodontal tissue around a natural tooth or a dental implant will periodontal disease or peri-implantitis develops. The clinical results in both cases are

very similar, tissue inflammation and bone loss around the natural tooth or the implant is likely to occur and aesthetics will be compromised. The aesthetic compromise in peri-implantitis cases is generally more problematic because bone loss can expose the top of the titanium abutment or implant which is remarkably unaesthetic. Moreover periodontal disease or peri-implantitis left untreated can eventually lead to tooth or implant failure.



So in summary to ensure implant aesthetic success the three things that need to be done prior to implant placement is the following;

1. Accomplish a proper diagnosis to identify and evaluate the hard and soft tissue defects prior to initiation of implant therapy. Determine whether the defects are acceptable or need to be corrected prior to implant placement.

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2. Ensure proper placement of the implant by obtaining a proper radiographic evaluation with subsequent guided surgical placement.
3. Select an appropriate implant that maintains bone integrity over time. Not all implant systems and connections are equal. Do not use any system that creates a long term hard and soft tissue compromise!

Let's assume that these three guidelines were followed throughout the surgical phase of implant treatment. The restorative process then becomes a game of minimizing the compromises that were accepted in the treatment planning phase. Fortunately, technology is again on our side. Recent advances in CAD/CAM technologies with patient specific customizable all ceramic or ceramo-metal abutments and restorations have appeared. These patient specific abutments and restorations make it much simpler to mask clinical defects and accomplish implant restorations to look much more like natural teeth once restored.

Patient specific abutments have several distinct advantages over stock abutments.

1. The emergence profile of the abutment can be customized in all dimensions for that specific patient. (Photo 6)
2. Crown margins and finish lines can be designed at ideal levels to ensure superior aesthetics and easy cement cleanup. (Photo 7)
3. A customized abutment will provide optimum support and retention for the final restoration. (Photo 8)
4. Implant abutment can be designed to have a titanium connection at the implant abutment Junction for maximum strength and also have a ceramic or zirconium core coming through the tissue for superior aesthetics. An optimal solution, strength plus aesthetics. (Photos 9, 10 and 11) This case highlights a very realistic case in implant dentistry. This patient had limited funds and could only afford one implant and restoration at a time, to address her functional and aesthetic concern. The second implant to replace the additional missing tooth was planned at a later date. Clinically she had a very significant

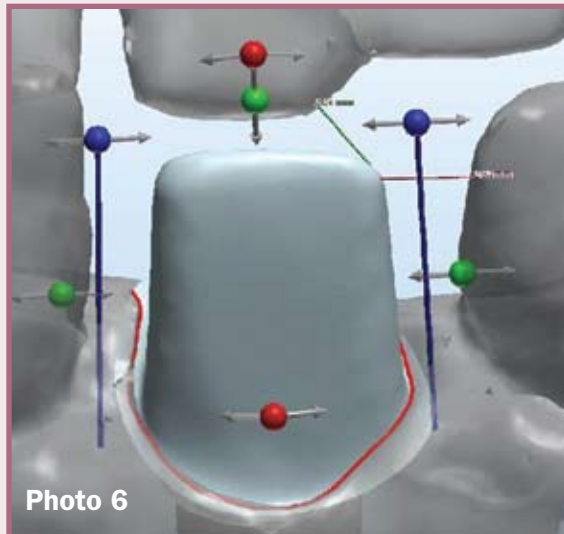


Photo 6



Photo 7



Photo 8

vertical hard and soft tissue defects that could have been corrected but would require additional time, surgical procedures and expense for the patient. She was not interested in that correction and the clinical compromise was accepted. The objective of the treatment was to minimize the defect and the aesthetic challenge as much as possible to provide an acceptable solution, which was accomplished.

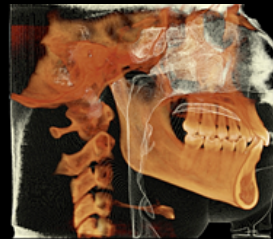
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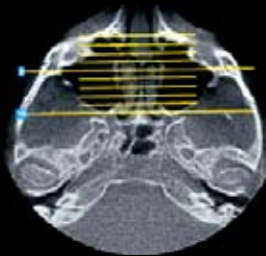
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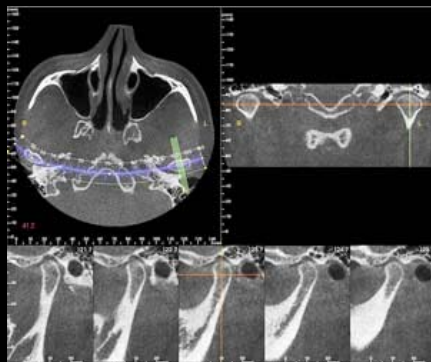
Soft Tissue
Filters



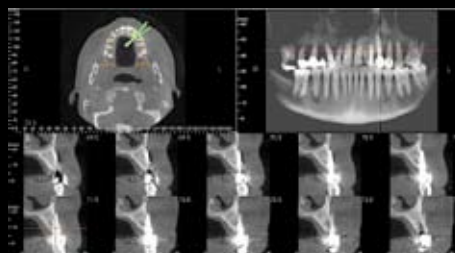
Maxillary Sinuses



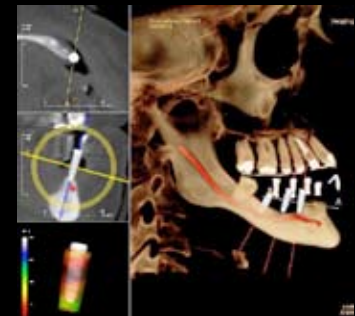
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Photo 9

Implant dentistry has become more demanding.

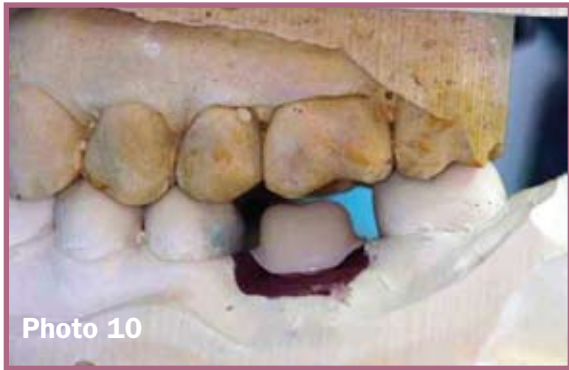


Photo 10



Photo 11

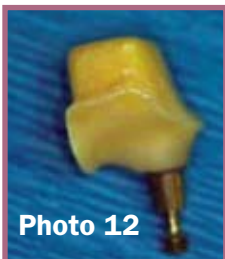


Photo 12



Photo 13

implant up to the final restoration with virtually no predetermined limitations. (Photo 12 and 13) highlight two separate cases with significant compromise. The first case shows compromised placement position of the implant with maximized correction using a patient specific abutment. Minimizing the compromise with a stock abutment would be less successful and extremely challenging. The second case shows three tapered implants placed significantly sub gingival and sub crestally with stable bone and aesthetics. No peri-implantitis present in this case because of the implant design. Bone die back would be guaranteed in this clinical situation if a hexed implant system was used.

Customized abutments are likely to almost completely replace stock abutments in the very near future. When these abutments were first introduced into the market they were cost prohibitive. Recently this technology has emerged into the dental laboratories and prices have come down dramatically. Currently the cost of many stock abutments are about the same price as a patient specific customized abutment. If that trend continues there would be no reason to purchase a stock abutment and inherit its limitations.

Implant dentistry has become more demanding. Patients are no longer willing to accept significant aesthetic compromise and their implant restorations. The game is different than it was 10 years ago, expectations are higher. Fortunately with all the new technologies now available to us, we have the solutions to satisfy the patient demands. Following the guidelines presented in this article will adequately ensure a predictable and acceptable functional and aesthetic implant outcome.

- Laboratory technicians are less handicapped when designing an implant abutment and crown. No longer will they purchase stock abutments and modify the abutment, which obviously has some significant limitations. Now they can use CAD/CAM technology to design the abutment from the

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Sometimes The Unexpected Can Happen.

By: Karstan Lachman D.D.S.

An incidental case report of chronic Bell's Palsy correction.

This patient presented for emergency examination for a severely painful lower right premolar on April 26, 2005. Her chief complaints were crowded, worn lower incisors and a need for advanced restorative and periodontal care with a desire to maintain her existing dentition as long as possible.

Initially, she did not complain of symptoms of temporal mandibular dysfunction, but she did have numerous signs of occlusal disharmony. As treatment progressed she reported significant reduction in head, neck and back pain, as well as less muscle tension. She had attributed these constant pains due to the aging process.

Initial review of her medical history revealed previous adverse reactions to narcotic analgesics, but otherwise an unremarkable medical history. She reported no history of cerebral vascular accidents and she did not mention any previous history of Bell's Palsy at initial presentation. Never the less, left side facial droop was definitely evident upon extra-oral examination of the patient.

Presenting condition:

- Retruded class two skeletal
- 100 % overbite, 6 mm overjet
- Generalized attrition and loss of vertical dimension
- Generalized wear facets
- Width of central 8mm

- Severe notches on cingulums of max anteriors from lower incisors (deep) bite
- Patient occluding on palatal tissues with lower incisors
- Lingually inclined lower incisor crowding
- Generalized recurrent decay and numerous failing restorations
- Impacted lower wisdom teeth
- Missing upper left first molar and second premolar and upper right first molar

My treatment plan was designed to rehabilitate her teeth, but in no way was I expecting to have any effect on her existing facial deformity. What follows is a recounting of the treatment particulars in this unique case. This case does not follow a traditional path of events.

Basic endodontic, restorative, and periodontal therapy was initiated first to stabilize the remaining dentition in preparation for orthodontic treatment. All failing restorations were replaced and all areas of decay restored with direct resin.

The goal of orthodontic treatment was to develop a proper arch form and to space out the existing dentition for future full mouth restoration. Ideal orthodontic positioning for maintenance of final occlusion was not the purpose of the orthodontic treatment. This patient possessed a heavily restored and worn dentition in need of comprehensive full coverage restorations on all teeth for ideal long term functioning and maintenance of proper occlusal position.

Maxillary root form implant replacement was recommended to rehabilitate the existing long span edentulous sites, but was declined by the patient. A futile attempt to improve the prosthetic support for fixed bridgework involved the distalization of the existing maxillary premolars. This movement was aborted due to the resulting poor root angulation and the length of treatment time required to properly complete the correction. Brackets were removed and the patient wore a fixed lower retainer and a removable thermoplastic upper retainer until further diagnostic records were taken.

Placement of a lab fabricated, Bell Glass Neuromuscular lower bonded orthotic took place on September 25, 2008.

Follow up coronoplasty appointments on October 2, 2008, indicated very favourable responses from the patient but K7 computer analysis indicated more refinement of the occlusion was still required.

At the January 8, 2009, follow up coronoplasty the patient indicated that she was:

- *“beginning to chew up and down.”*
- *“always used to grind her food as her teeth never really worked properly before.”*
- *“had no neck, head, shoulder or back aches since the placement of the orthotic.”*
- *“was much easier to chew with the orthotic because I do not have to work as hard.”*

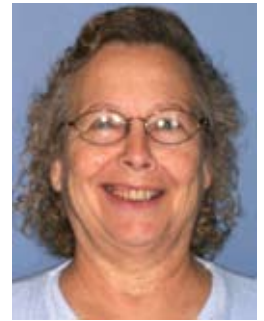
The patient was maintained in orthotic therapy until stability was achieved. Due to financial constraints the case was maintained in an orthotic until the patient was ready to proceed with restoration of one arch at a time.

On May 2, 2011, the patient indicated that she was now ready to proceed with the restorative process.

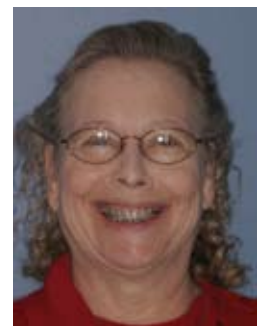
On May 27, 2011, preparation of the maxillary teeth was completed and a lower orthotic appliance was placed.

On June 2, 2011, a post op check of the patient’s temporaries revealed that she really noticed an improvement in her bite. She also reported that she felt her lip positioning in her smile was improving significantly. This change is evident in the exaggerated smile position attainable in the after facial photograph. This high lip positioning was not possible pre-operatively or after orthodontic treatment.

More detailed focused patient questioning revealed that she had suffered with left side facial disfigurement for many, many years previous. She declined any problems with dry eyes, dry mouth, loss of taste, or lack of salivary flow. She remembered awakening one day approximately twenty years ago with much more severe facial disfigurement. At the time she did not take any medications or receive any treatment for the condition. Her medical doctor advised her that her symptoms would resolve on their own. She reported that approximately one month later her situation did improve



Pre ortho treatment
September 13, 2006



Mid ortho treatment
September 17, 2007



Orthotic Wax-up



Orthotic placed on
lower arch



Temps upper,
fixed orthotic lower

*Her medical doctor
advised her that
her symptoms would
resolve on their own.*

Not only did we achieve some beautiful aesthetics, but resolved many symptoms and Bell's Palsy issues as well. Sometimes the unexpected can happen!

somewhat; but she was left with altered/reduced sensation in her left cheek and lip; and reduced facial range of motion.

This patient is not the type of person to complain and simply lived with the lip disfigurement as it was. She figured it was normal. Therefore she did not even mention it during her initial medical history with our office.

The patient is pleased with her improvements in facial appearance and feels that she now has approximately ninety five percent normal sensation and movement in her face. There remains a small localized area that has altered sensation and we are both hopeful that a full recovery is possible in time.

Obviously this case has taken a very convoluted path toward the present situation. The path is far from over. Additional diagnostic testing will be required to confirm optimal occlusal positioning has been achieved and maintained prior to completion of the lower arch late next year. Nevertheless the patient and I are encouraged with the positive results obtained so far. Not only did we achieve some beautiful aesthetics, but resolved many symptoms and Bell's Palsy issues as well. Sometimes the unexpected can happen!



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UTILIZE YOUR LASER TO ITS FULL POTENTIAL

Laser technology has many benefits as outlined in previous Visions articles and can be used on numerous procedures. However, many times a dentist initially purchases a laser for 1 or 2 clinical applications and never expands the use of the laser. Today, let's take a closer look at some of the many underutilized laser procedures that can enhance your patient care and your practice revenue.

Soft-Tissue Lasers (Diodes, Nd:YAG & CO₂)

Hygiene

Many people think that a hygienist cannot use a laser. A few states do have specific by-laws stating that a hygienist cannot use laser but most do not have any such by-laws at all, thus hygienists can use diodes for perio treatment. The clinical results are amazing and the hygienist will get a new sense of purpose now having the ability to kill biofilm and stimulate healing as never before.

Frenums

Stop ignoring frenums! Maxillary & mandibular frenums that cause recession and diastemas are future problems waiting to happen. Educate your patients and do the frenectomy that day. Lingual frenums limiting tongue movement have multiple developmental links including speech and dental arch form issues. Lasers give the precision to avoid the potential problems on the floor of the mouth and easily allow the tongue to properly release.

Operculums

Don't be a "Watchodontist"! Hyper-trophied operculums create hygiene issues and are a breeding ground for future caries. Simply educate the patient and remove it.

Fibromas

Not only can fibromas be neuromuscular red flags, but they are annoying for the patient. With lasers, these can be easily removed and most often without the need for sutures.

Low Level Laser Therapy

Don't under estimate your lasers healing power. Studies have proven an increase in fibroblast and collagen formation and a dramatic bacterial reduction. Take advantage of this post surgically for expedited healing.

All-Tissue Lasers (Erbium)

Perio

Your hygienist will help you dramatically in your perio program with a diode, but there are always cases that need a surgical approach. Two cases in particular that Erbium lasers are great for: 1) Intrasulcular incisions for more advanced perio cases 2) Osseous regeneration procedures for defects and furcations. All-Tissue lasers allow you the ability to perform these procedures with a minimally invasive "envelope" access and little or no discomfort for your patients.

Implants & Grafting

Any time you work on bone your laser will make the procedure easier. The science states that All-Tissue lasers are much more conservative on bone when the proper settings are used. And due to no smear layer creation, healing starts immediately. The combination of these benefits lead to more predictable results, faster healing and much less pain for the patient.

Restorative

There have been many false promises made in the industry about being able to do cavity preparations without anesthesia and you can throw away your drill. The fact is you will never throw away your drill and 1st generation all-tissue lasers did not have adequate power to accomplish the mission at hand. However, the reality is that today these lasers do have the power to effectively ablate tooth structure. The critical key is to know how to set the laser properly to accomplish treatment objectives without the patient feeling discomfort. With today's technology, and the proper training, any general dentist can treat 50-75% of their cavities with minimal or no local anesthetic. What a marketing tool for your patients! But perhaps even more important, it is a transition to more advanced procedures in the future.

Superior Esthetics

Not only are Erbium lasers faster than diodes, they are more conservative. This results in faster chair time and healing. Also, when we look at our esthetic cases with a more critical eye, an estimated 20-30% of cases have symmetry issues, that if contoured would invade biological width. With an all-tissue laser we can now manipulate the biologic width without a flap taking a good case to a great case.

LASER CLINICAL SPOTLIGHT

By Dr. F. Jay Ohmes, DDS, FAGD & LVI Clinical Instructor

Venus Lake Lesions – Don't Overlook This Procedure



Before



After



1 Week Post Operative

Seven years ago I had no lasers in my clinical practice. At the time I found myself in somewhat of a rut with "drill and fill" dentistry. Lasers got me out of that rut. The lasers ability to make procedures more predictable for me and easier for the patients opened the door to surgical procedures I never did before. I now do all the procedures listed on the facing article. Lasers were the tool, but the

training gave me the confidence to fully utilize them. Once I had the confidence I truly started to look differently in the patient's mouth, I became more proactive and asked my patients questions that led to even more procedures. One example is venous lake lesions. Many times the patient would wear excessive makeup to try to cover up the discoloration and tell me stories of going to a specialist that had no solution other than removing a chunk of their lip! But now in my office this is a 15 minute procedure, with just topical, that normally is completely healed in a week. I now do this procedure on a regular basis. If you are only doing 1 or 2 procedures with your laser, sign up for a training class today and obtain the confidence needed to benefit your patients and your practice!

UPCOMING LASER TRAINING AT LVI

August, 2011

17-19, Core 7 "Advanced Laser Procedures & How to Increase Revenue with your Laser"
31-Sept 2, Core 5 "Laser Technique Training"

Sept, 2011

14-16, Core 7 "Hands-on Laser Workshop"
21-23, Bone Grafting "Laser in Bone Grafting"
22-23, HOYA ConBio -Introductory All-Tissue Laser Training
24, HOYA ConBio - Advanced All-Tissue Laser Training
26-28, Ortho 3, "Lasers in Ortho"

Oct, 2011

26-28, Laser Component in LVI Hygiene Program

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There was tension and excitement in the room as the lights were slowly dimmed in the auditorium. For the next two hours there was a glimpse of the future of dentistry. The topic was something out of a science fiction novel, and it instilled in the audience a sense of awe, wonder and just a touch of fear.

Lee Culp, CDT
Chief Technology Officer
Microdental Laboratories

dentistry going digital.

As the auditorium lights came up everyone sat in stunned silence as they contemplated all the possibilities offered by the presenter... dentistry going digital.

That presentation was given over 25 years ago by one of digital dentistry's pioneers, Francois Duret, on the application of computer-assisted design/computer-assisted manufacturing (CAD/CAM) technology into restorative dentistry. While it took slightly longer than anticipated to integrate into the daily practice of dentistry, the new millennium seemed to be the catalyst for change in digital dentistry, as more than twenty different CAD/CAM systems have now been introduced as solutions for restorative dentistry.

Dentistry has cautiously welcomed this influx of technology that was promised so long ago. Based on technology adopted from aerospace, automotive, and even the watch-making industry, this technology is being accepted now due to its advantage of increased speed, predictability, accuracy, and efficiency without a compromise in quality. Today's CAD/CAM systems are being used to design and manufacture metal and zirconia frameworks, as well as all-ceramic full-contour crowns, inlays, and veneers that may be stronger, fit better, and are more esthetic than restorations fabricated using traditional methods.

The dentist's, dental team members' and dental technician's primary role in indirect restorative dentistry is to perfectly copy all functional and esthetic parameters that have been defined by nature into a restorative solution. It is an architect/builder relationship. Throughout the entire restorative process, from the initial consultation through treatment planning, provisionalization, and final placement, the communication routes between the clinician and the laboratory technician require a complete transfer of information pertaining to existing, desired, and realistic situations and expectations to and from the clinical environment. Functional components, occlusal parameter, phonetics, and esthetic requirements are just some of the essential types of information that are necessary for the technician to complete the fabrication of successful, functional, and esthetic restorations.



The primary and conventional tools of communication between the dentist and the technician are photography, written documentation, and impressions of the patient's existing dentition, the clinical preparations and the opposing dentition. From this information models are created and mounted on an articulator, which simulates the jaw movements of the mandible.



As restorative dentistry evolves into the digital world of image capture, computer design and creation of dental restorations through robotics, our perceptions and definitions of the dental laboratory must evolve also. First, in order to fully understand this concept, we must clearly define what a laboratory is. At first thought we might say that a lab is the place that a dentist sends his or her patient's impressions which are then processed by that laboratory into restorations, which are sent back to the dentist for adjustment and delivery. This definition does seem to fit well with the traditional concept of a dentist-laboratory workflow. However, just as the internet has forever changed the landscape of communication through related computer technology, the possibility to use CAD/CAM restoration files electronically has provided the catalyst for a significant change in the way we view and structure the dentist-lab relationship.



THE DIGITAL PROCESS

The new millennium has brought with it a change in digital dentistry, as more than 20 different CAD/CAM systems have now been introduced as solutions for restorative dentistry. The introduction of digital laboratory laser scanning technology along with its accompanying software allows the dental laboratory to create a digital dental environment to accurately present a real 3-D virtual model that automatically take into consideration the occlusal affect of the opposing and adjacent dentition. As well as the ability to design sixteen individual full contour anatomically correct teeth at the same time. It essentially takes a complex occlusal scheme and its parameters and condenses the information, displays it in an intuitive format that allows dental professionals with basic knowledge of dental anatomy and occlusion to make modifications to the design, and then sends it through to the automated milling, or printing units. For the dental laboratory, the introduction of digital technology effectively automates, or even eliminates some of the more mechanical and labor-intensive procedures (waxing, investing, burnout, casting, and or pressing) involved in the conventional fabrication of a dental restoration, allowing the dentist and technician the ability to create functional dental restorations with a consistent, precise method.

As dentistry evolves into the digital world, the successful incorporation of computerization and new acquisition and manufacturing technologies will continue to provide more efficient methods of restoration, fabrication and communication, while at the same time retaining the individual creativity and artistry of the skilled dentist and technician. The utilization of these new technologies, coupled with the evolution from “hand” design to “digital” design, and inclusive of the addition of the latest developments in intraoral laser scanning, materials and computer milling/printing technology will ultimately enhance the close cooperation and working relationship of the dentist and the dental laboratory team.

Even though there are several dental laboratories that provide restorative digital solutions to their



Clinical dentistry by, Dr. Lida Swann

dentist clients, they all do basically the same thing; create frameworks that require the “hand” application of a ceramic veneer for esthetics and function. Using very basic CAD/CAM software to design and output to a conventional framework made of metal or zirconia, is the universal solution offered by most laboratories in dentistry. The future of digital dentistry is not the creation of “frameworks”, that require a technician to manually apply a ceramic veneer to create function and esthetics, but a comprehensive digital system that allows the automatic creation of full anatomical teeth to fulfill the occlusal objectives of the dentist-laboratory team.

Microdental has made a significant, business, technological, and cultural commitment to becoming the first fully integrated dental laboratory foundationally based on a digital vision of; education, communication, diagnosis/treatment planning and restoration fabrication. Hand waxing is quickly being replaced by computer design, which is then sent to a diverse array of milling or printing machines that create parts from plastics, metals or ceramics. These digitally designed and produced parts are then assembled and finished by skilled dental technicians to become beautiful ceramic restorations, implant prosthetics and removable prosthetics.

The dental profession currently regards CAD/CAM technology as just a machine that fabricates full contour ceramic restorations or frameworks. Digital Dentistry and the Digital Dental Team, represents a totally new way to diagnose, treatment plan and create functional esthetic restorations for our patients in a more productive and efficient manner. CAD/CAM dentistry will only further enhance the dentist/assistant/technician relationship as we move together into this new era of patient care.

Automation has been slow in coming to dentistry and although new equipment has been introduced to make our jobs easier, we still create complex dental prosthetics using techniques that are thousands of years old. And, even though the “lost wax” technique is still a tried and true method of fabrication, there will come a day in the near future when all frameworks and full anatomical crowns will be designed on computer. Only then will we truly realize the wonder and awe of dental CAD/CAM technology that were initially introduced so long ago.

Mitigating the dental
system's gradual
transition to digital
fabrication and
restoration
creation
for dental
visitation.
Significantly
integrating
digital
visitation
and
restoration
fabrication
into dental
visitation.
Dental
business
and
cultural
commitment
to becoming
the first
fully
integrated
dental
laboratory
foundationally
based on a
digital
vision of;
education,
communication,
diagnosis/
treatment
planning
and
restoration
fabrication.



By: Dr. Shamshudin "Sam" Kherani

eMax

**BRINGING EVEN MORE STRENGTH
TO LIFE-LIKE AESTHETICS**

Over 2 decades ago, Ivoclar brought to market Empress porcelain which significantly changed the ability of dentists to deliver life like aesthetics when delivering indirect restorations. There were many reasons for this paradigm shift: Embedding leucite crystals which led to reduced fractures, the ability to bond, the ability to bond to enamel and dentin using a coupling agent rivaling natural

bond between enamel and dentin itself, the ability to cut back and layer in certain characteristics, the ability for light to transmit from the crown to the root lightening up the root and finally the translucence that brought to surface the tooth's natural shade.

This paradigm shift led to a closer look at occlusion in order to make sure that the forces at play were controlled and so led to many patients receiving treatment where the patient's habitual occlusion was changed to ideal where necessary. This led to a further need to strengthen the porcelain that was used to enhance aesthetics. This led to the advent of a lithium disilicate based porcelain by, once again, Ivoclar. This new porcelain has been effectively named eMax.

Veneers, Onlays, Inlays, Full coverage and 3 unit bridge restorations can be accomplished using eMax. The only contraindication is the placement of posterior bridges and bridges with a span longer than 3 units. Ingots with increasing opacities can be used to mask darker roots although care has to be taken as increasing opacity reduces the life like appearance and so a trained technician will have to embed appropriate color to mimic the life like appearance.

If the situation at hand needs the use of Zirconia either to mask a very dark root or a larger span bridge, eMax can be used to overlay the Zirconia just as in the past feldspathic porcelain used to overlay metal.

VENEERS



A medium grit, modified shoulder, diamond bur is used to remove a uniform thickness of facial enamel by joining the depth grooves or by using a reduction guide made from a previously created wax up. Ideal preparation requires a 0.6 to 0.8 mm thickness of porcelain on the labial and a 1.0 to 1.5 mm incisal edge thickness. The diamond bur is angled back at 45 degrees to bevel back the incisal edge.

This paradigm shift led to a closer look at occlusion in order to make sure that the forces at play were controlled and so led to many patients receiving treatment where the patient's habitual occlusion was changed to ideal where necessary.

ANTERIOR FULL-COVERAGE RESTORATIONS



A similar medium grit, round-ended, modified shoulder, diamond bur is used to remove a uniform thickness of facial enamel and a football-shaped finishing bur is used for lingual reduction. It is important to end up with rounded internal line angles and a shoulder margin.

At LVI, our live-patient programs deliver the details on the preparation designs and final seating for restorations using eMax whether it is veneers, crowns, bridges, inlays, onlays, etc. followed by the execution of such information on a live-patient for the ultimate education resulting in the incorporation of such modalities in daily practice.

Upcoming Core II & V LVI Course Dates:

2011

Core II & V Nov 2-4 (prep) & Dec 7-9 (seat)

2012

Core II & V Jan 18-20 (prep) & Feb 15-17 (seat)

Core II & V Mar 14-16 (prep) & Apr 18-20 (seat)

Core II & V May 16-18 (prep) & June 13-15 (seat)

Core II & V Sept 5-7 (prep) & Oct 3-5 (seat)

Core II & V Oct 31-Nov (prep) 2 & Dec 5-7 (seat)

A hand holding several coins in front of a bonsai tree. The background is a soft, out-of-focus green and brown. The text is overlaid on the right side of the image.

Discovering Opportunities for Growth

Established
and highly
successful
practices
can uncover
new ways to
enhance
patient service
and production.

He also shared several tools that make those presentations even easier.

Successful, respected dental practices can discover unexpected opportunities for growth.

They might come about through conferences or continuing education. They may be sparked by advancements in technology or through a new staff member



with a particular skill set. Or they might come to light via a third-party partner. Such was the case for one of our clients, LVI clinical instructor, John Highsmith, D.D.S.

In business for more than two decades, This doctor is known for state-of-the-art care. His practice features an in-office lab, and he is the only AACD-accredited dentist in western North Carolina. The practice has also achieved a reputation for providing top-notch customer service, with staff members who have been on the team for more than 20 years.

Yet, like most forward-thinking dentists, Dr. Highsmith has never been content to rest on his laurels. Each year, he completes more than 200 hours of continuing education to ensure that he stays on the cutting edge. And even though Dr. Highsmith's practice has offered the CareCredit program to patients for years, this spring, he and two staff members sat down with their Practice Development Manager (PDM), Stephen Maxwell, for a practice performance review highlighting key business statistics.

This doctor, along with many other CareCredit clients, is a proponent of maintaining direct and personal relationships with service representatives who interface with his practice. As a result, he invited Maxwell into his practice to discuss the findings of the practice performance review. Maxwell's job is to work closely with the doctors and practice teams to effectively integrate CareCredit into the processes and systems of the practice and to ensure that they are getting the most from the program.

It was during the meeting with Maxwell that Dr. Highsmith — along with his comptroller, Cynthia Lynn, and his patient coordinator, Scotty Ellis — gained a new perspective.

A Surprising Comparison

While he may have been expecting a promotional spiel about financing plans, what he and his team actually got was more valuable: a discussion focused

on how the practice could achieve its goals tied to case acceptance, minimizing failed appointments and attracting new patients.

One of the first statistics Maxwell shared was the practice's activation rate. This figure shows how many patients apply for the card in the practice, and then use it to pay for their treatment.

"I compared a year of Dr. Highsmith's activity to that of 95 other practices in his area," says Maxwell. "I discovered that the average practice was at 83 percent activation, and Dr. Highsmith was at 62 percent."

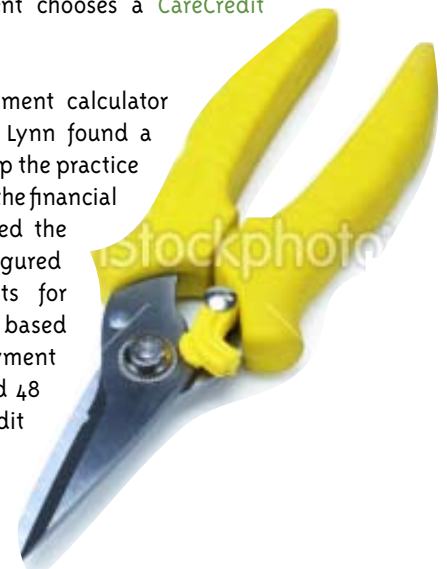


Notes Dr. Highsmith, "We were actually using CareCredit more than I thought we were, but I was surprised at where we rated." Maxwell explains, "That's why it's important to conduct the discussion with the patient in the office. If you don't, your practice could lose both a patient and production."

Presenting Best Practices

To prevent that problem, Maxwell shared with the team some best practices related to presenting the nuances of patient financing. He also shared several tools that make those presentations even easier. In particular, he showed the staff how to use the online payment calculator and customizable Treatment Payment Options Form. These tools let the practice staff display the total cost of treatment, all of the payment options available — including cash, credit cards, as well as break down the total cost of treatment into monthly payments if the patient chooses a CareCredit financing plan.

Besides using the payment calculator directly with patients, Lynn found a way to leverage it to help the practice team gain comfort with the financial discussion: She gathered the team together and figured out monthly payments for common treatments based on 6 and 12 month payment plans, as well as 24 and 48 month revolving credit plans.



That makes our work easier and the patients happier.



"It's like buying a car — they always talk about how much per month," says Lynn. "The hygiene team and the dental assistants seem to be more open to discussing financing now that they can put it in that reference of a monthly payment."

A New Tool for Retention

The next item on Maxwell's performance review was sharing the practice's "open to buy" report. This shows which of the practice's patients are already have a CareCredit card. Ellis — who had joined both the practice and the dental industry just a few weeks before the meeting — found this report particularly beneficial.

"If I know that the patient has [credit] available, then I can take a more nuts and bolts approach to discussing treatment costs," she says. "I also didn't realize that people might apply for and use CareCredit at, say, their veterinarian's office and then have the ability to use it here in our dental practice."

Maxwell showed Ellis how to pull the report on her own so she can use it as needed. For instance, says Ellis, "I've used it to help current patients find their balances. I talked with a woman today who had available credit in her account that she had forgotten about. I was able to encourage her to move forward with recommended treatment by reminding her that she already had a way to fit the cost into her budget."

Lynn, too, was excited about the opportunities the information could present. "It's nice to be able to call a patient and say, 'You still need to have that crown done. Did you know you have credit available on your CareCredit card?' That makes our work easier and the patients happier."



The final highlight of the meeting was when Maxwell shared the number of times this particular practice was listed in the results of the online Doctor Locator. Each month up to 400,000 patients use the Doctor Locator to find practices in their community that accept CareCredit. Maxwell impressed upon the team the importance of ensuring that their information was accurate and included the practice's website. This will make it even easier for potential patients who search online for a dental practice to zero in on Dr. Highsmith.

In Retrospect

In recapping their PDM meeting, the staff agreed that their 90 minutes with Maxwell was time well spent.

"You can never go wrong with more information, and it's helped make it easier for us to talk about financing with our patients," says Ellis.

Adds Lynn, "We got shaken outside the box a little. And that's a good thing — we're always looking for new ways to help patients get done what they need done."



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PART V | *Active Eruption in Lathyrism*

Norman Thomas BDS; MBBSc; PhD; FRCD; FADI;
AAOMFPath; DAAPM; Cert MedAc; MICCMO
Director of NM Research LVIADS USA

In the previous article 'Introduction to Tooth Eruption' it was demonstrated that crosslink inhibition of collagen by feeding lathyrigen to both humans and rats had similar deleterious effects on jaw and skeletal development as well as on the teeth and periodontal tissues with resulting scoliotic vertebral spines, multiple exostoses at sites of muscle attachment and compression of the dentition and temporomandibular joints commonly observed signs observed in humans suffering from TMD. (Figures 1, 2 and 3) The temporomandibular joint is the only joint in the body where there is a definite closed end point as in the bite or occlusal table.

The occlusion is also the top link in the postural chain that stretches upwards from the feet to the temporomandibular joint which is found at a slightly higher level than the top craniocervical or atlanto-occipital joint which has been previously shown to have precisely the same shape and contours as the TMJ condyle and fossa. When the support of the teeth is jeopardized as it is in lathyrism there is misalignment of the teeth and their alveoli as seen in

Figures 1-3. Correspondingly instability is produced in the jaw joints and axial skeleton by the strained postural muscles that are increasingly unable to maintain the orthostatic posture of the axial skeleton against the gravitational force. The activity of the postural muscles is principally coordinated by proprioceptor reflexes principally the muscle spindles responsible for the myotatic stretch reflex. These reflexes are due to neural feedback and forward to and from the

proprioceptor and motor nuclei of the fifth cranial or trigeminal nerve as well as the labyrinth in the inner ear, vestibular nucleus in the brainstem and the outflow to the muscles of the head, neck, axial skeleton shoulder and pelvis serving to maintain muscle tone of the body particularly in support of the organism in the upright posture.

Also, the strain of the gravitational field on the connective tissue attachments of muscle and joints including the periodontium and sutures of the skull give rise to reactive compression effects on the teeth, TMJ, spinal vertebrae, shoulder, chest, pelvis and their muscle attachments (exostoses) which are exaggerated by the loss of connective tissue strength Figures 1-5.

Histology of the lathyritic teeth in Figures 4 and 5 demonstrates the presence of thickened periodontium containing lathyritic bodies which histochemistry reveals are composed of conglomerates of irregular as opposed to aligned collagen fibers imbedded in PAS positive mucopolysaccharide matrix in what appears a futile attempt to bolster the weakening tooth support. The dilacerations of the roots also demonstrate the breakdown of the periodontal tissues in attaching the alveolar bone to tooth cementum. The weakness of the periodontal tissues is readily confirmed by the ease with which the teeth can be extracted from their bony sockets by minimal finger pressure. The radiographs of the heads, neck jaws and teeth show that not only are the teeth but also the opposing jaws with wide spaced diastema between the mobile teeth and jaws. This is in part also due to the breakdown of the fibrous mandibular symphyses and synchondroses of the

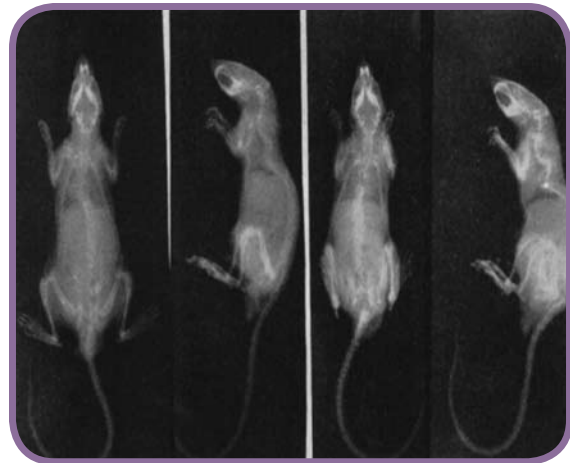


Figure 1 - X-Rays of lathyritic rats at 3 and 5 weeks showing scoliotic spine with collapse of the dental, thoracic and pelvic arches and multiple exostoses at sites of muscle attachments



Figure 2 - Radiograph of a lathyritic rat showing Malalignments of the dentition, Exostoses, TMJ Compression thickened Periodontium and Scoliosis



Figure 3 - Dental Crowding, Airway Collapse Mouth Breathing and Spinal Scoliosis in 'Primitives' on Modern Diets

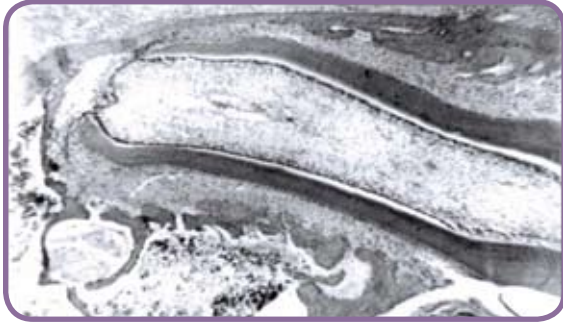


Figure 4 - Dilacerated incisor root and thickened periodontium of a lathyrict rat

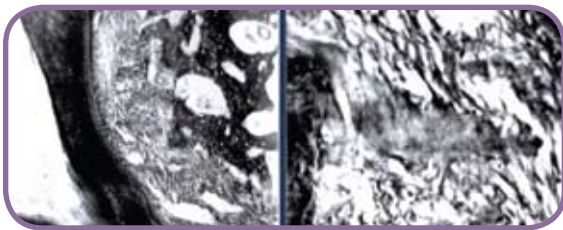


Figure 5 - Lathyrict Bodies in Periodontium

The teratogenic potential of the lathyrigen, D-penicillamine (DP), was assessed in pregnant mice, especially with respect to its ability to produce cleft palate. The dosage and the duration of treatment as they relate to the induction of cleft palate were also studied. Two different doses of DP were administered orally for either 5 or 4 consecutive days during the critical period of palatal closure. D-penicillamine (DP) at a dose level which does not have any apparent maternal toxic effects produced cleft palate in the offspring, and this teratogenic effect depended more upon the duration of treatment than the dosage administered. Inhibitory effects on the formation of bone matrix were observed at the base of the palatal shelf. It is suggested that DP is potentially an osteolathyrigenic agent. The mechanism of induction of cleft palate in DP-treated mice was explored by histological studies using light microscopy. Delayed elevation of the palatal shelves was observed and is considered to be the cause of the induction of cleft palate. No other external malformations could be detected in DP-treated fetuses.

Figure 6 - Lathyrigen in mouse delays elevation of the Palate and causes cleft palate

skull base symptomatic of the inability of the connective tissue to resist gravitational and muscular forces. In Figures 1, 2 we clearly see that the above gross anomalies are accompanied by marked torquing and torticollis of the spine characterized by severe scolioses and exostoses at sites of muscle, tendon and ligament attachments. These characterizations and appearances leave no doubt that there is failure of connective tissue support for every part of the body. Thus we may conclude that normal collagen polymerization is distorted by loss of intra and intermolecular crosslinkage described below. The gross features seen in the experimental animal are similar to those observed failures in human function and structure witnessed by Dr. Weston Price among primitive communities replaced by modern community existence. Dr. Price regarded the changes as due to the incorporation of modern dietary factors either in the water supply or food sources. Certainly this also implies that the environmental air breathed in these modern communities was also contaminated either as source or derivative. In essence the findings of Dr. Price indicate a meeting between genetics and environmental factors on a broad scale. Certainly lathyrism occurs in impoverished peoples of the world which we know includes many other sources of connective tissue failures such as ascorbic acid deficiency, but the inhibition of lysyl oxidase by lathyrict toxins aminoacetonitrile, proprionitrile or penicillamine is specific to post translational polymerization by crosslink inhibition and the effects are ubiquitous and profound. Of course oxygen depletion, carbon dioxide increase, altered acid base metabolism, diabetes and hormonal depletions also have known affects on connective tissue,

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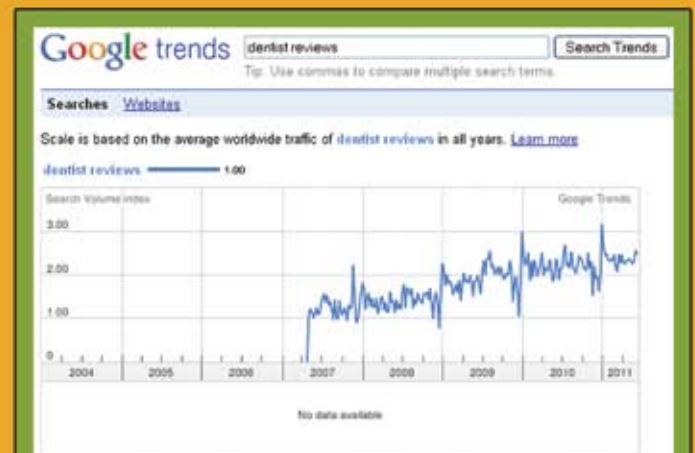
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but these are not specific inhibitors like the lathyrogens. Particularly in Figure 3 we see in that feeding of a specific lathyrogen results in torque of the axial skeleton with consequent torque of the airway with ensuing mouth breathing and collapse of the dentition also observed when nasal plugs in primate studies are used to produce mouth breathing and skeletal collapse in the Hovarth studies or why gingivoplasty eliminates post orthodontic collapse as in the human studies of Hamish Thompson. Now we can see more clearly why environmental air pollutants and allergens may cross the placenta and affect fetal development by forming DNA adducts such as with polycyclic hydrocarbons produced from industrial and automobile emission where fossilized fuels are constantly undergoing combustion and provide a continuous source of contamination of air, water and food supplies. These contaminants have also been shown to pass across the placenta and give rise to teratogenesis in the fetus such as cleft palate and other cranioccephalic anomalies including reduced crown rump length and depressed birth weight indicated in examples of ever growing research abstracts noted in Figures 6, 7 and 8.

In this context what makes the collagen polymer so important is that it forms a minimum of 35% of all body protein of humans and animals at large. It is present in muscle to the extent of 5% and forms 70-80% of tendons and connective tissue attachments of muscle to the periosteum. It is the main protein in bone, ligaments, cartilage, aponeuroses, tooth dentin and cementum and skin. The process of collagen crosslinking is fundamental to the structural integrity, strength and flexibility of collagen. In particular collagen crosslinkage requires obligatory oxygen

A spectrum of adverse pregnancy outcomes, including preterm birth, low birth weight, and birth defects has been linked with maternal smoking during pregnancy. This article includes a review of studies investigating interactions between genetic variants and maternal smoking in contributing to birth defects using oral clefting as a model birth defect. The primary gene-smoking studies for other major birth defects are also summarized. Gene-environment interaction studies for birth defects are still at an early stage with several mixed results, but evolving research findings have begun to document clinically and developmentally important interactions. As samples and data become increasingly available, more effort is needed in designing innovative analytical methods to study gene-environment interactions.

Figure 7 - Adverse birth outcomes from placental passage in maternal smoking

Studies by Perara et al.(2005) show that DNA damage in Fetus is 10 fold higher than in the mother from polycyclic hydrocarbon DNA adducts in mothers from Northern Manhattan, World Trade Center, Poland and China - Cancer Epidemiology Biomarkers & Prevention 14:709-714

Figure 8 - DNA Damage



Figure 9 - Collagen Crosslinkage requires LOX and Oxygen. Lathyrogen inhibits lysyl oxidase (LOX) and causes Hypoxia through airway collapse from Scoliosis

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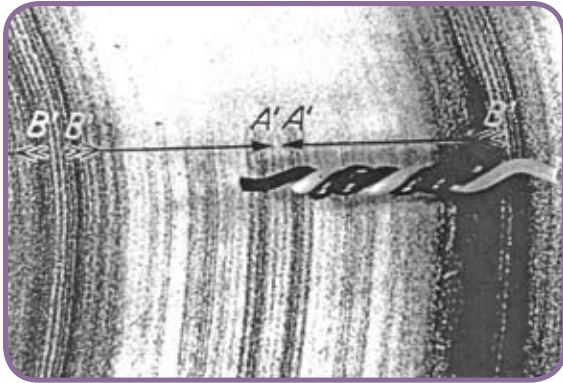


Figure 10 - Collagen Polymerization FLS Tropocollagen model superimposed

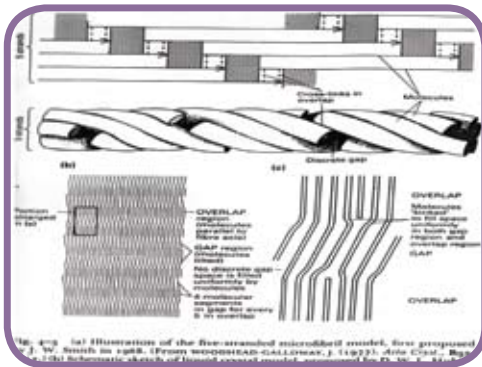


Figure 11 - 5 stranded collagen micro fibril (Smith JW 1968) From Woodhead-Galloway J (1977) Acta Cryst; B33,231 . (b) Liquid Crystal collagen model of Hukins WL

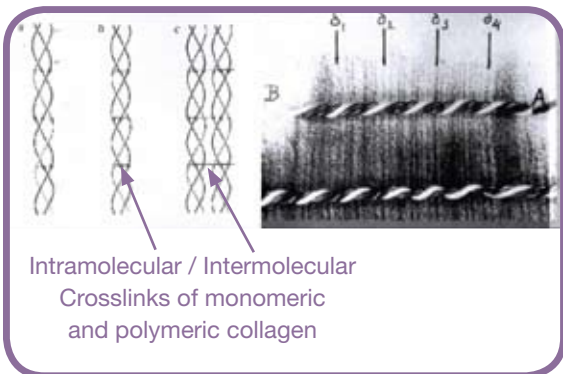


Figure 12 - Models of tropocollagen monomer (3000 A) prior to cleavage of the A (amino) and B (carboxyl) end chain telopeptides (200A) superimposed on crosslinked native collagen (R) (2800A) with repetitive d banding of 680 angstroms i.e. ~ 7.5% shrinkage

and non obligatory enzyme lysyl oxidase (Figure 9). Thus hypoxia, from airway collapse and inhalation of smoke and other emissions are known to be of great significance to airway occlusion and pollution in the structural degeneration of collagen. Figures 9, 10, 11 and 12 demonstrate the complex process of collagen polymerization in which crosslinkage plays a significant role.

The length of the procollagen monomer measures 3000 Angstroms, but during polymerization the telopeptides of the non helical end chains are cleaved to a length of 2800 angstroms prior to spontaneous polymerization in a 1/4 staggered arrangement giving a native collagen banding of 680 angstroms which indicates that there is shortening or contraction of each collagen monomer by 220 Angstroms per molecule which leaves gaps and kinks known as collagen pleating or crimping which under tension give rise to the early 'toe' of stress/strain dynamic curve of collagen stretching and flexibility probably due to preferential give in the hydroxylysine crosslinks as opposed to resistant crosslinks like glycol links in diabetes for example and which may explain why periodontal disease occurrence is increased in that condition. The collagen helix is even more resistant to stretch and strain. Thus crosslinks provide for stability and recovery after stretching which regularly occurs during muscle contraction and other functions of the connective tissue such as support provided by the periodontium and temporomandibular ligament of the TMJ. Increase in the tension of the collagen network has been well described in wound healing and gelatin contraction as due to myofibroblast contraction when it connects to the collagen network by fibronectin leading to consequent



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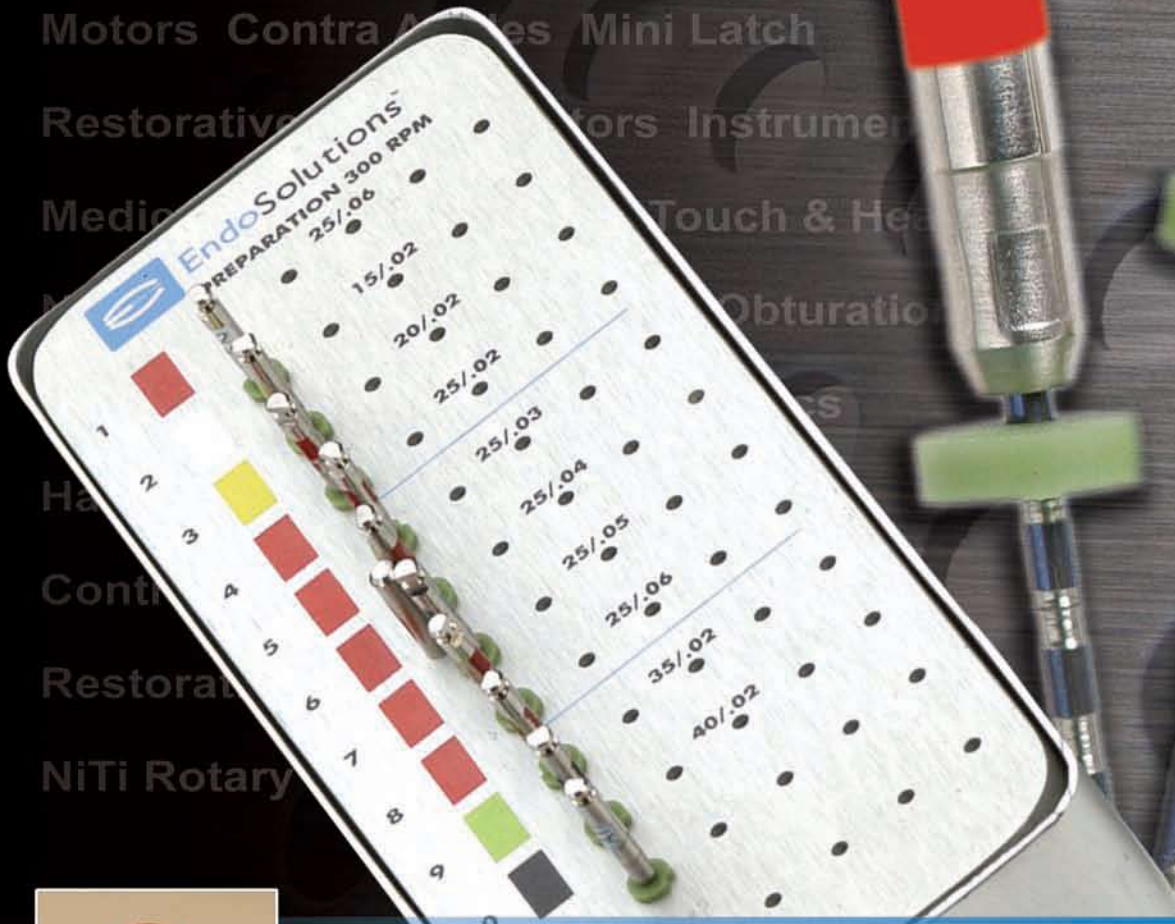
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actin tension in the pseudopodia of the fibroblasts which can be visualized as strained cells in healthy periodontal fibroblasts and wound myofibroblast observed in the studies of Smith and Martinez illustrated in the figure obtained by permission of JDR (Figure 13).

For the neuromuscular dentist the immediate question arises whether uncross linked collagen per se leads to failure of active tooth eruption as a correlate of skeletal aberrations and airway obstruction evident in a high proportion of TMD patients and often described as the Great Impostor because of apparently unrelated and widespread signs and symptoms of TMD.

In brief I propose that the lesion common to both ascending and descending TMD is due to the formation of aberrant

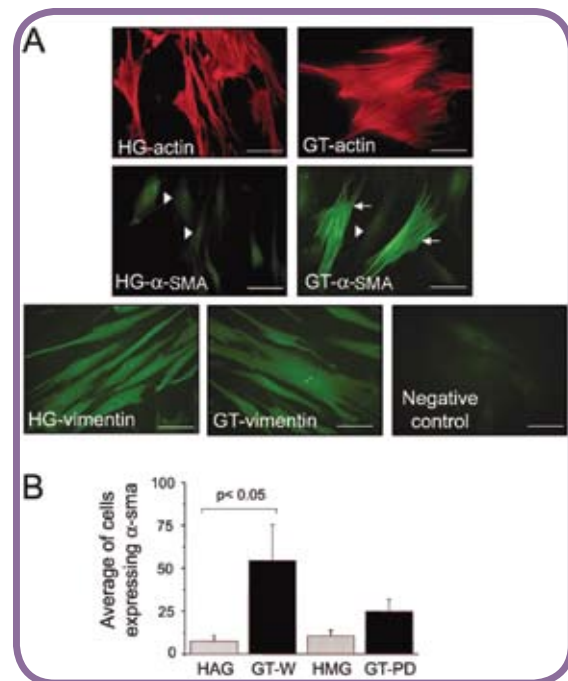


Figure 13 - Characterization of actin in healthy fibroblasts and wound granulation periodontal gingival-tissue myo-fibroblasts.

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collagen polymerization due to hypoxic and pollution effects on the crosslinking process in utero and postnatally where for example the tongue is primarily postured between the teeth of opposing dental arches as in primary descending TMD or where pelvic and spinal anomalies give rise to secondary or ascending TMD.

In addition to hypoxia it is well known that increased carbon dioxide tension in the tissues from respiratory hypercapnia and hyperglycemia from high intake of refined carbohydrates and/or diabetes lead to a buildup of carbamino and glycyated side chains that interfere with the formation of healthy normal structural collagen involved in a continuous process of synthesis and breakdown of collagen in the connective tissues of the periodontium by formation and reformation of the crosslinks to be considered in the next paper in “Keys to Understanding of NM Dentistry”.



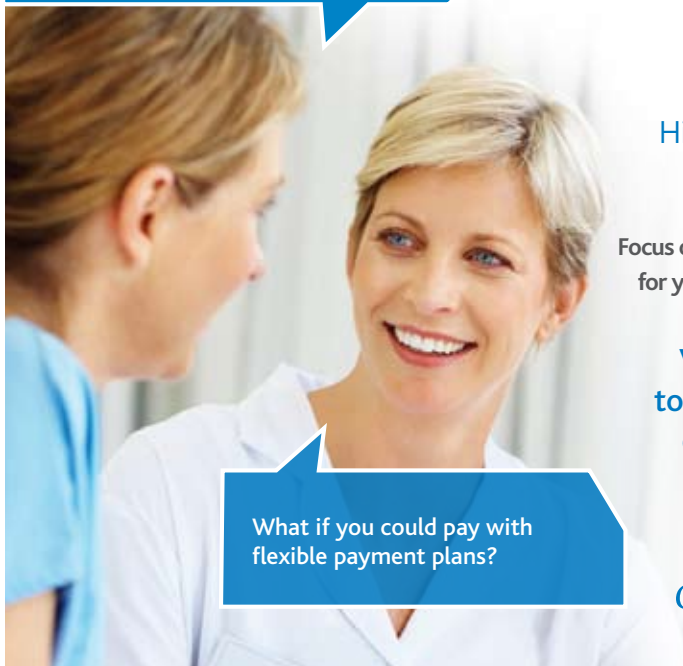
Figure 14 - Tetracycline marked rat Pups in utero viewed in plain and U.V light



Figure 15 - Fluorescent tetracycline marker in bone and teeth of a young rat pup examined under ultraviolet light

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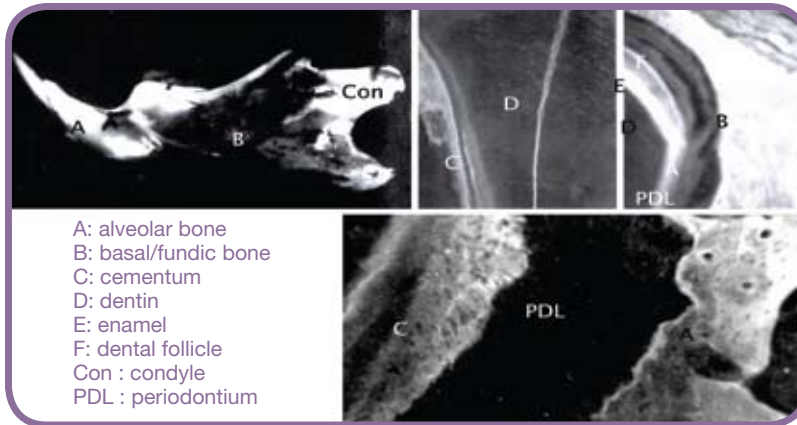


Figure 16 - Rat Mandible and Ground sections of tetracycline marked tooth and bone specimens viewed by U.V light

It is thus further proposed that the reduction in normal collagen cross linking does lead to retarded unimpeded and impeded tooth eruption and therefore skeletal collapse as observed in Figure 3 taken from Dr. Weston Price's enormous collection from around the world. It should be further understood that

scoliosis of the cervical spine whether of primary or secondary TMD is accompanied by torque and constriction of the airway arising a priori from tooth support and/or retarded tooth eruption.

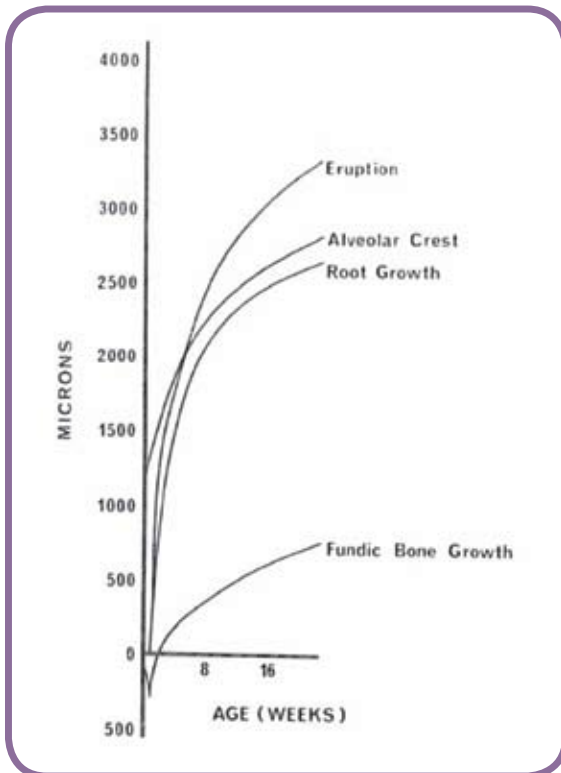


Figure 17 - Eruption begins with root and fundic bone growth hence through alveolar bone

Therefore in order to answer these questions as to collagen's role in active tooth eruption, I first used tetracycline as a marker in bone and teeth of the experimental animal to learn precisely when active eruption begins (Figures 13 et seq.). In Figure 13, we see from the tetracycline UV fluorescence that jaw bone development is well advanced in fetal life but not as one might expect in an 'all or none' fashion since it can be seen that ossification in some fetuses is more advanced than in others. Although ossification of the jaw bone is usually ahead of other head and neck ossification this is variable and explains the difference in pathogenesis of ascending and descending TMD. In Figure 14, some of the fetuses are retarded in ossification whilst others are well advanced. Also, in Figure 14 of a tetracycline labeled new born rat pup the mandible and the basal bone of the maxilla and mandible and teeth are well advanced in terms of calcification while portions of the calvarium and cervical vertebrae are partially or not at all ossified although the connective tissue matrix is in evidence in these regions. This is an important finding

because it informs us that in general the state of formation and calcification of the jaws and teeth precedes vertebral development. But while there are these differences in bone formation we find that the tetracycline label is taken up systematically first by the dentine soon followed by the enamel then finally by the cementum and the alveolar bone into which the periodontal fibers anchor (Figure 15). By this means I was able to develop the timing of the events of tooth eruption as in Figure 16, which demonstrated that the developing tooth first grew down into the basal or fundic bone before the tooth began to show augmented tooth movement of active eruption towards the oral cavity precisely when the cementum and alveolar bone begin to form and calcify. Thus it becomes clear that the incorporation of the periodontium into the cementum and alveolar bone is the signal for the bodily movement of the tooth as distinct from tooth and basal bone growth. In brief, the tooth took off from its launching pad of the fundic bone similar to a rocket taking off into space by the complex combined process of collagen formation connected to the attachment of the fibers of the periodontium into the alveolar bone and the cementum which together formed a syncytium or unit of function which the fibroblasts augment by their intrinsic contraction. This eruptive capacity was confirmed by showing that eruption continued normally even when all the enamel organ pulp and the apical odontogenic zone was removed as in figure 18. This experiment was undertaken in conjunction with Dr. Berkovitz BDS, who continued my research for his PhD thesis. But first, I confirmed that eruption in humans underwent the same process as described for the rat (Figures 19, 20 and 21) using the bone formed around the mandibular and maxillary nerves as relative fixed points. The variable stages of tooth eruption are presented in

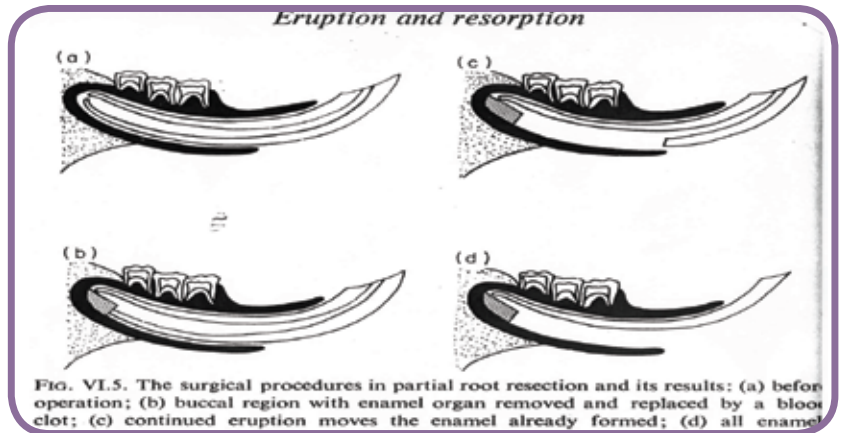


Figure 18 - Root resected teeth continue to erupt normally indicating importance of Periodontium

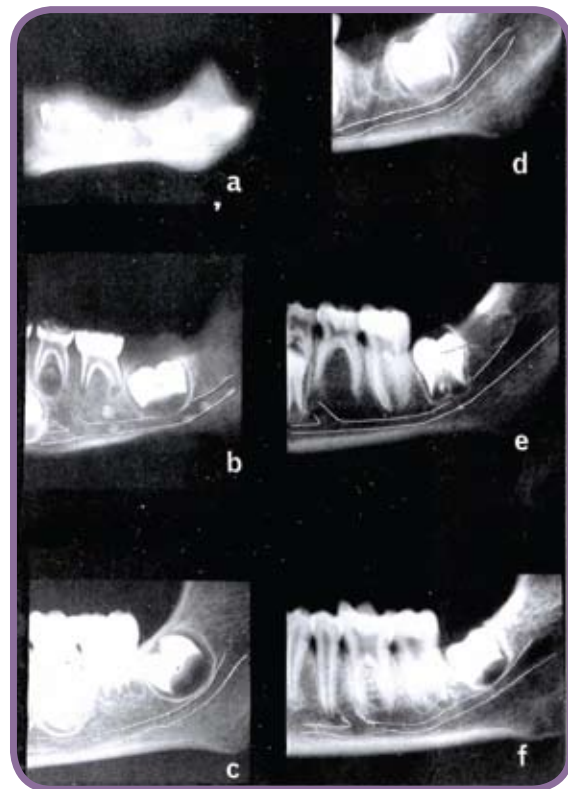


Figure 19 - Serial X Rays: Stages of bone growth and tooth eruption: Birth to 18 years

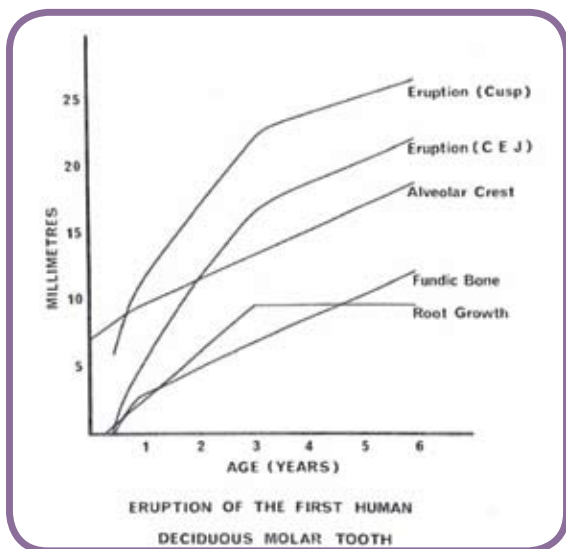


Figure 20 - Deciduous molar erupts 1-14mm/year (Thomas 1965)
 Permanent premolar erupts 2-27mm/year (Proffit 1991)

Subject	Day 1-2	Day 2-3	Day 3-4	Day 4-5	Mean
Tooth not near occlusion					
TC	147	17	20	1	46
EM	145	4	38	23	53
BY	132	46	47	74	75
AC	53	15	20	10	25
MI	66	-4	82	1	36
CG	65	36	40	52	48
CR	71	17	38	21	37
AM	81	47	36	44	47
RO	64	119	43	41	67
ML	47	9	42	3	25
TC	47	8	55	10	30
EM	41	-19	65	9	24
Mean	83	26	44	21	44
Tooth near occlusion					
BN	7	9	11	15	11
JO	43	-17	4	26	14
Mean	25	-4	8	21	13

Figure 21 - Eruption Rates of Human Teeth
 Proffit (1991) J. Dent Res.

Figures 19 and 20 measurements and were confirmed much later by Professor Proffit of Chapel Hill USA. Having thus established that active eruption in man commenced with root formation and development of the periodontal tissues proper it was decided to observe the effects of the crosslink inhibitor lathyrogen 0.1% aminoaceto- nitrile bisulphate (AAN) in the drinking water of pregnant maternal rats. But it was found that the lathyrogen so severely disturbed the fetal rats in their development that it was not possible to make reliable observations regarding the teeth. I also found that adult rats were resistant to lathyrogen except at very high dose levels which the results of Dr. Berkovitz et al supported and published in Archives of Oral Biology 1972. They suggested that the teeth in my study were not completely unimpeded, which cannot be true because there was a clearer difference between the impeded and unimpeded eruption rates ratio in the experimental animals that closely corresponded to the control eruption ratios (1.8 and 1.5) respectively. They also used a low dose of lathyrogen in mature rats which allowed for spontaneous crosslinking occurring as seen from the annotation 'spontaneous' Figure 9. This does indicate that when the dose of lathyrogen is low non enzymatic crosslinking can occur albeit at low rates.

TO BE CONTINUED - Much more to come on this subject in the next issue of Visions.



Norman Thomas, DDS, PHD, O. Path. MD: Bsc (Hans. Anat. Physiol.), FRCD; FADI, MICCMO, DAAPM, CMAc
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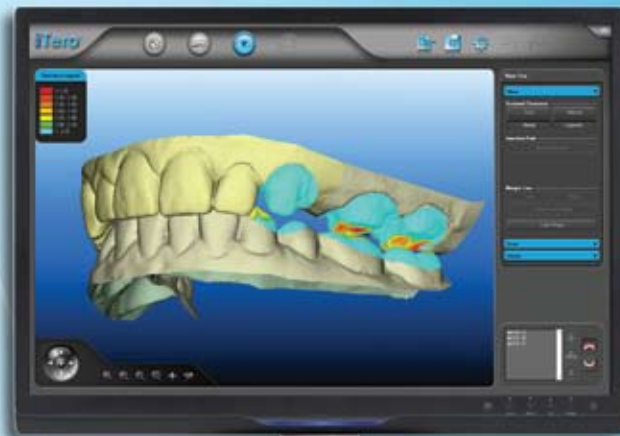
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2012 AESTHETIC EYE Winner!



Left to Right: Dr. S. David Buck awarding “Best in Show” to Aesthetic Eye Winner, Dr. Kathleen Carson, along with Bob Clark.

Right on the Kisser!

By: S. David Buck, DDS, LVIM

The 2011 IACA Aesthetic Eye was a great success and an exceptional way to profile the beautiful dentistry of IACA doctors. Submissions are a series of required photographs in three categories; Anterior Aesthetics, Full Mouth Aesthetics, and Glamour Portraiture. These photos are submitted digitally and printed by the same printer for a uniform result. They are displayed in a beautifully constructed “Studio” setting with black walls and focused spot light illumination of each of the participant’s photos. The feel is definitely like entering a high end art studio. A tour through the display allows each viewer to be in a quiet, serene and softly lighted area to appreciate all of the dentistry performed by our own IACA members.

Any and all IACA members are encouraged to go to the IACA web site to fill out an application and submit their photos via email for next year’s 2012 meeting. This year’s winner was Dr. Kathleen Carson who won both the Anterior Aesthetics category and also “Best of Show”. As the winner overall, Dr. Carson will have her entire 2012 registration fee for IACA in Hollywood, Florida provided (over \$1,200 value)!

In addition to Dr. Kathleen Carson, Dr. Michael Adler won the Full Mouth Aesthetics category and Dr. Joe Barton won the Glamour Portrait category. On the first day of the annual conference, an IACA past President’s panel gathers to carefully inspect all of the entries on display and decide on the winners. Once the winner is decided, all of the participating doctor’s names are then displayed with their cases, so that during the remaining two days of the conference all the attendees can view, appreciate and also know who performed the great dentistry on display. The cases are judged on technical difficulty, life-like aesthetics, and the artistic composition of portraiture. The “best in show” has a distinct blend of all three aspects to produce a stunning result. Congratulations to Dr. Kathleen Carson as this year’s IACA Best in Show winner!



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Earning my LVIM has enhanced my life because...

Going through the LVI Mastership process helped me to become far more systematic and consistent in my approach to complicated cases. Breaking them down into many small steps and making sure one step is perfect before moving on to the next is the key to a successful and predictable result.

I noticed when auditing Core VII that instead of accepting good EMG's at each step, extra care was taken to find an even better position for the bite and in most cases there was. I realized that I was probably stopping too soon in my work-ups and especially in my transfer bites, which caused more work later.

found that by moving his jaw forward and down 1mm each his EMG's went from good to great. He noticed immediate relief of his headache symptoms and in fact eliminated them completely within a few weeks. The end result of his treatment was that his overall health has improved, his life expectancy has lengthened, he is free from the chronic pain that had plagued his every day existence for years, and the esthetics of the case far exceeded his expectations.

My favorite case and why...

I found the case on Gary to be the most rewarding because it was one of the most challenging, even though I have done life changing cases before. He came to me simply for a check-up and cleaning. During that initial conversation a number of things became apparent. He had several signs of possible sleep apnea and he suffered from headaches on a daily basis that significantly affected his life.

He had a PSG done that showed moderate sleep apnea. He was placed on a CPAP at night that he seemed to tolerate well. A fixed orthotic was placed that moved his jaw forward and with the CPAP machine he was able to eliminate his sleep apnea completely. He was also a challenge to get comfortable. The initial orthotic reduced his symptoms about 50%. After 2 months I did a transfer bite to a new orthotic and in the process



Dr. Kent Johnson is an honors graduate of the University of Southern California Dental School. Over a twenty- year period practicing in Southern California, he built one of the most successful practices in the nation. He now maintains a full-time dentistry practice in Park City and instructs on LVI's elite Full Mouth Reconstruction team, the highest-level course offered at the Institute. He is also a member of the International Academy of Comprehensive Aesthetics.

David Miller, DDS, LVIM

Earning my LVIM has enhanced my life because...

Several years ago I submitted my LVIM application and it was rejected. The cases looked great but the protocols were outdated. Getting over my disappointment, I audited Cores III, IV, V and VII. I also reviewed the new case finishing techniques presented in Core VI. I learned to do fixed orthotics, one of the best techniques in dentistry for resolving and refining bite issues. I learned up to date bite management techniques that had changed greatly since 2004 when I finished Full Mouth. I refined the occlusion on two of my submissions and completed six additional full mouths using the new protocols. All of these cases were much more predictable and easier to manage with the new protocols. Auditing these courses was the second best investment I have made in dentistry. My best investment in dentistry was coming to LVI in the first place.



My favorite case and why...

My favorite LVIM case was Jeff Kibler. Jeff is my favorite case because changing his smile has opened up his personality and improved his life. Jeff came to me with a trashed mouth. He was missing #9, had numerous failing restorations and had ground completely through the occlusal surface into dentin on numerous teeth. Jeff and his family had to make financial sacrifices to afford the necessary restorations. Jeff loves the result. His family says he is more outgoing and happier. And the headaches he suffered from are gone! When I finalized the bite with the new

protocols, Jeff tapped together and his face lit up. He said: "Dude! You hit the sweet spot with that. This feels great!" Several months later, Jeff lost his job due to the economy. Three weeks later he got his "Dream Job" designing cell phone towers. Jeff credits his new smile and the self confidence it brings with helping him land his new job.



David Miller DDS, a 1980 graduate of the University of Illinois, maintains a general practice in Roseville, CA. Dr. Miller has a special interest in TMJ and Orofacial Pain. Dr. Miller speaks on Risk Management in the Full Mouth Reconstruction course at LVI and is a frequently acts as an expert witness in malpractice and personal injury lawsuits around the country. Dr. Miller has been married to Sybil for 32 years and has three children, Rory, Kyle and Kelli.

Michael L. Milne, CDT, LVIM

Earning my LVIM has enhanced my life because...

The LVIM award I received in San Diego is the summit of a goal I have worked on for many years. My passion for advancing Neuromuscular Dentistry in my career is deeply housed in my soul. To have accomplished and received the ultimate recognition for successfully completing these requirements has lifted my confidence and increased my desire to raise the bar a little higher after each accomplished task. I mentioned at the acceptance meeting in San Diego that “LVI and Bill Dickerson have always instilled in me a desire to raise the bar with each success”. This philosophy has created the propensity within me to constantly keep learning and seek the knowledge and skill levels that are ever present and changing.



My favorite case and why...

One of the best things about our business is the personal changes we can bring in the life's our patients. How gratifying it is to see the continence change in a individuals face due to the relief of pain or cosmetic improvement of their teeth.

I am grateful to be involved with such wonderful people as you who have attended the LVI programs and dedicated yourselves to the journey of excellence. I hope all of you will work towards your LVIM and especially I ask the technicians, we need more of you with the title LVIM.



Mike Milne, CDT is currently Director of Laboratory Programs at Las Vegas Institute for Advanced Dental Studies, LVI Global. He manages MicroDental Las Vegas Laboratory on the LVI campus in Las Vegas. He has been a bench technician for 40 years, and has been involved with LVI since 1996. Mike is a featured instructor at Las Vegas Institute for Advanced Dental Studies (LVI) Global.

THE LVI SomnoDent



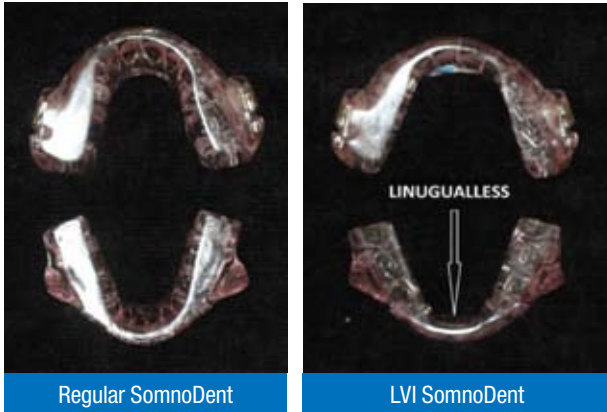
The long awaited FDA approval for the LVI SomnoDent appliance has finally arrived. Actually, by FDA standards it was really fast. As you would expect, the approval process of anything through the FDA is an expensive and time consuming ordeal in outlasting bureaucratic roadblocks. Perhaps a necessary evil as it is designed to protect the patients from instances where things designed to be good actually aren't. Knowing that, it was fully anticipated that this approval process might take longer. The reason it wasn't is that the change in the appliance does not change the basic function of the mandibular advancement device (MAD).

Sleep Apnea is a highly prevalent disease leading to many co-morbidity factors that contribute to poor health including early death. Since the diagnosis of this disease is on the rise, health practitioners are beginning to increasingly offer treatment for this condition. It is a disease that is not always cured but rather, managed. The gold standard treatment modality is with the use of CPAP (continuous positive air pressure). More recently, the use of oral appliances has gained significant ground with a statement by the American Academy of Sleep Medicine, in 2006, endorsing appropriate mandibular advancement devices as the first line of treatment for patients suffering from mild to moderate sleep apnea.

The difference in the LVI SomnoDent is that the lingual flange has been removed from the maxillary and mandibular appliance to allow for more tongue room. What we found at LVI was those that were given the LVI "lingual-less" appliance found them to be more comfortable and preferred them over the regular model. So let's look at the advantages of the LVI SomnoDent over the regular SomnoDent.

Obviously as Neuromuscular dentists we can see the common-sense differences between the traditional SomnoDent and the lingual-less. Although I can't imagine it ever being an issue, for your physician colleagues it may be important to let them know that relative to the conventional SomnoDent, the "lingual-less" appliance serves the same advantages and is supported by the long track record of success and research in the appliance design. Although I doubt the sleep physicians even know that the regular SomnoDent HAS a lingual flange.

More tongue room. Common sense will tell you that if you remove thick plastic from the oral cavity, there will be more room for the tongue. More room for the tongue would theoretically mean less mandibular advancement necessary to adequately open the airway. In a study done at LVI, organized by Dr. Sam Kherani, he found that the regular SomnoDent required a 5.6 mm farther advancement of the mandible than the LVI "lingual-less" SomnoDent. This 5.6 mm further advancement with the standard SomnoDent leads to significantly increased discomfort in the TMJ as this was subjective feedback that we also received. Although this study may not be an adequate study to reach that conclusion as fact, as a pilot study it was interesting to see that was shown.



Patient comfort. As stated in the opening, patients given the LVI SomnoDent preferred them to the regular SomnoDent. Also, a survey was taken of those that participated in Dr. Kherani's study and were asked which appliance they preferred to wear, and 15 out of 15 preferred the LVI SomnoDent. Not only was this believed to be due to the greater tongue space, the wearing of the Lingual-less SomnoDent lead to less necessary protrusion of the mandible in this pilot study and the participants were able to get their back teeth together much easier after the wearing of the appliance all night.

The study in this paper was conducted using 2 (two) different mandibular advancement device types (with a lingual flange vs. without a lingual flange) and 2 (two) different bite techniques (arbitrary protrusive vs. Neuromuscular) to capture the relationship between the maxilla and the mandible. The resultant sleep metrics (AHI, RDI, ODI, Light Sleep, Deep Sleep, REM, Snoring, Body position) were documented and analyzed leading to the outcome discussed below.

The Lingual-less design has a significant positive impact on the sleep metrics and airway volume as it minimally impinges on the precious tongue room. The Lingual-less design produced sleep metrics very close to those produced by the Protrusive SomnoDent but required the mandible to be protruded 5.6 mm less on average than the Protrusive SomnoDent. The NM design also reduces NeuroMechanical load on the patient and hence a better sympathetic tone helping to keep the airway open during sleep.

We based our results on sleep studies using the Watch-Pat 200 that were performed 10 different times on each participant. Most studies just report subjective reports from patients. Although this author feels that subjective results are not to be taken lightly, the forward advancement was determined by the home sleep studies.

Worst case in using the LVI appliance is that you end up using it exactly the same as the regular SomnoDent appliance, since there is no difference in mandibular advancement. The benefit is that compliance might be better because it's more comfortable for the patient. Not a bad downside.

It is not uncommon for dentists to apply denture pressure paste to the lingual of the flange and adjust the marks away to help the situation when the lingual flange is a noticeable irritation to the patient. Obviously it's really not necessary for it to be there in the first place as it is not important to the function of the appliance or the FDA would not have approved it so fast. In fact, again, common sense would indicate just the opposite. Since we are trying to give the tongue more space by moving the mandible forward, why not help the cause out by eliminating any artificial interference in the oral cavity, like the lingual flange?



common sense
would indicate
just the opposite.

THE LVI SomnoDent

Some may be worried about the appliance being not as strong. Of the 15 appliances placed in the study, not one of them has broken in the last 1.5 years. If there is a patient that has a breakage issue, then prescribe them the regular appliance. But why worry about something until it becomes an issue? Besides, think about why that strength is needed in the first place. The vast majority of the profession is under the mistaken notion that bruxism is incurable. The arbitrary protocols of early MAD therapy established where the bite was taken and how the appliance was designed to minimize breakage. For the Neuromuscular doctor who can eliminate bruxism, the incidence of appliance fracture will be considerably less.

Removing the lingual flange from the regular SomnoMed is similar to why I developed the LVI "fixed" Neuromuscular Orthotic and had the labs remove the lingual flange from the removable NM orthotics. What we found was that the regular orthotics would often cause an elevated EMG's of the digastrics. Often pain would not be alleviated in the patient until we switched to a lingual-less or a LVI "fixed" orthotic which only covers the tops of the teeth. We saw the same thing when our bite registration would encroach on the intra oral cavity



and touch the tongue; the digastrics would elevate. When we trimmed away the excess, the digastrics calmed down. It doesn't take much material applied to the lingual surface or your teeth to actually feel the difference and for it to be annoying. I'm sure many of you have experienced a patient complain about a crown feeling too thick when it looked to be a normal size. Try slightly reducing the lingual surface and you'll find that their "issue" goes away.

So for all you sleep doctors out there, I would encourage you to use the LVI SomnoDent for your next MAD. You may be surprised at the patient's reaction and compliance as well as the reduced advancement necessary. What do you have to lose?



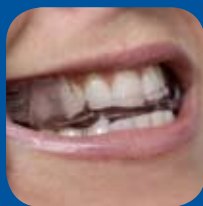
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VERSAWAVE

Lasers have long been a necessary component in aesthetic dentistry though NdYAGs and diodes are limited to soft tissue only. That is fantastic if the issues in the smile are also limited to soft tissue only, however more often than not the aesthetic problems are also rooted in the bone. With the VersaWave the clinician has the ability to reshape the bone and create the ideal biologic width. Exceptional smiles aren't just about the teeth!



KETTENBACH SILGINAT

Traditional Alginate is rarely measured and mixed accurately and more often than not, the stone that is poured into the impression isn't mixed correctly either – and that's if it isn't forgotten on the counter in a wet paper towel while the team goes to lunch! The obvious net is that the models are not the quality that is required for exceptional dentistry. Silginat impression material by Kettenbach is a rubber based impression material that is exceedingly easy to use and accurate – and then can be sent to the lab and poured correctly!

PRO-V-COAT

From BisCo, this material is the separating medium that allows you to be able to draw on the ample benefits of immediate dentin sealing. If that concept is unfamiliar now, it won't be for long. It belongs as the standard for treatment of the dentin at the time of preparing the teeth. The only problem has been how to protect that sealed dentin while the final restoration is being fabricated. Leave it to BISCO to solve the chemistry complications to again make the impossible possible!



TELIO

BisAcryl provisional material is truly one stop temporary shopping. Using a matrix, the provisional can be made predictably and efficiently. Ivoclar's Telio material is easy to work with and stunningly beautiful – help your patients to enjoy the prototype smile before the final restorations are started – and work it out in plastic first! Try Telio on your next smile!



VARIOLINK VENEER

The same tired old fight... you want to make beautiful smiles and your patients all want 'Stupid White' teeth! With the ideal ceramics like Empress and e.Max we get strength and beauty, but it is difficult to change the color chair-side. Fortunately value is really the name of the game and Variolink Veneer allows control over toning it down and creating a warmer smile – or punching it up and making the smile brighter at the day of delivery! So, make them pretty and if they really want Stupid White, we can add a bit more pop at delivery!



It's easy to ignore the new areas of dentistry; easy to look at an appliance like the SomnoDent and put that whole learning process back on the shelf until later. There is plenty of dentistry to be done and for most dentists there are already things that are going well, but at some point we need to start looking into the source of the problems and not just treat the symptoms.

The other day I was speaking with another doctor... "It happened again, another patient wants to fix their smile - to make their front teeth look fantastic. I can do that, I have some of the best dental training in the world! But something still haunts me. I remember sitting in my first year dental morphology class with Dr. 'Smilin Ed' telling us that they could teach a monkey to be a dentist and what we needed to learn was how to be doctors. Great, that is exactly what I was looking for in dental school. But now looking back at what I have done all these years it makes sense, I simply fix mechanical problems in the teeth. I went to a trade school and learned a craft. And I am very good at it, but something is missing...

In so many of these cases with ugly smile disease, I keep seeing the same problems. I know the OB/OJ is supposed to be about 1mm, but it almost never is. I know the occlusal tables should be level, but they rarely are. I know the soft palate tissue should look healthy and pink but often it isn't, even having elongated and inflamed uvulas and reddened tonsillar pillars and hypertrophied tonsils. There has to be more going on than just coincidence. I know that there was a time that physicians were able to look in the mouth and see health - or disease. Why can't I do that?"

When these questions start getting asked, the real learning begins! In looking at our patients we have the opportunity to see a vast array of maladies and for whatever reason, often we end up only seeing something half-vast. There are a number of contributing factors that will paint the picture of health and in the world of occlusion we are responsible for some major issues. It is time we stop ignoring that.

There is little question that once the science is explored with an open mind, that dis-ease of the muscles account for a large majority of pain complaints of our patients, including migraine and facial pain. Things as remote as numb finger tips are very often resolved with appropriate comprehensive care. However, the question still remains as to what is happening at night.

Obstructive Sleep Apnea is one of the most rapidly emerging and developing fields in medicine and the number of people untreated is staggering! Less than 10% are diagnosed and less than 10% of those are well managed. The protocols are being developed; the success is growing, and the largest advances come with concurrent and cooperative therapy between the sleep physicians and educated dentists. OSA is the night-time side of daytime problems Neuromuscular Dentists have been addressing for years, but there is still much to learn. And our patients NEED this to be mastered as quickly as possible.

As common as it is, for patients with a scalloped tongue there is a 70%+ co-morbidity with OSA. For those patients in a deep bite or with a vaulted palate, if you add hypertension and diabetes and a few pounds, the co-morbidity may be higher than 99%!! It is time for dentists to become physicians and reach for that higher calling and continuing professional advancement we were charged with when graduating... It is time to finally become doctors.



The Inevitable Collision: Doctor Time Off versus Staff Compensation

By: Mr. Tim Twigg



Today's economic reality is that many employees, even highly compensated hygienists, live paycheck to paycheck.

paycheck to paycheck. The prospect of having 10 weeks out of the year unpaid can be worrisome. The question that often arises from staff is "How am I supposed to support myself and/or my family if the practice is closed 10 weeks out of the year?"

You could simply say, "Tough. You've got to figure it out. It's not my responsibility." Short of saying: "you're on your own" -- what do you do? What can you do legally? Of the options available, what are the risks?

There are a number of options that you can take when it comes to compensating your staff--each with its own pros and cons. The key is to determine which one will be not only compliant with wage and hour rules, but good for your practice and good for your team.

Here is an in depth look at compensating your staff.

Like most doctors, you schedule multiple weeks off each year for leisure or continuing education. In fact, it may not be unusual for you to take 4-10 weeks off per year depending on how well your practice is doing and your work-life balance commitment.

While this is great for you, it can leave your staff in a bind if they otherwise are left without pay for those weeks that you are out of the practice.

Today's economic reality is that many employees, even highly compensated hygienists, live

“...attracting and retaining quality employees is a competitive challenge.”

A Little Background

For government wage and hour purposes, all employees land in one of two categories: exempt or non-exempt. There are many factors used to determine exempt versus non-exempt status. For the most part, it has to do with managerial and supervisory duties and has nothing to do with the method of compensation (i.e. salary versus hourly). Based on the established government criteria, most dental employees land in the non-exempt category.

Compensation for non-exempt employees (hourly or salary) is based on actual time worked, which includes regular and overtime hours. Records retention requirements can come into play whereby you may be called upon to provide documentation about hours worked, the compensation received and the effective hourly rate to prove compliance with minimum wage and overtime regulations.

Hourly Compensation

The simplest approach is pay everyone an hourly rate for time actually worked — no more, no less -- plus any applicable bonuses. This is straight forward and easy to administer.

Although when you do not work, employees will be left without pay for those weeks you take off. If you have financially smart employees, you could expect them to save money throughout the year to cover for those weeks that you take off. However, does anyone know someone who really does this effectively?

Paying solely an hourly wage often leads to poor morale. When employees do not get paid for a significant number of weeks per year, it can affect their ability to pay their bills or provide for their families. This type of stress can carry over to the workplace and have a negative impact on the team and patient relations.

During the time off, some employees could temp at another office to supplement their income. Employees in every state also have the option to file for unemployment benefits each week that your practice is closed and they are unable to work and are not getting paid through other benefit means. Most employees, if they meet the eligibility requirements, will be granted unemployment benefits once they have completed the applicable waiting period.

Finally, attracting and retaining quality employees is a competitive challenge. If you compensate your employees solely with an hourly wage, your talented staff may resign to work for practices that provide more hours or have vacation or paid time off (PTO) benefits. This would result in higher costs to you in the name of turnover.

Salary Compensation

Salary compensation, in its truest sense, would mean you would pay your staff a set salary throughout the whole year, even when you take time off and your office is closed. You do not add additional costs by implementing vacation or PTO policies because these costs are inherently included in the salary.

This is great for two reasons: 1) your employees do not have to worry about how they are going to pay their bills each time you close your office because they get paid no matter what and, 2) there is no vacation or PTO policy to be followed or administered, which eliminates the need to worry about any state law regarding "earned wages."

In theory, this seems like it would work wonderfully and it does so long as you:

- 1) rarely work more than 40 hours in a week,
- 2) define the number of hours in a "workweek," and
- 3) define how the salary will be recalculated/docked when someone works less than the agreed upon hours or days due to their own personal reasons (i.e. illness or other personal issues).

If you define your workweek at lower than 40 hours, you may have to increase the salary if your staff works more than the established number of hours in a workweek. For example, let's say you define the workweek to be 36, but on one particular week your employees worked 38 hours. Since the salary has been based on 36 hours, you have to increase their pay for that week to include the extra two hours worked. Again, this is because they are non-exempt and have to be directly compensated for all hours worked.

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Compensation Combined with Benefits

According to a 2010 US Bureau of Labor Statistics and US Department of Labor study, 77% of employers provide some type of paid leave to their staff. Many employers find paying for hours worked plus some type of vacation or PTO benefit to be a balance that all parties concerned can find fair and equitable. Your staff may also feel more valued knowing you have considered the impact that closing your office for up to 10 weeks per year could have on them financially.

It is important that you structure any vacation or PTO benefits policy in a way that provides adequate coverage for the weeks your practice is closed, but at the same time doesn't create a large financial liability for your practice.

While there are no laws that require employers to offer paid vacation time, if an employer chooses to voluntarily offer vacation pay or PTO, it is important to clearly state, in policy form, the parameters of the benefit being offered to minimize any possible misunderstanding. The following key parameters should be addressed in your written vacation or PTO policy:

- 1) The benefit amount (i.e. 2, 3, 10 weeks)
- 2) How/when the benefit is earned
- 3) How/when the benefit can be used
- 4) How the benefit is handled upon termination

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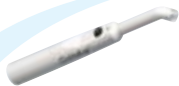
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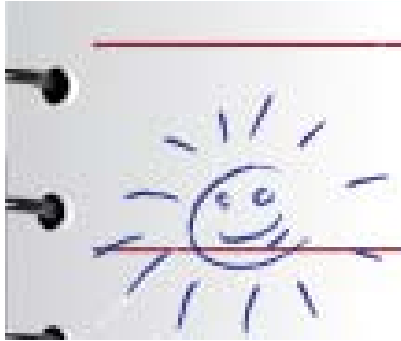
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To keep valuable staff happy, every dentist must decide how to balance compensation and benefits.

An employer who chooses to voluntarily offer vacation pay may also restrict the conditions under which it is available. For example, you can insist that vacation be scheduled at a certain time, or only provide vacation or PTO after a certain duration of employment (i.e. your staff will not start accruing vacation or PTO benefits until they have completed their 90 Day Orientation and Training period, and they can only take time off during the 10 weeks the practice is closed).

In a number of states, vacation or PTO benefits are considered “earned wages.” If your state considers these benefits “earned wages” you will be required to pay out the earned, but unused, vacation or

PTO upon termination on your employee’s final pay check. Depending on the number of hours an employee has earned and has not used at the time of his/her termination an employer can be looking at a costly payout.

When and How Overtime Comes Into Play

Regardless of your method of payment, salary or hourly, all non-exempt employees are to be paid overtime for any hours worked over 40 in the work week (8 hours per day in California). With very few exceptions, hours worked will also include hours spent in continuing education.

To determine an employee’s overtime rate when paying hourly, you’d simply take the total number of hours worked, multiply that by the hourly rate, add in non-discretionary bonuses, commissions, etc. and then divide by the number of hours worked. The new rate would then be used to calculate time and one half for overtime.

To determine an employee’s “effective hourly rate” when paying a salary, the Fair Labor Standards Act (FLSA) requires you to take the total weekly compensation (i.e. salary, plus non-discretionary bonuses, commissions, etc.) and divide it by the hours actually worked during the workweek. As a result, the “effective hourly rate” may fluctuate depending on the number of hours worked during the week overtime occurs.

Conclusion

To keep valuable staff happy, every dentist must decide how to balance compensation and benefits. Most practice owners look forward to the day when their practice is successfully generating a high amount of revenue and allows them more freedom. The key is to keep the freedom and create a great place to work for your employees that won’t affect the practice in such a way that you lose the financial success you worked so hard to gain.

With the right compensation and benefit policies you can provide your team with a benefit that eliminates or minimizes the “risky proposition” of them saving money for when the practice is closed and also protects your practice from paying out a large amount of vacation or PTO to employees who are leaving your practice. When you do that, then everyone wins.



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Where is your practice headed?

By Jay W. Gerber, DDS, FICCMO, FIAO, DAAPM

I just realized the other day that I am completing thirty-five years in dental practice. It's unbelievable that time passed so quickly. Even though I am not one to dwell on the past, I couldn't resist the urge to look back on my practice of dentistry and my twenty-seven years in dental education.

It reminded me of a conversation I had about twenty years ago with my father who began his dental career in 1944 while in the US Navy. I remember asking him about the changes in technology over the years from his schooling at the Baltimore College of Dental Surgery (now University of Maryland), through his time in the Pacific theater while in the Navy and then back home to practice in a small West Virginia town.

“

The ability to advance the mandible non-surgically was tops on his list. Considering he retired in 1990, his comments on mandibular repositioning are most notable to neuromuscular dentists.”

My conversation with him revealed interesting changes in his chosen profession to that point. His profound observations related to the importance of the integration of fluoride into the water supply, the use of high-speed hand-pieces, improvements in local anesthesia, and finally functional jaw orthopedics. The ability to advance the mandible non-surgically was tops on his list. Considering he retired in 1990, his comments on mandibular repositioning are most notable to neuromuscular dentists.

I found his experiences to be those of an educated professional. Most dentists now and even in his generation did not seek continuing education. The AGD has revealed shocking numbers as to how few US dentists participate in CDE. But even as a youngster I remember my father reading dental journals, attending meetings and continually educating himself in one way or the other. I suppose that is one reason why I drifted into dental education.

Technology for my generation represents advances that are too numerous to mention, and it's amazing to watch what is happening including the integration of digital and micro technology into our practices. I can only wonder what my daughter, an orthodontist will see over her next thirty years of practice.

Upon review, I have an important question for my readers; what is the direction of your practice? Will you decide to continue to deliver care as is, or adapt to change - and I don't mean just technology? As practicing dentists we must constantly define our position as professional caregivers. Most of you are currently reacting to a somewhat turbulent economy and are just trying to stay on top. We must decide if we are in this for fame, fortune or providing a social good. Now is the time to plan your future, set long-term goals for your practice or at least prepare for the direction of the type of treatment that you will be delivering.

Professionally what types of treatment we decide to provide and how we decide to deliver that treatment is always the question. Again, looking over all these years I can honestly say that my goals were changing and/or adapting to balance a quality experience for me while providing the best dentistry for my patients. I really did not press to make big bucks, as I knew that would come, if I provided a quality experience for my patients.

My brother first introduced me to Neuromuscular Dentistry in 1983 just before he graduated from dental school (yes he is a dentist). Of course I could go on and tell you how that was the epiphany in my professional life and of course, it was just that. Neuromuscular dentistry has allowed me to achieve my professional goals without reservation, make a good living and be a responsible contributor to society. This, of course, is my story. What is going to be yours?

Jay Gerber's Upcoming Courses at LVI Global

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November 10-12, 2012

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