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LVI Visions

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Mike Hess

DENTISTRY BY
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CONTENTS


Pg. 6


Pg. 22


Pg. 47

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Editor's Note

Dear Readers...

Where has this year gone? 2015 seems to have flown by! 2015 marked a really big milestone here at LVI... 20 Years of CHANGING DENTISTRY... CHANGING LIVES!

In 2015 at the Annual IAPA meeting we took a look back at the start of LVI and then travelled along the path of getting to where we are today.

What a huge accomplishment started by the VISION of one man... my hubby, Dr. Bill Dickerson. (Did you ever wonder where the name of this magazine came from?... The VISION of spreading NM Dentistry around the Globe).

It has been my pleasure to work side by side with him 24/7. When I see the results of what Neuromuscular Dentistry has done for thousands and thousands of patients... it has made the entire journey worthwhile!

Who knew what started 20 years ago would become the Most Prestigious Post Graduate Dental Institute In The World!

What a ride.

I hope that as you read all the amazing articles I have gathered for you, from many of our presenters at this year's IAPA... that you will realize all the amazing things out there that you could be learning and integrating into your practice.

Make 2016 the year to learn a new technique!

Make 2016 the year you add a new technology!

Make 2016 the year YOU MAKE A DIFFERENCE!

Enjoy this issue... and have a wonderful New Year!

Heidi

Heidi Dickerson, DDS, FIPA, LVIM
hdickerson@lviglobal.com

The LVI 20 Year Journey all began with a *Vision* from Dr. Bill Dickerson.

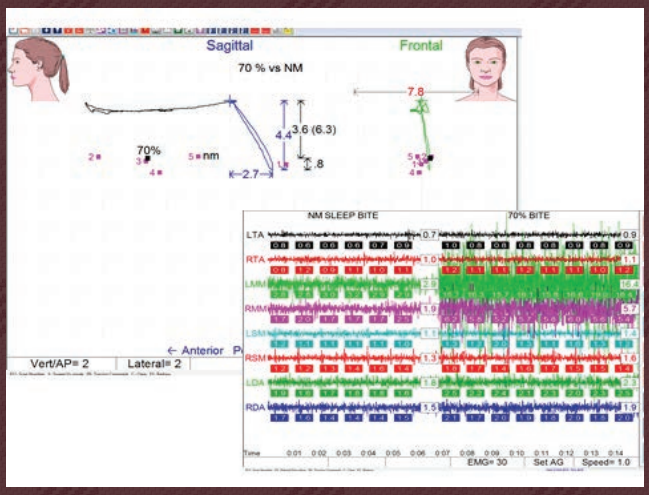
"We must dare to be great; and realize that greatness is the fruit of toil and sacrifice and high courage."

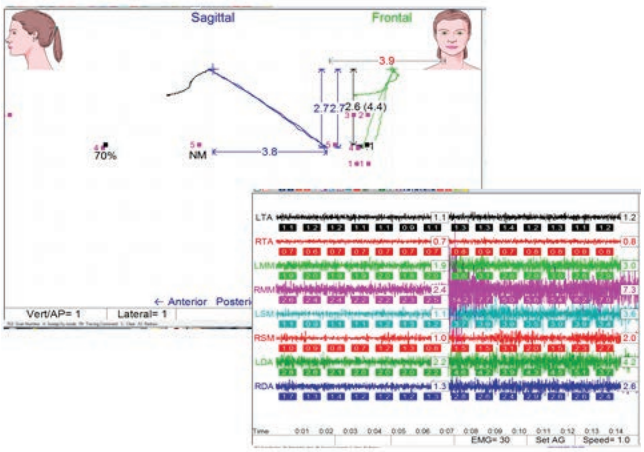
Teddy Roosevelt

In Treating SBD

William G. Dickerson, DDS, FAACD, LVIM, FIAPA

One of the biggest drawbacks with **MAD** (**Mandibular Advancement Device**) treatment for sleep breathing disorders is jaw discomfort. Often this will lead to compliance issues and TMD problems associated with wearing the sleep appliances. This issue has caused many MD's to be reluctant in recommending MAD's over CPAP as the treatment of choice. It would behoove dentistry to find a comfortable position for the bite position for MAD's not only for patient compliance, but for the prevention of post treatment complications.





IF IT CAN BE MEASURED IT'S A FACT. IF NOT, IT'S AN OPINION

Eleven subjects were TENSed (Transcutaneous Electrical Neural Stimulation) for one hour to relax the muscles of mastication. One subject had a pacemaker which is contraindicated for TENSing so he was not TENSed giving us twelve subjects for this study. It is understood that using the George Gauge doesn't utilize the TENS, however in an effort to equalize each treatment; all subjects were to go through the same pre-bite routine. Obviously this would be a benefit to the George Gauge results as pre-bite relaxation of the muscles of the airway is beneficial regardless of the bite technique. It is this author's belief that the results would have been worse had pre TENSing of the patients not occurred.

Jaw tracking was placed on each subject. EMGs were recorded with duatrode placement over the anterior temporalis, masseters, digastrics and sternocleidomastoids. In all but two of the subjects, the existing bite position was recorded (marked) and the end to end position as well. In the other two, only the end to end position was recorded. A 3 mm wafer was placed in the subjects mouth and the subject was asked to retrude the mandible as far as they can and then protrude the mandible as far as they can. Each of those positions were recorded and marked on the tracking display.

The distance between the most retruded and most protruded position of the mandible was measured and recorded. Calculations were made to determine where 70% maximum protrusion was and a target was set on the jaw tracking screen at that position.

While the subjects were TENSing, they were asked to relax and allow the mandible move to its physiologic resting position. A 3 mm wafer was placed between the teeth to insure enough room for the Micr02 sleep appliance. A target line was then placed at that vertical position as a target for the Physiologic Neuromuscular Bite. The wafer was removed and the patient was asked to relax again allowing the pulse to dictate the position of physiologic rest and direction of closure position as taught at the OSA program at LVI. The bite was taken along the target line at that pulsing position with quick setting bite registration material.

The subject was then moved to the 70% position and another bite was taken at that position using the same quick setting bite registration material. The EMGs were recorded using a five second scan for each. In some of the subjects the 70% bite position was recorded first and in others, the physiologic (NM) bite position was recorded first. It was expected that the muscle of interest would be the masseters to determine the effect on over protrusion would cause it to contract to try and correct. The sum of the microvoltage of each subject was totaled and divided by the number of subjects to come up with an average. The measurement of the 70% protrusion position beyond the physiologic bite position was also totaled and divided by 12 to come up with an average difference.

RESULTS

The table of the distance of protrusion between the NM position and the 70% position is below. The average George Gauge (70%) position is 4.5mm more protruded than the average NM starting position.

The table showing the masseter EMG difference between the physiologic (NM) position and the George Gauge (70% maximum protrusion). The average EMG reading for the GG position was 7.5 mv and the EMG reading for the LVI Physiologic position was 1.68 mv.

There is a saying that if it can be measured it's a fact. If not, it's an opinion. Using EMGs we can quantitatively measure the effect that the bite has on the patients comfort with the appliance. High hypertonicity would indicate muscle discomfort and lead to possible TMD problems for the patient. Obviously the success of the bite position is important for patient compliance. Achieving a more comfortable position for a sleep appliance would lead to better long term results. The study on page 10 will show that in the physiologic position, AHI results are very good with even severe cases being restored to normal levels, so there is no need to over protrude the patient to achieve the desired results. From a muscular comfortable position, the physiologic bite position proved to be better than the George Gauge position.

DISTANCE OF PROTRUSION BETWEEN NM VS 70%

3.5 mm
6.0 mm
6.0 mm
5.0 mm
2.0 mm
5.5 mm
3.0 mm
5.5 mm
3.0 mm
2.75 mm
3.0 mm
4.5 mm

AVG – 4.15 mm

Average George Gauge Position is 4.5 mm More Protruded Than The Average NM Starting Position

MASSETER EMG DIFFERENCE BETWEEN NM VS 70%

	MASSETER EMG READINGS			
	NM L	NM R	70% L	70% R
	2.9	1.9	16.4	5.7
	1.9	2.4	3	7.3
	1	1.2	3.8	1.4
	1.3	1.2	17.5	22.2
	0.4	1.1	1.5	3.7
	1.6	1.1	9.3	8
	1.4	1.3	1.9	1
	0.8	0.6	5.6	4.9
	1.7	2.4	7.9	2.6
	0.6	0.7	11	4.6
	7.1	1.9	20.2	7.7
	1.4	2.5	1.7	11.2
	22.1	18.3	99.8	80.3
AVG/SIDE	1.84	1.53	8.32	6.69
TOTAL AVG	1.68		7.50	

Average George Gauge Masseter EMG Readings = 7.5 mv
Average NM Sleep Bite EMG Readings = 1.68 mv

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Patient Peace of Mind Digital files on record mill new arches quickly without new impressions.

Design Accuracy & Consistency The bite you take is digitally scanned and precisely replicated.

Strength & Durability The exclusive design and material optimize strength and comfort.

Design Freedom You Expect Your preferences can be repeatedly made each time the same way.

NEW! Find a Dentist Feature The MicrO$_2$ website makes it easier for patients to find you as a local MicrO$_2$ sleep dentist. Join our dentist list by visiting micro2sleepdevice.com and click on the "Join Dentist List" under the "Dentist" tab at the top.

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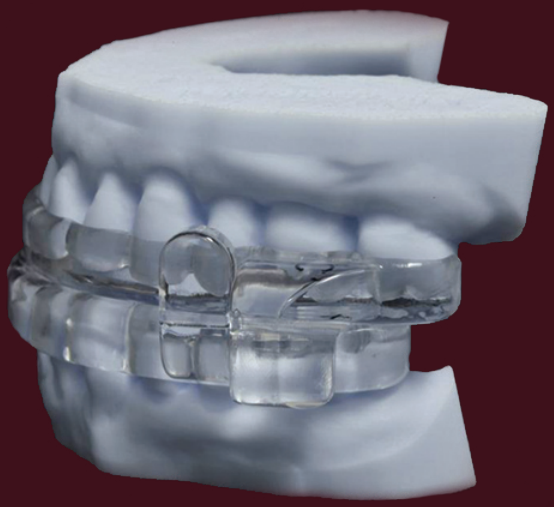

TAKE A BITE OUT OF OSA

The Effectiveness of the Physiologic Approach & the MicrO_2 in Treating OSA

William G. Dickerson, DDS, FAACD, LVIM, FIAPA

Historically the George Gauge has been the most popular way to take a bite for a mandibular advancement device for treating OSA (Obstructive Sleep Apnea). This results in a protrusion of 70% of the patient's maximum protrusion. A new approach to treating OSA and other Sleep Breathing Disorders (SBD) is the Physiologic Approach which requires TENSing the muscles of mastication and the airway before taking the bite, and then taking the bite in the physiologic resting position of the mandible. This protocol results in a much less protrusive position of the mandible as well as less titration necessary and fewer post-treatment complications like TMD and/or painful muscles of mastication upon awakening. In a recent study (also in this issue of Visions), the average difference of forward protrusion between the George Gauge position and the Physiologic Bite position (as taught at LVI) was 4.15 mm, and the average difference in muscle hypertonicity was significantly higher in the George Gauge position with that position averaging 7.5 mv and the Physiologic Bite position averaging 1.68 mv.

The most common appliance used in treating SBDs has been the SomnoDent by SomnoMed. However a new appliance has been developed that utilizes patented designs to eliminate airway closure on opening (vertical fins) and the lingualess design which eliminates the need for excessive protrusion of the appliance. The appliance is the MicrO_2, and has no moving parts and stable and strong milled construction. The MicrO_2 comes in two upper and two lower arches which, using the Series A, allows for 1 mm, 2 mm, and 3 mm titration. Strength testing has shown it to be stronger in all areas as well as 1/10 the amount of methyl methacrylate.

This study was done to determine the effectiveness of the less protrusive technique taught at LVI (The Las Vegas Institute for Advanced Dental Studies) and with the MicrO_2. Users of the MicrO_2 who also use the Physiologic Approach as taught at LVI were asked to submit before and after sleep studies as well as indicate how far they titrated the patients to achieve the results. Some indicated that they were not done titrating and wanted to bring the already lowered scores down but were included anyway. This author gathered 88 patients and their sleep studies with the results below. The red indicate severe AHI results, the orange indicate moderate AHI results and the yellow indicate mild AHI results. If a patient had an AHI of less than five that score was indicated by the color green. If there was no titration, the box is green. If the titration was 1 mm, then the box is yellow. Over 1 mm titration and the box is red.

RESULTS

- The average beginning AHI was 20.23.
- The average after was 4.21.
- The average amount of titration from the physiologic position of the mandible was only 0.47 mm.
- There were ten (10) severe AHI patients with an average AHI of 50.12 and an average after of 4.95.
- The doctors who contributed to the study indicated that all their patients were comfortable in the MicrO_2 appliance and had no problems wearing them.
- 16 of the 24 patients whose after AHI was in the "mild" range after treatment instead of below five had not been titrated beyond the zero position indicating that perhaps an improvement could be achieved with minimal titration.
- Seven of the remaining eight have only been titrated 1 mm with one being titrated 2 mm. Even those might get better results with minimal titration.
- Only eight patients out of the 88 were titrated more than 1 mm.
- Only three of those patients were titrated more than 2 mm with the most titration being 4 mm with one patient.

PHYSIOLOGIC MICR02 BITE STUDY			BEFORE			AFTER		TITRATION	APPLIANCE
Dr Name	Patient Name	DATE	AHI		DATE	AHI	AHI DIF	LEVEL	USED
Michael Reece	R. M.	5.15	51.7		9.15	1.4	50.3	0	MICR02
David Miller	M. W.	4.15	14.1		8.15	12	2.1	0	MICR02
Mandy Grimshaw	C.Y.	10.14	27.1		12.14	6.1	21	0	MICR02
Mandy Grimshaw	M.K.	2.15	15.8		6.15	4.1	11.7	0	MICR02
Mandy Grimshaw	P.M.	2.14	12		8.15	2.6	9.4	0	MICR02
Mandy Grimshaw	B.A.	2.15	6.7		8.15	3.7	3	0	MICR02
Deric Ikuta	J.B.	7.14	6		8.15	5	1	0	MICR02
Shauna Palmer	T.T.	4.14	87		8.15	2.8	84.2	0	MICR02
Donna Blair	B.C.	4.15	14.7		7.15	3.1	11.6	0	MICR02
Donna Blair	N.V.	8.14	49.1		5.15	5.3	43.8	0	MICR02
Timothy Isaacson	L.D.	2.05	13		2.15	4.5	8.5	0	MICR02
Timothy Isaacson	R.J.	10.14	5.7		1.15	3	2.7	0	MICR02
Timothy Isaacson	M.C.O.	2.15	10		8.15	1.5	8.5	3	MICR02
Alex Tang	A.T.	10.12	26.8		10.14	15	11.8	0	MICR02
Mark Tompkins	J.A.	6.15	16.1		6.15	4	12.1	4	MICR02
Mark Tompkins	W.C.	2.15	21.5		5.15	2.1	19.4	0	MICR02
Mark Tompkins	J.C.	5.06	10.5		9.15	1	9.5	1	MICR02
Mark Tompkins	H.B.	12.14	23.1		11.15	3	20.1	1	MICR02
Michael Adler	S.H.	1.15	27.2		5.15	5.1	22.1	0	MICR02
Michael Adler	J.K.	3.15	27.5		6.15	8	19.5	0	MICR02
Michael Adler	E.S.	2.15	20.7		5.15	6.7	14	2	MICR02
Mandy Holley	C.B.	2.13	12		9.15	3.3	8.7	0	MICR02
Trey Carlton	N.M.	6.08	22.90		10.13	3.50	19.40	0	MICR02
Trey Carlton	W.C.	3.14	15.50		5.14	3.80	11.70	0	MICR02
Trey Carlton	J.K.	2.15	9.30		9.15	3.00	6.30	0	MICR02
Trey Carlton	J.M.	4.15	33.30		9.15	4.70	28.60	1	MICR02
Trey Carlton	P.R.	9.12	15.10		10.15	1.20	13.90	2	MICR02
Trey Carlton	J.K.	2.15	9.30		9.15	3.00	6.30	0	MICR02
Trey Carlton	J.M.	4.15	33.30		9.15	4.70	28.60	1	MICR02
Trey Carlton	P.R.	9.12	15.10		10.15	1.20	13.90	2	MICR02
Trey Carlton	J.L.	6.15	25.6		10.15	5.9	19.70	1	MICR02
Trey Carlton	R.B.	7.15	9.9		12.15	1.6	8.30	1	MICR02
Trey Carlton	E.W.	6.15	8.9		10.15	4.7	4.20	0	MICR02
Ann-Maree Cole	C.H.	4.14	6.3		5.15	0.4	5.9	0	MICR02
Ann-Maree Cole	B.A.	4.15	24.5		8.15	5.4	19.1	1	MICR02
Ann-Maree Cole	A.B.	10.14	10.3		7.15	5.8	4.5	0	MICR02
Ann-Maree Cole	S.B.	5.15	12.2		6.15	5	7.2	2.5	MICR02
Ann-Maree Cole	R.C.	10.14	35.2		6.15	2	33.2	1	MICR02
Anne-Maree Cole	S.D.	1.14	25.8		1.14	6.4	19.4	1	MICR02
Anne-Maree Cole	C.E.	9.14	5.2		9.14	4.8	0.4	1	MICR02
Anne-Maree Cole	D.E.	4.15	34.6		4.15	3.7	30.9	0	MICR02
Anne-Maree Cole	K.F.	5.15	10.9		5.15	1.3	9.6	1	MICR02
Anne-Maree Cole	D.G.	3.15	11.5		5.15	4.8	6.7	1	MICR02
Anne-Maree Cole	C.H.	4.15	6.3		5.15	0.4	5.9	0	MICR02
Michael Bufo	N.W.	1.15	18		7.15	7	11	1	MICR02
Joe Barton	D.H.	12.14	8.9		9.15	3.5	5.4	0	MICR02
Joe Barton	*M.G.*	4.15	18.3		10.15	7.2	11.1	0	MicrO2
Nicole Cook	*E.R.*	1.15	42.6		4.15	2.9	39.7	0	MICR02
Joe Henry	*M.Z.*	8.14	7.7		5.15	4.9	2.8	1	MICR02
Joe Henry	*J.K.*	2.13	9.6		4.15	0.5	9.1	0	MICR02
Brian Davidson	*W.V.*	12.13	15.4		7.15	5.7	9.7	0	MICR02
Brian Davidson	*A.O.*	8.14	7		8.15	2.3	4.7	0	MICR02
Brian Davidson	*S.A.*	4.15	27.9		9.15	6.4	21.5	0	MICR02
Brian Davidson	*E.S.*	11.14	38.4		2.15	7.2	31.2	0	MICR02
Zoel Allen	*Z.A.*	9.14	23		12.14	3.2	19.8	0	MICR02
Blankenship, Keith	*P.I.*	3.15	16.9		9.15	4.3	12.6	0	MICR02
Blankenship, Keith	J.R.	3.15	16.9		9.15	1.7	15.2	1	MICR02
Blankenship, Keith	M.N.	1.10	23		6.15	2.8	20.2	0	MICR02
Blankenship, Keith	P.S.	6.11	9		8.14	5.7	3.3	1	MICR02
Durham	K.F.	5.15	16.1		7.15	0.9	15.2	0	MICR02
J. Charest	S.P.	9.14	6.6		2.15	4.1	2.5	0	MICR02
J. Charest	V.V.	5.14	8.1		5.15	4.1	4	0	MICR02
Nicol Cook	E.R.	1.15	42.6		4.15	2.9	39.7	0	MICR02
Lisa Kalfas	S.B.	4.13	31		10.15	4.5	26.5	1	MICR02
Teresa Isbell	E.B.	11.12	12.2		8.15	4.1	8.1	0	MICR02
Konig, Ron	S.S.	7.15	31.1		10.15	3	28.1	0	MICR02
Konig, Ron	V.J.	8.07	15		10.14	8	7	0	MICR02
Konig, Ron	M.G.	8.07			1.15	4		0	MICR02
Konig, Ron	K.H.	9.08	15		1.15	4	11	0	MICR02
Konig, Ron	C.L.	11.11	18.4		1.14	5	13.4	0	MICR02
Konig, Ron	D.M.	11.11			7.14	5		1	MICR02
Konig, Ron	R.M.	9.09	76		10.14	7	69	0	MICR02
Konig, Ron	R.S.	1.14	36.6		1.15	7	29.6	1	MICR02
Konig, Ron	M.W.	1.14			1.15	2		0	MICR02
Konig, Ron	S.R.	10.07	15.9		2.15	1	14.9	0	MICR02
Chelise Kasun	L.Y.	2.15	14		5.15	1	13	0	MICR02
John Krasowski	T.A.	12.02	34		11.13	3	31	0	MICR02
John Krasowski	D.B.	7.15	13		11.15	5	8	2	MICR02
John Krasowski	S.H.	8.15	11.5		12.15	9	2.5	0	MICR02
John Krasowski	K.R.	8.15	42		11.15	11	31	1	MICR02
John Krasowski	D.S.	9.12	10.2		1.14	3	7.2	0	MICR02
John Krasowski	J.S.	1.14	6.3		10.14	3.4	2.9	1	MICR02
Johnathan Renfroe	R.C.	12.14	23.3		11.15	5.9	17.4	0	MICR02
Johnathan Renfroe	J.C.	2.08	16.3		10.15	4.7	11.6	0	MICR02
Johnathan Renfroe	J.R.	9.14	7.7		12.05	2.2	5.5	2	MICR02
Johnathan Renfroe	G.T.	6.13	19.9		11.15	7.2	12.7	0	MICR02
Mark Provencher	R.G.	8.15	14.2		12.15	2.1	12.1	1	MICR02
Mark Provencher	T.R.	6.15	20.4		11.15	3.9	16.5	0	MICR02
AVERAGE			20.23			4.21	16.01	0.47	MICR02
Dr Name	Patient Name	DATE	BEFORE AHI		DATE	AFTER AHI	AHI DIF	TITRATION LEVEL	APPLIANCE USED

CONCLUSION

This study confirms that using the physiologic bite as taught at LVI and the revolutionary new MicrO_2 sleep appliance is an effective way to treat sleep breathing disorders and prevent excessive protrusion of the mandible. In the vast majority of cases, no titration from this bite position was necessary with an average titration of 0.47 mm and 56 of the 88 requiring no titration at all. Twenty-one out of the 30 that required titration were only titrated 1 mm. As always in health care, further studies will show advances in design and approaches, but the results from this study indicate that not only is the MicrO_2 the best sleep appliance design on the market, but also that utilizing the Physiologic Bite Approach as taught at LVI is the optimal starting point for managing patients who are suffering with OSA and SBDs.

TWO DAYS THAT WILL CHANGE YOUR LIFE.

TWO DOCTORS WILL SHOW YOU HOW.

Dr. William Dickerson, DDS, FAACD, LVIM, FIAPA
Dr. Heidi Dickerson, DDS, LVIM, FIAPA

THE PHYSIOLOGIC APPROACH TO TREATING TMD & OSA AND VALUABLE STATE OF THE ART TECHNOLOGY

IN THIS TWO DAY SEMINAR you will discover the amazing power we dentists have if we understand the principles of physiology and how the bites affect on our patient's whole body and their ability to sleep. In a recent **"Future of Dentistry Panel"** at the IAPA's annual meeting, composed of dental experts from the ADA, dental schools, private practice and other leading experts, all of them listed treating sleep apnea as the future of our profession. You'll discover the link between **TMD** & **OSA** and how to conservatively treat both. You'll find out why doctors that understand these principles are not only changing the lives of their patients, but their own lives and are the top producers in North America. Do not miss this program if you want to understand the direction your practice needs to go in order to survive in this dramatically changing profession.

DAY 1 TMD & TECHNOLOGY ADVANCES

- How to Recognize, Diagnose and Treat TMD
- Taking a Physiologic Bite for TMD Orthotic
- Discover the effective and surprising solution to TMD issues
- Uncover the link between the bite and the rest of the body
- Amazing Must Have Technology in Dentistry

DAY 2 TREATING SLEEP APNEA

- Diagnosing and Treating OSA
- Revolutionary New Sleep Appliance
- Physiologic Approach to Treating OSA and why it's critical
- The OSA and TMD connection
- Why treating sleep breathing disorders is important to your practice and the Future of Dentistry

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Dale A. Miles, BA, DDS, MS, FRCD(C) Dip. ABOMR, Dip. ABOM

Cone Beam Imaging and Condyles From Rorschach Tests to Reality?

INTRODUCTION

It's not like I haven't written on this subject before.[1-5] The Imaging of the temporomandibular joint complex using dentistry's newest modality cone beam "CT" is actually now, pretty "old news." We now have exquisite thin slice, detailed images with which to view the condyle in three anatomic planes of section - axial, sagittal, and coronal. Thus, we can see subchondral cyst formation, osteophytes and condylar surface morphology in better detail than ever before. We don't have to guess at small opacities or even large ones that represent loose bodies in the temporomandibular joint space. However, even dentists who have adopted this technology still seem to be stuck in a two-dimensional grayscale paradigm. The dental profession is still stuck in the old paradigm of radiographic interpretation. What we need now is to move our colleagues forward to visualization in the 3-D color world. Hopefully this brief article will help you understand the power of using all of the tools in the cone beam toolbox in your software to improve your clinical decision-making and assessment of the TMJ complex. Currently, only cone beam imaging allows us to do that.

Common changes TMJ condyles and adjacent bony structures: Osteophytes, Subchondral Cysts and Surface Erosions

There is no doubt that the thin slice (0.1 mm) grayscale slices allow dentists, who want to evaluate the temporomandibular joint precisely, to find these osteoarthritic changes, much earlier than they could before. The temporomandibular joint, like any other loaded joint, is prone to osteoarthritic changes. When you lose synovial fluid, and the surface cartilage osteoblasts are stimulated to lay down bone to protect the joint. We see substantial bony changes and truly ugly condyles which can be totally asymptomatic. After all, the temporomandibular joint is very, very adaptable. So the goal may be to find these changes much earlier, especially if the patient is symptomatic. Thin slice 2-D grayscale and 3-D color reconstructed images help the dentist do this easily. **Figures 1 to 3** illustrate early changes in the condylar head and adjacent bony structures.

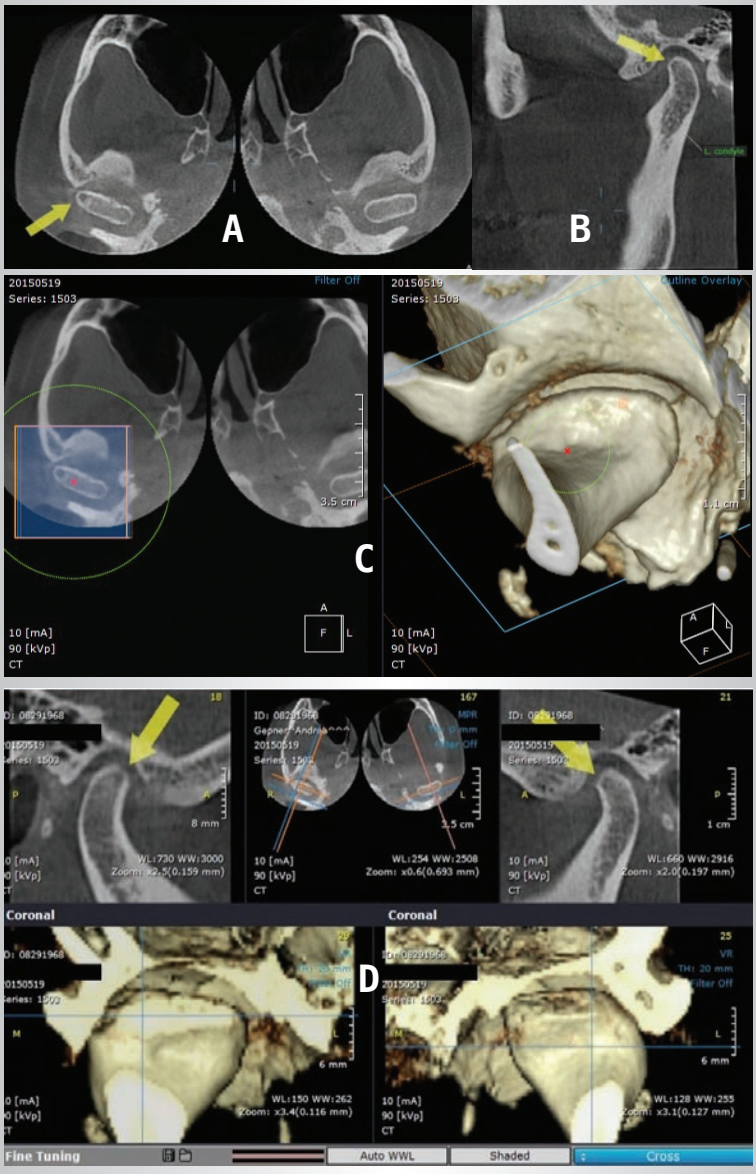

Figure 1A Axial views through the mid-condyle showing a small subchondral cyst on the lateral aspect of the right condylar head. **Figure 1B** Sagittal view of the cyst. **Figure 1C** 3-D reconstructed view viewed from the foot end of the patient failing to show cystic changes. **Figure 1D** Yellow and orange arrows show the subchondral cyst and surface erosions which they caused into D, grayscale and 3-D color.

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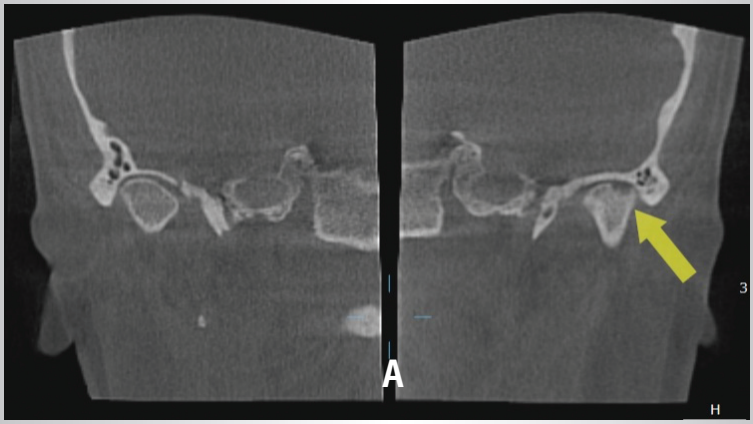


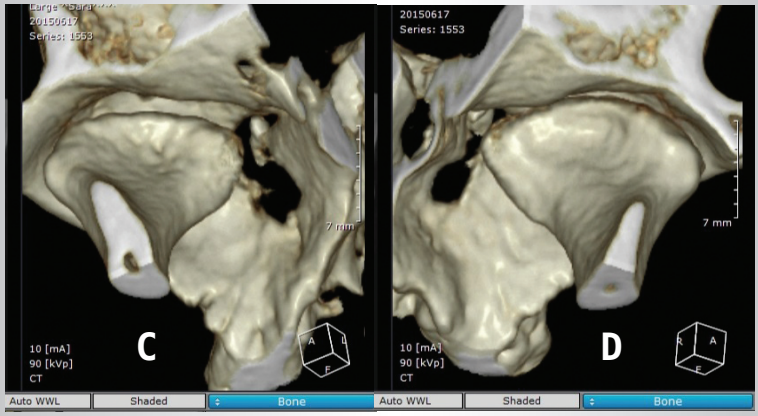
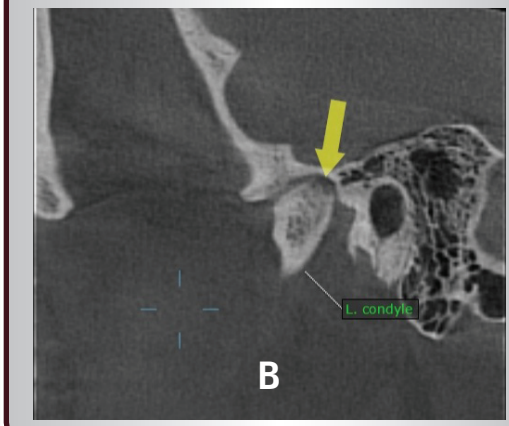


Figure 2 Larger subchondral cyst on left condylar head; **Figure 2A** Coronal slice, **Figure 2B** Sagittal slice. **Figures 2C and 2D** show 3-D reconstructed views with no evidence of the subchondral cyst/erosion.



While there is true osteophyte formation, it is uncommon to see on TMJ condyles. For years we've been looking at thin slice, grayscale views of condyles from the sagittal direction and in slicing the condylar head into sections the osteophytes took on the appearance of "bird beaks." In fact this term was used commonly to describe the osteophytic change. In actuality, the process which occurs on the anterior surface of the condylar head is more akin to that seen on the hip and is termed lipping in medicine.

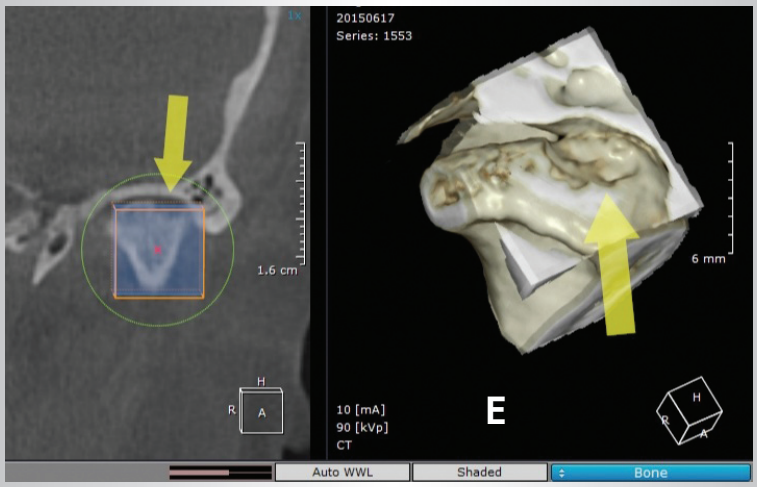


Figure 2E By making a 3-D reconstructed view and rotating it as well is stripping away the roof of the glenoid fossa we see the surface erosion very plainly.

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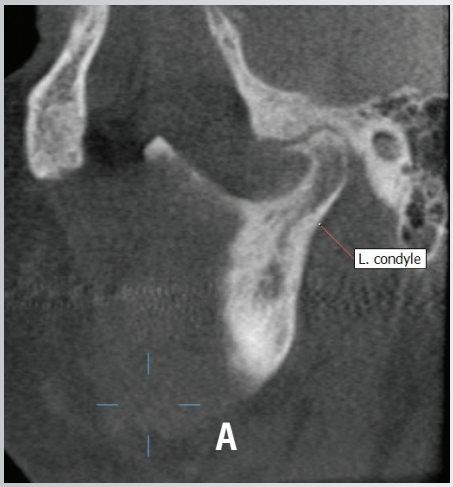

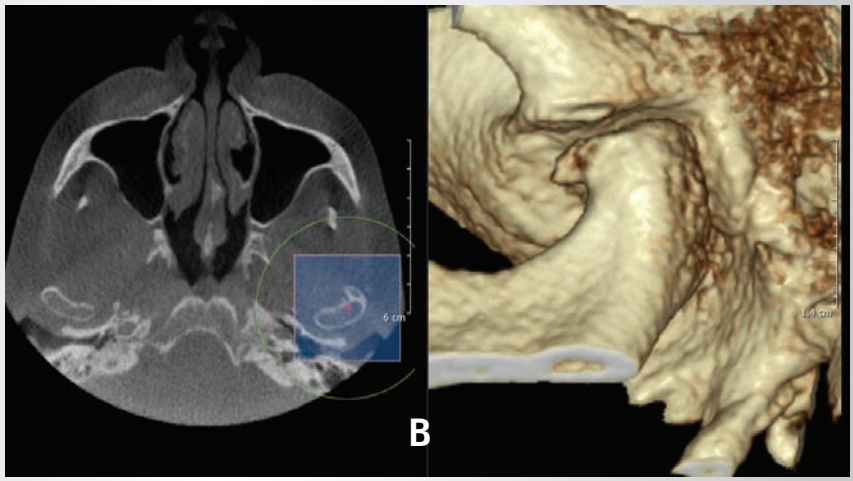

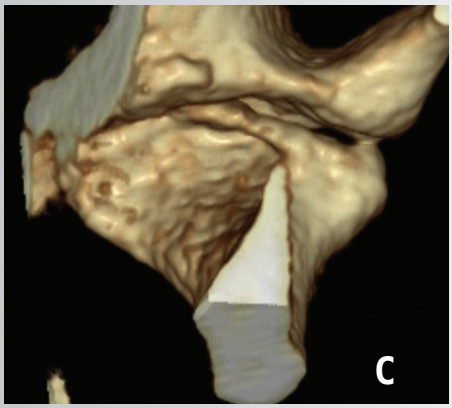

Figure 3A – 3C In the thin slice, grayscale sagittal view above **Figure 3A**. There is a radiopaque projection from the anterior surface of the condylar head which looks like a "bird's beak." In **Figure 3B** above both views show some osteophytic activity on the lateral pole of the condylar head. These appearances are consistent with osteophytes. However, in **Figure 3C** you can see significant projection along the anterior surface of the condyle, consistent with lipping. This is the more usual osteoarthritic change to be seen on condyles.

Uncommon, but Frequently Painful Changes in the TM Joint Complex: Loose Bodies

Figures 3A and 3B shows osteophytic change. **Figure 3C** shows lipping.

"Intra-articular loose bodies are chondral, osseous, or osteochondral fragments located in the articular cavity. They derive from the internal surfaces of synovial joints including bone surfaces covered by hyaline cartilage and capsule lined by the synovial membrane. Loose bodies that move freely in the joint cavity are predisposed to be entrapped between the articular surfaces causing intermittent joint locking, limitation of motion, pain, and intra-articular effusion. On the contrary, fragments stably located either in a synovial recess or in a bursa are usually asymptomatic. Repetitive internal derangement of a joint results in damage to the joint surfaces, and leads to chronic symptoms and early osteoarthritis. The diagnosis of loose bodies is essentially based on imaging findings because clinical findings lack specificity." [6]

In my experience of interpreting over 18,000 cone beam scans, it is my opinion that loose bodies are more common in the TMJ complex than clinicians realize. Previously because of our inadequate imaging techniques I am convinced that many loose bodies may have been overlooked as a source of pain and intermittent locking of the temporomandibular joint. The description from the journal "Radiology Clinics" above gives testimony to this opinion. The author stated this in 1999 prior to the advent in common use of cone beam CT imaging. Plain film radiology including panoramic, linear tomography and sometimes conventional CT were all that was available for the authors to come to this conclusion. Changes probably had to be large to be identifiable. Today, this is not the case with cone beam "CT."

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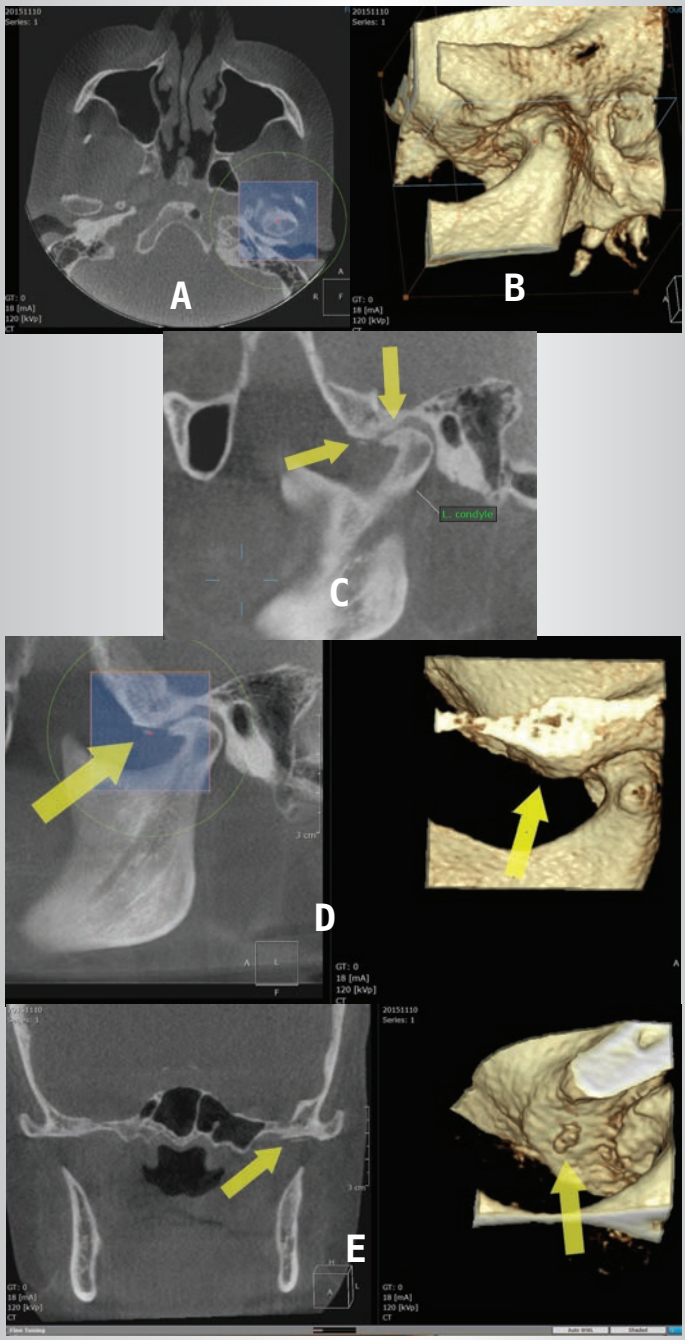

Figure 4A-4E. Figures show significant change on the left condylar head in both the thin slice to D, grayscale, coronal view and the 3-D color reconstructed view seen from a lateral or sagittal aspect. There is significant lipping on this condyle. **Figure 4C**, representing a thicker set of slices (approximately 5 mm) shows a possible loose body (lower yellow arrow). The grayscale image at 10 mm thickness shown on the left in **Figure 4D** makes the small loose body, more apparent. However, it is not visible in **Figure 4D** on the right in the 3-D color reconstructed view. In **Figure 4E** simple image processing using a Fine Tuning tool in OnDemand 3D software (CyberMed, Seoul, Korea and Irvine, California) allows us to alter color, transparency and opacity to make a loose body visible (large yellow arrow on right side of figure).

SUMMARY

Most dentists are just coming to understand the power of cone beam "CT" imaging. Early adopters have been amazed at the level of detail and quality of the images from this imaging modality. However, because dentists have not been taught or even shown tools for performing image processing that can make their images more detailed and understandable, they persist in trying to "interpret" all of the information from their 2-D grayscale paradigm. This is only natural. However, once they grasp the concept of visualization and start to use 3-D color reconstruction to examine their data, they soon realize that the imaging modality they purchased is even more powerful than they thought or understood. 3-D imaging using cone beam "CT" is currently the most powerful form of imaging for diagnosis. Research it, adopt it, and seek out as much education as you can about this modality. You and your patients will benefit enormously from using cone beam 3D imaging. Better diagnosis leads to better treatment - a situation in which everyone wins.

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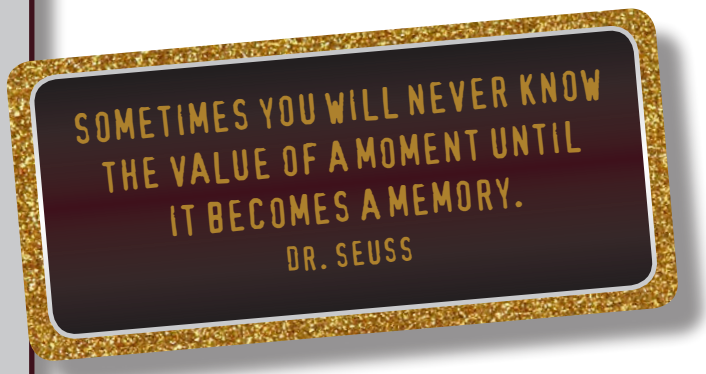

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Anutra Medical has developed a "buffering" anesthetic system that is taking the dental profession by storm. Buffering anesthetic has been around for decades in the medical field. However, only a few progressive dentists over the years have recognized the benefits of buffered anesthetic, some have even gone through the trouble of manufacturing their own buffered anesthetic solutions. Anutra has made buffering simplified with their ground-breaking system for buffering and delivering local anesthetic.

The science of buffering anesthetic for use in the oral cavity is quite simple. The human body maintains a pH of 7.4. A slight change in even a tenth of a pH unit can cause serious health consequences. An increase in blood pH is called Alkalosis. A decrease in blood pH is called Acidosis. There are three ways the body regulates pH. First, with bone, 40% percent of buffering of an acute acid load in the body is from bone. Chronic Acidosis can have very adverse effects on bone mineralization. Secondly, the body regulates pH Inter-cellularly, buffering within red blood cells with the hemoglobin. Thirdly, the body regulates pH Extra-cellularly. This is how Anutra works. The Anutra system uses a bicarbonate solution mixed in with lidocaine. The lidocaine typically used in dentistry has a pH of

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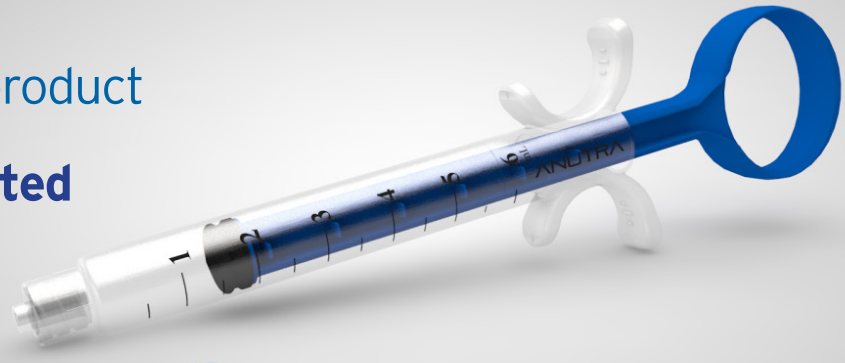

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3.9, which is very similar to a lemon. Buffering lidocaine by mixing sodium bicarbonate with lidocaine raises the pH close to 7.4.

The benefits of the simplified Anutra buffering system derives its success from science. First, reduced patient pain during injection. Buffering lowers the high level of acid typically found in local anesthetics which in turn reduces the burning pain after injection. 44% of patients reported zero pain with buffered anesthetic when compared to only 6% that used a controlled anesthetic (Stanley F. Malamed). This is accomplished when the Anutra delivery system produces a CO2 micro-bubble. This micro-bubble solution is dispensed on the mucosal tissue surface prior to injection. Within 10 seconds the CO2 micro-bubble passes into the tissue through a process called diffusion trapping This diffusion trapping numbs the surface and draws the anesthetic into the tissue. Once diffusion trapping has occurred the dentist can then inject into that sight with an expectation of being pain free. Diffusion trapping is also beneficial for hygiene visits. The CO2 micro-bubble draws the buffered solution into the sulcus without ever making an actual injection. Non-buffered lower pH anesthetics contribute to inconsistency in numbing patients and reduces confidence. Second benefit of the simplified Anutra buffering system is Efficiency. Buffering saves time. There is no pre-numbing period with topical. The CO2 micro-bubble accomplishes the pre-numb in less than ten seconds. Once the actual injection is complete many patients will state that they are already numb. Many dentists will delegate injections to trained staff, or the dentist delivers unbuffered anesthetic and leaves for several minutes to provide an additional service elsewhere. With Anutra buffered solutions the dentist can virtually start a procedure in moments. If the efficiency of Anutra saves 5-10 minutes per patient, feasibly a dentist could have an additional hour of productive time available per day.

A third benefit of the Anutra system is lower overhead. Although time efficiency also has an impact on overhead, the Anutra system is supplied as a complete system. With purchase of the Anutra product the dentist will receive all the syringes, needles (both 27 and 30 gauge), Lidocaine and sodium bicarbonate solutions. Again, no need for topical or swabs for topical application. The provided syringes are disposable and recyclable. There is no need to autoclave or wrap syringes in sterilization pouches. The Anutra delivery syringe is uniquely special. The Anutra syringe has an audible and hepatic feedback design that allows the dentist to hear and feel the "click click" as each mL of solution is delivered. The syringe is large enough to deliver 6mL of buffered anesthetic (traditional lidocaine contains 1.8mL per carpule). The syringe has double sided volume labeling, one handed aspiration and a ergonomic design with optimized diameter and length.

As was mentioned prior, many progressive dentists have developed their own techniques for buffering anesthetic and there are some competitive advantages for dentists to choose Anutra over other products on the market. Anutra is about half of the cost of its competitors. The Anutra system includes everything... needles, syringes, and anesthetic. The simple "click-pull" system of the Anutra dispenser can provide any dose of anesthetic you would like... not limited to 1.8mL, this cuts back on waste. The Anutra system follows the medical model and is a closed system. As many LVI dentists can confirm... this is a product that is consistent with dentists that put their patient comfort and positive office experience as a priority in their office. **Consider checking our system at www.anutramedical.com, I know I am glad I did.**

Breakthrough

Non Surgical Laser Sleep Applications in Dentistry

Harvey S. Shiffman, DDS

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Snoring and Sleep disordered breathing affects millions of Americans, both adults and children.[1, 2] The signs and symptoms are the result of partial or complete collapse of the upper airway during sleep.[3] The structures involved in our protocol include the soft palate, uvula and the base of the tongue.[4] The goal of the treatment is to decrease the amount of blockage of the upper airway.[5]

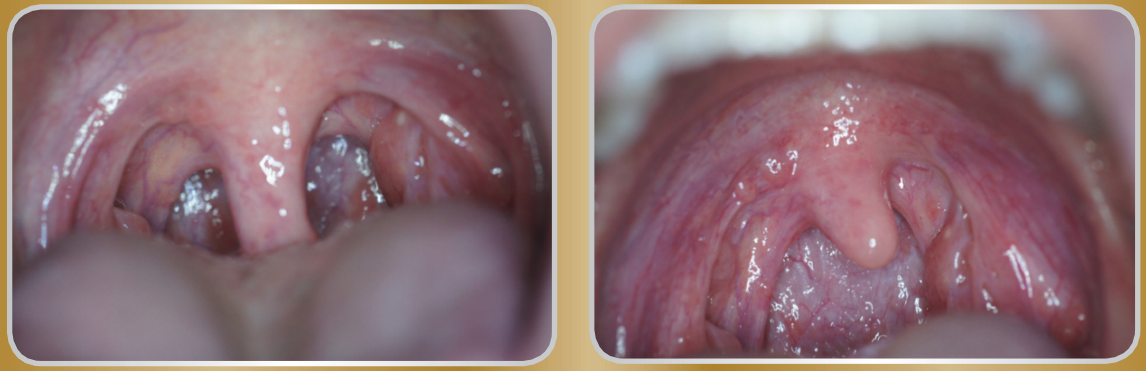
Dentists are in a great position to help screen and in many cases treat these problems with airway management. Helping patients improve their sleep can profoundly improve their health, quality of life and the well being of their loved ones.

The "Gold Standard" for the treatment of sleep disordered breathing is the CPAP type device. Following that, 1981 saw the introduction of Mandibular Advancement Devices (MAD). Today, the top recommended MAD device is the Micr0$_2$. The NIGHTLASE™ Snoring and Sleep Apnea Reduction Therapy protocol is also a unique approach to treatment using the Fotona Lightwalker dental laser with a proprietary protocol and hand piece.

NIGHTLASE™ uses the photothermal capabilities of the Lightwalker laser to convert and initiate the formation of new and more elastic collagen.[6] The target mucosal tissues are the oropharynx, soft palate and uvula. The proprietary "Smooth Mode" pulse characteristics create a non-ablative heat generation or "Heat Shock" that initiates the conversion of existing collagen to more elastic and organized forms and also initiates "neocollagenesis" the creation of new collagen.

This process results in a visible elevation of the soft palate and uvula and tightening of the oropharyngeal tissues resulting in an improvement in the upper airway volume. The results can be seen in **figure 1**.

FIGURE 1



Before Nightlase | After Nightlase

NIGHTLASE™ therapy is indicated for cases when the patient has been diagnosed with chronic snoring, UARS or mild to moderate sleep apnea and either cannot or chooses not to wear an appliance or CPAP device. It can also be used in co-therapy with those devices and represents a less invasive alternative to current surgical chemical or radio surgical options that may require hospitalization, general anesthesia or soft tissue mutilation.

NIGHTLASE™ has a significant success rate in producing a positive change in sleep patterns. Research published by Miracki and Visintin[7] has shown that it can reduce and attenuate snoring, and provides an effective non-invasive modality to lessen the effects of Obstructive Sleep Apnea. As with any treatment, there are potential risks with laser treatment. However, the risks are minimal and certainly less then alternative therapies if the protocol is followed correctly. NIGHTLASE™ therapy is not a permanent alteration and lasts anywhere from 6-12 months and is easily touched up at follow up appointments.[20]

In 2013 we completed a pilot study that addressed snoring only with 12 patients. Twelve month include a follow up showed 30-90% reduction in snoring tone and volume. **(figure 2)** The lower percentages were smokers, obese patients and those with severe OSA. Follow up studies with polysomnography using HST are in process as are pharyngometer studies both of which have shown significant positive changes.

A recently published pilot research study by Lee and Lee[8] has shown through 3D CT imaging, the volumetric positive changes after Nightlase™ treatment to help support the clinical results, and the authors have follow up studies with 3D CT, polysomnography and a larger group of patients in process.

We are excited to present these modern, minimally invasive and more natural treatment modalities to the dental community. Using the Lightwalker laser, we can now offer our patients health improvements that reach beyond restorative and rehabilitative dentistry.

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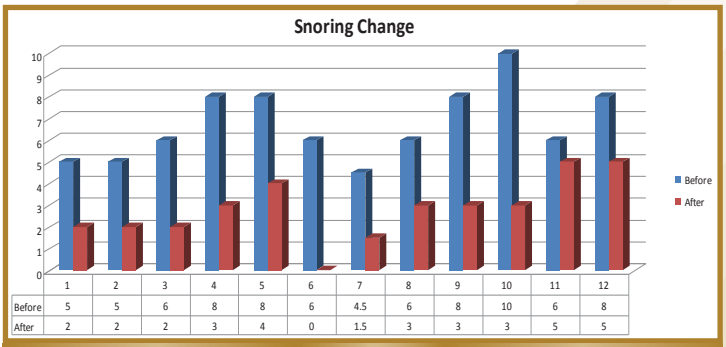

FIGURE 2

Financial disclosure
The author has no financial interest in the products mentioned in this article.

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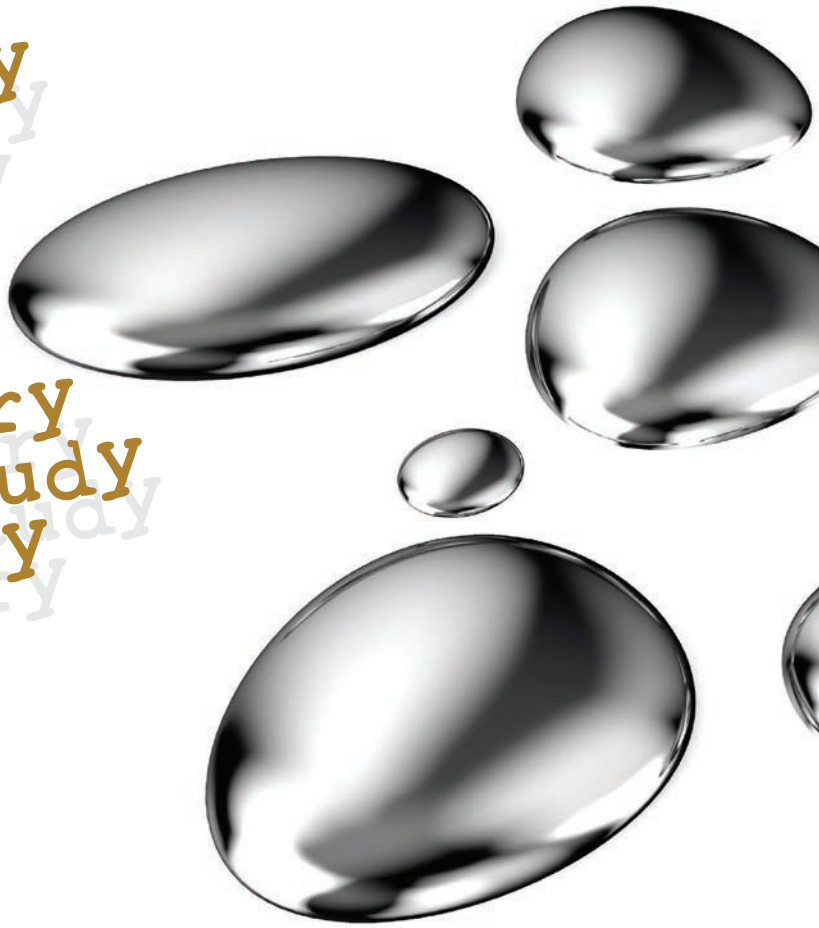
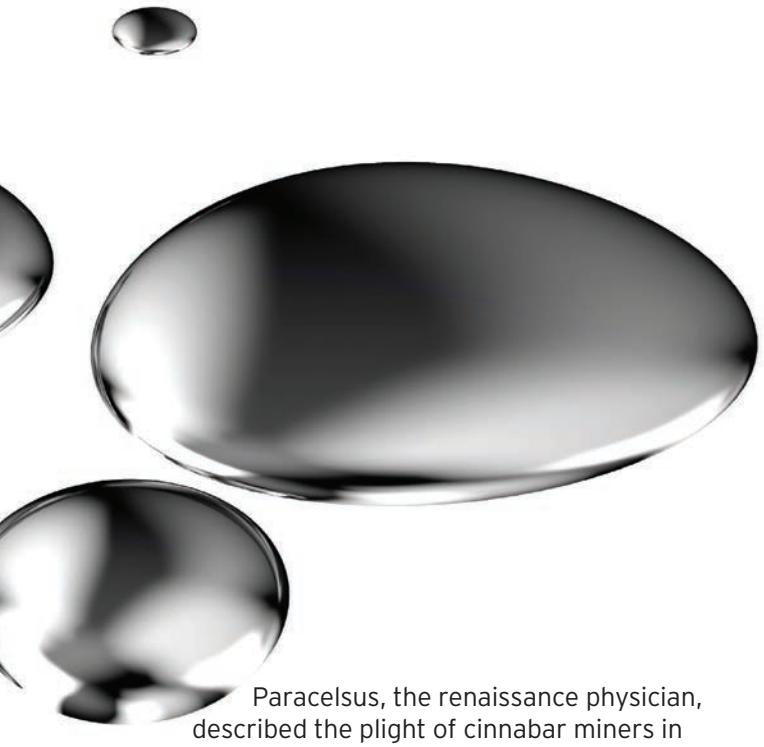
The History of Mercury Toxicity in Humans including the History of the Study of Mercury Amalgams



Joseph T. Hickey, MD
Diplomate American Board of Internal Medicine

History is a relentless disciplinarian to humans when we fail to heed its lessons. Mercury toxicity in humans is a stark example of our inattentiveness. Mercury is the most toxic metal to the human nervous system. Its toxicity has been known for over 3,000 years, and yet the wisdom of our congressional leaders has mandated the use of mercury light bulbs in place of the previous incandescent tungsten light bulb. Now, when your light bulb burns out, we are instructed to put it into a zip lock bag and bring it to Home Depot for proper disposal. That's going to work out really well for our environment and our health. We just don't learn, do we?

During the era of the Roman Empire, it was well known that workers exposed to toxic mercury fumes developed tremors, blindness, deafness and death in the mercury mines. Only slaves and convicts were permitted to work in mercury mines because of the soon to develop degenerative neurologic disorders followed shortly by death.



Paracelsus, the renaissance physician, described the plight of cinnabar miners in 1550. Cinnabar is the source of mercury from rock. The first occupational health physician, the Italian Bernardino Ramazzini, described the illness connected with the mirror making industry and its use of mercury in his treatise of 1713. To Quote his writings:

"Those who make mirrors become palsied and or asthmatic from handling mercury. Gazing with reluctance and scowling at the reflection of their own sufferings in their mirrors and cursing the trade they adopted."

More recently, President Zachary Taylor, old rough and ready, hero to the Mexican American War, developed nausea, vomiting and diarrhea after eating fruit and milk at the conclusion of his fourth of July speech in 1850. Several cabinet members became sick also, but it was the over exuberance of the president's physician that lead to his death five days later. President Taylor received large doses of calomel as a purgative. Calomel is mercury chloride. Forensic medical historians feel it was the cause of his death. None of the cabinet members received calomel and all survived.

100 years later, calomel struck again. In 1950, there was a terrible epidemic in infants called acrodynia or pinks disease. The infants developed severe painful neuropathy of the hands and feet, irritability, apathy and insomnia. The pink swelling of the hands and feet was the telltale sign. The babies then went into kidney failure and died. Analysis of the fingernails which became brittle, showed mercury chloride. Autopsies showed the cause of the illness to be mercury, its source was calomel teething powder.

Another outbreak epidemic of pinks disease occurred in infants in the 1980's. A diaper service advertised diaper rash free diapers. They sprayed the diapers with phenyl mercury. Phenyl mercury was absorbed through the skin from contaminated diapers.[1] Tom Clarkson, PHD, chairman of environmental health at Rochester University Medical Center, determined that 10,000 babies were exposed to these diapers, and 1,000 became very ill. This points out that the same exposure to mercury in a population will cause severe illness in a percentage of the people exposed.

Mercury exposure from broken fluorescent bulbs and injections of mercury containing gamma globulin have also been responsible for pink disease acrodynia. [2]

Minimatas disease was a decade long epidemic from mercury in Japan from 1950-1960. Much of the population of Minimata, a fishing village, became ill with tremors, blindness, paralysis and death. Babies conceived and born during this decade, had unspeakable birth defects. Therapeutic abortion became the rule for pregnant women in that region during that decade because of fetal abnormalities. The illness is nearly identical to what we would today diagnose as multiple sclerosis. Finally, the source of the illness was found to be mercury dumped into the Minimata Bay by a factory. A decade later, 6,000 cases of Minimatas paralysis was diagnosed in Iraq. This was from wheat seed that was sprayed with mercury to prevent mold. We don't learn our lessons, do we?

MERCURY AMALGAMS

Silver-mercury amalgams were the dominant restorative material in dentistry for a century or longer. In 1980, 80% of all single tooth fillings were mercury.[3,4] Copper amalgams (60-70% mercury and 30-40% copper) were the predominant type used in children. Copper amalgams disintegrates quickly in the mouth. This was actually considered an advantage in that the release of mercury and copper ions were thought to have bactericidal effects, thus inhibiting secondary carries.[5]

MERCURY AMALGAMS

Intense debates regarding the risks of mercury release from amalgams occurred after Stock's seminal publication in 1939. In the late 1970's-1980's, studies verified Stocks reports of continuous emission of considerable amounts of mercury vapor from dental amalgams.[6-11] Other studies showed significant retention from amalgams in human tissues.[12-15]

Mercury is directly absorbed in the mucosa of the oral cavity. Migration occurs through the dentin into the dental pulp and to the adjacent bones.[16-19]

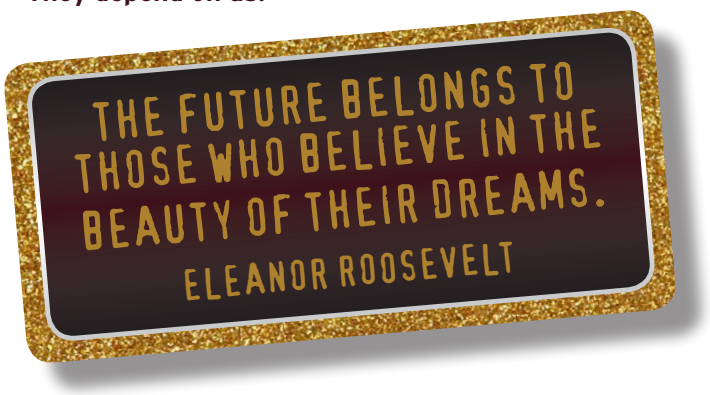
Hot beverages, teeth brushing, and chewing enhances release of mercury.[20-24]

The estimated uptake of mercury using Tom Clarkson's model is 80 micrograms per day.[25,26]

Autopsy studies showed a direct correlation between the mercury concentration in the brain and the number of amalgam surfaces.[27] The mercury content of the kidney and pituitary gland correlated to the number of amalgam surfaces.[28] Animal Studies confirm the autopsy studies.[29]

The conclusions of the scientific community of mercury researchers are that restorative-treatment with amalgam fillings results in substantial exposure to a highly toxic substance (inorganic mercury). This review of the history of amalgam research is presented because we are all reassured by our own regulatory agencies that there is no evidence of harm from mercury amalgams. In my own experience, I do not find a case of Parkinson's disease, Alzheimer's disease, fibromyalgia, ALS or chronic fatigue, that does not involve high levels of mercury if measured properly.

Please protect yourself and your patients. They depend on us.



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BE YOUR OWN

Drew Matthews

Get the most out of your LVI education in 2016.

There is a unique culture at LVI. It attracts the best dentists, the most innovation, the best teaching and creates an outlook for the future second-to-none in dentistry. However, it can be a little daunting to be surrounded by such great talent and success. Where do you start? The first step is to look in on the great dental practice brands and examine the dynamic dentists at their helm. By doing so, you begin to see common denominators that can act as your guideposts to brand creation in 2016.

2016

Great LVI dentists don't race in the mirror.
Snap the rear view mirror off of your practice today. Unless you're backing up, you don't need to know any more facts about where you have been. Eternal optimism and forward movement permeate top LVI dentists' culture.

Great LVI dentists focus on how much they take home, not how much they make.
You can set practice goals, but until you make those goals personal, you are just increasing overhead. Fill in the blank for 2016:
I want to take home $-,---,---.00
I want to work _____days each month.
Every decision flows from these two numbers - pricing strategy, range of services, payroll, technology, growth opportunities and more.

The best LVI dentists make long-term decisions.
Great dentists net-out. They know the best way to get short-term benefits are to seek long-term gain. Top LVI dentists don't view a particular piece of technology or singular LVI class as an immediate return on investment. EVERY decision they make is for the long term. A collective of small decisions flowing seamlessly from the one before, all with one overarching focus: to become the dominant, most profitable practice brand possible.

Great LVI dentists know they only have one competitor - themselves.
Focusing on another competitor only invites emulation, admiration or jealousy. You can't be them. More importantly, they cannot be you. Let's repeat that – your competitors will never have your unique skill set and personality. Your brand is only owned by you. LVI is the living laboratory that attracts, trains and nurtures the creation of great dentists. It is your first step becoming your own successful brand.

Great dentists hire people smarter than themselves. But they do so with an eye for how they will fit into the practice.
Hiring the best is an old axiom, easier to say than to implement, but the greatest LVI dentists have perfected the art of surrounding themselves with truly outstanding talent. Not average. Not can-be-better. Just flat out outstanding. They invest in training, team building and camaraderie. They understand that a tight, well-coalesced team amplifies their success.

Great dentists know they are the purveyor of the services and the image of the practice.
The ability to understand that *you* are the brand, the image, the heartbeat of your practice may be the hardest objective of all to achieve in 2016. You have to be able to stand outside yourself, look in at your strengths and weaknesses and maximize your assets. For all practical purposes, you are an actor on the stage playing the role of the world's greatest dentist every single day. Patients get it. They will reward you with their business, trust, loyalty and referrals.

Great LVI dentists are driven.
Admittedly, some of the great LVI legends appear to be on hyper-drive with boundless energy. Look closer to the core and you see they feed off their love of being a dentist. Each LVI class generates a renewed drive and love for dentistry. It is the fuel that drives practices to become exceptional. Dental brand masters excel at creating energy.

Great LVI dentists make the decision to become the number one brand in their own mind far in advance of achieving the same position in the consumer's mind.
Sit down, and talk with the legendary greats of LVI. Listen closely, you will find they ALL believe in themselves. They are undergirded by substantively more than self-help philosophy and life coaching. It is something deeper that they all share - a true desire to help change patient's lives for the better. This mental commitment drives their actions, shapes their brand and cements their success.

Great dentists seek advice, process the information, make a decision and move on. Watch an instructor at LVI. They move with precision and confidence. You don't see great dentists bogged down in decision-making. They rarely second guess, but they ALWAYS learn from their decisions and reapply the knowledge to future actions.

Great LVI dentists make contacts and seek alliances. Tired at the end of the day? The LVI greats are too, but they still drop by a fundraiser on the way home. They eat at different restaurants to increase their contacts and exposure. They enjoy thinking about and implementing their own personal PR campaign on a daily basis. Over the years, it adds up to hundreds more patients and hundreds of thousands of dollars.

Great dentists are both humble and confident. The LVI culture teaches both confidence and humility. Patients are attracted to the knowledge and confidence and comforted by the humility. It is the secret of great branding, not unlike going to the best restaurant, you know you are going to have a good experience, but the icing comes when the chef stops by the table and sincerely asks what you thought of your meal.

Great LVI dentists have a backup position. Thinking through the what-ifs of the practice has great benefit.
If my office manager leaves,
I will replace them with_____.
When a service line begins declining nationally,
I will have already trained in_____.
I want to take a six-week vacation,
I will need to_____.

SO... HOW CAN I START?

I'm starting from scratch and need a 1,2,3 of marketing steps in 2016... what are they?

January: Claim and build out your online directory listings to help your SEO.

February: Focus on learning Facebook in depth. Pay particular attention to the 'Insights' section. Start creating and boosting two posts per week. Think photos.

March: Produce a video (one every other month). Two videos on your brand, four on service lines. Place on your own YouTube channel and also link to Facebook.

April: Learn about and purchase $1500/month in Google PPC (pay per click) advertising.

May: Learn about and purchase purchase $1500/month in Facebook/Instagram advertising. Set up and track 250-500 of your and your competitor's keywords.

June: Learn Twitter, become proficient. Learn Instagram, become prolific.

July: Learn Hootesuite to tie all your social media together.

August: Find a programmatic advertising vendor and start first campaign.

September: Set up Constant Contact or Mail Chimp. Send out 1 email per month.

October: Create a baseline patient/market survey. Implement.

November: Create a multimedia brand campaign to launch in 2017.

December: Budget $20-25K/month marketing budget for 2017.

LET'S GET STARTED!

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HAPPY 20TH ANNIVERSARY!
















TOGETHER

We are Changing lives














LVI PROUDLY ANNOUNCES THE 2015

LIFETIME ACHIEVEMENT AWARD

Dr. Norman Randall Thomas, CDT; BDS (Hons); MB / BS (Special Hons), (UBris); DDS (UofA); Cert Oral Path (MCV); FRCD(C); MDAc(UofA); MICCMO; DAAPM; FADI

HIS STORY...

Norman Randall Thomas was born in the United Kingdom. From a very early age Norman was different than the other kids and curious about everything. He loved learning, rugby and acting.

Soon Norman became a dental technician at the Royal Army Dental Corps but Norman knew he was destined for bigger and better things.

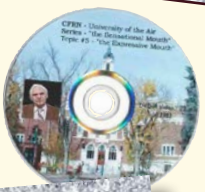
Norman began studying at the University of Bristol and was awarded many prestigious awards. Norman became a dentist but he would not stop there. He was so intelligent and wanted to know more.

Norman became a specialist in Oral Pathology and received his doctorate in Oral Medicine.

Norman fell in love with his wonderful wife, Jean and they have five children.

Norm and Jean packed up the family and moved to Edmonton, AB. Norman became a Professor of Physiology. One thing about Norman is he loves teaching.

Two of Norman's children follow in their father's footsteps and became dentists too. Norman even practiced with them..



Norman had a very good sense of humor and was very entertaining. He even had his own tv show.

Then Norman does something that nobody has ever done. He receives his diploma of pathology & medicine at the Medical College of Virginia. He is now a pathologist in three countries (UK, Canada and the US). He has so many degrees, credentials and honors that there is no one else like him.

Very soon after Norman becomes the Professor Emeritus at the University of Alberta.

He moves to Las Vegas and becomes the Professor of Research at the prestigious Las Vegas Institute.

At LVI, Norman found his home and passion for teaching thousands of dentists about NM dentistry. His enthusiasm and love is infectious. The knowledge that he shares can never be replaced.

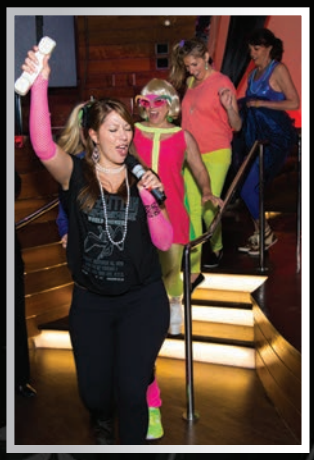
In 2015 he is awarded the LVI Lifetime Achievement Award at this year's 20th Anniversary Gala.

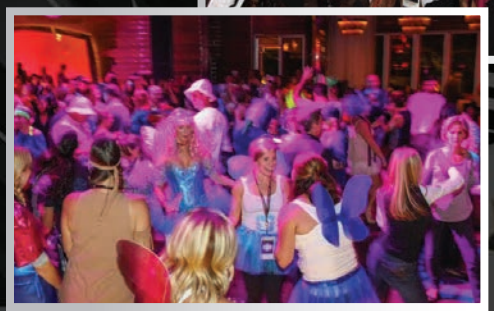
CONGRATS, NORM!

DENTAL ROCKSTARS

A night filled with dancing, fun and a lip sync battle with everyone dressed in their finest Halloween attire! The IAPA After Dark was a Spooktacular Success that took place in the Cherry Nightclub in the Red Rock Hotel & Casino.

Winner of the Lip Sync Battle goes to Dr. Mike Reece and his team, singing Addicted to Love by Robert Palmer.





2015 LVI

Alumnus of the Year

Dr. John Krasowski

Spotlight *Aesthetic Eye Winners*

Dr. Frank Sullivan
People's Choice Winner

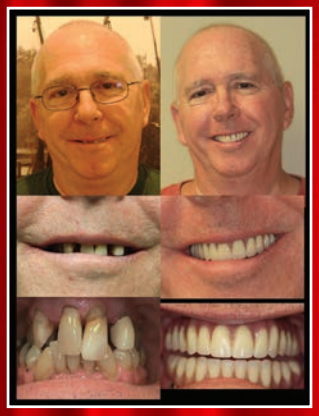
Anterior Aesthetics

Full Mouth Aesthetics

Glamour Portrait Shots

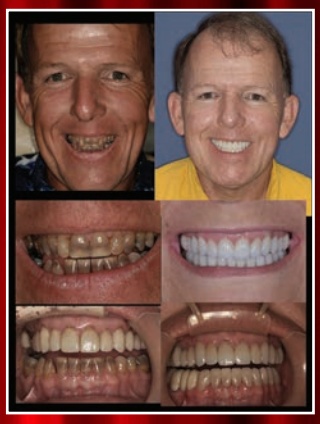
Dr. Jennifer Wallace

Physiologic Orthodontic Aesthetics



Removable Rehabilitation

Dr. Stephanie Kinsey



LVI Core Case

Spotlight *2015 Team Best in Practice Awards*

Treatment Coordinator Winner
Lisa Bridges (Left)

Dental Hygienist Winner
Dana Criminger (Middle)

Practice Administrator Winner
Brenda Rodgers (Right)

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Chong W. Lee, DDS and Nancy J. Lieberman, BS, RDH

Aesthetics, Occlusion & Comprehensive Dentistry

Simplified

How to Score a Triple Play with your Aesthetic Dentistry

Envision your ideal aesthetic case: a case in which you prepared the perfect foundation, both periodontally and coronally, to receive your aesthetic work. Your lab artistically created the perfect porcelain aesthetic and functional restoration. Your team communicated, collected and assisted in the delivery of this extraordinary work, the bite is perfect, eliminating the possibility of chips, cracks and fractures following completion of your aesthetic case and the patient is well-pleased, not to mention... ecstatic! How did you feel at the culmination of your perfect aesthetic case? How did your team feel, and finally, how did your patient feel?

Be a leader! Be the change you want to see in your own practice!

Imagine how it would feel to experience perfection with each and every aesthetic case and imagine how word would travel about your exceptional skills and extraordinary care! My guess is that you would never be in need to fill your schedule ever again!

How does this happen? After more than 35 years practicing dentistry, and more specifically, after over 20 years studying and perfecting my practice of aesthetic dentistry, I consider myself somewhat of an expert in the practice of aesthetic and neuromuscular dentistry. Ultimately, my intention is to share my experiences, as well as impart knowledge and wisdom that will enable you to tweak your practice and exceed your current expectations, your team's outlook, and your patient's anticipated outcome of their treatment.

Recently, while lecturing at the IAPA meeting, I presented what have been several critical aspects of delivering exquisite cosmetic results and achieving an extraordinary cosmetic practice.

TEAM

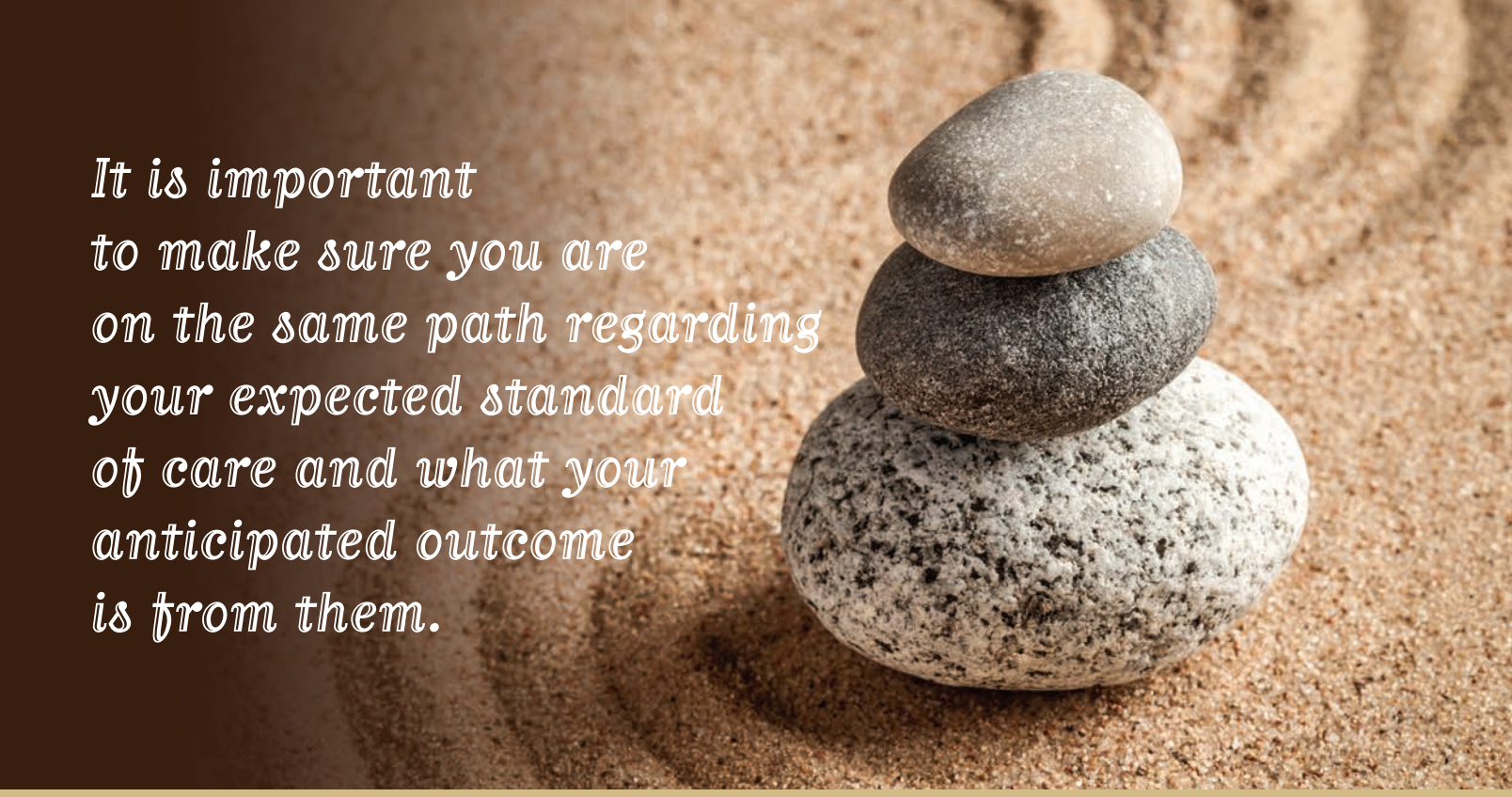
As the Head Coach of your team, it is important to hire the "right" team members for the appropriate positions. This is best accomplished in our dental practice utilizing the DISC personality profiling system. The DISC assessment will identify specific personality traits in your potential team members that will best suit the position they are playing. The DISC analysis tool is based on the DISC theory of psychologist, William Marston and centers on four different personality traits: Dominance (drive), Inducement (influence), Submission (steadiness), and Compliance (cautiousness). Every potential team member takes the DISC assessment to determine their fit on our team whether it's administrative, clinical, or coordinator.

EDUCATION

Extraordinary clinical skills are imperative when looking to create an aesthetic dental practice that stands alone in the community; high above local, regional and national associate aesthetic dental practices. Of utmost importance is to select a post-graduate, educational institution that will meet your educational and clinical expectations and teach you the clinical skills necessary to perform extraordinary aesthetic and neuromuscular dentistry. Devote your time and attention to attending courses, both didactic and clinical, and most importantly, give back. After learning and practicing your new skills, the next phase is to ensure consistent improvement and excellence with your skills and begin to give back through explaining or teaching, demonstrating clinically, guiding or coaching, and enabling your fellow classmates to "pay it forward" as you have. Be a leader! Be the change you want to see in your own practice!

DISCIPLINE

A good team player requires self-discipline! Previously, I addressed seeking out the right team members utilizing the DISC assessment tool. In addition to selecting the right personality for the position, it is also essential to look for team members that are consistent, effective communicators, well-educated, trained, and enthusiastic! Invest in the BEST! Taking care of your team members will pay off exponentially at the end of the day. If your team members are well taken care of, your patients will be well taken care of!



The Intake/Scheduling Coordinator in your dental practice is someone who is professional, even tempered and not easily excited, well organized, efficient, personable and a superb communicator. They are the initial contact with the practice. Their ability to explain the process, procedure and promote the practice and the clinicians' extraordinary skills is very important. When they do not know the answer, refer to one of your clinicians who can adequately and accurately answer the inquiry.

The Communications/Coordinator/Closer is what we also refer to as the **Case Manager.** This team member is an adjunct to the aesthetic dentist during the consultation, takes copious notes, and is often the person the patient will look to for understanding and explaining certain aspects of their treatment that they are uncomfortable speaking with the dentist about. This team member is critical because they are well-educated, subject matter experts, confident and will "close" the case for you.

The Dental Hygienist is responsible for assuring the aesthetic dentist is building your exceptional dentistry on a solid supporting foundation and can ensure the longevity of your aesthetic work. They will perform a five-point periodontal evaluation, examining for healthy hard and soft tissues, perform a risk assessment and finally, treat any inflammation of the soft tissues to ensure not only longevity, but well-defined margins in the absence of bleeding and inflammation and accurate cementation and delivery, also in the absence of bleeding and inflammation. They are your non-surgical periodontal co-therapist.

The Clinical Assistant is again, well-trained, competent, confident, efficient, and a proficient coordinator. Again, they are someone, just like every other member of your team, that your patients will come to and ask important questions regarding their treatment. In every instance, your team will speak confidently and with high regard for your aesthetic dentistry.

Cross training is imperative amongst your team. With the exception of performing beyond their scope of practice, they will function better as a team if they are cross trained, competently knowing how to step into a hectic scenario when needed.

Please, consider the group of dental specialists you refer to, as part of your team. It is essential to make sure you have the same understanding with regards to your expected standard of care and what your anticipated outcome is from them.

Finally, the dental lab that you choose is vital to your success. Ensure you agree on the same optimal standard of care, and that they are accessable and available to come to your office to meet with your patients to ensure consistentcy with your expectations as well as the patients' expectations. Your lab will need smile and retracted pre-operative photos, retracted photos of preps, pre-operative models or impressions with the HIP, symmetry bite, bite registration, final impressions, photo with prep shade, width and length of central incisors and a description from you and the patient's perspective of the exact details of their smile, including shade, texture, translucency, etc. Take plenty of photos because you will use these in your articles, on your website for marketing, on the walls in your practice, in your power point presentation that runs continuously in your consultation room, and in before and after books in your practice. Your patient wants to see your completed work and your successes!

The DISC assessment tool is also invaluable adjunct from the initial intake consultation to the many years of maintenance with your patients. It is imperative in the first few minutes to assess your patient's personality type, and adapt and apply it to your presentation as soon as possible after the consultation begins. The better you listen to their concerns and their plan, the better the relationship you will build, the better your case will be. This relates to your success and the success of your aesthetic dental practice!

With every aesthetic case, we incorporate the neuromuscular aspect of dentistry into each preliminary case review. We consider whether there are any signs of Temporomandibular Joint Dysfunction (TMD). This is critical to the success of each case and will almost eliminate post-operative issues with chipping, cracking, fracturing or loose veneers or crowns. Our patients complete a rigorous five page questionnaire regarding signs and symptoms of TMD. These symptoms indicate the likelihood that our patient needs to undergo neuromuscular screening, transcutaneous electrical neural stimulation (TENS), K7 therapy/determining proprioceptive bite position and orthotic fabrication and manipulation. Only upon completion of the Neuromuscular aspect of our treatment, will we proceed with our aesthetic work.

In conclusion, the success of our Aesthetic/Neuromuscular Dental practice is directly related to consideration of not only the aesthetic component of our case, but the functional aspect. And, our dental team, our ability to listen, our marketing strategy, and our extended dental team of professionals have helped us remain at the top of our field of Aesthetic and Neuromuscular Dentistry.

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THE EVER EVOLVING State of The Art

Mark Duncan, DDS, FAGD, DICOI, LVIF

It seems that just when you finally master a technical protocol, it changes! Going back to early adhesion, it was always all about the enamel and anything bonded in the back of the mouth would fail. Today is a totally different story even if, for now, enamel is still the ace bond. What has changed are the reasons and methods for managing the dentin. In the Bisco Workshop at the IAPA, we dove into optimizing our bonds using the most advanced materials available.

As with so many things, the early attempts were an improvement, but were so exceedingly complicated that it kept all but the most fanatical die-hards away. If not for a few pioneers looking into options like Concept crowns and improving the science of adhesion, we would still be spatulating on cold glass slabs. Today we are fortunate to be able to stand on the shoulders of these giants and take advantage of the decades of evolution and improvement and are finally at the point where the systems have made the process both predictable and simple!

Today you can make a choice as to how you will bond your restoration into the mouth – and while a LOT of that comes from how you prepare the tooth, what you do at seat is dependent on what you are bonding your restorative materials onto. If you are conservative then you can maximize the remaining enamel and will seldom prepare the first crown on a tooth; or rather, if you do prepare that first crown on the tooth, your margins will remain high on the tooth and take advantage of the enamel you are bonding to. Benefiting from a broader band and higher quality as well as a lot more enamel, you can create a bonded margin that will be as strong as possible and approach the strength of bond between natural dentin and enamel. For the deeper preparations and replacing failing full-coverage crowns, you are primarily bonding to dentin and your bond protocol should reflect that. In this article we will outline options for both.

To start, your first goal in preparing the tooth should be to preserve as much tooth structure as possible and keep the margins away from the tissue and in healthy optimal enamel. To bond to this tooth structure, you will need to use a phosphoric acid bath of 15 seconds or more on the enamel. How to approach the dentin is an option you have, but in dealing with the enamel the protocol is a highly viscous blue etchant covering the enamel. Should you prefer a traditional 'total-etch' or 'etch and rinse' approach, then you will also place that etchant on the dentin for less than 15 seconds so you will rim the enamel with etch and then fill in the exposed dentin and let it sit for 12 seconds and then rinse completely for at least 10 seconds.

The dentin consequence of this is a 4 micron deep etched denin layer with a two-fold concern. One is you will create hydrolysis or water seepage under your bond and this water-rot will need to be addressed by applying a gluteraldehyde product. The other issue is the enzymatic breakdown of the dentin under the hybrid layer by matrix metalloproteinases or MMPs. These will eat away at the etched but under prime/bonded collagen and degrade the bond. While this is an evolving field, the protocol has been to treat with 2% Chlorhexadine to inhibit that enzymatic activity. The net result is when you phosphoric acid etch the dentin, you need to counteract the MMPs and hydrolysis so you additionally treat with gluteraldehyde and chlorhexadine.

Another approach would be to use a Self-etch or Universal adhesive product on the dentin. In this instance, you will rim the enamel with a highly viscous phosphoric acid etchant and count to 15.

You will deliberately keep the etchant off the dentin as you will treat the dentin with the organic acids in the SE or Universal adhesive. After a thorough rinse of the etch and ensuring that delicate wet-dry-moist balance in the dentin, you will then apply your SE or Universal according to the manufacturer's instructions. Using the All-Bond SE, for instance, we would rub two 10 second coats of the SE into the dentin and onto the etched enamel and air-thin between coats and then air-thin and light cure the second coat. Using the All-bond Universal would be largely the same except it requires no mixing. Then, after curing, you will have a 1 micron deep hybrid layer in the dentin and there is not a wide enough band of unbonded affected dentin to concern us with hydrolysis or enzymatic breakdown so there is no need for gluteraldehyde or chlorhexadine.

The process of Immediate Dentin Seal is done at preparation and is more important as you get closer to the pulp as the dentinal tubules grow larger and the collagen in the deeper parts of the tooth are trickier to manage. Should you choose to place the Immediate Dentin Seal, then after rinsing your preps, you would not place any etchant, but rather use the organic acid etchant in your SE to create a 1-micron deep hybrid layer that seals the dentin but won't significantly alter the enamel you will bond to at seat. This allows for bond maturation without the final restorative load as well as a huge decrease in the sensitivity at seat and the great thing is generally you won't even need to anesthetize for delivery! The critical last step is prior to provisionalization, you would place the ProV Coat separating medium.

In the case of full coverage crowns, since you really have little to no good enamel for bonding, it makes even more sense to utilize the SE or Universal adhesives and avoid complicating the dentin treatment by preparing it in a way that creates hydrolysis or enzyme breakdown concerns. Again, it is the evolution of the predictable and stable SE adhesives and the new Universals that makes this such a predictable solution. Of course, there are always performance variations with the newer materials and while there are several good products on the market today, it is quite fortunate that we were able to explore Bisco's exceptional new SE and Universal adhesives. No surprise from the company that has been a standard to measure against in adhesives; they are the tie that binds when you are seating your restoration.

For more information go to www.bisco.com.

Bonding Questions:

Is your primary bond for this prep enamel or dentin?

What material are you bonding to the tooth?

Did you use an IDS protocol at the prep appointment?

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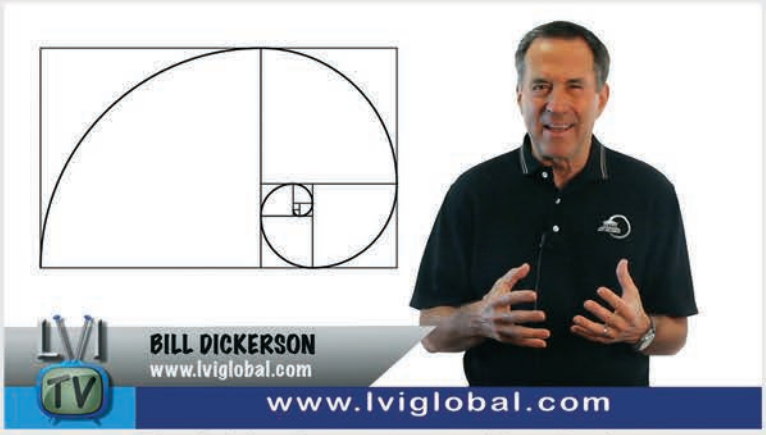

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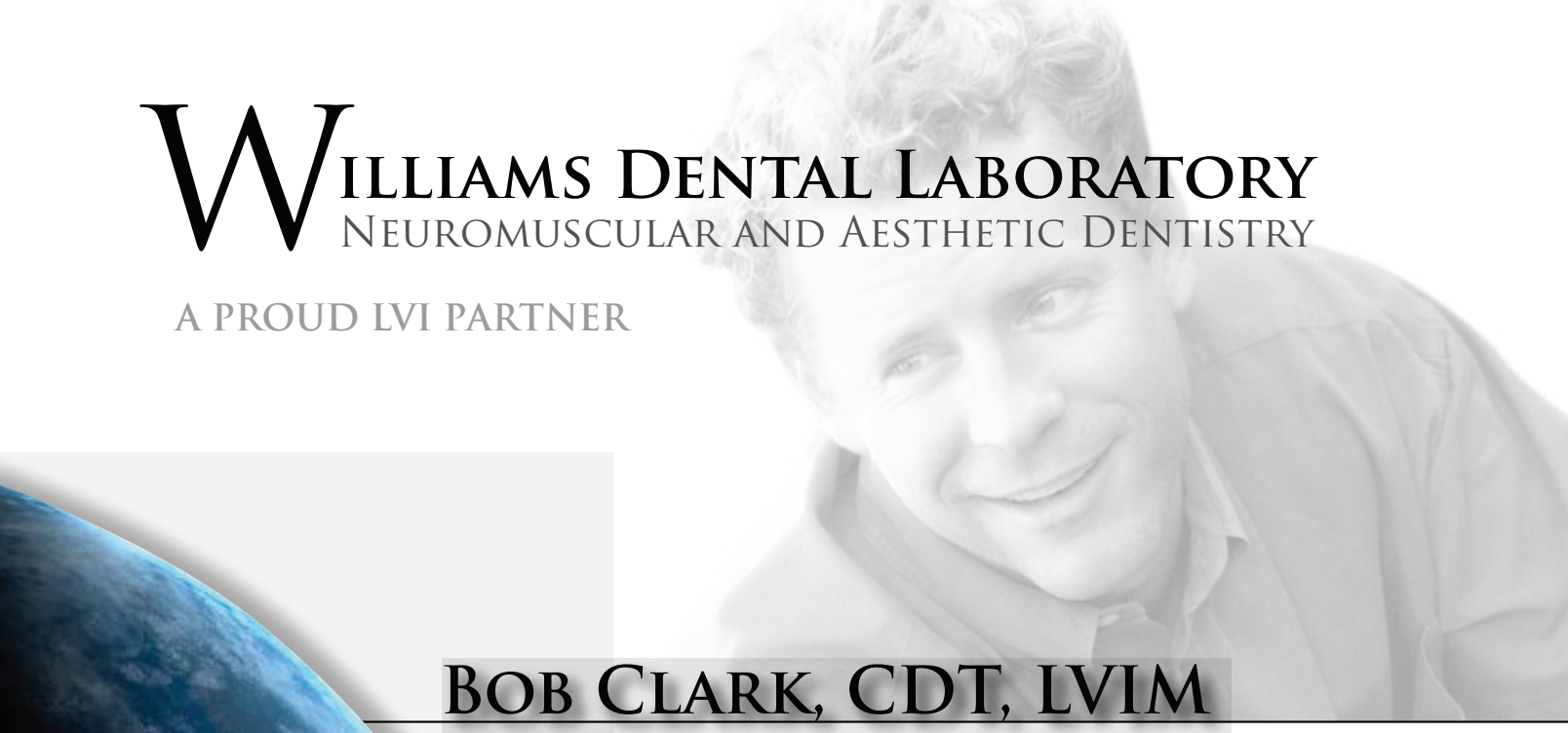

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