

# INCISAL EDGE



2009 Volume I

The quarterly newsletter of  
D&S Dental Laboratory, Inc.

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## INSIDE THIS ISSUE

Zirconia Crowns &  
Bridges . . . . . 1

Product Profile . . . . . 2

Help Your Laboratory  
Create A Predictable  
Guide For Success . . . 2

Do You and Your  
Staff Work Together  
as a Team? . . . . . 3

Seminar—Robert Ash. . . 4

Seminar—Introduce  
Sleep Medicine  
Into Your Dental  
Practice . . . . . 5

Shade Taking—  
How to Control the  
Variables to Obtain  
the Best Shade . . . . . 6

## ZIRCONIA CROWNS & BRIDGES

Demand for all-ceramic restorations is growing rapidly and some of the questions most frequently asked by our dentist clients are regarding zirconia crowns and bridges. We will try to cover some of those questions here in order to help you decide when or when not to use zirconia-based restorations while you are treatment planning.

### *First of all, what is it and does our laboratory use pure zirconia?*

Zirconia (ZrO<sub>2</sub>) is the oxidized form of the metal zirconium (Zr). Biomedical and structural functional application of zirconia typically do not use pure zirconia. Dental laboratories use partially stabilized tetragonal zirconia.

### *Are there differences among zirconia?*

Yes. Differences among zirconia ceramics can occur with the level of purity of zirconia, grain size, trace elements, stabilizing compounds, and consistency of formulation. Not only are there differences in the dental grade zirconia based powders, but the performance is also influenced by the processing methods of different manufacturers and techniques applied by dental laboratories. These differences can have a major effect on clinical outcomes, such as marginal fit, translucency, strength, and long-term stability.

### *What makes one brand of zirconia superior to another?*

We might say, “the patient’s smile,” but research experts say a superior block of zirconia has consistent reliable results, consistency in fit, strength, uniform density, color, and esthetics. Labs need to buy from a quality proven company that can back up its product with quality control manufacturing, technical support, and service.

### *What is a probable fracture rate with zirconia restorations and what is the average life of a zirconia restoration?*

The fracture rate is less than 1%; no worse than a PFM restoration. However, here again it depends on the

laboratory’s processing procedures. There are some porcelains that are not compatible to zirconia substructures. As far as the life of a zirconia restoration, there has not been enough clinical data to develop a firm lifespan. Zirconia restorations have been used for over 10 years with great success. Also, 3M ESPE found that after five years of clinical service, one can conclude a high performance of zirconia based posterior bridges. The Dental Advisor found no failures of zirconia 3 unit/4 unit anterior bridges while monitoring 500 restorations during a five-year period. As far as the degrading of zirconia when exposed in the oral fluids, research shows that the strength of zirconia is high enough that the limited degradation due to exposure to oral fluids will not jeopardize the restoration. Another factor in the success rate of these restorations is the substructure design. A design which creates an even thickness of porcelain no greater than 2 mm is ideal. Our laboratory takes advantage of design software programs that allow expansion of the substructure for maximum porcelain support. Support is important, as some studies have found that chipping is more likely to occur if there is too much unsupported porcelain.

### *What are the cementation guidelines for zirconia restorations?*

For cementing zirconia restorations with traditional cements, adhesive resin cements, or self-adhesive resin cements, follow the standard cementation protocol. Use self-cured or dual-cured materials—light transmission through zirconia core material is reduced.

**Zirconia Crowns & Bridges  
continued on page 5**



*Our laboratory takes advantage of design software programs that allow expansion of the substructure for maximum porcelain support.*

# PRODUCT PROFILE

LAVA™ MANUFACTURER:  
3M ESPE™

## DESCRIPTION

- CAD/CAM coping of densely sintered Zirconium Oxide Lava coping, available in 8 shades, is color matched to the crown shade
- Veneered with porcelain

## DOCTORS' BENEFITS

- Excellent strength for all ceramic restoration

## PATIENTS' BENEFITS

- Esthetics
- No dark metal to mask
- No white opaque layer

## INDICATIONS

- Both anterior and posterior, all ceramic crowns and bridges requiring high strength

## CONTRA INDICATIONS

- None

## PREPARATION

- Traditional crown preparation
- At least 1 mm chamfer margin
- 1.5-2.0 mm overall reduction
- Lava™ preparation guides are available

## DAYS IN LAB

- 8 days

## SEATING INSTRUCTIONS

- Cement with resin-reinforced glass ionomer cement, dual-cure resin cement, or zinc phosphate cement
- Do not cement with plain glass ionomer cements
- Dual-cure cements may require an increase in cement spacer

***D&S Dental Laboratory, Inc. is an Authorized LAVA™ Milling Center.***

# HELP YOUR LABORATORY CREATE A PREDICTABLE GUIDE FOR SUCCESS

One of the easiest ways you can help yourself, the patient, and the laboratory is to create a three dimensional communication tool know as the diagnostic wax up. Electricians, plumbers, and builders will tell you that it is nearly impossible to create or build anything without some sort of guide. They use a blueprint, which by definition is a detailed plan of action.

It is the diagnostic wax up that will provide you with the blueprint of the final outcome and show you where you will end up before the restoration fabrication begins. This is how you can achieve predictable success that will immediately save you time and money.

Success begins with cast models from full mouth impressions mounted on an anatomical articulator. Write information on the laboratory work authorization form that includes the main objective of treatment along with a brief outline of the treatment plan, and the teeth to be restored. Tell the laboratory if you are changing the alignment of the teeth, the vertical dimension, the midline, the width and length of the centrals, and what type of restorations you will be requesting. Also are you changing the periodontal area with tissue recontouring?

The first advantage of the diagnostic wax up is the impression it has on the dental patient. Just as conceptual drawings help builders close the sale, so too these wax ups have a positive perception and reality with the patient. They can visually see what the predetermined outcome will be.

The diagnostic wax up is also a time-saver for you because most, if not all, of the communication between you and the laboratory has already taken place before beginning the fabrication. You do not have to wait until the porcelain has been applied and sent to you in bisque bake to see what the final results will be.

You can also save yourself time by communicating to the laboratory at the time they are completing the diagnostic wax up that you at this time would also like a laboratory processed temporary. What that processed temporary will do is not only maintain the contacts and occlusion, but also aid in tissue conditioning. This is especially important when implants are part of the treatment plan. If any adjustments need to be made while the patient is wearing the temporary you can do so; "snap" an impression, and send it to the laboratory so they make those adjustments on the final process.

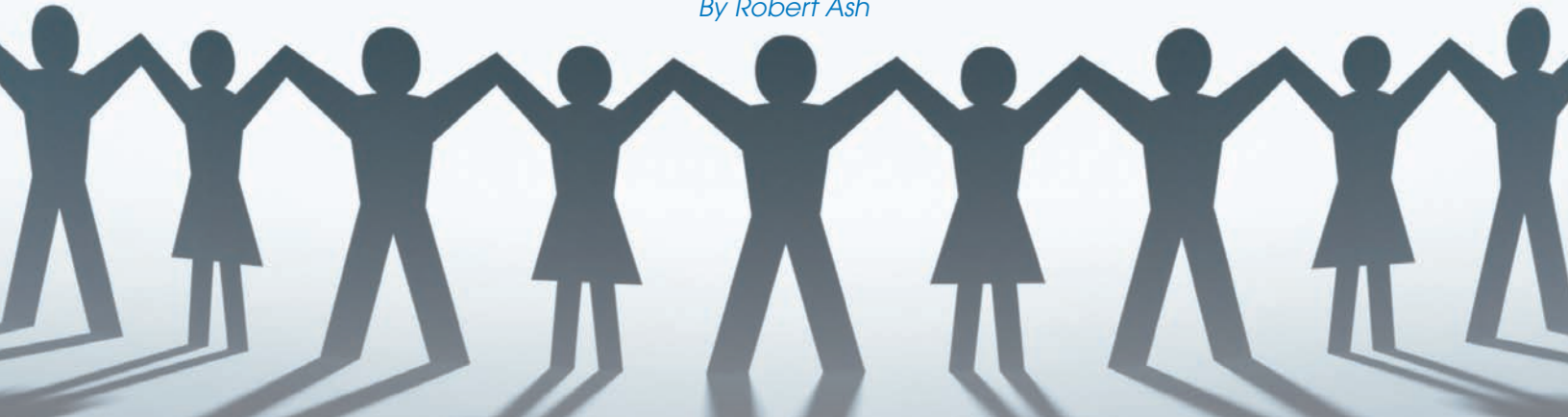
As a laboratory, we have seen the results from the blueprint of the diagnostic wax up and we are believers that it is one of the great communication tools between the laboratory and the dental office.

*It is the diagnostic wax up that will provide you with the blueprint of the final outcome and show you where you will end up before the restoration fabrication begins. This is how you can achieve predictable success that will immediately save you time and money.*



# DO YOU AND YOUR STAFF WORK TOGETHER AS A TEAM?

By Robert Ash



Have you ever wondered how you can have the best staff, the most up-to-date equipment, but cannot motivate your staff to work together as a team to increase production?

Keeping up quality care, production and employee morale can be difficult in any dental office. Good technical skills are not the only important aspect of running a successful dental office. To be a leader, you need to use effective communication skills.

When I first started working in the dental business, I found that most dentists and office managers couldn't understand why the staff just couldn't work together as a team, and always seemed to have internal problems. Some dentists took their entire staff to conventions and meetings, but for some reason, the training just never stuck. Some staff members were even sent to technical courses to make sure that their staff was properly trained. But again, this didn't always contribute to better production and team work.

This led to more frustration between Dentist and his/her staff. "I've trained you, what's going on here? You don't work effectively; you can't get along with each other!" Some dentists found staff members verse each other as well as staff members verse dentists. That in turn decreased production and handling patients properly—doing exactly the opposite of what they had been working so hard to increase.

In some cases morale went down, attendance and quality decreased, and the distance between dentists, office manager, and staff became further apart. What can you as a dentist or office manager do to increase the quality of patient care in your office?

One of the biggest problems you have as a dentist or office manager is NOT due to lack of technical knowledge or skills, but rather the difficulty in understanding and communicating your wants and needs successfully to your staff.

You must always be aware that how well you communicate and what you communicate to your staff members can either increase or decrease your quality of dental care for your patients!

Communication is not only "what" and "how" you say something, but is also your attitude and actions. Many staff members are so locked into a certain way of thinking about their job that they become blind to the most effective way of performing their job. They place limitations on the way they work and make assumptions that can hurt your office. When this happens, staff members fail to communicate in ways that could help each other.

*"The way a team plays as a whole determines its success. You may have the greatest bunch of individual stars in the world, but if they don't play together, the club won't be worth a dime."...Babe Ruth*

The same goes for your dental office. No matter whether you have two, twenty, or more staff members in your office, if you fail to work together as a team, your office will fail to reach its potential. But when everyone works together doing their share of work and helping others, great achievements can be made.

*It isn't the number of staff employed in the dental office that makes it successful; it's the number of staff members working together as a unit to make it happen.*

There is a difference between "group performance" and "team performance." Many dentists and office managers fail to realize the difference between group performance and team performance. After all, they feel it is just the same.

But with team performance, owners/leaders in any business using the same number of people and doing similar tasks with the same technology and procedures, somehow manage to improve productivity dramatically by establishing a climate where employees are willing to give their best and enjoy working together in teams.

*continued on page 4*

continued from page 3

The first step in establishing teamwork is to ask yourself the following questions.

**DO YOU:**

- 1.) Select staff members who can meet the job requirements and work well with others?
- 2.) Give your staff a sense of ownership by involving them in goal setting, problem solving, and productivity improvement activities?
- 3.) Provide team spirit by encouraging staff to work together and to support one another in learning new techniques and solving problems within the office?
- 4.) Talk with staff openly and honestly and encourage the same kind of communication in return?
- 5.) Keep agreements with your staff because their trust is essential to your leadership?
- 6.) Help staff members to get to know each other so they can learn to trust, respect, and appreciate individual talent and ability?

- 7.) Make sure your staff has the required training to do their jobs and know how it relates to your final goals for your office?
- 8.) Understand that conflict within groups is normal, but work to resolve it quickly and fairly before it can become destructive?
- 9.) Believe that your staff will perform as a team when they know what is expected and what benefits they will receive by working as a team?
- 10.) Replace staff members who cannot or will not meet reasonable standards after appropriate training and coaching?

If you do, then you are taking the first steps to stimulate teamwork. You as a leader must be sensitive to recognizing your staff members' needs and design ways to meet those needs while achieving the goals of your dental office. But at the same time, your staff must take responsibility to be part of that team.

## SEMINAR—THE POWER OF TEAM

Thursday, April 9, 2009 • 1:00–4:00 p.m.

Location: Arboretum Centre

1004 Quinn Drive • Waunakee, WI 53597 • 800-236-3859 • 608-849-5343

*Reserve this afternoon in your appointment book now for the "Power Of Team." It will be an entertaining and inspirational presentation for you and your entire staff! As a courtesy to your practice of dentistry, there is no charge for you or your staff for this seminar.*

*Registration forms will be mailed, or to register by phone, call Dawn Pilsner at 800-236-3859 or 608-849-5343.*

### ROBERT ASH, B.S., C.P., A.C.H.E.

Robert Ash is a lecturer, trainer, and consultant to dentists and dental laboratories. He has spoken at numerous dental and dental laboratory conventions throughout the United States. He conducts seminars, workshops, and training programs for interpersonal communication skills for dentists, dental laboratories, and corporations. He teaches how to communicate, motivate, influence, and persuade others. He has received numerous educational awards, including Outstanding Educator in the United States for four years in a row.



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State/Zip: \_\_\_\_\_  
Telephone: \_\_\_\_\_

## "THE POWER OF TEAM"

Thursday, April 9, 2009 • 1:00–4:00 p.m.

Mail or Fax Registration To:  
D&S Dental Laboratory, Inc.  
Attn: Dawn Pilsner

1020 Quinn Drive • Waunakee, WI 53597

Fax: 608-849-7500  
or call Dawn Pilsner at:  
800-236-3859 • 608-849-5343

THERE IS NO CHARGE FOR THIS SEMINAR

# SEMINAR—INTRODUCE SLEEP MEDICINE INTO YOUR DENTAL PRACTICE

Friday, March 13, 2009 • 8:00 a.m.–5:00 p.m.

Location: Arboretum Centre

1004 Quinn Drive • Waunakee, WI 53597 • 800-236-3859 • 608-849-5343

## SLEEP APNEA ORAL APPLIANCE THERAPY

The American Academy of Sleep Medicine recommends oral appliances, like the TAP®, as a first-time line of treatment for mild and moderate sleep apnea and in cases of severe apnea when continuous positive airway pressure (CPAP) has not worked. Studies have shown that patients prefer oral appliances 20/1 over CPAP.

Twenty percent of the adult patients in every dentist's practice have some degree of sleep disordered breathing. The dentist is in the unique position to provide the best treatment solution and long-term management through knowledge, training, skills, and technology. Integrating a new therapy into a dental practice can sometimes be an overwhelming undertaking. However, demand for treatment of snoring and sleep apnea with oral appliances is increasing exponentially. Diagnosis and treatment of these patients can be accomplished easily, appropriately, and profitably in the dental office.

## D&S DENTAL LABORATORY, INC. PRESENTS

This one day course on the basics of sleep disordered breathing will teach participants about the fundamentals of sleep disorders and sleep disordered breathing, including screening and treatment. Participants will gain hands-on experience with the Thornton Adjustable Positioner (TAP)—how to deliver and adjust the appliance with ease. They will explore simple screening tools that aid in evaluating the patient before and after treatment. The participants will also learn ways to implement and effectively market the TAP in their practice.

- Fundamentals of Sleep Disordered Breathing, Sleep Medicine and the Role of the Dentist
- Screening Tools - Initial Screening, Treatment and Follow-up Forms
- Hands-on Experience with the TAP
- Marketing the TAP
- Insurance Reimbursement

## DR. W. KEITH THORNTON, DDS

Dr. Thornton is a third-generation Dallas dentist who has limited his practice to the treatment of patients with sleep disordered breathing. He is an associate faculty member of the Pankey Institute where he taught TMD Therapy for over 25 years. He is a visiting faculty member at Baylor College of Dentistry and is a consultant to the U.S. Army, Navy, and Air Force. He has developed a number of medical devices, including the TAP, that help treat snoring and obstructive sleep apnea; he has over 25 issued patents.

Dr. Thornton strongly recommends that our laboratory make available a TAP appliance for each participant for the hands-on portion of the presentation. (D&S Dental will only have a few samples available.) If you would like your own personal TAP appliance sample for the hands-on portion and for your office, please request so on the registration form (\$295.00 lab fee for sample).

*Fees for this seminar are \$75.00-Doctor and 25.00-Staff. Optional choice of TAP Appliance \$295.00. Continental breakfast and lunch will be provided by D&S Dental Laboratory, Inc. Please contact Dawn Pilsner at 608-849-5343 or 800-236-3859 for registration information.*

## Zirconia Crowns & Bridges continued from page 1

Due to the now etch-able nature of zirconia core material, hydrofluoric acid or phosphoric acid etching of the internal surface of the restoration will have minimal effect of the bond strength when cementing with adhesive resin cements. Teeth should be well isolated and the retainer surface left moist—not dry or wet. For those clients who would prefer bonding the restoration, the laboratory can treat the inside of the restorations with products like Cojet or Rocktech to enhance the bonding strength.

This small article certainly did not attempt to answer every question about zirconia restorations, only a few of the ones we are often asked. What I can tell you is that our laboratory investigated the many possibilities of processing systems before we began offering zirconia restorations. We are most pleased that we choose to go with a closed milling system rather than an open one. In an open system, you mix and match components based on your need. There is more flexibility, potentially lower costs, and a range of solution possibilities. However if something goes wrong, good

luck. In a closed system, a lab buys everything; scanner, software, material and the milling unit from a single manufacturer. The benefits here are technical support and controlled product quality (consistency). We decided to buy a company, not just their equipment. That is why we partnered with 3M ESPE and are using their LAVA system. We could not be happier with the results we have achieved for our clients while using the LAVA system during the past two years. For both anterior and posterior, the fit and ethics of the LAVA have made it the most asked for all ceramic restoration our laboratory has to offer. 3M ESPE has implemented authorization programs to assure customers that they are getting the genuine product. You as a dentist can verify authenticity at [www.3MESPE.com/lava](http://www.3MESPE.com/lava) by clicking on the Authenticate Your Lava Restorations link. This is the protection we all should be looking for, for the sake of the patients, your practice, and our laboratory. This is our warranty against the low-grade blocks of zirconia now being offered in our industry.

# SHADE TAKING—HOW TO CONTROL THE VARIABLES TO OBTAIN THE BEST SHADE

First of all, let's briefly review some basic color terms before proceeding. Hue is the color, and in teeth this is determined by the dentin. Value is the "gray scale" of dark to light. This is most relevant to the enamel. Chroma is the saturation of color, and in teeth this is in dentin but it is influenced by value.

There are many variables to shade taking, but if you are ready to toss up your shade guides in despair, consider the following tips to taking a great shade.

- Take a shade under a variety of light sources, and certainly before the crown prep. Dehydration causes lighter value, less translucency.
- Use at least two shade guides and replace old shade guides because after a few years these guides have yellowed.
- Consider taking the value first—if in doubt go lighter. Choose the hue next (dominant color) and then chroma in the middle third of the tooth. Verify correct shade under various inclinations to decrease reflections.

- Use a neutral gray card behind the teeth if you need to reduce background stimuli, and cover the patient's clothing with a light blue bib or cloth towel. To prevent eye fatigue, glance at the shade for around five seconds. Your first color match is usually the best. Also solicit younger staff members to select shade.
- Tooth preparation is critical to shade success. Shade guides are usually 4 to 5 mm thick. The more room the lab has, the truer the shade. A porcelain shoulder margin reduces darkening from the metal coping at the cervical third. Also, as to metal substructures, silver color decreases value and gold color adds more yellow hue.
- On the authorization form include shade diagrams and note translucency, characterizations, etc. A digital photograph is also very helpful.

Together we can deliver a patient-approved shade that makes everyone smile. As an added note, our laboratory is willing to come to your office to present a 25 to 30 minute presentation on shade taking for the entire staff.

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