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That’s Why

Spending time with our grandchildren is truly a joy. Their precious young minds seem to never stop wondering why. It’s wonderful and encouraging to teach them life lessons and then hear them repeat it and want to know more. I fear the day when they would rather be fixated on an electronic device than ask me why. I have so much more to offer and teach them than what is available from a box.

Today we can play golf, tennis, hunt, fish and virtually play and do any activity without actually doing it. Yes, that includes even making dental appliances. Technology is a marvelous thing enabling us to expand our horizons and broaden our capabilities to experience life and all its pleasures. As dental laboratory technicians we must utilize all the technological advances available to our industry in conjunction with the acquired skills of our profession. Our businesses and our professions depend on how we incorporate both dental skills and modern advances.

I am very grateful to have had a mentor who selflessly passed on the knowledge and passion he had for this profession. His constant pursuit for excellence and quest for knowledge inspired me to strive for the same ideals. He told me that in order to be successful in this business, you must be good, fast and know more than the dentist. Truth is, his mentoring inspired my passion and is why I am writing this message today.

“Florida’s requirement for continuing education should not be a burden, but an opportunity.”

The more individual sources of information that a technician has access to, the broader the learning curve. The experience of getting out of your laboratory and interacting with other technicians at a continuing education course can not only enlighten you, but also be enjoyable.

This interaction is what FDLA has provided for more than 50 years: The venues for technicians to study technology together and then apply it when they return home.

Florida’s requirement for continuing education should not be a burden, but an opportunity. Your laboratory’s bottom line and your value as a technician can only improve with quality education.

With your support and involvement, FDLA can continue to provide opportunities for advancement with the highest level of education. Let us be your partner in your quest to answer why.

By Morris Fucarino, CDT
FDLA president

FDLA Mission
Serving Florida’s dental technology professionals as a valued part of the dental team enhancing oral health care.

FDLA Vision
Advancing the individual and collective success of Florida’s dental technology professionals in a changing environment.

Values Statement
FDLA’s board of directors and professional staff are guided by these principles:
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- Leadership
- Recognition
- Safety
- Acceptance
- Innovation
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Exchanges to help individuals and small businesses compare and buy health insurance. However, the marketplace opened Oct. 1, 2013.

The bill also included a series of new taxes to help pay for mandates that expanded Medicaid coverage for low-income individuals and families who could not normally afford it. Those taxes, which took effect in 2012, have already had an impact on some businesses—not the least of which is the dental laboratory industry.

Since the bill was signed into law in 2010, the Affordable Care Act has been on a month-by-month rollout plan that will last until 2018. To sum up a rather complicated piece of legislation, the bill has a triple aim of improving the health of the population, enhancing the patient experience of care (including quality, access and reliability) and reducing, or at least controlling, the cost of care, according to the Health and Human Services Budget narrative.

The biggest impact of the bill will be fully enacted on Jan. 1: The implementation of Health Care Exchanges to help individuals and small businesses compare and buy health insurance. However, the marketplace opened Oct. 1, 2013.

Whether you choose to call it Obamacare, the Affordable Care Act, or ACA, the Patient Protection and Affordable Care Act is changing health insurance coverage. Just exactly how it will change coverage, and what impact those changes will have on dental laboratories, dental laboratory employees and the dental industry as a whole remains, for the most part, murky.
Focus took a look at the impact of the Affordable Care Act from two perspectives:

1. The dental laboratory industry as an employer.
2. The dental laboratory industry as a provider of health care services and products.

Dental Laboratory as Employer

The vast majority of Florida laboratories are classified as small businesses and many have fewer than 10 employees. While the employer mandate to provide health insurance has been delayed until 2015, open enrollment in the Health Exchanges began in October. All employers, whether or not they provide coverage, were required to send out that notice to their employees, informing them of the exchanges.

Also in October, the Small Business Health Options Program (SHOP) opened for business. According to healthcare.gov, this program allows small businesses—those with fewer than 50 employees—a way to provide affordable health care for their employees. The program varies by state, but in general it allows you to control how much you pay toward your employees' premiums and what you offer. In Florida, consumers can choose from four different plans—bronze, silver, gold and platinum—which will be available to anyone. The premiums for silver level plans are expected to be about $328 a month, not including tax credits for lower-income families.

Designed to help small businesses provide health insurance to those whose average salary is below $50,000, SHOP specifies that businesses that contribute 50 percent or more toward an employee’s individual (not family) coverage may qualify for a 35 percent tax credit. In 2014, that credit increases to 50 percent for employers that participate in SHOP. And because most of Florida dental laboratories have fewer than 50 employees, some (who cover employees’ insurance) will be eligible for some form of tax relief.

As an employer, you’re bound to face some confusion from your employees about their coverage. In fact, according to one recent survey, 90 percent of employees really didn’t know what the changes to the health care laws would mean to them.

“There are key questions employees have that need to be addressed now, such as the status of their current benefits and their eligibility to obtain tax credits and subsidies through the new marketplaces,” said Larry Boress in a release. Boress is president and CEO of the Midwest Business Group on Health, which has more than 120 members, and which recently conducted a survey in a variety of industries about employees’ understanding of ACA.

To ease the pain on employers, the Small Business Administration (www.sba.gov) provides a clear breakdown of additional provisions of the ACA and its impact on small business, including mandates and credits available for companies that offer wellness benefits.

ACA and the Dental Laboratory

In the good-news/bad-news category, the ACA will have little impact on the number of adults whose dental implants and restorations are covered by insurance. In fact, the American Dental Association predicts that the number of adults with comprehensive dental coverage may actually decrease under the ACA. Most adults receive their dental coverage through
their employers and most won’t see much of a change. There is one exception: with employers passing more costs on to their employees, some may opt out of dental coverage.

“There are many simulation studies modeling how employers might respond to the mandates and tradeoffs in the ACA when it comes to health insurance, but similar models for dental benefits do not exist,” according to the American Dental Association in its Health Policy Resources Center research brief. “However, if employers make comparable decisions for dental benefits as they do for health insurance, it is likely that the greatest declines will be among small employers and employers with low wage workers. Given that these firms are less likely to offer dental benefits in the first place, it is unlikely that the ACA itself will have a significant impact on overall levels of employer-sponsored dental benefits.”

In the context of the health insurance exchanges, dental benefits will be more available to children. Again, restorations, implants and other dental laboratory products may be excluded, since much of the coverage for children is focused on preventive care.

Perhaps the biggest impact of ACA on dental laboratories, however, is the medical device excise tax. The National Association of Dental Laboratories analyzed the tax’s impact on dental laboratories when it was first enacted and found that most products that come out of the dental laboratory are not subject to the tax because they are not required to be listed with the FDA. However, certain materials are listed with the FDA and thus laboratories have been seeing the 2.3 percent device tax cost on those raw materials and some equipment from suppliers since January.

Eric Thorn, Esq., in-house counsel for the National Association of Dental Laboratories, told FDLA focus recently that a move is afoot to repeal the medical device excise tax.

“In a nutshell, there is some congressional receptivity to repealing the medical device tax but it will not likely happen unless proponents of the repeal or our congressional allies find a way to replace the $20 billion to $30 billion the (tax) is expected to raise over the next decade. While we will continue to fully support the repeal it appears that it may be a tall order during the tenure of the current administration,” Thorn said.

At the time of this writing, the medical device excise tax repeal is packaged in a tax reform bill meant to reduce corporate tax liability and simplify the tax code, sponsored by retiring Sen. Max Baucus (D-MT). President Barack Obama has said he will veto any bill that repeals the medical device tax, so it’s unlikely the Baucus bill will be successful.

For Florida dental laboratories, the ACA might require some explaining to employees as the health care exchanges roll out. With the repeal of the medical device excise tax unlikely, dental laboratories using FDA-registered materials, such as the metal alloys, acrylic and porcelains will continue to pass those costs through to the dentists.
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Three dental institutes offer much for dental laboratory technicians. Each approaches dental laboratory training and education differently, and each may suit the continuing education needs of the laboratory tech at different times or for different reasons. One is run by a manufacturer, one is a for-profit academy and the third is a non-profit educational institution.

Each of these institutions can help you to improve your skills as a technician as well as build stronger ties with your dentist clients. In addition, providing continuing education opportunities to employees can mean owners and managers will spend less time hiring and training new technicians. A recent study by Spherion Atlantic Enterprises showed that employees who attend school while working full-time are happier on the job, more loyal to their employers, and are the best producers. Sixty one percent of employee respondents reported they were very likely to remain with their employer for five years or more.

The Dawson Academy

The Dawson Academy offers concentrations in dental occlusion, the temporomandibular joint and comprehensive esthetic restorative dentistry. All classes are geared toward dentists, but the academy offers three lecture courses specifically for laboratory technicians. The faculty is composed of more than 20 practicing dentists from around the world and students receive an education based on learning from the mistakes and successes the faculty have encountered in their experiences.

“Basically we see a lot of dentists that are wasting time. When individuals are experiencing failures, they are not communicating effectively with the lab,” said Ravage Stryczny, director of sales for Dawson Academy. “In order to support those doctors, we teach predictability, longevity and beauty in dentistry, and incorporate sound principles, which is what we are teaching.”

One of the greatest challenges facing dentists learning to practice the Dawson principles of
complete dentistry is finding a laboratory to work with that has the necessary knowledge and skills to support the Dawson functional occlusion principles. As such, Dawson provides the names of the laboratory technicians who have attended the Dawson classes to dentists who request that information.

And when a dentist goes through the Dawson program, it eliminates guesswork for the laboratory technician, because part of the program is building that consistency of process between the both entities.

“For the lab technician, they will not continuously have to remake work, because they will have better communication with the dentist,” said Stryczny. “They have a specific philosophy that they are following … When dentists come through our program, they are eliminating the guess work. They provide these cases to the lab and the lab is going to understand what the dentist is providing them with.”

All of Dawson’s courses are ADA and CERT recognized. The academy has a customized learning plan for laboratory technicians who work alongside Dawson dentists. The sequence includes functional occlusion, achieving predictable esthetic results and advanced problem solving.

Stryczny noted that the more education you get, the more you can offer your client. That reaches into the bottom line, as you’re able to offer more services, better expertise, and fewer remakes.

Implant Esthetic Center of Excellence

Ivoclar Vivadent, Inc., operates the Implant Esthetic Center of Excellence, a state-of-the-art education center that opened in 2010.

“The Implant Esthetics Center of Excellence is focused on providing courses, seminars, and workshops for clinicians and technicians,” said Dr. Frank Lauciello, director of removable prosthodontics for Ivoclar Vivadent in a statement. “The focus of the center is to emphasize methods, materials, and techniques to achieve maximum esthetics and function for the removable/fixed restorations supported by implants.” In addition, the facility hosts a series of courses on CAD/CAM, laser applications, pressed ceramics, as well as masters courses and online educational program for its e.max product. Many of its courses are geared specifically toward the successful completion of e.max cases for the laboratory technician.

“For us, the laboratory is the No. 1 conduit of information to the dentist. We try very hard, but we know there is a lot of confusion in the market about what cements can do. So that one thing we do is educate laboratories on cements. We think that working together is just critical, and especially to a brand like e.max to having everyone on the same page,” said John Isherwood, marketing director for Ivoclar.

Manufacturer training definitely has its place in the laboratory technician training offerings. Working together to learn how to best use materials ensures success for all parties—the dental laboratory technician creates a better restoration, the dentist has a satisfied client and the manufacturer has a successful customer relationship.

Isherwood noted that the center offers a lot of different kinds of training, but recently webinars have gotten quite popular. Between webinars and Facebook marketing, the center works with the laboratory managers and owners, who in turn invite the dentists.

Ivoclar considers itself a true partner to both laboratories and dentists. It offers the education on its products, but also marketing resources to help labs educate the dentists.

“We work with NADL, FDLA and ADA on developing content and information for the dental professional. We train them to use latest greatest techniques to save money, but we work hard not just sell products, but how to use them in the best manner. We always talk about passion, vision, innovation. We are a true business partner, and for some people it’s products, for some it’s training, for some it’s marketing resources,” said Isherwood.
The Pankey Institute

The Pankey Institute is a non-profit educational facility. The institute has been offering courses to dental laboratory technicians since the 1980s. One unique element of Pankey’s curriculum is the way it allows dentists and technicians to do each other’s jobs during its courses. The laboratory technician will work chairside while the dentist will practice making a restoration.

“We’ve always promoted the value of them learning together. We have dental technicians on faculty, and there are no prerequisites for lab technicians. Dental technicians can be in every course that we offer,” said Pankey CEO Ricki Braswell, CAE.

Pankey offers more than 40 courses a year, with only one course that is geared specifically toward lab technicians—a summer course for shade verification and material selection, to help laboratory technicians come up with predictable results. And ironically, she said, the class attracts more doctors than technicians.

All of Pankey’s courses are offered for both dentists and dental laboratory technicians, but, recognizing that laboratory technicians traditionally earn significantly less than dentists, the institute offers a 50 percent discount for technicians to attend. And, Braswell said, if any technician brings two dentists to a course, the technician attends for free.

“Our entire philosophy is that there will never be a great dentist without a great technicians. The way we encourage that is to have the technician in the course. If the technician has the opportunity to learn the same thing the dentist learns, the team is stronger.”

Another unique element of Pankey is that the attendees stay in condos that are owned by the institute, so there is a lot of interaction after classes. In fact, there are some lifelong bonds. After the class is over, Pankey keeps students coming together through listservs.

“We keep the course participants in that group together, and build basically an online peer group. They post pictures and discuss cases and stay within that community,” Braswell says.

In addition, the institute provides alumni networking groups, online libraries and quick tip learning videos.

“We are mission driven, rather than being profit-driven, and part of our mission is to improve dentistry and build a highly educated dental team.”

As dental laboratory owners and technicians continue to search for ways to strengthen their businesses, education can play a major part in their continued success. This assertion is backed up by two decades of private industry and academic research confirming that employee development can improve employer bottom-line profitability by increasing revenues and lowering expenses, according to National Network of Sector Partners. It does this by:

- Increasing your ability to take advantage of innovation
- Increasing your rate of employee retention
- Reducing your rate of employee absenteeism
- Increasing your quality of work or service
- Increasing your productivity

And because you’re in Florida, you can take advantage of some of the best continuing education aimed at bringing dentists and dental technicians together. The opportunities you’ll be able to create for your laboratory are endless.
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Feel like you’re being eaten alive? Is the Sand Tiger Shark of reality taking a huge chunk out of your assets? You’re not alone, but before you accept your pending demise, consider this: A few relatively small changes can mean turning what looks like a desperate situation into opportunity for profit.

To understand how a shark can teach us anything, it’s important to understand a little about them. Sand Tiger Sharks are different from other fish in that they have teeth. Lots of them. Three thousand to be exact, and 30,000 over the course of their lifetime. What’s more, they may look fierce, but they’re actually pretty docile. Unlike mammals, they don’t breathe air, but they do leap up out of the water, gulp air, and store it for better buoyancy.

So, what’s that got to do with you and your business? Nothing, really. Quite frankly, gulping air usually causes gas and discomfort for humans, but the point is we can learn something from this seemingly vicious-looking, but surprisingly docile critter that goes after and gets what it wants.
So, here are three key lessons from a Sand Tiger Shark to live by:

1. Grow Teeth

A Sand Tiger Shark has sharp teeth because of what it likes to feast on, including bony fish, small sharks, rays, squids, crabs and lobsters. This is clearly a lesson in knowing your customers - not to attack or eat them, of course, but certainly to attract them to your product or service. What does your A-list customer look like? How do they make their buying decisions? How can you adjust your systems to attract the A-list customers?

2. Swim in Groups

Sand Tiger Sharks can be independent when they want to be, but they also know when to swim in groups and do so to go after the bigger fish. Clearly, you need to revisit the pond (or in the case of the shark, the sea) you are swimming in. Are you going for the minnows, one little fish at a time? How’s that working for you? Try instead to look into joint venturing with other like-minded companies and business owners and combining efforts to attract customers. Whales and sharks have this down to a science. Study them. Learn from them. Then start circling with like-minded business owners and see what happens!

3. Float your Boat

As I mentioned earlier, Sand Tiger Sharks can’t live out of the water, but they do gulp down air for buoyancy. This allows them to float, observe, and then quietly move unsuspectingly upon their prey. Well, I am not advocating that you sneak up on customers and gulp them down, but I am suggesting that to stay afloat you need to breathe in some air. Stress reduction is paramount to business success, and 85 percent of businesses fail because of burnout. So, to float your boat, breathe. Take in air, consciously, like the Sand Tiger Shark, and reduce all that unnecessary movement and stress.

So, now that we’ve heard from Team Shark, let’s turn to the sharp minds in the business coaching field and get their advice on how to improve your business. Here’s advice from business coaches Dave Gazave, Karie Kaufmann, Bernie Powers, Stacey McKibbin and Jeff Nott:

- Determine the hourly value of your time and do not become an employee of your own firm.
- Delegate and/or contract out low-value tasks.
- Systematize routine functions, humanize the exceptions.
- Set clear goals, in writing and hold yourself accountable to them.
- Block out specific times in your calendar to take proactive steps toward accomplishing those goals.
- Have a plan and budget for personal development.
- Know your numbers. If you don’t know where you are starting from, you can’t get to where you’re going.
- Know your team. Make sure you put their talents to good use and that you don’t assign a person a task they have no hope of accomplishing. To avoid that, know their strengths and weakness and feed their strengths.
- Know yourself. Remember, asking for help is not a weakness. The best of athletic teams need a good coach that’s up on processes and strategies. Business owners are no different.
- Test and measure everything.
- Complete two revenue tasks and one operational task every day.
- Show gratitude. Say thank you to your team, clients, suppliers, etc.
- Know your what, who and why:
  1. What makes my product or service a must have.
  2. Who must have it.
- Track the numbers (overall, team, personal, etc). Even if you don’t currently have targets set, you can start the process and your business will improve because you are doing so.
- Get specific about what you are going to offer and whom you want as a customer. Niche is what makes you unique. Target market is who wants what you are selling. Most companies are generalists when it comes to selling their product or service, and it’s harder to market general than specific.

From sharks to sharp business owners, take it from the experts. Plan for your success, but above all else, take the necessary actions to make that success possible. And if you need help, ask.

About the Author:

Peter Williamson is a business coach and master licensee. He helps business owners find instant and lasting solutions to boost their profits by. E- mail him at peterwilliamson@actioncoach.com for advice and access to proven systems that will advance your business or visit www.actioncoachcalteam.com.
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Choosing Between Screw-Retained and Cement-Retained Implant Crowns

by William F. Campbell, DDS, FAGD, and Marc W. Herman, DDS, FAGD

The choice of a screw-retained versus a cement-retained crown is a complex and comprehensive decision involving many points of consideration. This article reviews the important components involved in choosing which crown to use and concludes with two case studies illustrating the choice between screw-retained versus cement retained implant crowns and is an ideal article to share with your dentist clients on your next visit.

Retrievability

The screw-retained crown has both benefits and liabilities. The main advantage is retrievability. The crown is not only recoverable, but no damage occurs upon removal of the crown. In the event of loosening or fracture, the crown can easily be removed. Cleaning, screw replacement and assessment of surrounding tissue is also possible. Many dental professionals consider a yearly cleaning and replacement of screws a prudent approach. The longer the span, the more important salvaging becomes. Most dental professionals believe a long restorative span, cantilever or full arch dictates screw-retained crowns. To recover a crown or change a screw for maintenance, the restoration is removed, the cotton pellet is removed and the screw is accessed. Once repairs and/or alterations are concluded, the screw is torqued, a new cotton pellet is placed and composite or acrylic is used to seal the opening.
For cement-retained crowns, retrievability is not a major drawback. Cemented crowns may be recovered if the correct cement is used. Adding a water-soluble gel to the cement may ease rescue of a crown. Nevertheless, while the screw-retained crown is certainly retrievable, removing a cement-retained crown can be a questionable undertaking if strong cements are used.

**Pros and Cons of Cement**

Cement-retained implant-borne restorations offer several advantages, including the elimination of unesthetic screw access holes and greater resistance to porcelain fracture. Standard crown and bridge procedures can also be used in most situations. However, excess cement left behind inadvertently is a major problem and can result in soft tissue damage, bone loss and/or chronic inflammation. In a 2006 study by Weber et al., soft tissue surrounding screw-retained implant crowns was found to be healthier than soft tissue surrounding cemented restorations. To help address this issue, custom abutments can now be designed with supragingival margins that allow for easy and complete cement removal.

**Retention and Resistance**

Factors affecting the retention and resistance of cement-retained crowns on natural tooth abutments can also be applied to cemented crowns on implant abutments. Abutment height, degree of taper and surface area and roughness all affect the retention and resistance of a cemented crown.

The ideal taper of opposing surfaces in natural tooth preparations is reported to be six degrees. Parallelism of implants has a direct effect on the taper of their abutments. Implants that are not parallel may require further preparation and tapering of their abutments to enable an ideal path of insertion of the prosthesis. Overtapered abutments may lack adequate retention for the cemented restoration and may necessitate a screw-retained prosthesis. To counter this and to increase retention for a cemented crown, an irregular abutment surface and/or stronger cement may be indicated.

Abutment height is an important factor for proper retention and resistance of cemented crowns. Longer abutment walls will have more surface area and will therefore be more retentive. The length of the abutment wall also plays an important role in the resistance to tipping forces. To prevent tipping forces from dislodging the cemented restoration, the length of the abutment wall must be great enough to interfere with the arc of the casting, pivoting about a point on the margin on the opposite side of the restoration. Custom abutments offer an excellent option to correct the line of draw and provide appropriate resistance and retention.

At least 5mm of abutment height is needed for proper retention and resistance of cement-retained crowns. Therefore, screw-retained crowns are required in situations when limited interarch space dictates an abutment that would be shorter than 5mm.

The primary advantage of a screw-retained superstructure is the lower profile retention of the abutment system. These low-profile abutments offer a significant advantage for bar-retained overdenture applications. The lower height of the screw-retained bar offers greater room for denture teeth and greater thickness of acrylic, which is needed for strength of the restoration.

**Reduced Stress to Bone and Implant**

In implantology, reduced stress to the bone and implant is a desired feature. This is obtained through a passive fit of the prosthesis on the implant abutments. A passive fit is more difficult, if not impossible, to attain for a screw-retained implant restoration with more than one implant. Distortion of impression material, dental stone, wax patterns and metal castings are all contributing factors to this problem. A passive fit is easier to accomplish in cemented restorations due to die spacers. The die spacer creates an approximately 40 fflm cement space, which compensates for laboratory distortions and permits a more passive casting. If the laboratory is utilizing CAD/ CAM technology, the cement space can be adjusted based on the substructure.

**Esthetics**

Esthetics is another factor to consider when deciding between screw-retained and cement-
greatly helps with esthetics. All-ceramic screw-retained crowns such as monolithic BruxZir® Solid Zirconia (Glidewell Laboratories) and monolithic IPS e.max® lithium disilicate (Ivoclar Vivadent) eliminate the challenge of masking underlying discoloration from showing through the occlusal access opening once it is sealed.

Complications

Screw-retained restorations are associated with more complications than cement-retained restorations. Fractures of the occlusal materials of implant restorations occur more commonly than in natural teeth due to a lack of periodontal ligament stress relief and higher impact forces. Porcelain fracture in screw-retained restorations is more prevalent due to unsupported material around the screw access hole. Implant restorations receive cyclical loading due to the nature of chewing and, consequently, screw-retained restorations experience screw loosening and fatigue fractures of their prosthetic screws. The frequency of screw loosening is reported to be between 10 percent and 65 percent.7 This mainly occurs in posterior areas, with single restorations and in cantilever situations. Using a ratchet wrench to the recommended torque has greatly diminished this prosthetic complication.

Cost

Cost may be a factor to consider as well. The cemented implant crown costs considerably less because of lower laboratory fees and fewer components. Fewer and shorter appointments are needed to restore a cement-retained crown, which is more cost-effective for the prosthetic dentist. Temporary crowns with cementable implants are far easier to fabricate than screw-retained provisionals.

Accessibility

Accessibility is another concern. Restoring a screwretained restoration in a patient with a limited opening and/or in the posterior of the mouth can be challenging. The implant-abutment connection must line up with the interproximal contacts to allow seating of the one-piece restoration. A cement-retained crown may be easier to deliver in these situations.
Success Rates

The success and long-term survival of endosteal dental implants is largely dependent upon the forces applied to them and the resultant stress transmitted to the implant-bone interface. Avoiding even the slightest movement of the abutment relative to the implant is the overriding concern for cement-retained crowns and screw-retained crowns. Most implant architects have improved abutment screws, torque procedures, implant size and implant tables, and have enhanced the match of the implant to the abutment. This has allowed for less movement and greater stability in both screw-retained and cemented crowns. Machined abutments with matching copings have reduced much of the guesswork in implant prosthetics. With these improvements, prosthetic and esthetic considerations are the main determinants as to which crown is utilized.

Implant treatment plans should consider approaches that eliminate biomechanical overload to the bone supporting the implant-borne prosthesis. Once a proper treatment plan is formulated, creating a harmonious occlusion in the prosthesis is an important factor in further controlling excessive forces.

Applying Occlusal Principles

In general, occlusal principles applied to the restoration of natural dentition should also be applied to implant prosthetics for partially edentulous cases. Modifying an occlusion to establish centric relation coincident with centric occlusion, restoring canine guidance or group function, or establishing mutually protected articulation with anterior guidance are all important guidelines regardless of the type of implant restoration. Screw-retained dentures should follow standard denture principles with bilateral balanced occlusion.

Implant-protective occlusion refers to a set of occlusal principles that are specific to implant-supported prostheses. These principles are applied regardless of whether the restoration is cement- or screw-retained. They also follow a philosophy of design to the weakest arch, in which rigid implant restorations opposing removable prostheses have occlusal schemes that favor the tissues supporting the removable prosthesis. Important considerations in the implant-protective occlusal scheme are as follows:

- Elimination of premature contacts
- Timing of occlusal contacts
- Surface area over which the occlusal forces are applied
- Implant angle to occlusal load
- Cuspal inclination
- Cantilevers
- Implant crown contour
- Crown height
- Occlusal contact position
- Occlusal material

One must be especially aware of evaluating all restorative patients for parafunctional habits. Although ideal occlusal schemes may exist in the restoration, excessive forces created by parafunction can overload supporting bone around implants and result in failure. If they exist, alterations in the treatment plan will be needed to compensate for these excessive forces, and an appliance to control the noxious habit is recommended.
Case Reports

Case 1 — Replacement of a Mandibular Right Second Premolar

A 4mm x 13mm NobelSpeedy™ (Nobel Biocare) implant was placed in a longstanding edentulous area. The implant was placed directly over the ridge of bone.

Before the restorative procedures were started, a six-month therapeutic interval elapsed. A lab-fabricated, custom conical abutment with a 20-degree taper was used to allow for a cemented implant crown (Figure 1). Interocclusal space measured 6mm. The custom abutment was torqued into place and a custom temporary was created. A porcelain-fused-to-gold crown was fabricated with proper contours to allow for healthy soft tissue and adequate oral hygiene (Figures 2–5).

A cemented implant crown restoration was used in this case to maximize esthetics. It also allowed for porcelain occlusal contacts within the central fossa, which will not wear over time, and eliminated the risk of porcelain fracture due to unsupported porcelain around a screw access hole. Using the principles of implant-protected occlusion, the crown was adjusted to have light centric contact along the long axis of the implant, with the patient in the clenched position. This took into account compression of the natural dentition within the alveolar sockets. There were no contacts on the buccal cusp tips, which would create off-axis loading of the implant and place it under unfavorable shearing forces. The crown was cemented with temporary cement, allowing for retrievability.

Case 1, Figure 1

Case 1, Figure 2

Case 1, Figure 3

Case 1, Figure 4

Case 1, Figure 5
Case 2 — Mandibular Screw-Retained Full-Arch FP3 Prosthesis

Five 4mm x 13mm Biomet 3i NanoTite™ Tapered Certain® implants (Biomet 3i) were placed directly over the ridge of bone anterior to the right and left mental foramina. A single 5mm x 10mm Biomet 3i NanoTite Tapered Certain implant was placed in each edentulous area of tooth No. 19 and No. 30.

A healing period of four months was allowed before restorative procedures were started. Biomet 3i Certain conical abutments were fastened to each implant, at sizes corresponding to the implant diameter and tissue height. Plastic non-hexed castable cylinders were incorporated into the wax pattern for the multi-unit porcelain-fused-to-metal framework. The framework was cast and its passive fit was confirmed in the mouth using the single screw test. Tooth-colored and pink porcelain were then applied to the framework to reproduce the teeth and gingival tissues. Biomet 3i Gold-Tite® retaining screws were placed through the framework and threaded into the abutments at 10Ncm. Cotton pellets were placed over the screw heads, and the access holes were sealed with composite resin (Figures 1–3).

A fixed implant prosthesis was chosen to restore this case, primarily because the patient did not want a removable prosthesis. A screw-retained design was chosen. The implants do not emerge through the clinical crowns due to resorption of the alveolar ridge post extractions. The metal framework required a low profile in this area so as not to interfere with tongue movement. The shorter profile of the conical abutments allowed for the reduced height of the metal framework in this area, but also necessitated screw fixation of the framework for adequate retention.

There are advantages and disadvantages to using a screw-retained versus a cement-retained crown.1,2,10 To overcome the pros and cons of each system, newer implant systems have been developed to include techniques that increase the link between the implant and abutment, use larger abutment screws and provide a geometric lock.2,11 These advances have decreased the incidence of screw loosening.12 Many dental professionals would conclude that cement-retained crowns are finer for esthetics and occlusion; similarly, many would conclude that screw-retained crowns are a necessity for multiple units requiring retrievability.13,14 Individual philosophy plays a huge
role, however, and deciding which crown to use is best done on a case-by-case basis.¹⁵

The aforementioned case studies are representative of the decision-making process when choosing a cement or screw-retained implant prosthesis. The first case could have been restored either way successfully, but the ultimate decision for a cement-retained crown was made due to the patient’s desire to have the most esthetic crown possible. It was imperative that the second case be screw-retained for adequate retention and ease of retrievability.

### References


### About the Authors:

Dr. William Campbell graduated from SUNY Stony Brook School of Dental Medicine and completed a General Practice Residency program at North Shore University Hospital in Manhasset, N.Y. He is a graduate of the Misch International Implant institute and Fellow of the ICOI and AGD. Dr. Campbell maintains a general practice in Malverne, N.Y., and is an attending dentist at North Shore University Hospital. Contact him at wcampbel@optonline.net.

Dr. Marc Herman received his dental degree from University of Maryland School of Dentistry in 1979 and attended a General Practice Residency program at North Shore University Hospital in Manhasset, N.Y., where he serves on the faculty and is chief of three divisions. He belongs to numerous dental societies, including the ADA, AO, AADCD and AADSM, among others, and is a Fellow of the AGD, ICOI and ACD. Dr. Herman has contributed to several dental publications and serves on the editorial staff of the Journal of the Academy of General Dentistry. Contact him at herm57@aol.com.

Dr. Campbell and Dr. Herman receive no remuneration from any dental company.

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Celebrate 50 Years at the Southern States Symposium and Expo

Save the date! We’ll be celebrating the 50th anniversary of the FDLA at the Southern States Symposium May 8 - 10 in Orlando. The Southern States Symposium & Expo meeting is the largest dental laboratory industry meeting in the country run by a nonprofit association. The educational sessions and expo will all provide you with beneficial information on the latest trends and technology updates. FDLA offers CDT/RG, AGD and state of Florida approved credits, so you will earn continuing education credits for attending the courses held during the symposium. We hope to see you there!

FDLA Educational Benefits

As the leader of dental laboratory technology continuing education within the state of Florida, we are committed to helping laboratories formulate a business that will grow, meet the requirements mandated by Florida law and help Certified Dental Technicians and Certified Dental Laboratories maintain their certification. FDLA members are eligible to receive discounted rates on all continuing education.

- District Clinics – Rotating around the state of Florida, FDLA District Clinics offer laboratory owners and technicians/staff the opportunity to receive continuing education credits year round on a variety of topics including the required Florida Laws and Rules for Dental Laboratories course. Visit our calendar of events (www.fdla.net/calendar/listing.php) for more information.

- Online Education – FDLA offers online education, including the mandatory Florida Laws and Rules for Dental Laboratories course. Find out more at www.fdla.net/online-ceu-credits. In 2009, the laws and rules governing dental laboratories doing business in Florida changed significantly. These new requirements address material disclosure, point of origin disclosure and continuing education for dental technicians. Every owner, manager and technician should be informed about how to comply with the law. This online workshop will provide you with a clear understanding of your responsibilities on these issues so you are ready and it will count for your laws and rules credit hour under Florida Law. This course must be taken once every two years. It is approved for one hour of state of Florida laws and rules credit and CDT/RG professional development credit with successful completion of an online quiz.

- Southern States Symposium & Expo presented by FDLA – As the largest not-for-profit dental laboratory meeting in the country, you have an opportunity to meet with dental laboratory products and services vendors to discuss equipment, supplies and techniques that can improve your business. A wide range of technical clinics are scheduled to provide members with the most current industry standards and continuing education.

Industry Mourns Carver

The FDLA and many technicians mourn the loss of Terry A. Carver, 53, of Wesley Chapel. He passed away on July 4. Carver is survived by his children, Tara and Matthew; siblings, Elaine, Shirkey, Libby, Billy, Herman, Gary and Jack. He had worked in the dental field since the age of 13 and was self employed for many years. He was a loving father and wonderful friend to many. He will be greatly missed by the profession and all those who had the pleasure of knowing him.
And they’re off! CAD/CAM technology and advances in material science are setting a record pace in the dental industry. Rounding into 2013, the all-ceramic category (in units) shows growth by 10% during the past two years, gaining stride from PFM restorations.¹ The bet is on and it’s time to get in the race with Celtra™ Duo!

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It’s time to Lab Smarter.²

¹Source: iData Research Inc., 2013

²http://go.gl/CK6yV
James Kash, CDT, has been an accomplished ceramist for 35 years, however, it wasn’t until relatively recently that he found his true niche. Although he wasn’t exactly burned out, he was ready to do something different.

“It had gotten to the point where I’m doing the exact same thing as everyone. I decided it wasn’t for me,” said Kash, who owns Essential Esthetics in Tarpon Springs.

Kash was looking for a way to reinvigorate his career, so he enrolled in a series of courses in neuromuscular technology at LVI. The program helped him to focus his business on high-end smile design, and it helped him to network with LVI dentists that are now the source of much of his business.

“It really renewed my excitement.” Kash said. “It combines knowledge of medicine and dentistry, and requires working with dentists to change someone’s smile, but also to change their lives. ... We can basically change someone’s physical and mental attitude with changing their bite.”

An important result of Kash’s attempts to stave off burnout was rethinking his business model. Many laboratories, he noted, don’t have a strong niche. With laboratories being squeezed from both the bottom and the top of the price scale, the high-end esthetics and the neuromuscular work allowed him to abandon an overcrowded middle market and specialize in full mouth makeovers.

“With the economy the way it is, if I didn’t have this niche I wouldn’t be in business,” he said.

Many dentists aren’t that familiar with the neuromuscular approach, so Kash uses his knowledge to introduce them to the techniques. Sometimes it changes the course of their practices. And that keeps Kash, who’s been in the business since he was a teenager, excited about the possibilities.

Kash launched Essential Esthetics about 10 years ago, and now has five employees. Clients come from all over the United States. They use photos and lots of communication to make sure the cases come out perfectly. Lately, though, he’s been building his local business.

“I kind of like working more with the patients,” he said. “We have very nice area where they come, we take pictures, we have a nice studio, and we can get to know them and their personality, and some of the symptoms they have.”

As a CDT who has owned several laboratories, Kash has keen insight on the state of the dental laboratory industry. He noted that staying abreast with the industry in anyway you can, especially for small laboratory owners, is key to competing. And, he’s a big fan of continuing education in the form provided by FDLA and in other venues.

“I think what’s important with FDLA is that they focus on education. I get applicants here all the time. I find they are so poorly educated. They are one trick ponies, and some of these tricks are becoming antiquated. FDLA educates dental technicians on what is being done and what can be done.”
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