

ENDO TRIBUNE

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Inside this issue

2009 events calendar



From the AAE's Annual Session in Orlando, Fla., to the Berlin Masters in Germany — Endo Tribune lists all the important meetings for the coming year. Find out where and when.

Page 6

Instrumentation concepts



With the introduction of nickel titanium, mechanical root canal preparation has quickly become a widely accepted modality. Dr. John T. McSpadden explains that in spite of added advantages and excellent canal cleaning and shaping ability, a lack of information has brought about techniques that limit benefits.

Page 8

New York meeting



At the Greater New York Dental Meeting, Dr. Richard E. Mounce conducted two live endodontic procedures in sessions sponsored by SybronEndo. Dr. Gary Glassman narrated the proceedings and offered a lecture on endodontic technique.

Page 10

Research shows implants require more follow-up than root canals

The AAE strongly encourages dental professionals to prioritize saving the natural tooth through endodontic treatment before considering extraction and replacement with an implant.

A new study addresses the growing controversy among dental health professionals regarding the best course of treatment when evaluating between a root canal or dental implant procedure. Researchers evaluated the success and failure rates of teeth treated endodontically or extracted and replaced with a dental implant.

While the findings concluded that the success rate of each treatment was similar, the data showed that significantly more dental implants required additional treatment or surgical intervention after the procedure compared to endodontically

treated teeth — 12.4 percent versus 1.4 percent, respectively.

“Many dental professionals today are faced with the dilemma of whether root canal treatment or dental implants are the best option for their patients,” said lead investigator James Porter Hannahan, DMD, of the University of Alabama at Birmingham. “While the success of both procedures is similar, saving the natural tooth through a root canal rarely requires follow-up treatment and gen-

→ **ET** page 5



“It is imperative for dental professionals to partner with endodontists who have advanced training in examining whether a natural tooth can be saved through root canal treatment,” says Dr. Louis Rossman, president of the AAE.

CSAE holds 2008 Biennial Session

A dynamic meeting in Santa Barbara shows the strength of AAE's California affiliate.

More than 150 endodontists from across the state of California converged on Santa Barbara for the largest ever Biennial Session of the California State Association of Endodontists (CSAE) on Oct. 18 and 19 at Fess Parker's DoubleTree Resort. CSAE President C. John Munce selected Santa Barbara as the site for this year's meeting because of its French Riviera-like orientation to California's Central Coast, its moderate climate and the numerous recreational activities that attendees could enjoy following each of the two half-day lecture sessions.

Three of the world's most popular endodontic textbooks — Ingle's Endodontics, Pathways of the Pulp and Principles and Practice of Endodontics — all emanate from California, and coincident with this year's CSAE session was the recent release of the sixth edition of Ingle's Endodontics. Association members were particularly eager to hear from the textbook's 89-year-old named author as



From left are CSAE President C. John Munce and session speakers Dr. John Ingle, Dr. Jerry Glickman, Dr. Markus Haapasalo, Dr. George Bogen, Dr. Rod Tatarzyn and Dr. Elisabetta Cotti.

he recounted some of the history of the development of the specialized discipline of endodontics over the past 100 years, culminating with the story of just how he came to be in possession of a unique piece of Americana — Walt Disney's very first film, “Tommy Tucker's Tooth.”

A chance encounter with Walt Disney on a plane many years ago led to a lifelong friendship between the two. Disney told Ingle how his own personal dentist, Dr. Crum of Kansas City, had prevailed on him to pro-

duce a film on the importance of tooth brushing and good oral health in 1922. Disney said that the film's \$250 profit bought him a straw suitcase, a new suit, a first-class ticket to Hollywood, and saved him from bankruptcy. And he said, “Doc, I've been going first class ever since.” Disney lamented the fact that this was the only one of his films, however, that was not in the Disney Film

→ **ET** page 6

We have it within us to do better

By Barry Lee Musikant, DMD

Maybe it's just me, but I can't help making analogies between the financial mess we are in and the marketing endeavors of the rotary NiTi companies. In simple terms, for the ongoing profits of the major financial institutions to continue, it was necessary for a continuing rise in the price of houses. These financial institutions packaged and repackaged loans to all parts of the globe with the acceptance of risk for these loans shouldered by the guarantees of companies who never thought they would actually be called upon to act on those guarantees. Every time they repackaged mortgage debt, they could leverage the money they received for approximately a 30:1 ratio, further expanding the debt dramatically and affording them the opportunity to make further dubious asset-backed mortgage loans. When finally some institutions balked at buying into these loans because they questioned the value of the assets supporting these loans, the house of cards rapidly began to collapse. Unchallenged rising home prices was the glue that held the process of repackaged loans to the world together.

These financial practices, driven by arcane mathematical formulas called derivatives and swaps were unregulated, with most of the fees for the packaging and sale of these collective products going to relatively few individuals. Today, within the context of the rich getting richer and the rest of us getting to hold the bag, those who invested most heavily in these ventures, some of the wealthiest families in America, are being bailed out by us, because otherwise it is claimed we will have trickle down poverty rather than the trickle down wealth that inspired this approach over the past two decades. What has really occurred is that in the good times, these wealthy families made vast sums of money on arbitrarily high-priced assets, and now that the party is over they are suffering no losses because these institutions are being infused with vast amounts of capital.

One aspect of rotary NiTi's marketing success is based on their high

price, roughly eight times the cost of conventional endodontic instruments. The high price is further exaggerated by the recommendation that they only be used once before replacement. Traditionally, stainless steel reamers and files can be used six to seven times before replace-

While there are no such things as derivatives and swaps in the endodontic field, cost differentials in rotary NiTi's favor produce a great deal of profit, affording the reinvestment of some of that profit into ubiquitous marketing.

ment, making the cost of rotary NiTi at least 20 to 30 times the cost of stainless steel instruments on a per-use basis. While there are no such things as derivatives and swaps in the endodontic field, these cost differentials in rotary NiTi's favor produce a great deal of profit, affording the reinvestment of some of that profit into ubiquitous marketing. With enough marketing dollars available, the major companies can dominate the teaching institutes, pay the major endodontic opinion leaders to tout their products, dominate the content of the major meetings and the major trade magazines while often setting up barriers to alternative endodontic approaches. There is no institution that is not influenced by the largesse distributed by these major companies. In fact, many dental associations praise and thank some of the major companies for their generous contributions to many of the programs that they set up that often admittedly do a lot of good.

However, the belief that the acceptance of money by supposedly unbiased organizations allows them to remain objective and unbiased is simply fantasy. Regulations, when done correctly, prevent these types of rewards for influence in many parts of the government, although in today's climate it appears everything can be bought. Just ask your local lobbyist.

I have read any number of research papers noting the weakness-

es of rotary NiTi in terms of the multitude of causes for instrument separation. Despite these drawbacks compared to stainless steel instruments, the conclusion is almost always that they are a step forward and should be employed to produce superior results even though many

studies show no improvement over alternative, safer and far less expensive ways to accomplish a similar or even superior result.

This all has a ring similar to that of the financial collapse: the barriers placed to prevent alternative points of view, the softening of the hard criticism of rotary NiTi's obvious weaknesses in the endodontic literature, the ever increasing price of these products to further the control of the market apparatus. The financial dealers did not want light shed on their activities, and now we know why. It is my opinion that for similar reasons the rotary NiTi companies will take great pains to prevent the establishment of effective, safer and far less costly ways to accomplish similar goals see the light of day. The way I see it, once it is understood that there are effective alternatives that cost so much less, the value of rotary NiTi would teeter. The price the major manufacturers charge for their products would need to drop in an attempt to maintain market share and the profits would diminish, giving them far less marketing dollars to maintain their dominance. The only ones who would win would be the dentists and perhaps the patients.

No message can be completely eliminated from the public view, if for no other reason than there is

→ **ET** page 4

ET Corrections

Endo Tribune strives to maintain the utmost accuracy in its news and clinical reports. If you find a factual error or content that requires clarification, please report the details to Fred Michmershuizen, managing editor, at f.michmershuizen@dtamerica.com.

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← **ET** page 2

readership value for a magazine to offer a contrarian's points of view. But, if the exposure to alternative approaches is kept to a minimum, the chances that the alternative approach will reach a high level of recognition by the dentists is small. We are bombarded by an endless array of ads, and it takes repetition to make a dent into most of our consciousness. The major companies don't have to prevent the presentation of alternative ideas 100 percent; they simply have to keep the exposures small enough that it doesn't hit critical mass.

There were people critical of the behavior that was leading to our financial mess, but they did not get

enough exposure for corrective action to be taken. It was only with calamity at hand that the unadorned face of greed and recklessness made itself apparent.

I'll illustrate an observation that I have regarding rotary NiTi. It is the only product I know of that the more familiar one becomes with its usage, the less it is used. I mentioned this at a lecture, and someone said I am playing semantic games. What I really meant is that the more familiar one becomes with rotary NiTi, the more selectively it is used. Selective use, to my mind, sounds like less use. The fact that experience teaches us rotary NiTi's limitations does not negate my simple observation. Given these limitations, we looked for alternatives that would overcome them, giving the dentist a system that could be used in all situa-

tions, removing any concern for separation while efficiently shaping canals in an undistorted fashion at a cost that is 90 to 95 percent less expensive.

Perhaps, in the same way that housing prices are going to drop to a pre-bubble state because those backing mortgages are no longer willing to assign or accept the former high valuations, the value of the exorbitantly priced rotary NiTi systems will no longer be acceptable because less expensive ways are finally understood to do the job more safely and effectively.

I tried to get this message out on a well-known dental forum for several years and had many adherents. So many, in fact, that a counterattack occurred often with a critical review of our approach, which is entirely acceptable and then with personal at-

tacks, many from anonymous sources that is totally unacceptable, but still allowed on this particular forum. Increasingly, personal attacks replaced thoughtful objective analysis and the posts that constituted the dialogue descended into an abyss that, while amusing to some, produced no constructive discussions.

We finally have done something we should have done five years ago. We now have our own Web site, *endomessageboard.com*, where we are totally dedicated to an open dialogue. Anonymity does not exist here, and abusive language is not tolerated. I am comfortable with this type of forum, because I believe that while I have a point of view that others may differ with, the strength of our approach can only be fortified by constantly testing it against all the viewpoints that others may offer. The winners are not only ourselves. The worst that can happen to us is that we learn something new and grow in the process. The best thing for everyone is the ability to gain a broad viewpoint that gives the dentist the best chances of making correct professional decisions.

Openness would not have led to the financial crisis. Openness, from my experience, tends to bring out the best in all of us.

AD

**Academy of Osseointegration
Annual Meeting**

February 26-28, 2009
San Diego Convention Center

San Diego

Highlights include:

- Opening Symposium: "A New Wave in Implant Therapy: Is there a New Gold Standard? Current Clinical Controversies"
- Round Table Clinics
- Limited Attendance Lectures
- Two Track Program (Surgical & Restorative)
- Commercial Exhibits
- Failure Festival
- Dental Hygiene/Assistant Program
- Laboratory Technician Program

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About the author



Barry Lee Musikant, DMD

Dr. Musikant is co-director of dental research and co-founder of Essential Dental Systems (EDS), a dental products manufacturing company located in South Hackensack, N.J. The company's roots stem from the desire for product improvements to the items of focus in their lectures and daily practice. Musikant's lecture schedule has taken him to more than 400 international and domestic locations. With his research and business partner, Allan S. Deutsch, DMD, Musikant has co-authored more than 250 articles in dentistry in various major international and U.S. dental journals. As partners in the largest endodontic practice in Manhattan, Musikant's and Deutsch's combined 60 plus years of practice experience have crafted them into top authorities in endodontics.

You may contact Musikant or Deutsch at info@edsdental.com.

Research shows implants require more follow-up than root canals

← **EI** page 1

erally lasts a lifetime. Implants, on the other hand, have more postoperative complications and higher long-term failure rates.”

Research has shown that poor oral health and tooth loss may lead to serious medical conditions, such as heart disease, stroke, diabetes and even certain types of cancer. Given this connection, taking the right steps to prevent tooth loss can be important for maintaining better overall health.

“Considering these results in light of the growing body of evidence on the impact of oral health on overall health, it is imperative for dental professionals to partner with endodontists who have advanced training in examining whether a natural tooth can be saved through root canal treatment,” said Dr. Louis Rossman, an endodontist and president of the American Association of Endodontists (AAE). “While implants may be an appropriate solution for people with missing teeth, endodontic treatment should be the first choice for restoring a compromised tooth.”

Because of the increasing popularity of dental implants, patients may not realize the long-term implications of the procedure or that root canals may be healthier and less complicated in the long run. Dental professionals should ensure they explain to patients the differences between each procedure.

The AAE would like the general public to know that dental implants require extracting the tooth followed by multiple surgeries to insert a metal post in the jaw and affix a porcelain crown to the post. These surgeries often can take three or more visits over the course of several months to complete and can be time-intensive and costly. During root canal treatment, the source of tooth pain — inflamed pulp — is removed and the inside of the tooth is then cleaned, filled and sealed. Today, most root canals can be completed in one visit and are virtually painless. In fact, root canals restore and save an average of 17 million teeth each year.

When considering treatment options, the AAE emphasizes that decisions must be based on factors other than outcome, such as case complexity or the patient’s individual health and preferences. To assist dental professionals and their patients in determining the most appropriate treatment, the AAE has formal guidance on treatment planning, which includes evaluating various risk factors and other implications associated with root canal and implant treatment. Risk factors can include smoking, bone quality and

estrogen levels — for example, women with lower estrogen levels may encounter more treatment failures with implants.

Additional study information

Based on inclusion criteria, study investigators evaluated patient charts of 129 dental implants for an average of 36 months (range, 15–57 months) and of 143 endodontically treated teeth for an average 22 months (range, 18–59 months). Implant data

were collected from a periodontic group practice, and root canal data were collected from an endodontic group practice. Researchers placed each procedure into one of three categories: success, uncertain and failure. Success was defined as radiographic evidence that the implant or treated tooth was still present in the mouth and there were no signs or symptoms requiring intervention during the follow-up treatment period. Failures were defined as the removal of the implant or tooth.

Investigators found two failures of the 129 dental implants for a success rate of 98.4 percent. They also found only one failure of the 143 endodontic treatments for a success rate of 99.3 percent. These results were not statistically significant ($P=.56$) with the Fisher exact test, a statistical significance test. However, 12.4 percent of the dental implants required additional surgical procedures, whereas only 1.4 percent of the endodontically treated teeth required additional surgery, which was statistically significant ($P=.0005$).

This study is published in the November issue of the Journal of Endodontics, the official journal of the AAE. These data were collected as part of a larger project comparing implant and endodontic outcomes and is funded by the AAE Foundation.

(Source: AAE)

AD



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CSAE holds 2008 Biennial Session

← **ET** page 1

Library. After years of searching, Ingle finally located the film at the National Library of Medicine in Bethesda, Md., and presented a copy to Disney's widow via her dentist. The historical presentation by Dr. Ingle, as he himself was about to turn 90, was a hit with attendees and served as the lead-in to a round of "Happy Birthday" and the cutting of the giant birthday cake, which bore a striking resemblance to his textbook.

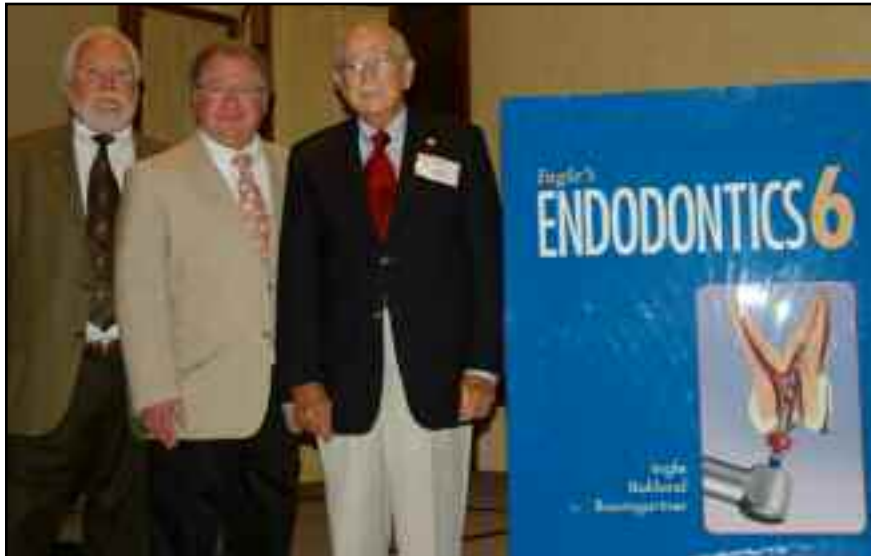
In addition to Dr. John Ingle, the international collaboration of speakers included keynote speaker Dr. Markus Haapasalo from the University of British Columbia School of Dentistry; Dr. George Bogen of Los Angeles; Dr. Elisabetta Cotti of Cagliari, Italy; and Dr. Rod Tataryn of Spokane, Wash. A fact-packed update from the American Association of Endodontists via an appearance by AAE President-Elect Dr. Jerry Glickman of Dallas round-

ed out the speakers' roster. Quite coincidentally, each speaker at the session had contributed to the sixth edition of Ingle's Endodontics by writing either a chapter or a sub-chapter in the text, a fact that punctuated the individual expertise of each speaker.

According to AAE Membership Manager Lori Tews, California is the largest state affiliate of the AAE.

Dr. Munce indicates that active promotion of the relatively high-profile CSAE session, the publication and dissemination of the CSAE membership directory to all dentists within the state, the coordination of specialty peer-review and other valuable services provided by the CSAE have all led to a significant increase in membership over the past year. Since membership in state affiliates is predicated on membership in the AAE, this serves to deepen the commitment of endodontists statewide to be part of a cohesive international group of specialists and to continue to take leadership roles in the broader dental community.

(Source: CSAE)



Dr. John Munce, left, Dr. Jerry Glickman and Dr. John Ingle stand next to the giant, proportionately accurate mock-up of the sixth edition of Ingle's Endodontics, hand-made by Dr. Munce, that served to introduce the newly released textbook to CSAE session attendees.

Endodontists launch online community

The endodontic offices of Musikant, Deutsch, Kase, Dukoff, & Lipner in New York City recently launched *endomailmessageboard.com*, an interactive online forum focused on excellence in dental education.

Founded by a group of practicing endodontists, this new online community was created to share examples of clinical excellence, logical alternative ways to practice dentistry, tips that make dentistry more affordable, and safe and efficient techniques to enhance a practice.

To take part, visit the Web site at *endomailmessageboard.com*.



2009 Events

Jan. 20, 7 p.m. EST — WEBINAR with Michael Moore
Increase net revenue, foster employee

confidence: the five keys to effective employment relations for the dental office.
Fee: \$95.

Information: (416) 907-9836; j.wehkamp@dtamerica.com; www.dtistudyclub.com



Jan. 28-Feb. 1 — Boston Yankee Dental Congress
Massachusetts Dental Society
Boston Convention & Exhibition Center

Information: (800) 342-8747 ext. 255 in Massachusetts, (800) 943-9200 ext. 255 in other states; www.yankeedental.com

Feb. 26-March 1 — Chicago Midwinter Meeting
Chicago Dental Society
McCormick Place Lakeside Center
Information: (312) 836-7300; www.cds.org.mwm

March 5-7 — Vancouver, British Columbia
Pacific Dental Conference
Canadian Dental Association
Vancouver Convention and Exhibition Centre
Information: (604) 736-3781; www.pdconf.com

March 19-21 — Atlanta Thomas P. Hinman Dental Meeting
The Hinman Dental Society of Atlanta
Georgia World Congress Center
Information: (404) 231-1663; www.hinman.org

April 1-4 — Miami General Session
International Association for Dental Research
Information: (703) 548-0066; www.iadr.org

April 29-May 2 — Orlando, Fla. Annual Session
American Association of Endodontists
Gaylord Palms Orlando
Information: (800) 872-3636; (866) 415-9020; www.aae.org; info@aae.org



The Gaylord Palms in Orlando, Fla.

May 14-17 — Anaheim, Calif. CDA Presents the Art and Science of Dentistry
California Dental Association
Anaheim Convention Center
Information: (916) 443-3382; www.cda.org

May 23-26 — Montreal Journées dentaires internationales du Québec (JDIQ)
Ordre Des Dentistes Du Québec
Palais des congrès de Montréal
Information: (514) 875-8511 ext. 2222; www.odq.qc.ca

June 26-27 — Berlin The Berlin Masters, featuring the Roots Summit and Implants Summit
Dental Tribune International
The Hotel Palace
Information: (416) 907-9836; www.theberlinmasters.com



Berlin

July 8-12 — Baltimore Annual Meeting
Academy of General Dentistry
Information: (888) AGD-DENT; <http://test.agd.org>

Aug. 7-9 — Seattle APICES (Advanced Programs in Clinical Endodontics Symposium)
American Association of Endodontists
Information: (800) 872-3636; (866) 415-9020; www.aae.org; info@aae.org

Aug. 26-30 — Niagara-on-the-Lake, Ontario Annual General Meeting
Canadian Academy of Endodontics
Queen's Landing Hotel
Information: (204) 942-2511; www.caendo.ca

Sept. 11-15 — San Francisco CDA Presents the Art and Science of Dentistry
California Dental Association
Information: (312) 440-2500; www.adaa.org

Sept. 30-Oct. 4 — Honolulu Annual Scientific Session and World Marketplace Exhibition
American Dental Association
Information: 312-440-2500; www.adaa.org

Nov. 27-Dec. 2 — New York Annual Session
Greater New York Dental Meeting
Jacob K. Javits Convention Center
Information: (212) 398-6922; www.gnydm.org



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Mastering the concepts of instrumentation

An excerpt from the introduction of the book "Mastering Endodontic Instrumentation"

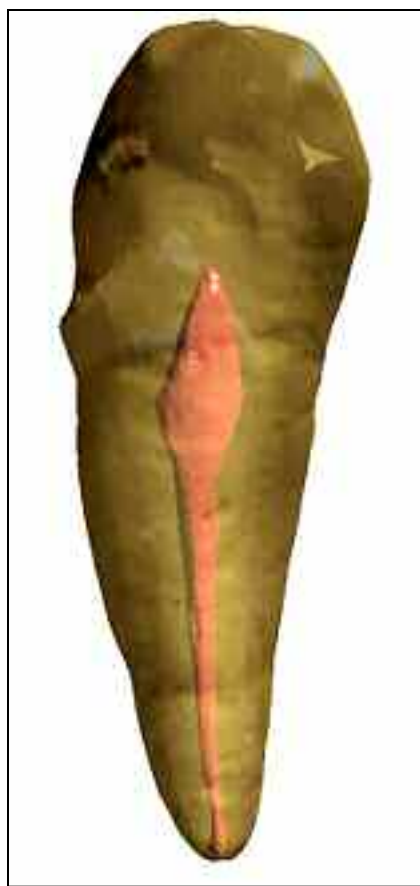
By John T. McSpadden, DDS

With the introduction of nickel titanium, mechanical root canal preparation has quickly become a widely accepted modality in endodontics. The enhanced preparation results and reduced preparation time of rotary nickel titanium files have prompted the rapid adoption of rotary instrumentation. Yet, in spite of added advantages and excellent canal cleaning and shaping ability, a lack of information has caused the formulation of techniques that limited the comprehensive benefits of rotary instrumentation. Even though instrumented canals may result in ideal appearances, information for accomplishing ideal instrumentation has not kept pace with the enhanced opportunities for efficiency, expertise or the reduction of risks.

Particular canal shapes are often illustrated as being characteristic for certain file brands, however, canal shapes are more dependent on the file dimensions, the sequence the files are used and the depths to which they are carried into the canal. Although a desired canal shape can be achieved with virtually all brands of rotary nickel titanium files, various techniques have been proposed to achieve this shape. Too often the designs of these techniques are determined by marketing where product promotion prevails over science. Consequently, the practitioner often experiences complications while conscientiously following instructions that disregard the complexities of anatomy.

Understanding the ramifications of file and technique design relative to canal anatomy enables the dentist to consistently achieve the most expeditious and excellent treatment with the least risks. This is not a new concept. Frank Weine described as early as 1975 in the *Journal of Endodontics* (Weine, F. S.; The effect of preparation procedures on original canal shape and on foramen shape. *Journal of Endodontics* 1:8 August 1975.), a technique for modifying files in order to prevent transporting curved canals. He advocated using a diamond-surfaced fingernail file to remove the blades on one side of an endodontic file that would reciprocate against the outer canal wall between a curvature and apex to avoid zipping the canal, a design known today as the safesided file.

Often, techniques are designed to avoid a failure that has been experienced in one particular procedure, even though the application could be beneficial in other circumstances. For example, we are often instructed by some advocates never



Figs. 1a, 1b: Recommended techniques frequently are appropriate in simple anatomies (Fig. 1a), while more complex anatomies (Fig. 1b) require greater consideration for file and technique design. (Images courtesy of P. Brown, Portola Valley, Calif., and E. Herbranson, San Leandro, Calif.)

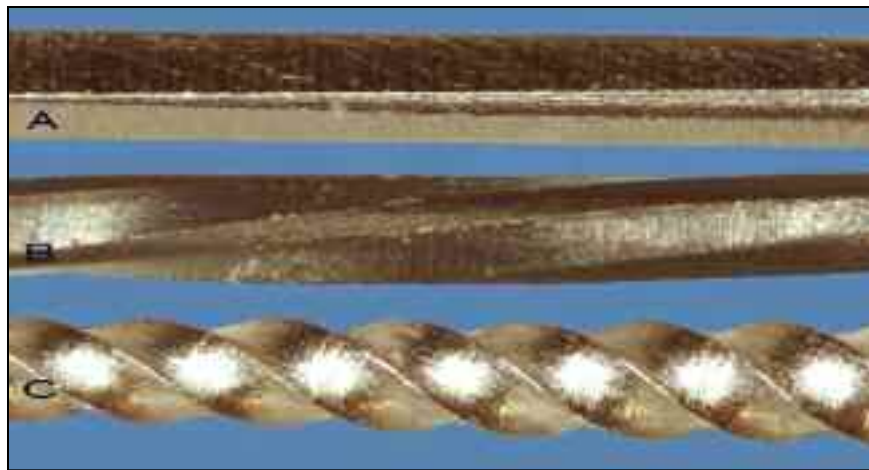


Fig. 2: A tapered pyramidal wire is used as a blank for forming a file (A). Each end of the blank is stabilized and one end is rotated to twist a spiraled shape on the file's working surface (B). Multiple rotations result in the familiar spiraled shape of the endodontic file (C).



Fig. 3: A NiTi pyramidal wire can be twisted using a proprietary process. Prototype by Sybron Dental Specialties.



Fig. 4: The broach is formed by forcing a blade onto the surface of a tapered wire.

to rotate a file more than 350 rpm, yet in many circumstances 1,200 rpm can be more than four times as effective with less threat of complications, and slowing the rotations can actually increase the threat.

Consequently, without having the information needed to understand how to utilize the advantages while limiting the threat of failure, the practitioner frequently places limits on rotary instrumentation prema-

What are the terms I need to know when comparing the physical properties of files?

The success of using instruments while preventing failure depends on how the material, design and technique relate to the forces exerted on the instruments. To fully understand how the file reacts to applied forces, terms have been defined to quantify the actions and reactions to these forces. Common terms related to forces exerted on files have the following definitions:

Stress — The deforming force measured across a given area.

Stress concentration point — An abrupt change in the geometric shape of a file, such as a notch, will result in a higher stress at that point than along the surface of the file where the shape is more continuous.

Strain — The amount of deformation a file undergoes.

Elastic limit — A set quantity that represents the maximal strain, which, when applied to a file, allows the file to return to its original dimensions. The residual internal forces after strain are removed and return to zero.

Elastic deformation — The reversible deformation that does not exceed the elastic limit.

Shape memory — The elastic limit is substantially higher than is typical of conventional metals.

Plastic deformation — Permanent bond displacement caused by exceeding the elastic limit.

Plastic limit — The point at which the plastic deformed file breaks.

turely before expertise and its most significant benefits are ever realized. The science for integrating anatomical canal complexities with instrumentation efficiency and effectiveness is the most often ignored technique consideration. Wasted time and needless difficulties are most often the consequences.

By and large, basic rudimentary physics of root canal instrumentation has been an elusive subject during the last century, denying even the endodontist the understanding necessary to fully attain his or her potential expertise in performing the task that often requires the major portion of his or her time: root canal preparation. Rotary instrumentation is certainly not a new concept; it was introduced in the late 19th century, as were the rubber dam, rubber dam clamps, and even solid core carriers for gutta-percha, which were

introduced at the beginning of the 20th century.

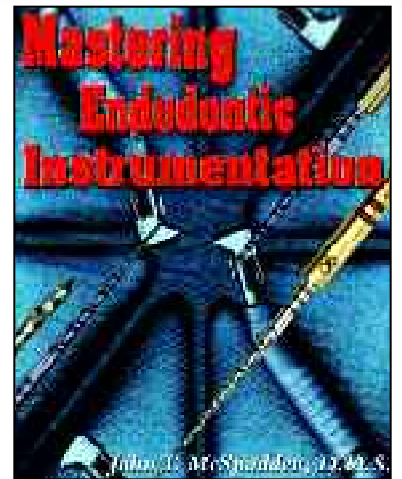
The first manual and mechanical rotary files were formed from straight piano wire that had flats ground on its sides and twisted to result in the configuration of files still used today. Files were first mass-produced by Kerr Manufacturing Co. in the very early 1900s, hence the name K-type file or K-type reamer. Although the term "file" is commonly used generically to describe all ground or twisted endodontic instruments, more specifically the term "file" is used to describe an instrument used primarily during insertion and withdrawal motions for enlarging the root canal, whereas a "reamer" is used primarily during rotation. K-type files and reamers were both originally manufactured by the same process. Three or four equilateral flat surfaces were ground at increasing depths on the sides of wire to form a tapered pyramidal shape that was stabilized on one end and rotated on its distal end to form the spiraled instrument. The number of sides and spirals determined if the instrument was best suited for filing or reaming. Generally, a three-sided configuration, with fewer spirals, was used for reaming or rotation; a three- or four-sided configuration with more spirals was used for filing or insertion and withdrawing. Even though the twisting method of file manufacturing has generally been considered an outdated means of fabricating files and has been replaced by computerized grinding processes for NiTi rotary files, new advances for manipulating shape memory alloys may offer economic and physical property advantages for reconsidering the twisting method of manufacturing for the future.

Dating from the late 19th century, the earliest endodontic instruments used for extirpating the pulp and enlarging the canal were broaches or rasps. Still used today, these instruments are manufactured by hacking a round tapered wire with a blade device to form sharp barbs that project out from its side to form cutting or snagging surfaces. Although mostly used to engage and remove soft tissue from the canal as manual instruments, these historic broach type instruments have the potential for becoming effective rotary instruments. The evolutionary development for endodontic instruments seems to have some cyclic peculiarities and is far from over. Even the tapered pyramidal design originally used as blanks as described above is now being used as rotary NiTi files.

This article is an excerpt from the introduction of Dr. John T. McSpadden's book, "Mastering Endodontic Instrumentation," published by Cloudland Institute.

The book is meant to help practitioners enhance treatment success, safely maximize efficiency, simplify complicated cases, understand effective instrumentation and develop expertise for evaluating instruments and techniques. The book, illustrated with state-of-the-art photography, includes a history of instrument design evolution, hundreds of scientific evaluations and information on future developments. Book orders can be sent to the author directly by e-mail, at jtm@cloudland.com, or by mail, to John T. McSpadden, 1405 Patten Road, Lookout Mountain, GA 30750, or by calling (706) 820-4287. Payment is by check for \$149.95.

Future issues of Endo Tribune will contain more excerpts.



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John T. McSpadden is an international author, researcher and lecturer, inventor of numerous endodontic instruments, honorary member of the Societe Francaise d'Endodontie and the recipient of its Louis I. Grossman Award, and a member of the American Association of Endodontists. He is author of Mastering Endodontic Instrumentation, published by Cloudland Institute. He can be reached at jtm@cloudland.com.

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