Study: The effects of over-the-counter analgesics on orthodontic tooth movement

By Kristina Sakas, fourth-year dental student, Ostrow School of Dentistry

The most frequently asked question in every orthodontic office may be: “When are my braces coming off?” In the fast-paced, busy lives of patients, there is little time to spend on lengthy orthodontic therapy. In the ever-advancing field of orthodontics, many barriers have been overcome, leading to healthier results and more beautiful smiles. Now, the focus is on reducing treatment time (Profitt, 2013). Faster care without sacrificing quality would be advantageous in (a) reducing hygiene problems, (b) increasing patient acceptance of treatment plans and (c) creating a higher level of overall treatment satisfaction. This new focus can be seen through the development of techniques such as the accelerated osteogenic orthodontics known as Wilckodontics and the micropulse technology seen in AcceleDent (Kau, 2011).

With the emphasis on shortening treatment time, it is critical that practitioners be aware of all medications

See ANALGESICS, page 4

Fig. 1: Alveolar bone from pressure zone of rat treated with Ibuprofen/Aspirin. Note small resorption areas (r), with few osteoblasts (ob), osteoclasts (oc), and osteocytes (os) in osseous matrix (m).

Photos/Drs. Arias and Marquez-Orozco

Fig. 2: Alveolar bone from pressure zone of rat treated with acetaminophen/control. Note large resorption areas (r), many osteoblasts (ob), differentiated osteoclasts (oc) and osteocytes (os) on growth lines (c) in osseous matrix (m).

2013 MSO session set for Kansas City

By Sierra Rendon, Managing Editor

The 2013 Midwestern Society of Orthodontists Annual Session will take place Sept. 20–22 at the Sheraton Kansas City Hotel at Crown Center in Kansas City, Mo. This year’s session will be co-sponsored by the Missouri Society of Orthodontists and the South Dakota Society of Orthodontists.

The focus of this year’s meeting is “Orthodontics: A Palette of Progress.” The group aims for attendees to learn the latest research and esthetics from scientific lecturers including Drs. Mark Berkman, Aaron Molen, Chung Kau, Sebastian Baumgaertel and Abraham Lifshitz.

Marketing and management will be covered in a staff program featuring Amy Kirsch and Cathy Sundvall.

On Sunday, a doctor-staff lecture will focus on improving social media results with marketing and search engine optimization speaker Mary Kay Miller.

Attendees are also invited to tailgate with staff, family and colleagues in the MSO-private Budweiser Patio at the Saturday evening Royals vs. Rangers baseball game. Separate registration includes bus shuttle and complimentary buffet.

For more information on the annual meeting schedule and registration, visit www.msortho.org.
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¹. The 3M True Definition Scanner is more accurate and more consistent than leading systems on the market. Study methodology described in: van der Meer WJ et al. (2013), Application of Intraoral Dental Scanners in the Digital Workflow of Implantology. Plast. Reconstr. Surg. 131(3), 101. Additional measurements conducted by ACTA (Academic Center for Dentistry Amsterdam) and Müller J van der Meer et al. (2012).
The new standard of care in orthodontics

Part 1

By Dennis J. Tartakow, DMD, MEd, EdD, PhD, Editor in Chief

Still in the early stages of the new millennium, we are in an era of dentistry and orthodontics where more accurate diagnoses are possible thanks to technological advances in imaging and scanning. We now have treatment capabilities that were not possible only a decade ago. Treatment outcomes have also improved with advances in periodontal treatment and operative dentistry. Diagnosis and treatment advances have improved the quality of dentistry and saved or prolonged permanent dentitions for millions of individuals. Such changes in the standards of care,

- See STANDARD, page 15
Mechanism of tooth movement

Orthodontic tooth movement is mediated by specific reactions at a cellular level that take place in the tissues surrounding the teeth. Cellular, chemical and mechanical reactions bring about the structural changes that prompt tooth movement. Bone is resorbed on the pressure side and deposited on the tension side of a tooth. An acute inflammatory response with periodontal vasodilation occurs. Prostaglandins (cAMP), calcium, collagenase and prostaglandins mediate tooth movement as a response to orthodontic force. Chemically, tooth movement can pass through the bloodstream, reach the mechanically stressed tissues and interact with local cells. This can have an inhibitory effect on orthodontic tooth movement (Driavidamani, 2012).

Orthodontic patients often use over-the-counter analgesics to control the discomfort associated with tooth movement as well as to treat other ailments (Salmassian, Oesterle, Shellhart and Newman, 2009). Many of these pharmacological agents are known to systematically influence bone and the velocity of tooth movement by interfering with prostaglandin production and the inflammatory process. The pressure-tension ratio in the periodontal ligament (PDL) forms during orthodontic tooth movement occurring in three stages: alterations in blood flow associated with pressure in the periodontal ligament (PDL), formation of prostaglandin-mesengers and activation of cells (Salmassian, et al., 2009). After force is applied, there is an increase of prostaglandin E1 and prostaglandin E2 in the PDL and gingival crevicular fluid. This is a critical step in increasing the number of osteoclasts, the rate of bone resorption and orthodontic tooth movement, and is the step that is affected by NSAID medication (Salmassian, et al.).

Process of orthodontic tooth movement

In order to appreciate how NSAIDs can affect the rate of orthodontic tooth movement, it is important to understand the complex process. Tooth movement due to orthodontic forces is induced by prolonged application of mechanical forces, creating pressure and tension zones in the periodontal ligament and alveolar bone (Gameiro, Pereira-Neto, Magnani and Nour, 2007). Bone is destroyed in the tension zone and resorbed by osteoclasts in Howship’s lacunae in the pressure zone (Knop, Shintcovsk, Retamoso, Ribeiro and Almeida, 2011).

Remodeling occurs in dental and periodontal tissues, including dental pulp, periodontal ligament, alveolar bone and gingiva. These tissues, when exposed to mechanical loading, express significant macroscopic and microscopic changes. On a cellular level, orthodontic tooth movement is characterized by initial acute inflammation, followed by a chronic inflammatory process (Krishnan and Davidovich, 2006). The acute inflammatory process that characterizes orthodontic tooth movement consists of periodontal vasodilation and migration of leukocytes. This inflammation is mainly exudative, indicating that the plasma and leukocytes are exiting the capillaries in areas of parodontal strain. These migratory cells produce a variety of cytokines that act as local inflammatory signals, interacting directly and indirectly with the population of resident parodontal cells. Cytokines are responsible for evoking submucosal and bone remodeling that accommodate tooth movement (Knop, et al., 2011). These targets make up the functional units that are responsible for remodeling the parodontal tissues while facilitating tooth movement (Krishnan and Davidovich, 2006).

Approximately two days following application of orthodontic force, the acute phase of inflammation subsides. It is replaced by a chronic, proliferative process involving fibroblasts, endothelial cells, osteoblasts and alveolar bone. This will persist until the next orthodontic adjustment appointment when another period of acute inflammation will begin (Krishnan and Davidovich, 2006).

It is during the acute inflammatory phase of orthodontic tooth movement that patients experience painful sensations and reduced chewing function. Ninety to 95 percent of orthodontic patients report experiencing this discomfort (Patel, et al., 2016). Indications of this phenomenon can be seen in the gingival crevicular fluid of teeth with significant elevations of inflammatory mediators such as cytokines and prostaglandins (Krishnan and Davidovich, 2006).

The discomfort associated with arch wire placement and subsequent tooth movement can be controlled by inhibiting the inflammatory response. This makes nonsteroidal anti-inflammatory drugs a logical choice for treating this type of pain. However, NSAIDs are also powerful inhibitors of prostaglandin synthesis, which recent studies have shown to be responsible for delaying or inhibiting orthodontic tooth movement. This area of research is critical to the field of orthodontics because it is important for orthodontists to be aware of it in order to find the analgesic of choice for treating patients experiencing discomfort that will not prolong the patient’s orthodontic treatment. The orthodontist can then educate his or her patients on proper pain management during treatment.

Clinical studies on effects of various analgesics on orthodontic tooth movement

Nonsteroidal anti-inflammatory analgesics such as aspirin, ibuprofen and naproxen have been found to reduce the rate of orthodontic tooth movement. Research shows these effects result from diminishing the number of osteoclasts through inhibition of biosynthesis of prostaglandins when they act over the cyclooxygenase-mediated catalysis of prostaglandins (Sari, et al., 2011). When the number of osteoclasts is diminished, there is a decrease in bone resorption and, therefore, a reduction in the rate of tooth movement.

Histological studies were performed comparing bone in the pressure zone from rats that had been administered these drugs, with bone from rats that received acetaminophen or a control, while undergoing orthodontic tooth movement (Arias and Marquez-Orozco, 2006). NSAIDs that inhibit prostaglandin synthesis have been shown to reduce bone resorption by 50 percent (Arias and Marquez-Orozco, 2006). The control and acetaminophen group (Fig. 2) showed abundant remodeling areas, reduced osteoclasts, mesenchymal appearing osteogenic cells, epithelial osteoblasts and normal appearing trabeculation. Numerous growth lines were also apparent, typically concentric around osteons. The results of the histological analysis of the acetaminophen and control groups are indicative of normal, uninhibited orthodontic tooth movement (Arias and Marquez-Orozco, 2006).

Acetaminophen is the drug of choice

Acetaminophen is a nonopiod analgesic in the family of paramphenolens. The exact mechanism of action of acetaminophen has not been determined. Acetaminophen differs from other nonsteroidal anti-inflammatory drugs and prostaglandin inhibitors because although it has similar antipyretic and analgesic properties, it exhibits little effect on platelet aggregation. According to Anderson (2008), the analgesic effect is produced at the central nervous system level without inhibiting peripheral prostaglandin secretion via cell membranes as typical NSAIDs do. Acetaminophen, being inactive as an anti-inflammatory agent in peripheral tissues, does not inhibit prostaglandin synthesis (Arias and Marquez-Orozco, 2006). Beyond the fact that it is not detrimental to orthodontic tooth movement, acetaminophen is readily available, over-the-counter, inexpensive analgesic that has been found to be equally effective.
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‘With acetaminophen being the most commonly used OTC medication in the United States, it is important that patients are informed about guidelines for its usage. Overdose of acetaminophen is the most common cause of acute liver failure.’

As ibuprofen and a placebo in controlling discomfort after archwire placement (Salmassian, Oesterle, Shellhart and Newman, 2009). Therefore, acetaminophen might be the drug of choice in treating mild to moderate discomfort associated with orthodontic treatment.

NSAID use and the clinician-practitioner

Clinicians are responsible for comprehensive evaluation of a patient’s medical history and for its use as an integral part of the patient’s diagnosis. This includes an understanding of how a patient’s medication — prescription or over-the-counter — will affect his or her treatment.

Given the frequency of NSAID use in this country, clinicians in the dental field are likely to encounter patients who are using these drugs regularly. Furthermore, the United States is likely to hold tremendous growth because of the aging population that is facing conditions such as arthritis, which increases the demand using NSAID medications to allow for increasingly active lifestyles. Given that more orthodontic practices are focusing on young patients of all ages, this issue of increased NSAID use is more prevalent than ever (Turpin, 2009).

Common analgesics prescribed

Prescription and over-the-counter use of analgesics among adults in the United States is extremely high. Most of these medications are non-steroidal anti-inflammatory drugs that have analgesic, antipyretic and anti-inflammatory action. They are being used in treating headaches, arthritis, sports injuries, menopausal cramps and other illnesses. Aspirin, a drug considered to be in the NSAID category but distinguished from it by its irreversible inhibition of COX enzymes (Grosser, 2011), is the oldest of which NSAID effect. Although it has similar analgesic and antipyretic effects. Important to note is that cold and allergy medications often contain these analgesics as well.

In a survey of American adults, OTC analgesics were shown to be the most frequently used of all medications and are taken by 20 percent of the adult population in a given week (OTC Medications, n.d.). The non-prescription analgesics acetaminophen, aspirin and ibuprofen are the most frequently used drugs in the United States (Blone Survey, 2006). In any given week, 23 percent of adults in the United States report use of acetaminophen, ibuprofen and aspirin. However, use of ibuprofen, 17 percent used aspirin and 3.5 percent use naproxen (NSAIDs, n.d.). Over-the-counter analgesics are also regularly used by children. Of all prescriptions and OTC drugs taken by children in the United States, ibuprofen and acetaminophen are the two most frequently used (OTC Medications, n.d.). NSAIDs are mainly used in children in treating inflammatory pain, including chronic conditions such as juvenile idiopathic arthritis, (JIA) especially for both its anti-inflammatory and analgesic properties.

NSAIDs are also used in children to treat mild to moderate acute pain where inflammation is the source (Gararian and Grandin, 2006). Acetaminophen is the first drug of choice for analgesia and treatment of febrile illness in single-dose therapy for children because its analgesic and antipyretic efficacy is equivalent to NSAIDs but with less adverse effects. The effects of aspirin and NSAIDs on arthritic conditions and aspirin or any alternating regimen of these two in treating fever in children is not recommended as it may potentiate the risk of increase in either drug (Gararian and Grandin, 2006).

Adverse side effects of commonly used analgesics

In spite of the therapeutic efficacy and widespread usage of aspirin and NSAIDs, there are unwanted and serious side effects that occur in daily use (Jones, 2008). GI effects of aspirin and NSAIDs are also observed when these drugs were developed in this century that they would have been regulatory approved because of the numerous and serious adverse effects (Jones, 2008).

The most common side effects that occur with aspirin and NSAID use are gastrointestinal (GI) (Grosser and Smyth, 2011), but other organ systems are also affected (Jones, 2008). GI symptoms occur in approximately 60 percent of users of these drugs (Jones, 2008). They are potentially serious and include gastritis, dyspepsia, reduced appetite, abdominal pain and diarrhea. These effects may be due to the creation of gastric or intestinal ulcers that occur in 15–25 percent of regular users of aspirin and NSAIDs (Grosser and Smyth, 2011). Blood loss from ulcers may be slow, leading to anemia, or become acute and life threatening. Risk is increased by consumption of alcohol, use of glucocorticoids, Helicobacter pylori infection and other factors that injure the mucosa (Grosser and Smyth, 2011). The vast majority of deaths related to NSAID and aspirin use are because of gastrointestinal bleeding (NSAIDs, n.d.). GI effects of aspirin and NSAIDs occur with their recommended doses and the risk is dose related. In a study of users of aspirin and NSAIDs at OTC doses by Blot and McHugh, it was found that there was a two-fold risk of GI complications at lower than the maximum recommended OTC dosing, a four-fold increase at doses near the maximum and a six-fold greater at doses higher than the recommended daily OTC dose (NSAIDs, n.d.). Studies have shown that combining NSAIDs with low-dose aspirin for pain temporarily increases the risk of GI bleeding (Grosser and Smyth, 2011).

NSAID use also can have serious cardiovascular effects. According to studies made by regulatory agencies in the United States, Europe and Australia, “all NSAIDs have the potential to increase the risk of heart attack and stroke” (Grosser and Smyth, 2011). Patients who are at high risk of cardiovascular disease are most likely to be subject to adverse events when they are taking NSAIDs (Grosser and Smyth, 2011). Low dose use of aspirin has been prescribed for its cardioprotective effect but at high doses NSAID and aspirin with hypertension. In patients with hepatic damage, hypo- prothrombinemia, vitamin K deficiency, hemophilia or who are undergoing long-term treatment with oral anticoagulants. Long-term use also increases thyroidal uptake and iodine clearance, and at high doses aspirin and acetaminophen can cause agranulocytosis and thrombocytopenia commonly occur (Grosser and Smyth, 2011).

Acetaminophen, which is used for its analgesic and antipyretic effects, is a drug that is generally well-tolerated at therapeutic doses, showing low incidence of GI side effects and no cardiovascular side effects. Acetaminophen overdose, acetaminophen, however, can cause liver damage (Grosser and Smyth, 2011). With acetaminophen being the most commonly used OTC medication in the United States, it is important that patients are informed about guidelines for its usage. Overdose of acetaminophen is rare in adults but can cause acute liver failure (Wolf, et al., 2011). Poor product labeling has been identified as a factor that has contributed to overdose of acetaminophen. In a study published in the Journal of General Internal Medicine by Wolf, et al. (2011) that surveyed 500 adult patients taking acetaminophen showed that 3.8 percent of participants would take more than the recommended maximum daily 4 gram dose of acetaminophen per day and 5.2 percent would have taken a dangerously high dose of more than 6 grams per day. In another part of this study, 45.6 percent of patients would have exceeded maximum recommended doses by taking two products that contain acetaminophen.

Consumers do not adhere closely to labeled instructions and also do not recognize active ingredients in OTC pain medications (Wolf, et al., 2012). Because of these studies, in July 2011, Johnson & Johnson McNeil division lowered the maximum dose for Tylenol from 4,000 mg (eight extra strength Tylenol pills) to 3,000 mg (six extra strength Tylenol pills) to reduce the risk of accidental acetaminophen overdose and possible liver failure and death (Mitchell, 2011). With acetaminophen included in more than 600 OTC medications, as well as certain prescription analogues, people can unknowingly ingest too much acetaminophen. Patients with liver disease or who drink alcohol heavily should avoid acetaminophen to decrease the risk of liver disease (Wolf, et al., 2012).

In children, it is uncommon to have serious toxicity associated with NSAID use; however, similar effects that occur in adults can occur in children but with some variation. Although serious GI effects are uncommon in children, • See ANALGESICS, page 8 • See ANALGESICS, page 8 • See ANALGESICS, page 8 • See ANALGESICS, page 8
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NSAIDs should be given with food to reduce mild gastrointestinal symptoms that can occur. Hepatitis is another side effect that can occur in children during NSAID treatment, but is most common with ibuprofen.

Therefore, liver function in children should be monitored in those receiving long-term NSAID treatment. Incidence of renal toxicity in pediatric patients is low, with 0.2-0.4 percent prevalence in children with juvenile idiopathic arthritis (Gazarian and Graudins, 2006). CNS effects, including headache, skin reactions and bronchospasm, can also occur in children using NSAIDs. Long-term NSAID use in children can also prolong bleeding time through inhibition of platelet aggregation (Gazarian and Graudins, 2006).

Discussion

Knowledge of the effects of NSAIDs on orthodontic tooth movement must encourage dental professionals to take a step back and focus on the foundation of patient care, starting with the medical history. Consideration of medications taken by patients that can interfere with tooth movement is important in order to reduce negative effects of prolonging orthodontic treatment.

Many studies on NSAIDs, such as those by Knop, Shintcovsk, Retamoso, Ribeiro and Tanaka, as well as Arias and Marquez-Orozco, have been conclusive in showing that NSAIDs slow down tooth movement by blocking the inflammatory response through inhibition of prostaglandins.

In spite of the fact that these studies are scientific and well-designed, there is some uncertainty when extrapolating data and applying it to humans in a clinical scenario. Weaknesses include animal subjects, variability in experimental design, drug administration techniques and force characteristics (Bartzela, Turp, Motchall and Maltha, 2009).

The purpose of this research should include a design for further studies analyzing the effects of NSAIDs in humans during orthodontic treatment. With the information provided today, acetaminophen appears to be the analgesic of choice for orthodontic patients because it has been shown to have no effect on tooth movement, while being equally as effective as other NSAIDs in controlling orthodontic discomfort.

Summary

The practice of orthodontics is based on tooth movement through bone in response to application of mechanical forces. The bone remodeling that takes place occurs through an inflammatory process that is mediated by prostaglandins.

Many orthodontic patients use OTC analgesics such as NSAIDs to control the discomfort associated with the inflammatory process, unaware that studies have shown these NSAIDs inhibit orthodontic tooth movement. Chemicals in the drug can pass through the blood-stream, reach the mechanically stressed tissues and interact with local cells. In doing so, NSAIDs inhibit prostaglandin synthesis, therefore inhibiting the rate of orthodontic tooth movement as well.

It is suggested that practitioners be aware of all medications taken by patients that could interfere with tooth movement in order to reduce the negative effects of prolonging orthodontic treatment. Research has shown that traditional NSAIDs, such as ibuprofen and aspirin, decreased the rate of orthodontic tooth movement.

Acetaminophen, an inactive inflammatory agent, had no effect. Acetaminophen should, therefore, be considered the analgesic drug of choice for patients undergoing orthodontics, unless contraindicated by the patient’s medical history or physician.

References

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Treating the cause of malocclusions, not the consequence

By German Ramirez-Yañez, DDS, MDSc, PhD

Extraction versus non-extraction treatment in orthodontics has been a matter of controversy since the beginning of the specialty. Edward H. Angle debated, “The best balance, the best harmony, the best proportions of the mouth in its relation to the other features require, in all cases, there shall be the full complement of teeth, and each tooth shall be made to occupy its normal position.” Later, Tweed swung the pendulum toward extractions in the mid-1930s, reaching a peak in the United States during the '60s. However, added to a better understanding on the biology of the mouth and the physiology of various tissues in the cranio-cervico-mandibular system, the development of new techniques, insights in early treatment and the probability of combining fixed and functional appliances has swung the pendulum again to the side of non-extractions.

Today, there is a high prevalence of malocclusion (approximately 80 percent), and dental extraction continues to be included in treatment plans. Extractions might give enough space for tooth alignment and third-molar eruption if present; however, teeth are moved into a theoretical ideal position, which is not necessarily a natural nor a stable position. So, professionals treating malocclusion use a retainer at the end of active treatment (which needs to be in place for a long period), expecting that the cranio-cervico-mandibular system will adapt to this non-physiological situation. But this does not occur in most cases.

Relapse occurs when the patient discontinues use of his or her retainer because, although teeth are aligned, the muscles in the system continue to exert as much force as they had prior to treatment. Although it has been reported that a physiological force delivered by the facial and masticatory muscles may not affect the position of teeth, in a situation where those muscles deliver a non-physiological force on the structures of the system, it will definitively affect the position of the teeth.

As it was stated by Graber, “In a fight between muscles and bone, bone loses.” In other words, a muscular dysfunction present at the beginning of treatment,
and not corrected during the course of treatment, will continue delivering non-physiological forces to the jaws and teeth, producing a relapse.\(^7\)

It is important to understand that fixed appliances were designed to move teeth but not to control and improve muscular activity in the masticatory, facial and tongue muscles.

Furthermore, brackets were not designed to improve nasal breathing. Also, only a few functional appliances produce that effect. Therefore, issuing a diagnosis that determines the factors causing the malocclusion — using a combination of various techniques to correct all factors involved — allows for better treatment to be performed, while significantly reducing the number of extractions required.

There is little justification for the profession to continue extraction-based orthodontics on its patients and then ask them to wear a retainer appliance or a bonded wire for long periods of time. The dental profession has to understand that the cranio-cervico-mandibular system is active and dynamic.

Moving teeth would be the ideal solution if we were working on a static system, but we are not. Treatment of malocclusion should deal with the causative factors, dysfunction and altered muscular force, as well as with the consequences of tooth misalignment. In this way, a stable result will be achieved.

Therefore, any treatment intending to correct a malocclusion must aim to improve oral function while reeducating the masticatory and facial muscle's activity during function — naturally positioning the teeth without extractions.

References


About the author
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3M True Definition Scanner allows you to move into digital orthodontics with ease

By 3M Unitek staff

Providing a better patient experience and better oral care through digital technology, 3M Unitek has announced the availability of the 3M™ True Definition Scanner for use in orthodontic practice — a complete digital impression system that uses 3-D-in-motion video technology to deliver a true replica of the oral anatomy with precision and accuracy. The digital process brings improved productivity, better oral care and, ultimately, a better patient experience.

More accurate and more consistently accurate than other systems on the market, according to 3M Unitek, the powerful 3-D-in-motion video technology delivers full-arch scanning in phenomenal detail. Orthodontists can display digital impressions immediately for analysis and treatment planning, with secure cloud-based storage of unlimited patient scans and access to open STL (three-dimensional) files that can be readily imported into a variety of digital workflows for increased office productivity and efficiency.

Open architecture gives orthodontists the flexibility to work with any lab and their choice of appliances, the company says. When used to create customized Inognito™ System Appliances, the system provides seamless transfer of information to the Unitek Treatment Management Portal (TMP), enabling full case management and direct interaction with 3M Unitek.

The 3M True Definition Scanner platform features:

- Lightweight, ergonomic, intraoral scanning wand that is ideally balanced to feel comfortable in the hand
- HP® Workstation with a high-performance central processing unit (CPU)
- Touch-screen display
- Streamlined rolling cart for easy transport
- 3M Connection Center, a secure, cloud-based, digital hub that accommodates storage of impression files and connection to laboratory services
- Unitek Treatment Management Portal connection for Inognito System Appliances

The 3M True Definition Scanner reinforces a long-standing commitment to innovation in orthodontics from 3M Unitek, particularly with regard to improved control over treatment outcomes and increased patient comfort and satisfaction, the company says.

In conjunction with availability of the 3M True Definition Scanner, 3M Unitek has also added new features to its Unitek TMP to enhance ease of use and functionality. Updates include improved tools for evaluating digital setup models and digital model file export capabilities. Unitek TMP provides a suite of treatment management resources for orthodontists managing Incognito braces and utilizing digital study models.

The new 3M True Definition Scanner, together with Unitek TMP, allows for a full digital workflow for the Incognito Appliance System that offers precise, 3-D setup review and model overlay capabilities, easy customized ordering and advanced communications and messaging, the company says.

For more information about the 3M True Definition Scanner, contact your sales representative or visit www.3MUnitek.com/TrueDefinition.

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Reference

tion pending.
Beyond the desktop: Why your practice’s website should be optimized for any device

By Diana P. Friedman, CEO and president, Sesame Communications

Today’s prospective patients are using their smartphones, laptops and tablets to search for and check out practices like yours. To turn these site visitors into patients, your practice website must be mobile friendly, accurately present the information consumers are seeking, accurately represent your brand and provide a clear call to action no matter which device the visitor is using.

Upgrading your practice’s website to adopt certain design principles, also known as “responsive design,” will enable your site to look and function effectively across all devices and screen sizes. This can significantly impact new patient flow, referral success and, ultimately, case starts and profitability. Here are three ways your practice can benefit from doing so.

1. Improve prospective patient experiences
Mobile devices have become more advanced, and consumers now expect more out of their web-browsing experiences. On a typical day, a prospective patient might browse the web on a smartphone, a laptop and a tablet, each with a distinctive screen size and web browser platform. No matter which device your patients use, they want to have an optimal experience with your website, not a version that has limited functionality on other devices. In fact, 61 percent of those who visit a website that isn’t mobile-friendly will leave the site to visit a competitor.1

By optimizing your website experience for mobile users, responsive designed sites ensure that your practice puts its best online foot forward, on every device and screen size, every time.

2. Increase social media referrals
You work hard to create a great experience for your patients. Make it easy for them to share their experience with their social media networks!

If a new patient has a great first visit at your orthodontic practice, he might post a status update on Facebook from his smartphone, which includes a link to your website. Several of his friends — some on smartphones, some on tablets, others on laptops — might then see his post and click the link. With responsive design, everyone on your patients’ social networks will view your site exactly as it was designed to be viewed, ensuring you make a great first impression online.

3. Be better prepared for the future
New devices and screen sizes are constantly entering the marketplace, and your patients will continue to take advantage of them. If your site has a responsive designed framework, you won’t have to worry about building another app or adding another separate website for a specific device category.

Invest in a responsive site today, and your practice will continue to garner increased visitors and new patient calls regardless of what new devices come to market.

Reference

Responsive design will allow visitors to access your website via any device. Photo/Provided by Sesame Communications

About the author
DIANA P. FRIEDMAN, MA, MBA, is president and chief executive officer of Sesame Communications. She has a 20-year successful track record in leading dental innovation and marketing. Throughout her career, she served as a recognized practice management consultant, author and speaker. She holds a master’s in sociology and an MBA from Arizona State University.
D4D Technologies will be doing business as E4D Technologies

By E4D staff

D4D Technologies LLC, best known for its E4D brand of dental solutions, recently announced that the company will begin to do business as “E4D Technologies LLC.” While the company has been using the name “D4D Technologies” since it was established in 2003, it has always branded its products “E4D,” as in E4D Dentist™, E4D Labwork™, E4D Studio™, E4D Compass™, E4D Sky™ and E4D Compare™.

“The timing to unify the company name with our global branding coincides with the launch of our next-generation E4D NEVO scanner and design center and our 10-year anniversary as a company,” said CEO Mark Quadling. “NEVO represents the ‘Natural Evolution of Digital Dentistry’ so this is the ideal time to also recognize the evolution of the company with its new name. The D4D that my brother Henley and I started 10 years ago with Basil Haymann has evolved into a global player with products changing dentistry around the world, through private and group practices, institutions, and universities.”

“The E4D brand has become synonymous for many dental professionals with leadership and evolution in digital restorative dentistry,” said Gary Severance, DDS, CMO. “By focusing on E4D in every aspect, we can reinforce and strengthen our relationship with our customers and the broader dental community. We are also introducing a new look and logo with the E4D NEVO that reflect the exciting performance and plug-and-play capabilities of this new technology.”

The company name change and brand focus is a further step forward in the evolution of the company and its growing suite of digital solutions for dentistry, the company said.

The launch of the E4D NEVO at the E4D Business of Dentistry Conference in Las Vegas from Aug. 8-10 (www.businessofdentistry.com/e4d) showcased leading clinicians and E4D operators who shared both early experience with NEVO as well as their years of dental CAD/CAM expertise.

* While the company’s legal name remains D4D Technologies, it will begin to do business as E4D Technologies to assist in clarification and establishment of a consistent brand identity.

About E4D

Headquartered in Richardson, Texas, E4D Technologies asserts it is taking the dental profession to a higher level of productivity, patient comfort and convenience with its E4D restorative systems. The innovative, technologically advanced, ultra-fast E4D NEVO Scanner for digital impressions is the latest addition to its CAD/CAM system for restorative dentistry. Plug-and-play connectivity to the laptop computer design center enables operators to easily customize restoration designs and send them wirelessly to the precision mill that uses the latest restorative materials to produce fine esthetic restorations. E4D’s open platform and E4D Sky communication network enable dental professionals to choose a custom solution to fit their needs, the company said.

E4D has expanded the possibilities in dentistry with E4D Compass for restorative-driven implant solutions and E4D Compare adaptive learning technology for teaching institutions. Henry Schein is the exclusive distributor. Contact E4D at www.e4d.com or www.facebook.com/CadCamDentist.
Yankee Congress expands on team-development day

Organizers of the 2014 Yankee Dental Congress invite dental professionals to join 28,000 fellow professionals from Jan. 29 to Feb. 2 at the Boston Convention & Exhibition Center.

With a general theme centered on the concept of overall health starting with oral health, the YDC meeting offers the chance to explore and discover best practices, products and resources to improve your practice, increase your knowledge and better serve your patients.

Organizers describe Yankee Dental Congress 2014 as being the best opportunity in New England for every member of the dental practice to participate in a wide variety of programs.

YDC 2014 highlights include:

- The Ritz-Carlton Leadership Center — Back by popular demand, this program promotes performance and practice excellence by developing your leadership skills and creating the best possible service for your patients. Courses include “The Fire Within — Igniting Passion for Ritz-Carlton Performance Excellence,” and “Legendary Service with a Smile,” both presented by Jennifer Blackmon.

- Hands-on cadaver programs — This unique opportunity enables participants to attend hands-on courses using cadavers while exploring topics that cover areas such as anesthesia, crown lengthening and anatomy.

- “Evolutionary Dentistry” — Hear about the research and activities at the Manut Cave Dig in Israel and discuss the relationship of evolutionary biology to modern dental problems in a session led by Mark Hans, DDS, and Bruce Latimer, PhD.

- The Pankey Institute: Update 2014 — Discover new techniques and innovations in treatment planning that will have a valuable impact on your practice. The series includes three courses featuring speakers Gregory Di LSuico, DDS, Matthew Messina, DDS, and Kenneth Myders, DDS.

- “Master the Skills of Marketing Your Practice in One Day” — A one-day symposium designed to help expand your practice with the power of marketing. Courses include “High Energy Marketing to Explode Your New Patient Numbers,” “Social Media Success and Online Marketing,” “Get Noticed, Get Booked, and Grow Your Practice” and “Best Practices for Leveraging Social Media to Engage Patients.”

- Dental Team Playbook: Strategies for Success (an expansion on the popular team-development day) — Your entire dental team can benefit from this one-day program with courses tailored to dental assistants, hygienists and office personnel. Team members can learn from experts in their respective fields. Presenters include Lois Banta, Amy Kirsch, RDH, Shannon Pace Brinker, CDA, Diane Peterson, RDH, and Anastasia Turchetta, RDH.

- Social media hot spot — Learn how effectively utilizing social media such as Facebook, Instagram, LinkedIn and Twitter can help improve practice performance by drawing new patients in and keeping current patients connected to your dental practice.

For more information, please visit www.yankenedental.com.

(Source: Yankee Dental Congress)

28,000 expected at 2014 gathering
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