WORD of MOUTH®

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The Massachusetts Dental Society (MDS) is pleased to make this publication available to our member dentists as a way of communicating important oral health information to their patients.

Information in Word of Mouth articles comes from dental health care professionals of the MDS and other leading professional dental organizations, including the American Dental Association. If you have any questions about specific content that may affect your oral health, please contact your dentist. For news regarding oral health, visit the "For the Public" section of the MDS website at www.massdental.org.

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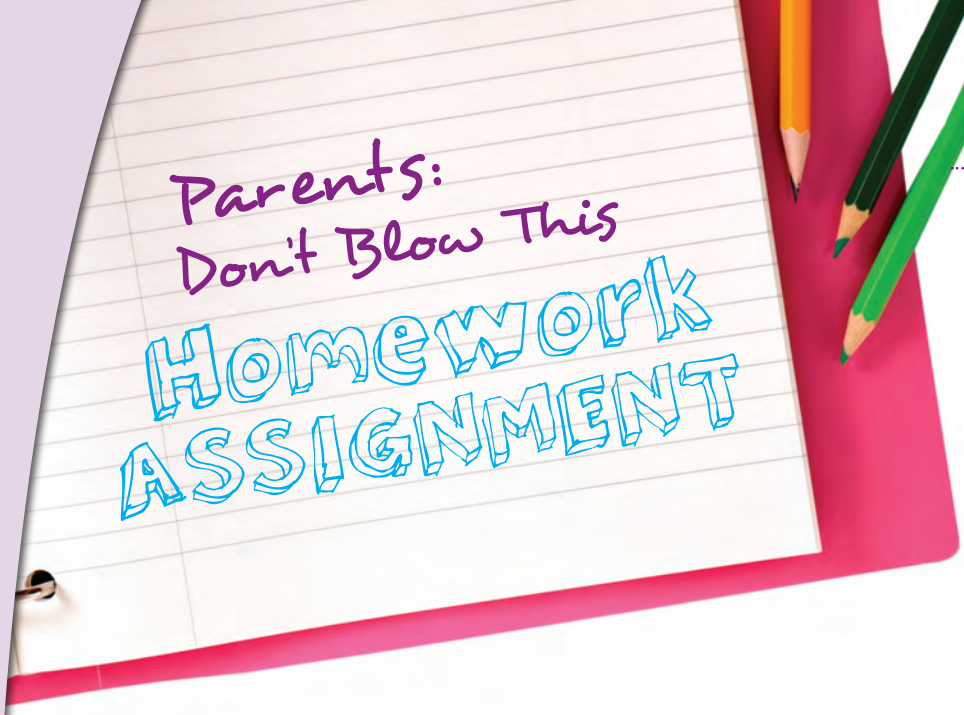

As the dog days of August wind down and children and teens ready themselves to head back to school, parents everywhere are busy making checklists to ensure that their students have everything they need to start the school year off successfully. New clothes/uniform and shoes/sneakers purchased? Check. Summer reading list completed? Check. School supplies (lunch boxes, backpacks, notebooks, three-ring binders, pens, pencils, rulers, and protractors) bought? Check. Haircut appointment made? Check. Visit to the pediatrician or family physician for an annual physical exam and any required vaccinations? Check. But there's one item you don't want to forget to add to your kids' back-to-school to-do list: a visit to the dentist.

While your child's annual physical exam, which includes vision and hearing tests, is indeed essential, it overlooks an important part of a child's health—oral health. Cavities are one of the most prevalent infectious diseases among U.S. children, with more than 51 million school hours lost each year due to dental-related causes in the United States. In addition to the oral health implications of dental disease, children can't concentrate and learn when they have

a toothache. That's why the Massachusetts Dental Society (MDS) thinks it's important that parents ensure that their children's teeth are healthy and cavity-free by scheduling a dental exam as part of the back-to-school routine for all students.

And taking the preventive measure of a dental exam before the start of school may help keep your child from missing valuable school days later in the year. A dentist will be able to examine your child's teeth and mouth for signs of decay or other issues and make sure everything in the mouth is developing properly.

Preventing dental disease in children also involves adopting good oral hygiene habits and limiting their intake of sugary drinks and snacks. Parents can help children maintain a healthy smile all year long by making sure they floss their teeth and brush at least twice a day with fluoridated toothpaste. Avoid packing school lunch bags with snack items such as candy, sticky granola bars, and raisins, which can cling to the teeth and lead to decay. Dental sealants, which are thin plastic coatings applied to the surfaces of molars to prevent cavities, are also very important. According to the U.S. Centers for Disease Control and Prevention, sealants can reduce decay by 80 percent in the two years after placement, and continue to be effective for nearly five years.

So parents, as you cross items off on the checklist of what needs to be done to get your children ready for the new school year, make sure a dental visit is one of them. It may just be one of your most important homework assignments all year.

Brush & floss twice a day

Visit dentist BEFORE the start of the school year!

Limit sugary drinks and snacks

CHECK YOURSELF

When it comes to oral cancer, EARLY DETECTION is the key.

According to the Oral Cancer Foundation (OCF), nearly 46,000 Americans will be diagnosed with oral and oropharyngeal cancers in 2015. That number jumps to 54,000 if you include cancers of the larynx. It's expected that these cancers will cause more than 8,650 deaths, which translates into approximately one person dying of oral cancer every hour, 24 hours per day. When detected in the early stages, the survival rate is 80 to 90 percent; however, all too often the majority of oral cancer cases are not discovered until the disease has reached later stages when it may have spread to other locations, such as the lymph nodes in the neck area. This accounts for the high death rate of about 43 percent at five years from diagnosis. These statistics are frightening, and that's why it's so important that people have regular oral cancer screenings by their dentist. But because no one knows your mouth better than you, the Massachusetts Dental Society also encourages you to check yourself by performing routine oral cancer self-exams.

Oral and oropharyngeal cancers occur in the mouth, in the very back of the mouth (the oropharynx), and on the exterior lip of the mouth. Of all newly diagnosed individuals, only slightly more than half will still be alive in five years. The mortality rate for oral cancer is particularly high not because it is difficult to diagnose, but because it often goes unnoticed. You may see a spot on your tongue and think it's just an abrasion, and since it can be painless, you might not think anything of it until it's too late. That is why awareness and early detection are so important. Your dentist or dental hygienist should perform an oral cancer screening at each semi-annual checkup. This will include an examination of the soft tissue in your mouth, gums, lip, tongue, and floor and roof of your mouth. Be sure to let your dentist know if you are a tobacco user, because a whopping 75 percent of those diagnosed with oral cancer at 50 and older are tobacco users, says the OCF.

People can play an active role in detecting signs of oral cancer by taking a few minutes, once a month, to examine their lips, gums, cheek linings, tongue, and the floor and roof of their mouths. (See box, above right, for instructions on performing an oral cancer self-exam.)

To perform a complete oral cancer self-exam, use a bright light and mirror to:

- Look for any white or red spots inside your lips and around the inside of your cheeks
- Pull your lip out to look for any raised or thickened areas at the front and inside of your gums
- Lift your head back to inspect the roof of your mouth, feel with your forefinger for any bumps or growths, and look for any color changes that are evident
- Take a clean gauze or tissue and gently pull your tongue out to view all surfaces on it, including the floor, to observe if there are any color changes or if any red or white lesions are present
- Feel for lumps in the neck and lower jaw region on both sides

Tobacco users should be especially vigilant, as tobacco use has long been linked to oral cancer rates.

Other warning signs of oral cancer include a mouth sore that bleeds easily or does not heal; pain, tenderness, or numbness anywhere in the mouth or lips; difficulty in chewing, swallowing, speaking, or moving the jaw or tongue; changes in the voice; a change in the way teeth fit together; and drastic weight loss. If you detect any of these conditions, contact your dentist immediately.

While oral cancer self-exams should be considered a secondary, preventive technique in detecting early lip and mouth lesions, they should never take the place of a professional exam. So be sure to visit your dentist twice a year for regular checkups and a thorough oral cancer screening. Detecting and treating oral cancer as early as possible are critical in treating and beating this potentially deadly disease.

The "Fillosophy" of Fillings

Being a steward of oral health takes discipline, but sometimes we fall short of the standards that keep us in good oral health. If you ever have to hear these words from your dentist, "Well, it looks like we've got a cavity here," you know that a dental filling is in your future. And this is one of those biting moments when you and your dentist have to crunch down and consider what kind of filling will "fill" your tooth's needs.

According to the American Dental Association (ADA), a person needs a filling when a tooth is chipped or worn, or when an area of decay needs to be cleaned out so the tooth can be returned to its proper shape and function, avoiding further decay. There are several types of fillings that your dentist will help you choose from: composite and amalgam (commonly referred to as silver) are the two most common, but gold fillings are also available. While the ultimate function of fillings is the same—fix a cavity, prevent decay from reaching the tooth's root, and relieve pain and discomfort—the choice of which type to use may vary, as not all fillings are created equal.

Composite fillings got their name because they are made from a composite of plastic and glass resin. This tooth-colored filling suits the taste of many people today because it blends in to the natural look of a person's teeth. Dentists are able to easily adjust the color of the filling to best match the natural color of the surrounding teeth. Composites are ideal for restoring small- to mid-sized fillings on either front or back teeth that are not in high-pressure chewing areas. For those who want the esthetic of a white smile and wish to avoid having their smile marred by a silver or gold filling, composite fillings are the best choice.

However, there are a few things to take into consideration when it comes to composite fillings, according to the ADA. Composite fillings require the tooth area to be kept clean and dry while the cavity is being filled, so it generally takes longer to place a composite filling than a metal filling, which may mean a bit more time in the dental chair. Also, while no filling will last forever, composite fillings have been shown to be slightly less durable than amalgam (silver) fillings. Lastly, composite fillings cost more than amalgam fillings and may only be partially covered or not covered at all by some insurance policies, so check with your insurance carrier. For those who need minor tooth restoration and have a preference for cosmetic esthetics, composite fillings fill the need.

However, in cases where your dentist needs to restore larger areas of decay in high-pressure chewing zones, heavy metal (e.g., amalgam or gold) fillings may be the way to go. Amalgam fillings, which have been widely used by dentists for more than 100 years, are made of a stable mix of metals, including mercury, silver, tin, and copper. They are the top choice for filling large cavities in teeth that endure high stress when chewing, such as molars, because they are considerably durable. Amalgam fillings also take less time to place and harden quickly and, therefore, may be ideal for patients who can't tolerate longer stays in the dental chair, such as small children or people with special needs. These little knights in shining armor are also more cost-effective. In fact, they're the most affordable of the three types of fillings.

Don't let the fact that amalgam fillings contain mercury scare you: When mercury is combined with the other metals, it forms a safe, stable material. The ADA, U.S. Centers for Disease Control and Prevention, U.S. Food and Drug Administration, and World Health Organization have gone on record as saying that amalgam is a safe and effective dental filling material, and health organizations such as the Mayo Clinic, American Academy of Pediatrics, Alzheimer's Association, Autism Society of America, and National Multiple Sclerosis Society all agree that amalgam poses no health risk and is a safe choice for filling cavities.

The third type of filling—gold fillings—really wins the gold medal for endurance and strength, lasting more than 20 years; however, these "chompers" don't come cheap. Gold fillings are the most expensive of all fillings and require more than one visit to the dentist's office to place. In order for them to fit properly, dental impressions need to be taken and sent to a dental laboratory for manufacture. These types of fillings are not as common today as amalgam or composite fillings, perhaps because of the price. It should be noted that these types of fillings are not "pure gold" but, in fact, are composed of an alloy of gold, copper, and other metals, according to the ADA.

While "fillosophizing" about the types of fillings available is interesting and it's good to know that we have choices when it comes to filling a cavity, the best choice we can make is not to need a filling at all. We are better off not putting our money where our mouth is—unless we are using a very fancy toothbrush. And in that case, it should be where our mouth is twice a day and for two minutes each time, along with some floss at least once a day. And don't forget the twice-yearly visit to the dentist. It sounds simple, but so far, it's the best "fillosophy" we have against tooth decay, cavities, and those words that we dread to hear from our dentist.

Smile Scramble

All of the scrambled words below are related to your oral health. How quickly can you rearrange the jumbled letters and form the right word? Then use the letters in the purple boxes to form a new word to answer the oral health riddle. Answers are listed below.

1) GOUTEN

2) OMSWID TTHEE

3) CTIYVA

4) NOOTAHRTDIO

5) NALTSEAS

6) RTOO LAACN

7) RHTOSTBOHU

8) TLAEDN LSSOF

9) MROSLA

10) ELIODFUR

Riddle: What's the strongest substance found in the human body?

Answers **1)** Tongue **2)** Wisdom Teeth **3)** Cavity **4)** Orthodontia **5)** Sealants **6)** Root Canal **7)** Toothbrush **8)** Dental Floss **9)** Molars **10)** Fluoride

Riddle Answer: Enamel

From Tooth Prints to Printed Teeth

There has been a mouthful of exciting talk about the benefits of 3D printing in our world lately, with this technology being used to produce everything from toys to cell phone cases to footwear to automobile parts to prosthetic limbs. In fact, airplane manufacturer Boeing has already used 3D printing to make more than 22,000 parts for civilian and military aircraft flying today, according to *LiveScience*. And now dentistry is putting this technology right where the mouth is, so to speak.

When you walk into a dentist's operatory, you'll see instruments that are designed to be used on uniquely shaped, highly detailed objects—teeth—in precise ways. Similarly, 3D technology uses uniquely shaped, detailed objects to form crowns and replacement teeth, models, and dental appliances. Some dentists are taking advantage of this burgeoning technology. Enter the right data into a 3D printing machine and before your dentist can say, "Open wide," the device has already started to streamline your dental visit and shorten your time in the chair. So how do these machines make new teeth appear from seemingly nothing? And how can this technology potentially improve your future dental visits?

Simply put, 3D printers work by following digital instructions inputted into a computer to "print" an object using materials such as plastic, ceramic, and metal. Using 3D modeling software and a computer hooked up to a 3D printer, users can watch the printer build the object right before their eyes. In the dental office, this most likely would be a computer numeric control milling machine, which doesn't just cut to the chase, but actually to the very piece of ceramic that will leave with you as your permanent tooth at the close of just one visit. For those concerned about taking time off from work or school to attend the multiple dental visits that are often necessary to complete a traditional restoration, 3D printing technology may offer a time-saving solution.

Let's say you need to have a tooth restored in the form of a crown. The process begins, as always, with the preparatory work, which includes shaping the impaired tooth to allow a flush fitting for the restoration to come. But the next step may be unexpected. With 3D printing, dentists can use intraoral scanners, which are unassuming digital rods that scan inside a patient's mouth, and computer-aided design and manufacturing (CAD/CAM) software to send data to a computer to make a digital simulation of a tooth, which can be used to render a perfect restoration. Once digitally "fitted," the data is then dictated to the milling machine, which unsheathes its little swords (actually, drill bits) and begins the subtractive process of carving an inserted ceramic block the size of a sugar cube into the correct size and shape. The dentist will then need to manually make sure the finished product is the correct shade so that it matches the rest of the teeth. This new tooth restoration is fused to the prepared area in the same way as a crown from a lab, and as soon as it sets, you can get on with your life, with no temporary tooth replacements and no need for multiple visits.

So what does this all mean?

It is speculated that the future of 3D printing points to a world where more dentists will have printers that create biocompatible teeth right in the dentist's office. Bill Decker, chairman of the Association of 3D Printing, writes in a *3D Printing Dental Market* blog post that 3D methods "allow dental practitioners to replace teeth, crowns, veneers, and inlays in a single sitting." Perhaps we are already seeing proof on the market. In addition to the printers that can output long-term restorations for crowns and bridges, as well as sturdy, smooth, and accurate veneers, there are devices that can print models for clear aligners and appliances, such as retainers and nightguards.

Clearly there is no shortage of digital delicacy to consider here, and with this exciting technology at your dentist's fingertips, the possibilities are endless.

Are You on the Path to Good Oral Health?

Do you brush your teeth at least two minutes twice a day?

Yes

Off to a great start! Do you use fluoridated toothpaste?

Yes

Fantastic! Do you floss once a day?

Yes

Excellent! Do you visit your dentist twice a year for regular checkups and cleanings?

Yes

That's what we like to hear! Now how about your diet? Do you eat a lot of sugary and starchy foods such as candy and potato chips?

No

You're on the right track! Now, how about beverages: Do you consume a lot of sugary and/or acidic drinks (e.g., soda, sports drinks, fruit juice, and lemonade)?

No

You made it! You're an oral health superstar and you're on the road to a lifetime of excellent oral health!

No

Why not?

- I don't have time! → There are 1,400 minutes in a day; 2 minutes is only 1.001% of your day. That's time well spent in exchange for good oral health.
- I mean to, but sometimes I get too busy or forget. → If you make brushing part of your a.m. and p.m. routines, before you start your busy day and just before you go to sleep, it will become a habit.

No

Do you like getting cavities?

Yes → Now you are just trying to be funny. No one likes getting cavities!

No → Good. Now start using a fluoridated toothpaste, because extensive research shows that optimal levels of fluoride not only reduce cavities in children and adults, but also help repair the early stages of tooth decay.

No → Toothbrushes are great at cleaning the surfaces of teeth, but plaque and food particles can stick to the areas between teeth, in places where a toothbrush can't reach. And that's where flossing comes in. For healthy teeth and gums, start flossing!

No → A regular exam allows your dentist to check the condition of your teeth and look for signs of gum disease and oral cancer. But did you know that other medical conditions often have symptoms that first appear in the mouth? Poor oral health has been shown to be a precursor of heart disease, stroke, and diabetes. Your dentist can help you maintain not just a healthy smile, but also a healthy body!

Yes → The high sugar and starch content in junk food can cause cavities and lead to tooth decay, especially if you're not brushing after meals. For a healthy mouth, limit the amount of sugary and starchy foods you consume and fill your plate with better choices like vegetables, lean protein, cheese, and fruit.

Yes → Watch what you drink. Try to limit your intake of soda and fruit juices, and if you think you're in the clear because you drink diet soda, think again. Those sugar-free beverages contain acid, which can still lead to enamel breakdown and tooth decay. The healthiest option is to drink plenty of water, which will help rinse any food particles from between your teeth. Just make sure it is fluoridated!

BRACES? Don't Do It Yourself

Moving teeth is a medical procedure and needs personal supervision by an orthodontist. Be wary of any suggestions to move teeth with rubber bands, dental floss, or other objects ordered on the Internet.

At one time or another, we all have muttered, "If you want something done right, you have to do it yourself." While that may be applicable to tasks such as doing the laundry at home (so that your white shirts don't wind up pink because a certain someone threw a red towel in the wash) or finishing up a report at work (because one of your colleagues hasn't done his or her part and there's a deadline approaching), one place it certainly is not advisable in is dentistry. For years, dentists have had distressed patients come in for an emergency visit because they took the do-it-yourself (DIY) route to dentistry by, say, using superglue to try to fix their own dentures, to disastrous results. And now "DIY dentistry"—specifically orthodontics—has been getting some attention online recently, and the Massachusetts Dental Society wants to remind people that when it comes to fixing things in your mouth, there's a big difference between using an over-the-counter at-home whitening kit and using elastics to straighten your teeth. Trying to fix a dental issue on your own not only can be a fruitless endeavor, but also can lead to serious oral health problems.

A news report from WCBS-TV in New York a few months ago discussed the trend of DIY dentistry, whereby some people watch YouTube videos that claim to show them how to straighten teeth with elastic bands or wires. But dental experts stress that this is a prescription for dental disaster.

The reporter spoke to one young woman who turned to the Internet to fix the space between her two front teeth to save money. But it didn't end well for her. She purchased $20 worth of "gap bands" online to try to shorten the space between her teeth, but said they were so uncomfortable she had to stop using them. "They were cutting into my gums. It was super painful," she said.

In reality, gap bands can cause tooth loss and ongoing dental problems. "A tooth is shaped like an ice cream cone," said the American Association of Orthodontists' Dr. DeWayne McCamish in the report. "That rubber band, as it goes up the teeth, pulls that tooth out of the bone." Not only is that unpleasant, but it also can cause permanent damage to teeth, roots, and gums.

This DIY dentistry trend is so alarming that the American Association of Orthodontists has issued an alert "urging consumers to beware of Internet videos and websites that encourage people to try to straighten their own teeth. Moving teeth is a medical procedure and needs personal supervision by an orthodontist. Please be wary of any suggestions to move teeth with rubber bands, dental floss, or other objects ordered on the Internet. Moving teeth without a thorough examination of the overall health of the teeth and gums could result in the permanent loss of teeth, which may result in expensive and lifelong dental problems. Orthodontists receive two to three years of specialized education beyond dental school and are specialists in straightening teeth and aligning the bite."

While there certainly are positive benefits of DIY projects, such as the satisfaction you get from refinishing the hardwood floors in your home or fixing a flat tire, one area for which you really want to leave things to the professionals is your oral health. And when it comes to DIY dentistry . . . **just don't do it**.

TOOTH PICKS

Beavers Don't Brush, But Their Teeth Are Tough

Beavers are famous for their buckteeth, but there's more to them than just the impressive size and shape of their chompers. Researchers at Northwestern University have discovered that beaver teeth are naturally well protected from tooth decay. The study analyzed the teeth of rabbits, mice, rats, and beavers when exposed to acid, and found that the acid did not break down the beaver teeth as extensively as the other animal teeth. Why? Because beaver enamel is especially rich in iron and magnesium, making them harder and more resistant to acids. "A beaver's teeth are chemically different from our teeth, not structurally different," says lead researcher Derk Joester. "[This study] lights the way in which we could improve our current treatment with fluoride."

Denture Don't

Wearing dentures overnight doubles the risk of elderly adults age 85 and older contracting pneumonia, according to a study conducted by the University School of Dentistry in Japan. Researchers studied 524 randomly selected seniors, of whom 453 were denture wearers. Over the three-year follow-up period, 48 deaths and hospitalizations from pneumonia were recorded, and among the 453 denture wearers, the 40 percent of them who did not remove the dentures before sleep were at a 2.3-fold higher risk of contracting pneumonia than those who did. The evidence is clear: People should remove their dentures at night and take proper care of their teeth and gums. Tell all the adults in your life that their oral health and overall health depend on it!

Gum Disease Awakens HIV

New research has found that the HIV virus can be awakened from a dormant state in HIV-positive patients with serious gum disease. Researchers from Case Western Reserve University identified five oral bacteria by-products—all a result of gum disease—called metabolic small chain fatty acids that are responsible for activating the inactive HIV-1 virus in resting T-cells (cells that fight harmful pathogens in the body) in HIV-positive patients. All humans have a reservoir of resting T-cells; the reserve remains untapped as long as people are healthy. These T-cells in HIV patients can have the sleeper HIV-1 virus, which also remains dormant but is awakened when activated by small chain fatty acids. As long as the patient is free of gum disease, the virus sleeps. The findings explain why people with HIV and serious gum disease have higher levels of the virus than those with healthy gums, and reinforces the importance of treating infections from gum disease as early as possible.

Shifting with Age: Overcrowded Mouth

Think more food is getting stuck between your teeth as you age? It's not your imagination. As you get older, teeth tend to shift toward the midline of your mouth, which can cause overcrowding of your front teeth. Overcrowded teeth can trap food and make it more difficult to get your teeth really clean. This shifting, known as physiologic mesial drift (PMD), is a natural process that can be traced back to our ancestors. Because early humans used their teeth more as tools and chewed tougher raw food diets, their teeth would wear down significantly with age. As a result, PMD occurred to counteract the increased space between worn-down teeth, leaving enough room in the back of the mouth for wisdom teeth to break through and create a new chewing surface. Modern humans no longer experience such extreme dental wear, but the shifting still occurs. Overcrowding can be remedied by an orthodontist and may require extractions, braces, or aligners to correct. Don't wait to correct overcrowding; it is possible to make your teeth go back in time.

Tea Time for a Healthy Mouth

Listen up tea drinkers, the list of oral health benefits from your regular spot of tea is getting longer. A growing body of scientific evidence has shown that drinking tea can reduce gum inflammation, strengthen teeth, fight plaque build-up, disrupt oral cancer cells, and freshen breath. So how much should you drink to reap the health benefits? A recent review study published in the British Nutrition Foundation's *Nutrition Bulletin* recommends about three to four cups of either black or green tea each day. Both kinds were found to reduce two types of bacteria in the mouth—*Streptococcus mutans* and *Lactobacillus*—that are culprits for gum disease and tooth decay. But if you're really looking to freshen your mouth, stick to green tea, which contains antioxidant ingredients that help combat the germs that cause bad breath.

It Does a Mouth Good

Fluoride, a naturally occurring mineral found in water sources all over the world, is good for your teeth because it is absorbed easily into tooth enamel and is effective at preventing cavities by keeping tooth enamel strong. Strong enamel means strong teeth—and less dental decay.

Learn more about the oral health benefits of fluoride at www.massdental.org/fluoride

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