

## Five Steps to Your Brightest Smile

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Best-practice dental care is a lot like going to the gym. Every January, you renew your membership, not only for your long-term health but also to increase how you feel about yourself and your appearance. Not only do you feel better but you make better decisions and eliminate wastes and excess carbs and fats from your body. You can learn from trainers or other athletes on how to improve your technique, diet, and exercise routine.

A healthy mouth is critical for your overall physical wellness too. Many studies have linked disease and decay in the mouth to risk of disease elsewhere in the body. And just like you want a body that fits into your favorite pair of jeans, you want a smile that says who you are. After all, it's one of the first things people notice about you. A healthy smile boosts confidence and helps you feel proud when you say that first hello. In fact, *USA Today* ran a poll and found that a smile was the first thing most people notice when they meet someone. Even more noticed than hair, clothes, and eyes!



## **There's No Time to Waste**

*Dental decay is the most common chronic disease in young people between the ages of five and seventeen, according to research by the CDC. Good oral health habits should be established early, so as children become teenagers, they have already established an effective oral hygiene routine and have a sound understanding of why it is important.*



Fortunately, while keeping a great smile does take daily maintenance, a preventative daily routine doesn't need to take long. Keeping up with it is the key, just as it is with diet and exercise. It's not just about getting in shape—it's about staying in shape! Here's my own routine I've tested and developed to strengthen my enamel, protect my gums, and make my smile naturally brighter. Create your healthy and happy smile with these five simple steps:

1. Start your day off bright: rinse with an anticavity (fluoride and xylitol) mineral mouth rinse when you first wake up. I also like to use a tongue scraper during this time.
2. Floss once daily. (More often is OK, but that's all you have to do—just once per day.)
3. Brush for two minutes after breakfast and before bed, preferably with a professional electric toothbrush for maximum results. Use soft bristles and massage at the gumline—don't scrub your teeth. Avoid eating, drinking, or rinsing for twenty minutes after brushing to maximize the mineral uptake on your teeth.
4. Drink water between meals.
5. Use xylitol products, such as mints, gum, or candies, throughout the day.

These five measures are safe yet powerful at keeping our mouths in tip-top shape. They also make weak teeth stronger. Don't worry—if you get off track in your daily home care, simply reup your commitment to these steps, and you can effectively reverse surface damage on your teeth before it comes irreversible decay. It can also help you reverse gingivitis before it becomes stage two, early periodontal disease. There was a period in my early adulthood when I had seven or eight new cavities in a row. Since then, I've developed this routine, and at the time of this writing, I've had seven years without a single new cavity.

## **Rinse**

News flash: commercials are misleading! Rinsing with mouthwash should be the first thing you do at the sink, not the last. Most people use mouthwash after they floss and brush, just like on TV. It seems like a final breath freshener after a job well done. And it just feels good! But rinsing can move all the hardworking minerals in your toothpaste out of your mouth and into your sink before those minerals have finished penetrating and protecting your smile.

For a week, challenge yourself to rinse before you brush. Then see if you can do it for one week more... There are exceptions to this order of rinse first, floss and brush later, but for most adults and kids working on prevention, this is the best practice. Leave a film of paste behind to get a scaled-down version of after-the-dentist cleanliness at home. The coating is safe and effective because it's applied topically and directly to the area where it's needed most.

## **Floss**

Flossing: the elephant in the room. Every time you open your medicine cabinet, there's a little plastic box of tightly coiled thread that we try to ignore, or we say, "I'll do it tomorrow." Most people don't floss

regularly, unless there's a piece of food trapped. The problem is, tomorrow usually doesn't come. But flossing is one of the least expensive ways to prevent some of the most expensive dental care, and it only adds sixty seconds to your daily routine.

Your toothbrush can't reach everywhere in your mouth, like under the gumline and between your teeth. Brushing alone cleans only 60 to 70 percent of the surface area of your teeth. That means one-third or more of our precious enamel and root surfaces are missed when we skip flossing or don't do it correctly. Flossing removes bits of food and soft buildup and makes for a more complete cleaning of your teeth. I rate brushing alone, twice a day, without flossing, with a B- letter grade. Add in flossing, and that grade shoots up to an A. For my high-risk and most careful patients, we also add a Waterpik or AirFloss into their daily routine, rising their score to an A+ in defense.

### ***Wait, the Government Said I Didn't Have to Floss...***

In late 2016, flossing made news when the US government dropped its recommendation that people floss, citing a lack of evidence that the activity did any good. You may have thrown your floss in the trash or strutted into a dancing celebration when you read of the news!

Shortly after the story was released, my younger brother texted me and said, "Hey, did you read this?" with a link to the story. With a subtle grin, I invited him to stop flossing and see how his next dental checkup went. His response was "No way!" (He's a faithful flosser, by the way, and it's paid off well for him.) Countless studies, reports, and my own observation in my practice have demonstrated the benefits of flossing.

So, what's behind the idea that flossing does no measurable good? Some real-world studies are flawed because: (1) The funding isn't there to produce top-notch studies. And (2) comparing the effects of those who are flossing with those not flossing means we'd have to ask a

group of people not to floss. Ethically, that's a problem. Asking people not to floss puts those people at great risk because flossing does prevent disease and decay, in my years of experience.

### ***Six Steps to Flossing Right***

The American Dental Association (ADA) continues recommending this low-cost and low-risk strategy. So do I. It's only harmful if you become overzealous in your flossing—and you won't do that if you follow this technique:

1. Once a day is all you need to be effective. This may take you less than ninety seconds. Can you spare that much time, as boring as it may be? If you have food traps or suffer with dry mouth, flossing two or three times per day may be helpful.
2. Pull out a long strand of floss (usually about eighteen inches). If you're flossing regularly, one of those travel packs your dentist gives you should last about a week.
3. Wind most of the floss around each middle finger, leaving an inch or two between your two fingers to floss with.
4. Now, get your thumbs and index fingers involved to maneuver the floss. Slide it down between two teeth, using a back-and-forth motion. Gently guide it around each tooth's base, under the gums. You may see or taste some blood. That's normal if you haven't flossed in a while, and you should see less and less red in the sink as you get into the flossing habit. After about a week of regular flossing, you won't bleed at all (unless you have periodontal disease).
5. Make a C-shape around each tooth as you glide up and down the gumline in a sweeping motion. You want to hug the neck of the tooth around the gums for best practice.
6. Use clean sections of floss as you move around your mouth.

## **Floss Alternatives**

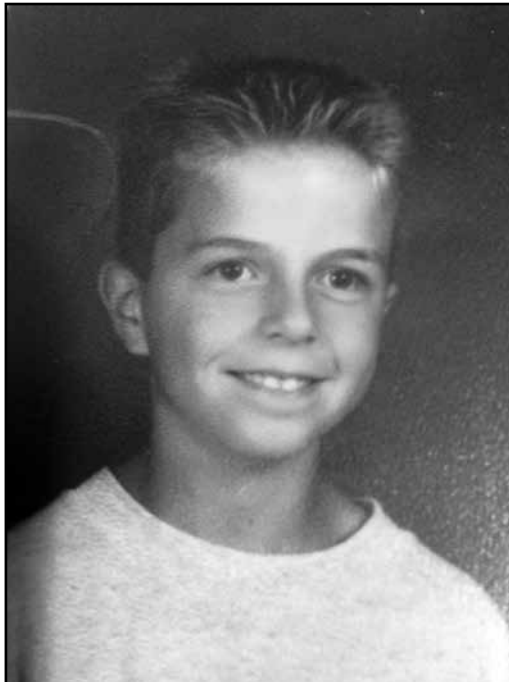
*If you think floss is boring or too difficult, you can still reap its benefits by using technology that mimics flossing. By themselves, these aren't quite as effective as flossing, but they still give oral health a huge boost and are much better than brushing alone. For maximum results, use an irrigator in the morning before brushing and then string floss before your nighttime brushing.*

- *Oral Irrigator: Flossing the old-fashioned way can seem tedious. Using a water flosser is quicker and more fun. Even teenagers seem to love the idea of power washing their teeth.*
- *Shower Flosser: A spin on oral irrigation, the shower flosser makes it even more convenient to floss your teeth. Simply attach an oral irrigation unit to your shower head for mess-free flossing. (Even if you don't want to install a shower attachment, you could still move your flossing routine to the shower. While your conditioner sets in, floss your teeth—my wife is a hair stylist, so I had to make a plug for hair care too...)*
- *AirFloss: Another alternative to conventional flossing, the AirFloss cleans out debris and plaque by shooting quick bursts of air and water in between teeth. You can add mouth rinse for a fresher cleaning. (I used this technique when I had orthodontics a few years ago, and it really helped keep my lunch out of my braces!)*
- *Waterpik: These devices look in some ways like an electric toothbrush but with a tube instead of bristles and hooked up to a water source. A forceful stream of water knocks the debris out from between your teeth.*

*Irrigation really helped a family of six in my practice. They were pretty good about brushing, but flossing...not so much. One Christmas, the loving mom bought everyone Waterpiks. You know what happened? Well, first of all, they became obsessed with irrigating. The boys said they couldn't live without it anymore. And it resolved the gingivitis and bleeding between their teeth. Now, they weren't string flossing (yet!), so there was still some room for improvement, but hey, it was a huge leap toward better health. Best of all, they had a lot fewer cavities at each checkup, they felt better, and they had nice pink gums to show for it.*



## **My Personal Flossing Moment of Truth**



*Dr. Williams*

*When I was eight years old, I had to have a tooth pulled. I remember it vividly—I was terrified! It started when I was staying with my grandmother while my parents were away on a work trip. I bit into something hard during a meal...crunch. There it was, a chunk of silver filling loose in my mouth. It didn't hurt, but I knew it was bad news. I had a gut-wrenching sensation in my stomach that every child feels when something is wrong. And I knew I'd have to visit the dentist when Mom and Dad got back in town. I wished their trip would have been longer...I hated going to any kind of doctor's office.*

*My nervousness grew when my parents returned, and my mom got on the phone to make the appointment. Her tone was serious, and she made the appointment for just a day or two away. Before I knew it, I was lying down with a bright light in my eyes, tears running down my cheeks as a needle poked into my gums. Suddenly, I had a "foot on my chest" as my dentist pushed my head back and forth, yanking on that broken baby tooth. While she did so, she talked to me, explaining that I needed to take better care of my teeth. She focused on flossing, saying that adding that one step would go a long way to protecting me from this—yank!—kind of—tug!—situation again.*

*When she was finally finished with her barbarian tactics, I got outta there—quick! I had no pain or problems after, and I became the best flosser the second grade had ever known, and I went more than twelve years from that day without another cavity. Though it was a brutal experience (thankfully, chair-side manner now is light-years ahead of where it was), I learned a good lesson.*

*Now I focus on pain-free, relaxed dentistry because I've been there and will never forget that experience. Kids and adults receive laughing gas or sedation whenever needed, so they don't have to experience archaic dentistry. Today, I am grateful because that life lesson taught me how to floss, and it helped me learn how to defend my adult teeth from all of the potentially harmful external influences for a lifetime. I'm also grateful that I've personally experienced both sides of the dentist chair, so I understand how much better comfortable dentistry is.*



## Brush

Brushing is the most common way we care for our teeth. You may forget to use mouthwash, you may hate to floss, but you most likely brush your teeth, if not twice a day, at least once. In fact, an MIT survey found that that Americans say a toothbrush is more important to them than their computers and cars. (I'll cite the study at the end of the book in case you want to offer a new toothbrush over a new car the next time your spouse or teenager asks.)

### *The Fascinating History of Brushes and Paste*

We're far from the only ones to heap such praise on this deceptively simple invention. People have been brushing their teeth with some sort of tool since around 3500–3000 BCE. (Before that, it was the old “put a little toothpaste on the finger” trick, which some of us still practice when we realize we've forgotten to pack our toothbrush on a camping trip.) The first toothbrush was a twig chewed to have a frayed end. Chinese writings talk about pulling branches from good-smelling trees, probably to help with breath freshening. The miswak has been around for centuries and was used in Asia, the Middle East, and Africa. It is a therapeutic twig that comes from the *Salvadora persica* tree. It has medicinal properties and freshens breath while it cleans. You can still find them today. Later, toothbrushes were made from horsetail hair, bringing us closer to the modern toothbrush.

Toothbrushes went into mass production in 1780. You may be surprised by who their inventor was. William Addis decided he wanted to do something to improve upon teeth cleaners issued to British prisoners—because he himself was imprisoned! Then, prisons handed out what were basically rags to be used for this job. Addis drilled holes in a small animal bone, asked the guard for some bristles, and tied and glued those in place through the holes. Get this: after he got out of prison, he

started a toothbrush business—in fact, the company, Wisdom, is still around ([www.wisdom.com](http://www.wisdom.com)).

Toothpaste has as long a history as the toothbrush. Ancient Egyptians scrubbed their teeth with an abrasive powder made of ground-up oxen hooves, myrrh, eggshells, and pumice. Greeks and Romans used ground bones and shells. Everyone was focusing on grittiness to scour the gunk off their chompers. The Chinese, starting as early as 500 BCE, added flavoring like ginseng, herbs, and salt—mmm. Probably effective, but not the minty freshness I brushed with before my first date with the woman who's now my wife.

Thanks to these early innovators, we now have little excuse to avoid brushing. After thousands of years of fine-tuning, we have easy-to-use brushes that are found in a variety of stores, and some toothpaste tastes so good, I have to watch my kids, so they don't eat it.

Here are my three recommendations, which I call 2/2/20, on when and how long to brush:

1. Brush for 2 minutes.
2. Brush 2 times a day. (Brushing 3 times a day is OK, as long as you are soft on your gums—4 per day is probably overkill.)
3. Don't eat or drink for 20 minutes after brushing—let the important minerals coat your teeth for added protection.



### **Brushing To-Dos**

- *Hold your brush at a forty-five-degree angle against the gumline, angling toward the gums.*
- *Brush with tiny circles.*
- *Brush for at least two minutes each time. (For kids under*

age two, twice a day for one minute each time is usually sufficient because they have fewer teeth.) Use a stopwatch. Listen to your favorite two-minute song. Or if you're using an electric toothbrush, pay attention to its built-in timer. Many divide the two minutes into four thirty-second segments, one for each quarter of your mouth. When deciding how much time to spend brushing your teeth, the important thing to remember is that it's not about a prescribed amount of time—it's about cleaning all the surfaces of your teeth, front, back, and top. There are some great apps available for kids (and adults!) to make the two minutes more fun.

- *Brush your tongue. That's where the germs that cause bad breath mostly live. I use a tongue scraper, which can be found at any pharmacy, or you can call my office, and I'll send you one with instructions on how to use it properly.*
- *Wait at least twenty minutes after eating before brushing. Brushing with toothpaste removes food remnants off your teeth and gums, but the second reason we use toothpaste is to coat our teeth with breath-freshening, enamel-saving minerals. When you eat, bacteria produce acid that temporarily weakens enamel. Brushing too soon after eating, especially after eating acidic foods, can easily damage enamel because it's in a weakened state.*
- *Instead of brushing right after eating, rinse your mouth out with water or chew xylitol gum to increase saliva production. These measures will help to wash away bacteria without damaging your teeth and will quickly bring your pH (acidity levels) closer to a neutral state. When our mouths spend too much time under the critical pH level, we are exponentially more susceptible to tooth decay, sensitivity, and oral disease. This is where soft drinks and energy drinks accelerate tooth decay. Water is the best dental insurance available today!*



## ***Tools of the Trade***

Modern toothbrushes and toothpastes are leaps and bounds above the horsehair-and-soot solution of yesteryear, but they're not all created equal. Here are some tips to review before you make your next purchase from the toothpaste aisle.

**Choose the proper toothbrush.** You should change your brush every few months. The ADA recommends buying a new toothbrush every three to four months. Over time, the bristles of a toothbrush wear down and become less effective at removing plaque and bacteria. It's also important to swap out your toothbrush after being sick; if you don't, the germs from your illness may reinfect you or someone you love. You're using your toothbrush to clean your teeth of dirt and "bugs" (bacteria), so some of those bad germs will linger in the wet bristles of your brush. You wash your towel every week or so, right? Same idea. Aerosols from toilet flushing have also been found on toothbrush bristles, so make sure you close the lid, and clean your toilet too! (Note: some newer electric brush models include a UV sanitizer that keeps bristles cleaner.) The first step in a cleaner mouth is a clean toothbrush. Here are some simple things to look for in a good toothbrush:

- Choose a toothbrush with soft bristles. Brushing with a hard-bristled toothbrush or using excessive force while brushing can slowly cause gums to recede, exposing the root of the tooth and leading to sensitivity. It is a tool to gently massage your gums, not to scrub or saw away at them.
- Choose a brush that you can maneuver around your mouth

easily. Toothbrush heads may be round or rectangular, bigger or smaller, on flexible necks or stiff ones. Ask yourself which one will work with the size of your mouth, the arrangement of your teeth, and how wide you can open your mouth.

- Go electric! Studies have shown manual brushes can do very well compared to high-grade electric ones, but it's tougher to be on point manually. I like the electric brush because you simply set it on each tooth rather than pushing. Some newer models also have sensors that shut off the brush if you push too hard.

**Use toothpaste.** Toothpaste has two important roles during brushing: (1) cleaning your teeth and (2) delivering important minerals to your teeth, such as calcium and fluoride and, from some pastes, natural supplements such as xylitol and aloe vera. These should remain undisturbed on teeth for twenty minutes after you brush, so they can coat, protect, and strengthen your smile. I brush for two minutes, two times per day, and then I avoid eating or drinking for twenty minutes so the minerals can strengthen my enamel and protect my gums. You don't want to wash the toothpaste's minerals off your teeth before they've penetrated the enamel safely. Remember the 2s: 2 minutes, 2 times per day, 20 minutes without food, drinks, or rinses.

## **Drink Water**

Drinking water is the best drink for both mouth health—and overall health!

Our bodies are 60 percent water and are at our healthiest when we keep our water content high. Being hydrated means healthy nutrients are getting distributed throughout our bodies, our acidity levels are balanced, waste is being moved out, and muscles and joints are kept loose and limber.

The benefits are high for our mouths too. Teeth and gums contain high levels of water, so when mouths are properly hydrated, breath smell, swallowing ability, and mouth sensitivity improve. For example:

**Water produces saliva, your first defense against tooth decay.** Saliva is your ongoing natural cleaning source, washing away particles and naturally delivering calcium, fluoride, and phosphorus to your teeth. Dry mouth is a huge problem for seniors, as well as cancer patients, snoring and sleep apnea sufferers, and adults and children on various medications. Drinking water helps offset some of the problems with dry mouth. For more dry mouth tips, see the dry mouth section in this book—it's a huge problem for our teeth and diet in today's world.

**Water cleans with every sip.** It washes away leftover food before it can get lodged between your teeth and under your gums and begin the process of decay. It also buffers and dilutes the acids produced by bacteria found in your mouth. By contrast, other drinks, including juice, leave things behind, like sugar and acids. These eat away at your teeth and feed your mouth's bacteria, which causes cavities.

Research shows that every time we sip an acidic beverage (including juices, diet drinks, and sports drinks), acid coats our teeth for thirty to sixty minutes. Heartburn and acid reflux have the same damaging effects on teeth as soft drinks do. So, if you brush your teeth two times per day for two minutes each but drink two sodas per day, you are losing a mouth marathon at a rate of four minutes of cleaning versus two hours of acidic damage. That's an uphill battle!

It's important to recognize energy drinks as popular beverages that are causing growing dental disease -- I treat rotted teeth,

requiring costly root canals almost every day. Most people have long accepted that sodas are dangerous because of the sugar; more recently, people are realizing that fruit juices are not a healthy alternative to soft drinks but are nearly as sugary and bad for teeth. (Juice has been shown to have zero nutritional value.) Energy drinks now are causing concern, hiding under the guise of being “healthy” or for active adults “on the go.” Kids and teens guzzle them after sports practices, with meals, and to give them a supposed extra boost to get through classes. Researchers have found that the drinks’ high levels of citric acid, malic acid, and/or phosphoric, added for improved flavor and shelf life, strip teeth of their enamel (which is designed by nature to protect teeth from decay). Beverage companies aren’t required to declare on product labels the amount of citric acid they contain. “No sugar” diet drinks are proving to be very harmful on teeth as well, due to the many preservatives and acids. Studies have shown diet drinks may be just as likely to cause insulin problems in people with diabetes as regular sugar sodas are.



### **What’s at Stake**

*About 13 percent of adolescents ages twelve to nineteen in the United States have at least one untreated decayed tooth; that number jumps to 20 percent for children ages five to eleven. According to CDC reports, fluoridated water is one of the best ways to combat tooth decay. In fact, for every one dollar spent in prevention, such as fluoridated water, up to thirty-eight dollars are saved in future dental treatment costs. That’s a 3800% savings!*



### ***Hidden Popsicles: Judson's First Lesson in Oral Health***

*Sugary and acidic drinks are not the only culprits causing adolescent and childhood tooth decay. Sour candy, bread, crackers, and chips leave similarly destructive starches and preservatives on our teeth for minutes or even hours after we consume them.*

*One summer when my son, Judson, was about four years old, he began a sneaky habit. He would wake up before his mom and me and sneak out back to eat popsicles. He was quiet about it too. He would carefully shut the screen door to the back porch and would even throw his wrappers away. Eventually we caught him when we found a mountain of Otter Pop wrappers in the garbage can outside. A few months later, I found his first cavity on an X-ray—and it was huge! Even with Dental Dad helping him brush and floss daily, he nearly lost a baby tooth that he needed to keep for at least six more years for proper jaw and teeth development.*



### **Water contains fluoride, in most cities in the United States.**

Tooth decay was on the rise until water fluoridation began in the 1945, with Grand Rapids, Michigan, being the first city to fluoridate. Then, for several decades, tooth decay was decreasing, up until sugary drinks and sodas began to dramatically rise in consumption.

Fluoride is considered “nature’s natural cavity fighter” because it occurs naturally in many foods, as well as water, and protects teeth from cavity-causing bacteria. Bacteria that are in plaque produce acids that adhere to and break down our protective enamel. Fluoride makes tooth enamel more resistant to bacteria’s acid attacks by combining with the phosphorus and calcium in our saliva to form an even stronger and smoother mineral coating than nature gave us.

The key to safety and efficacy is the level of fluoridation in water:



under one part per million is considered a safe level. That's less than one drop of fluoride for every 1 million drops of water. Occasionally I will meet a patient with brown pits or rough pits on their teeth from drinking well water in rural areas. Well water may have concentrations of fluoride of six parts per million or more—six times or more than the recommended dosage. This is considered too high and not recommended by professionals. Most bottled water and many fridge-filtered waters do not contain fluoride. So I'll continue to give my kids tap water until they are twelve to thirteen years old and all of their teeth are erupted. If used correctly, fluoridated water can be a huge help, especially for developing teens and children.

### ***The Science Behind Fluoride***

Here's why fluoride works so well with our teeth. Hydroxyapatite is a strong, naturally occurring crystal-like mineral form of calcium and fluoride found in our teeth and bones. Hydroxyapatite is found elsewhere in nature as well, such as in sea coral. Fluorhydroxyapatite is hydroxyapatite combined with fluoride to make a super-strong mineral shell on teeth. So, when this important mineral (fluoride) is used properly, teeth can become stronger and whiter.

Think of a natural tooth as being like a stone: smooth, strong, and resistant to invasion. When you consume high levels of starches, acidic drinks, sweets or are malnourished, the stone begins to weaken and become porous. For many who drink high levels of soft drinks, their teeth begin to look like volcanic rock—much weaker and more brittle, plus the pores can grow larger and are open to invasion. When we correctly apply fluoride to the rock (tooth) in time, it takes on the good properties of hydroxyapatite and makes the teeth even stronger. The strengthened enamel looks more like granite or quartz than volcanic rock—smoother, harder, and more resistant to invasion.

Fluoride helps repair tooth decay in its earliest stages by building

up the tooth in a process called remineralization. Remineralization is when hydroxyapatite can transform into fluorhydroxyapatite. This cavity-fighting mineral even reduces the ability of plaque bacteria to produce acid in the first place. It can arrest the plaque and push the “pause button” on it before it breaks into our teeth. Truly, fluoride is the best natural cavity fighter out there, helping our teeth stay healthy and strong. Xylitol sugar is not only great for our teeth and sinus, but it has been shown to give fluoride a natural boost (more on xylitol later in this book). These changes aren't usually visible to the human eye, but they are visible under a microscope. You can feel the improvements with less sensitivity, fewer cavities, and more successful checkups.

Exposure to fluoride can be especially beneficial for infants and children. For kids between the ages of six months and sixteen years, fluoride becomes incorporated into developing permanent teeth, protecting them from cavity-causing bacteria. The ADA and the CDC have reported that children who drink fluoridated tap water have fewer decayed teeth than those who do not. Simply by drinking water, a person receives fluoride's protective benefits.

There is a vocal minority who disagree with fluoride being added to water. They cite studies that point to negative effects of ingesting fluoride regularly, but those studies are fewer and less convincing than those supporting it.

If everyone used fluoridated toothpaste properly, consumed fewer sugar drinks and starchy foods, drank more water, and received fluoride treatments regularly at the dentist, we may not need fluoride in the water. But until that happens, adding the naturally occurring mineral to the water serves the general population well, especially underserved, high-risk, and malnourished populations. Why take the risk?



## **The Drink Challenge**

*Because I've always been intrigued by teeth and I'm a bit of a science nerd, I saved my wisdom teeth after they were removed when I was a teenager. (Interestingly, I've never had a patient tell me they kept their wisdom teeth after having them removed...) Years later, after dental school, I finally decided what to do with them: have my teeth become my own research project.*

*More and more of my patients were suffering from broken and decayed teeth due to poor diet and consuming soft drinks. I decided to test just how quickly some popular soft drinks could destroy my wisdom teeth, which were healthy and cavity-free when they were removed. Like many people, I had wisdom teeth that were coming in crooked, were hard to reach and clean, and were likely to negatively impact my other teeth. I was also leaving the country for some volunteer work for my church, and I didn't want to have any issues while I was away. So my dentist and parents decided it was best to remove them. I have never missed them, nor did it lessen my ability to chew and eat.*

*I placed each one of my four pearly whites into a glass of each of the following drinks: Coca-Cola, G2 (low-calorie) Gatorade, Mountain Dew, and Diet Coke. The drinks damaged my teeth from worst to least in that order, but the difference among them was slight. In less than a week, all four teeth looked like sponges when placed under a microscope. The enamel had been destroyed, leaving chalky and brittle teeth behind. Under a microscope, they went from looking like smooth, hard glass to porous sponges. Within just a few days, the clear liquid beverages were turned cloudy with all of the mineral content that had leached out of my teeth. Trying to justify why Diet Coke is less harmful on our teeth than regular Coke is like saying washing a car every eleven months is better than washing it once a year.*

*It offers only the barest of improvement. To see photos of my experiment, see the resources section of this book.*



## **Use Xylitol**

Xylitol is a great natural sugar alternative that not only satisfies your craving for sweet things but even supports oral and sinus health. Start your kids off right—buy them some sugar-free, xylitol-sweetened gum, suckers, or mints and encourage them to use them after eating or in place of sugary snacks. It's also safe and helpful for nursing and pregnant mothers. This natural sweetener is even perfect for people with diabetes because it metabolizes without using insulin. In my home, we often use xylitol sugar granules in place of table sugar for sweetening fruit, making smoothies and ice cream, and baking. See the resources section of this book if you'd like me to send you a free sample of some xylitol mints or candies.

## ***The History of Xylitol***

Xylitol was born out of a sugar shortage in Finland, during World War II. Desperate for a sweet alternative, the Finnish people started harvesting xylitol from their birch forests. About thirty years later, researchers discovered that xylitol safely arrests the mouth bacteria that causes tooth decay.

Finland has had an official preventative health care program since 1972. This means restoring dental problems is a secondary objective, not the primary health plan. This is now the standard of care for modern dentistry. In 2013, the Finnish National Institute of Health & Welfare recommended that all one-to-six-year-olds be given xylitol after meals.

That same year, the Ministry of Social Affairs and Health also recommended that xylitol products be used to improve dental health and to decrease the costs of dental care. The results have been impressive, not only in improving the health of children and adults but in bringing awareness to this helpful natural derivative.

Two of my favorite companies that make various xylitol products are Xlear ([www.xlear.com](http://www.xlear.com)) and Branam Healthy Smiles for Life ([www.branamsmile.com](http://www.branamsmile.com)). They make various mints, gums, mouth rinse, toothpastes, and sweeteners that not only taste great but are much better for you than table sugar or artificial sweeteners. For my highest-risk patients, or those who suffer with severe dry mouth, we use Carifree prescription products ([www.carifree.com](http://www.carifree.com)), which are available through select dental professionals.

## **Conclusion**

With proper and regular flossing and brushing, as well as good habits like drinking water and replacing sugar with alternatives like xylitol, you can have a healthy mouth and avoid a lot of expensive, painful corrective procedures. Simply focus on preventative measures to avoid expensive dental treatments later. There's a myth that has crept into the thoughts of many people: that caring for teeth is expensive, time consuming, and uncomfortable and that teeth are too much work to maintain or save. Before I became a dentist, I thought some people just had "bad" or "soft" teeth. But this thinking is wrong and unhelpful for those in need. It just isn't true! Preventative care costs less per month than a cable bill or cell phone plan, usually much less. For such little effort and money, you can avoid most major dental work, and you'll improve your total-body health in the process.