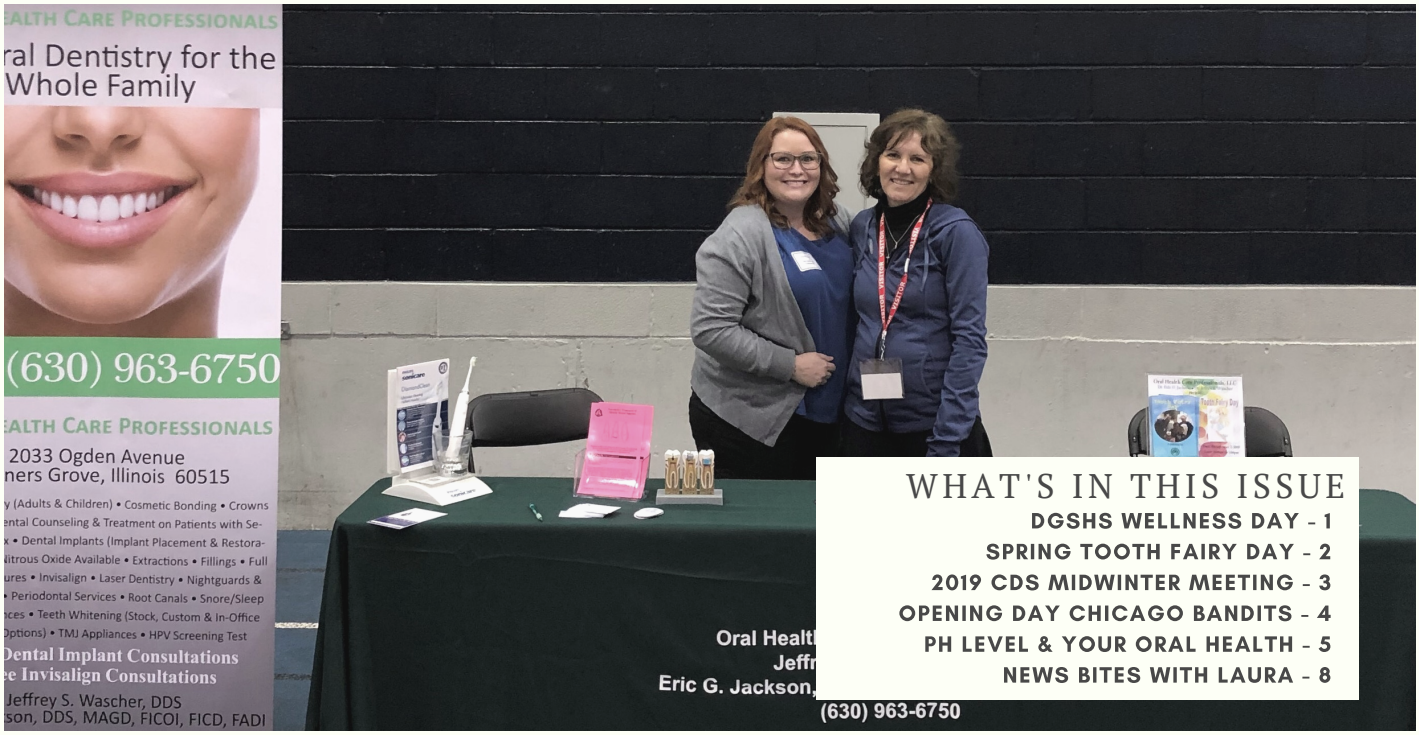
JUNE 2019, VOLUME 9, ISSUE 2

The Dental Examiner

Oral Health Care Professionals - Dr. Eric G. Jackson & Dr. Jeffrey S. Wascher

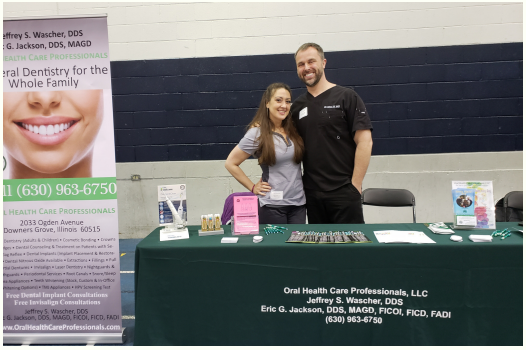


Patient Coordinator, Kellianne, and Financial Coordinator, Laura, attending the 2019 DGSHS Wellness Day

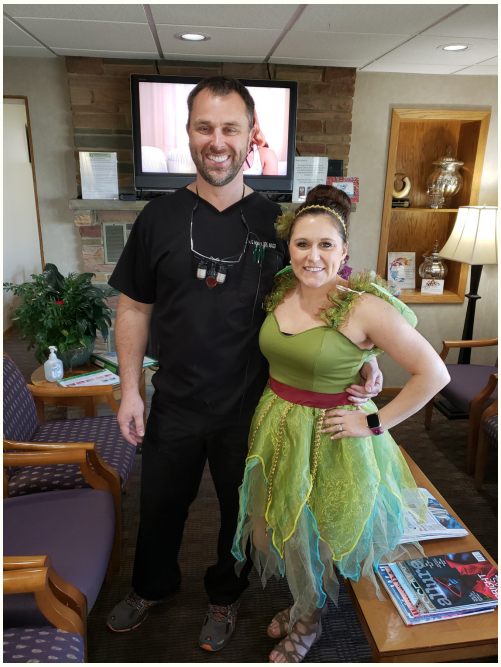
WHAT'S IN THIS ISSUE

Downers Grove South High School *Wellness Day*

On May 1st our team again attended biennial Downers Grove South Wellness Fair! This event is always such a blast! Over the 8 hours Jenny, Kellianne, Laura, and Dr. Jackson spoke to about 2800 students about a variety of dental topics ranging from teeth & gums to dentistry as a profession/career. Thank you to everyone at Downers Grove South for another very well executed event! See you at the next event in 2021!



Dental Assistant, Jenny, and Dr. Jackson at the 2019 Wellness Day



Dr Jackson with our Spring 2019 Tooth Fairy

SPRING TOOTH FAIRY DAY

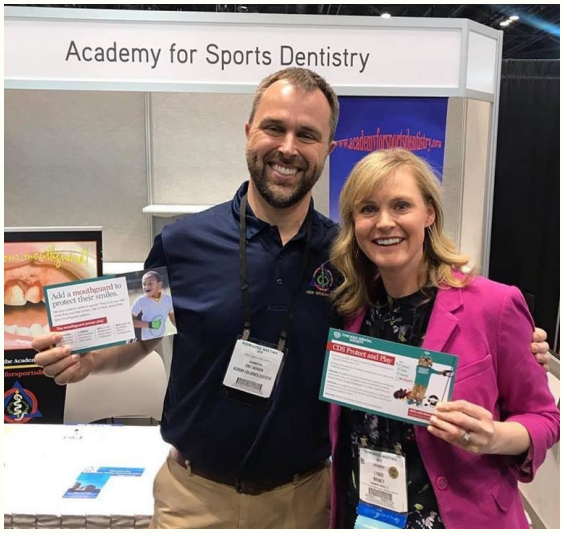
Celebrating 35 Years of Tooth Fairy Visits!

The Tooth Fairy flew into our office for the 35th year in a row on May 3rd! Spring Tooth Fairy Day was a great day filled with happy first dental visits for the kids! Such an effective
way of preparing children for their first dental appointments!

2019 CHICAGO DENTAL SOCIETY

MIDWINTER MEETING

The Academy for Sports Dentistry (ASD)



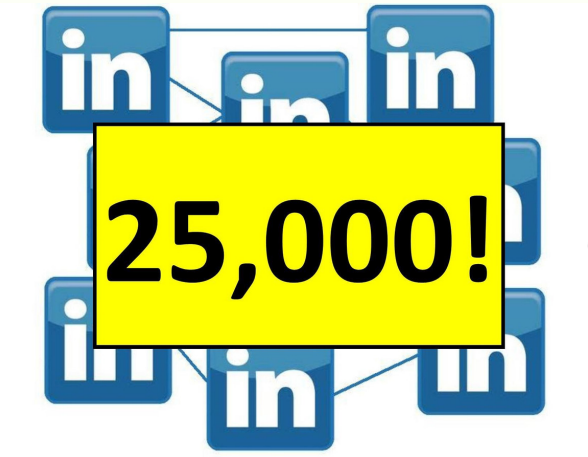
Dr. Jackson represented The Academy for Sports Dentistry (ASD) at the 154th annual Chicago Dental Society Midwinter Meeting in February. Dr. Jackson has been on the National Board of Directors of the ASD since 2018.

Opening DAY

2019 SEASON

Opening Day for the Chicago Bandits was Thursday June 12th for the Chicago Bandits. The first 500 fans in the ballpark received a free T-Shirt courtesy of team dentist, our very own Dr. Eric Jackson! Buy single or season tickets via their website: ChicagoBandits.com

SOCIAL MEDIA GOAL!



CONGRATULATIONS TO OUR DR. JACKSON ON REACHING AN INCREDIBLE 25,000 CONNECTIONS ON LINKEDIN THIS FEBRUARY! DR. JACKSON WOULD LIKE TO THANK ALL HIS FOLLOWERS FOR THIS WONDERFUL ACHIEVEMENT! IF YOU'RE INTERESTED IN CONNECTING WITH DR. JACKSON ON LINKEDIN FOLLOW THIS LINK:

HTTPS://WWW.LINKEDIN.COM/IN/ERICJACKSONDDS

THE IMPORTANCE OF PH TO YOUR ORAL HEALTH

ERIC G. JACKSON, DDS, MAGD

Concentration of Hydrogen Ions	pH	Examples
1/10,000,000	14	Liquid drain cleaner, Caustic soda
1/1,000,000	13	Bleach, Oven cleaner
1/100,000	12	Soapy water
1/10,000	11	Ammonia (11.9)
1/1,000	10	Milk of magnesium
1/100	9	Toothpaste
1/10	8	Baking soda, Sea water
0	7	"Pure" water
10	6	Milk
100	5	Acid rain, Black coffee
1,000	4	Tomato juice
10,000	3	Grapefruit & Orange juice
100,000	2	Lemon juice, Vinegar
1,000,000	1	Sulfuric acid
10,000,000	0	Battery acid

Most people know that a sugary diet promotes tooth decay. What continually surprises me is how few people seem to know nothing about how pH affects your oral health. You remember pH from chemistry class, right? A pH of 7 is considered neutral, a pH higher than 7 is a base (alkaline) and an pH lower than 7 is an acid (acidic). I've included a handy chart for reference with some real world examples of each pH.[1] In general, the human body likes to operate around the neutral pH of 7, and that makes sense because pure water has a pH of 7 and our bodies are comprised of mostly water.[2] Similar to our bodies, our teeth also benefit from an pH neutral environment. I can't help but shake my head when the next fad health fix becomes popular and the public completely ignores pH levels with respect to their dental health. Many of the most popular fad fixes involve using or consuming highly acidic liquids like apple cider vinegar. If you believe everything written on the internet about it, apple cider vinegar will help you lose weight, dissolve your kidney stones, help relieve migraine headaches, and kill or slow the growth of cancer cells, just to name a few purported benefits. I'm not a medical doctor or medical researcher and therefore I'm not qualified to officially comment on the validity of these claims, but I am qualified to guarantee that regularly drinking apple cider vinegar is a very good way to give yourself cavities. It's the same with lemon juice or excessive lemon water by the way. They're all very acidic. Enamel (the whitish outermost layer of your teeth) begins to breakdown at an acidic pH of 5.5.[3] Grind your teeth or have gum recession? If so, you probably have exposed dentin (the layer of tooth structure under your enamel) and cementum (the substance your tooth roots are made of). These substances aren't as dense and resilient as enamel and begin to break down an acidic pH of 6.5. I know what you're thinking: "That's barely below neutral, and there is a lot of food and drink out there that is below 6.5.[4] What do I do?" The human body is an amazing machine that, when working properly, compensates for temporary changes in pH. In the mouth, saliva is one of the most vital tools the body uses to regulate pH. Patients lacking a normal flow of saliva are not able to buffer acids produced by their oral bacteria or the acidic foods they consume. This unregulated acid can lead to large amounts of tooth decay very rapidly.

And in case you were wondering, yes, I have seen an increase in these types of cases over the last few years. Patients with years of negligible dental issues suddenly develop aggressively growing cavities seemingly out of nowhere, but through conversation we often find that the patient has incorporated some sort of new health regimen to their

routine. Sometimes it's spoonfuls of apple cider vinegar; other times it's large amounts of lemon water throughout the day. There are others, but vinegar and lemon are the most common culprits I've found in my practice. The patient wants to increase their overall health but unfortunately didn't take a step back and examine the science and potential negative consequences of their treatment regimen.

Dentists have long witnessed patients striving for better overall health through a variety of means that unintentionally harm their teeth. Take the soda vs diet soda conundrum. Most people know that soda is bad for your teeth because it has a lot of sugar so they switch to a sugar-free diet soda. They think they're dentally safe…but they forgot about the pH! Diet sodas are still acidic and still promote tooth decay especially when consumed regularly in large amounts. Sports drinks like Gatorade have long been marketed as a healthy drink that replenishes electrolytes after physical exertion. Unfortunately, dentistry has seen a large uptick in sports drinks related tooth decay, especially in children and young adults. Why? Sports drinks have a large amount of sugar and has a pH similar to soda. Due largely to its extremely effective ad campaigns, Gatorade is commonly being given to children whenever they exercise. Scientifically, it's incredibly unlikely your child lost enough electrolytes to require the sports drink. Give them an ice-cold bottle of water instead…but choose your water source wisely (more on that in a bit). Even if you disagree with me and want to give your child a sports drink after exercise I'll concede because at least the drink is being used in the intended manner. What I find amazing is the number of my pediatric patients that tell me they sit around the house studying, watching TV, or playing video games while drinking Gatorade. "It's healthy for me" is usually uttered somewhere by the child in the conversation. No, it's not. Please do not allow sports drinks to be casually sipped on when not exercising. Too much sugar. Too much acid. A glass of water is a much better choice. This conversation mirrors a common conversation I have with parents of young children who like to drink fruit juice because "it's healthy." It's really not. So much so that the American Academy of Pediatrics (AAP) updated new guidelines for pediatric fruit juice consumption. If you would like to know additional details about the AAP's guidelines please visit our website and read my 2017 update here: http://www.ericjacksondds.com/current-recommendations-for-pediatric-fruit-juice-consumption.html

I once had a patient who was an ultra-marathon runner. If you're not familiar with that term, an ultra-marathon is technically any race longer than the regular marathon distance of 26.2 miles with the most common ultra-marathon race distances being 50 and 100 miles. [5] She was in town and came to my office because she was having multiple areas of tooth pain. Our exam and x-rays revealed that nearly every tooth in her mouth had decay ranging from mild to severe. We discussed the findings and I found out that her personal trainer/coach was having her set an alarm and wake up every 2 hours at night to drink 8 ounces of Gatorade to keep her hydrated. Constantly bathing the teeth in sugary acid had taken an incredible toll on her teeth. Sadly, her coach had forgotten the acid/base chemistry of the mouth and overlooked the potential dental issues this recommendation could cause in the name of overall health and hydration. Sounds a lot like the apple cider vinegar issue I previously mentioned, right?

Potential dental issues aren't just limited to sodas and sports drinks though. Let's talk about sparkling seltzer waters like LaCroix and Bubly for a bit. Sales of sparkling seltzer waters are booming these days, and for good reason, they're delicious! In fact, I'm enjoying a can right now as I write this! Earlier I mentioned people switching from soda to diet soda mistakenly thinking they were protecting their teeth. Well the same phenomenon has happened with sparkling seltzer waters. They're not pH neutral because they're not plain water. Any beverage with carbonation is acidic due to the carbolic acid that gives it the bubbles.[6] So much like diet soda, carbonated water is acidic water and therefore not as "tooth-healthy" as you think. Enjoying a can on occasion is not an issue because of the before mentioned pH balancing ability of your mouth, but people are consuming WAY more than just a "once-in-awhile" can. Consumption of 6 or even 12 of these sparkling waters per day by one individual is not unheard of because they're under the impression they're hydrating and being healthy.[7] But they're forgetting their pH science and putting their dental health at risk just like the diet soda crowd and my ultra-marathon patient. Enjoy these sparkling waters from time to time and don't make them your only source of hydration. Regular water, especially with fluoride from the tap, is still the best beverage for your teeth.

Speaking of water, not all water is alike. In my opinion "Fitness waters" like Vitaminwater and Propel should not be classified with "regular" waters but instead with sports drinks. Sure, they both have 'water' in the name, lack sugar, and lack carbonation, but they are not pure water. Fitness waters like these two examples typically have a very low pH nearly that of soda around 3.3. Even some "regular" bottled waters can be acidic! Aquafina has a surprisingly acidic pH of 5.6 and Dasani of 5.7. There are plenty of other bottled water options that are closer to pH natural 7 that you could choose. Smartwater and Fiji both test around pH 6.9 just to name a few common brands that are close to neutral pH. Why select the acidic brand and add to the acid in your mouth? I'd pick something close to pH neutral. Also, I would like to point out that pH testing is typically a range so there's no one definitive figure to quote and you will find a varying degree of pH tests from multiple reference sources. I appreciate the formality of the article published in the June 2015 Journal of Dental Hygiene as opposed to the numerous amateur websites and YouTube pH testing videos available. have included an image above from the study entitled "pH Values Compared" because it's a great summary of their pH findings, but I encourage you to read it in its entirety.

I feel it is worth mentioning that relatively recently a relatively new category of bottled water has emerged in stores, alkaline bottled water. Each of these waters are created to have a basic pH well above 7. Essentia is one of these examples and has a pH of around 9.5. Alkaline water has grown in popularity in conjunction with the growth in popularity of ketogenic diets, but these bottled waters have both their proponents and critics. Much of the research is fledgling and often even conflicting. Like the before mentioned apple cider vinegar, alkaline water is purported by advocates to be an amazing item with all sorts of wide health benefits ranging from improved exercise recovery to cancer fighting abilities. Again, I'm not qualified to weigh in on such medical claims but I do find it interesting that alkaline bottled water might offer patients help in balancing the pH of their mouths, much in the same way a baking soda toothpaste does. Neutralizing the acids produced by bacteria has long been a desirable goal in the dental profession. Time and research will tell if this new category of water will start being recommended by dentists and the American Dental Association.

One final pH tidbit to mention in regards to your dental health. If you or a loved one spends a lot of time in a pool, please make double sure to practice excellent oral hygiene at home. In the past I have had multiple patients who were on a swim team struggle with numerous cavities. This phenomenon is often attributed to pH and Chlorine levels in the swimmer's individual pool. Take note though that not all swimmers experience this negative phenomenon. If the pH of the swimming pool is overly acidic, one could easily reason that this acid plays a factor in cavity formation since swimmers routinely have pool water in their mouths while practicing or competing. The same goes for hot tubs by the way! If you would like to know more, the Colgate company website has an excellent article on the effects of Chlorine on your teeth.[i] Here's a link to the article: https://www.colgate.com/en-us/oral-health/life-stages/adult-oral-care/the-effects-of-chlorine-on-your-teeth-1215

Table I: pH Values Compared

	Ozarka Natural Spring Water	Aquafina	Dasani	Nestlé Pure Life	Evian	Fiji
pH when tested in lab	5.16	5.63	5.72	6.24	6.89	6.9
pH reported in water quality report or website	5.7 to 7.3	NR*	NR*	6.6 to 8.0	7.3	7.7
	Smartwater	Houston Tap	Pasadena Tap	Evamor	Essentia	
pH when tested in lab	6.91	7.29	7.58	8.78	10.38	
pH reported in water quality report or website	NR*	8.0	7.8	8.8	9.5	

*Not Reported

When it's all said and done, I always recommend my patients keep it simple and reach for a glass plain old Chicago tap water before anything else. It's plentiful, it's economical, it's pH neutral, it's fluoridated, and it really does have one of the best tastes I've come across while traveling. No joke. Chicago tap-water is really good water. Acid/base chemistry will always be an important tenant in the field of dentistry and it's up to all of us to keep up with new products, ideas, and marketing techniques. I hope this article has brought to light a variety of such topics. If you would like to speak about acid/base chemistry in the mouth, water, sports drinks, or any other topic, please feel free to call the office and schedule a complimentary appointment with me. Email and Twitter are also available. I am extremely passionate about modern dentistry and love discussing it with patients, so please don't hesitate to contact me.

Sincerely,
Eric G. Jackson, DDS, MAGD, FICOI, FICD, FADI
dreric@oralhealthcareprofessionals.com

[1] https://itschemicallydelicious.wordpress.com/2013/02/07/the-science-behind-spherification/

[2] https://www.chicagotribune.com/lifestyles/health/sc-health-0522-ionized-water-20130522-story.html

[3] https://www.colgate.com/en-us/oral-health/life-stages/adult-oral-care/ph-of-toothpaste-and-enamel-0316

[4] http://colgate.dentalaegis.com/pdfs/Colgate_WebArticles_Guignon_6th.pdf

[5] https://en.wikipedia.org/wiki/Ultramarathon

[6] https://www.washingtonpost.com/lifestyle/wellness/bottled-water-drinkers-dont-let-splashy-packaging-and-playful-flavors-fool-you/2017/04/24/cfddac88-23b6-11e7-a1b3-faff0034e2de_story.html?utm_term=.7677fe104be1

[7] https://www.theatlantic.com/health/archive/2016/02/the-sad-truth-about-seltzer/433947/

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