

Xlear[®] SINUS CARE

Innovation Through Science



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Rinsing vs. Washing Your Nose

XYLITOL VS SALINE ALONE	BASIC SALINE	SALINE WITH XYLITOL
Rinses	√	√
Hydrates		√
Cleanses		√
Breaks Up Biofilm		√
Reduces Bacterial and Viral Adhesion		√

“My favorite is Xlear, a saline rinse enhanced with xylitol—a well-researched natural substance that reduces swelling inside the nose and prevents biofilm. My patients report great results with Xlear, whereas they often complain of burning with conventional saline.”

-Dr. Gustavo Ferrer, MD, Author, Cough Cures

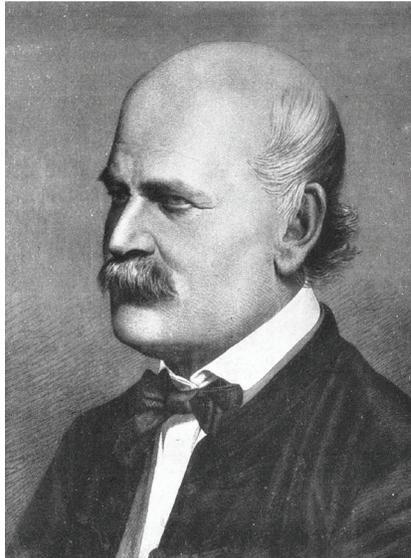


The Development of Hygiene in Medicine

In 1848, Ignaz Semmelweis pioneered a medical practice common today—handwashing. However, in the beginning, the medical community didn't readily accept his ideas; in fact, they ridiculed him.

To Semmelweis, this was a matter of life and death. As an obstetrician newly in charge of two medical wards, he discovered a concerning situation: 16.6% of women were dying from an infection in the clinic where doctors and medical students delivered babies, whereas the charity ward, which had midwives performing the deliveries, only had a 2.8% mortality rate.

The doctors chalked up the difference to “something in the air” or “overcrowding.” But both clinics were in the same hospital and the charity ward was busier. Semmelweis knew there must be another explanation.



He looked at the doctors' schedule and discovered a crucial aspect: in the morning, the doctors performed autopsies on the bodies of those who died the previous day, then they would visit sick patients, and then they would go to the maternity ward to deliver babies—all of this without washing hands in between patients. These doctors never delivered in the charity ward—only midwives worked there. Semmelweis concluded that the doctors must be carrying something on their hands from patient to patient. He implemented a handwashing protocol and in one year the maternity ward's 16.6% mortality rate dropped to 1.2%.

Even with this stunning result, his contemporaries rejected his ideas, believing a doctor's hands couldn't do such a thing. Semmelweis's supervisor, Johann Klein is purported to have said, ***“Keep yourself to what is old, for that is good. If our ancestors have proven it to be good, why should we not do as they did? Mistrust new ideas. I have no need of learned men. I need faithful and obedient subjects.***

He who would serve me must do what I command. He who cannot do this or who comes full of new ideas may go his way.”

In coming years, Dr. Klein stripped Semmelweis of his position for pushing his ideas and disrespecting the medical community.

Though today we've adopted this practice, we still witness similar situations of rejection of progression. Companies innovate, creating new, dynamic solutions to societal problems, only to be quashed by governing entities who profess to improve and protect but rely on historical precedence and personal benefit. Though rules and regulations are necessary, freedom of thought and embracing innovation is just as crucial.

Hygiene Needs to Evolve

Just as people's hands are in constant contact with their environment and become inundated with germs, so do their noses. It is estimated that a person breathes in approximately 2,000 gallons of air each day—2,000 gallons of air filled with germs, allergens, and other pollutants. Talk about constant contact. The nose acts as a filter to keep the air people breathe clean and the respiratory system healthy. The nose does a lot of work but does not get a lot of attention. Just like any other filter (think furnace, water, or car filters) people need to make sure their filter, the nose, is washed regularly.

For over two decades, Xlear, Inc. has educated medical professionals and the general public about the need to wash the nose and create a solid hygiene evolution with growing success. The number one reason people visit their family physicians is because of upper respiratory issues. A lot of these visits may be mitigated. It isn't hard either, just spray your nose a couple times when you brush your teeth morning and night.



What We Learned in 2020

The new coronavirus wreaked havoc throughout the world. People adapted and a vaccine was created, but its effect remains. Unfortunately, with all the focus on the vaccine, hygiene options were never really looked at nor harnessed by our government and health officials, even

with the science backing them. The effects of the virus could have been dealt with earlier and, still today, we can have a healthier society if only people could broaden their scope. Nasal hygiene tools are one of those overlooked therapies that would be extremely beneficial.

Important Studies

Xylitol Nasal Irrigation in the Management of Chronic Rhinosinusitis¹

In this pilot study, researchers wanted to find out if irrigating the sinuses with a water-xylitol solution would improve symptoms of people suffering from chronic rhinosinusitis. They concluded, "Xylitol irrigations result in greater improvement of symptoms of chronic rhinosinusitis as compared to saline irrigation."

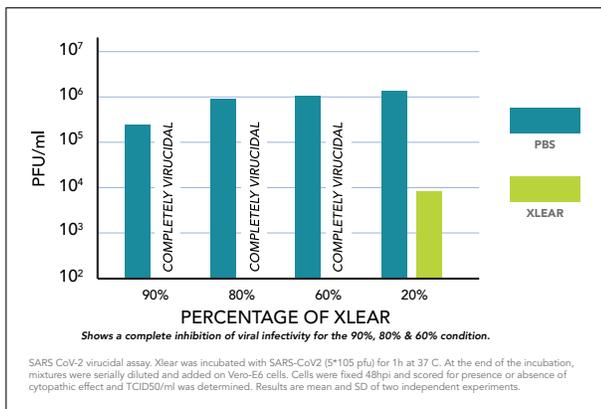
Benefits and Safety of Nasal Saline Irrigations in a Pandemic—Washing SARS-CoV-2 Away²

In this paper, researchers discuss how cleaning the sinuses with a simple saline could be useful during the pandemic. They conclude saying, adding an anti-viral or virucidal agents to the saline could be beneficial against SARS-CoV-2.

Anti-Adherence of SARS-CoV-2 Virus³

In a study looking at Iota-carrageenan's effect on SARS-CoV-2, researchers found that xylitol also had an anti-adherence effect on the virus.

Deactivation of SARS-CoV-2 with Xlear Nasal Spray⁴



In this paper, researchers look at two studies performed at Utah State University (2020) and University of Geneva (2020) which showed that Xlear Nasal Spray destroyed 99.99% of the SARS-CoV-2 virus.

Using Nasal Sprays to Combat SARS-CoV-2⁵

Researchers concluded that using a nasal spray that deactivates the SARS-CoV-2 virus in the nose, "may not only prevent person-to-person spread of SARS-CoV-2, but may also diminish the severity of disease in patients by limiting spread and decreasing viral load delivered to the lungs."

Potential Role of Xylitol Plus Grapefruit Seed Extract Nasal Spray Solution with SARS-CoV-2: Case Series⁶

In this case study, participants experienced a reduction of symptoms related to SARS-CoV-2 infection and received a negative test 50% faster than the average time of negativization.

Xylitol's Method of Action against SARS-CoV-2⁷

Antony Cheudjeu found that xylitol blocks receptor sites of the SARS-CoV-2 virus, which inhibits it from attaching to the cell wall of its host.

Further Evidence of Xylitol's Effectiveness Against SARS-CoV-2, H1N1, and Other Viruses⁸

In this study, researchers used an electron microscope to take pictures of xylitol's and grapefruit seed extract's (GSE) interaction with the SARS-CoV-2 virus. They concluded, "Combination therapy with GSE and xylitol may prevent spread of viral respiratory infections not just for SARS-CoV-2 but also for future H1N1 or other viral epidemics. GSE significantly reduces the viral load while xylitol prevents the virus attachment to the core protein on the cell wall."

Comprehensive Literature Review of Intranasal Therapy Against SARS-CoV-2⁹

In this review, researchers looked at all the studies talking about intranasal therapy in fighting against SARS-CoV-2. They concluded, "Based on the literature review, it is encouraging to note that studies reviewed note that using nasal spray with antiviral properties has promising efficiency and safety in the treatment and prophylaxis against SARS-CoV-2... We propose that intranasal administration of antiviral and virucidal therapies decrease the viral activity in the nasal pathway, thus preventing disease transmission, expedite recovery of patients, decrease severity of symptoms, reduce hospitalization, and mortality."

For full references and more studies, visit
[XLEAR.COM/SCIENCE](https://www.xlear.com/science)

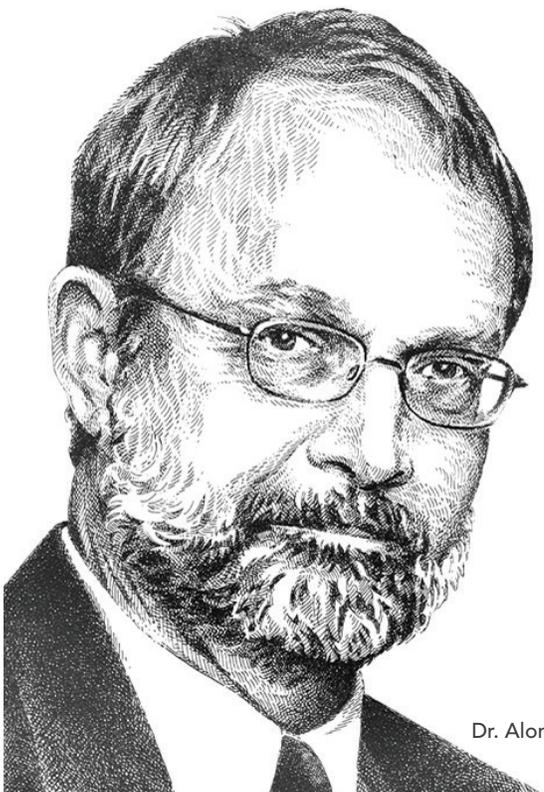
What Is Xylitol?

Xylitol is a 5-carbon polyol naturally found in many fruits, vegetables, and even in the human body. For mass-market distribution, xylitol is extracted from the fibrous parts of plants, commonly corncobs and corn stalks, or birch trees. It is as sweet as sugar and a common alternative sweetener.

Starting in the 1960s, researchers performed clinical studies on the functions of xylitol in the mouth and its interaction with bacteria. Subsequent research has been done to show xylitol's safety and effectiveness in the nose and sinuses.



Why Put Xylitol in a Nasal Spray?



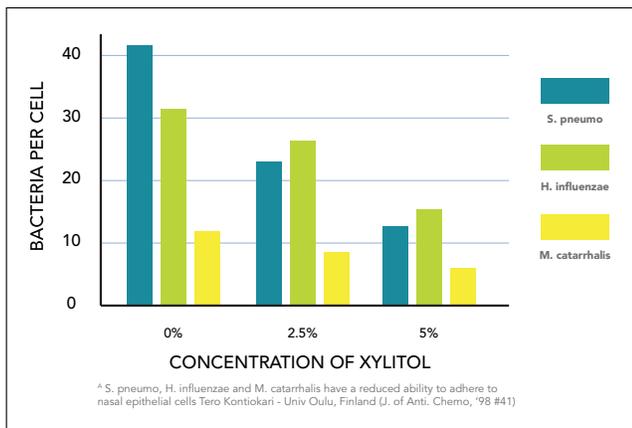
Dr. Alonzo Jones, DO

Clinical studies outside of oral health came out in the 1990s, showing a reduction in child ear infections when they chewed xylitol gum. If chewing xylitol gum successfully treated ear infections, then the natural step would be to put it into a saline solution where it could more effectively prevent the onset of sinus infections and other sicknesses. After discovering the benefits of xylitol in the respiratory system, Dr. Alonzo (Lon) Jones, DO, put it in a nasal spray, being the first to do so.

Along with the microbial benefits, putting xylitol in saline allows for a higher tonicity in the solution without damaging or irritating tissues. The hypertonic solution helps to moisturize, wash, and reduce inflammation. Now there is an effective way to wash the nose, just like you would wash your hands.

Bacterial Biofilms

Xylitol works against bacteria in a few ways. Clinical studies show that xylitol inhibits the formation of bacterial biofilm. It does this through its



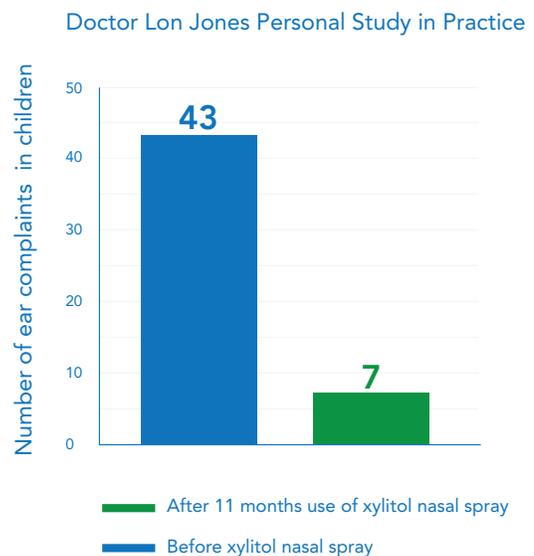
anti-adhesive effect on bacteria and by disrupting communication between bacteria. Since xylitol is a sugar-alcohol, bacteria attempt to metabolize it. But, because of the unique 5-carbon structure, they cannot metabolize the xylitol molecule. Bacteria then use their energy stores to eject the molecule, initiating a process that, in effect, starves the bacteria.

Xylitol renders bacteria ineffective, while not causing malignant adaptations. Some studies have even shown that when bacteria are exposed to xylitol, they adapt to a more benign strain. (References available upon request.)

Ear Infections

Xlear saline with xylitol helps prevent ear infections by disrupting bacterial biofilms and inhibiting bacterial adhesion on tissues. A clinical study published in the British Medical Journal in 1996 showed that the occurrence of otitis media reduced by 40% when children chewed xylitol gum. A different case report showed an 84% reduction in ear complaints when children used a xylitol nasal spray regularly. Additionally, the EU allowed claims of 50% reduction of ear infections with a xylitol nasal spray.

Washing the nose with a xylitol saline has a positive impact on inner ear health by inhibiting bacterial infection in the eustachian tubes and reducing the occurrence of ear infections, thus resulting in better language and motor



skills development. Children tolerate the xylitol nasal spray well, making it easy and effective. (References available upon request.)

Sinus Infections

Xlear saline with xylitol treats sinus infections much in the same way it helps prevent ear infections, by disrupting bacterial biofilms. Additionally, because of its cleansing effect, bacteria and viruses are washed out of the sinuses and nose. In a study published in 2011, researchers found that 75% of participants had a significant improvement in quality of life in terms of breathing when using a xylitol solution for sinus irrigation as compared to saline alone. In a separate study, researchers concluded, "Xylitol may be of use in preventing the onset or delaying the progress of rhinosinusitis." *(References available upon request.)*



Allergies and Asthma

Xlear saline with xylitol treats allergies and allergy symptoms through its cleansing, moisturizing, and inflammation-reducing properties. Because the solution pulls extra moisture out of the cells, the mucus thins and the cilia can dispose of the allergen-laden mucus, effectively washing the nose. The reduction of swelling and inflammation also alleviates nasal congestion.

Xlear saline with xylitol also can help with the onset of asthma attacks. In a report published in 2001 in *Clinical Practice of Alternative Medicine*, Dr. Alonzo Jones, DO, describes two cases where he treated his patients with a xylitol nasal spray. Both patients had severe asthma and were on multiple medications. Both also had been hospitalized because of asthma attacks.

In one case, after two weeks of washing with the xylitol nasal spray, the patient stopped using all asthma medications with no ill effects. After six months of using the spray, the patient participated in basketball and gymnastics without any trace of asthma.

In a second case, when the patient regularly washed with the xylitol nasal spray, she didn't experience any asthma, nor did she use any asthma medications. After a year's time, her peak airflow measurement rose from 150 L/min to 350 L/min. Though we realize this does not constitute a study, the results are promising. *(References available upon request.)*

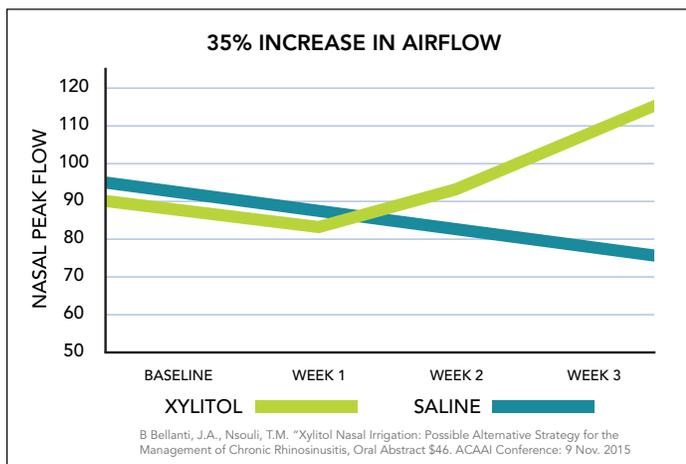
Sinus Inflammation

Xlear saline nasal spray with xylitol is hypertonic. Too much salt in a solution can be damaging or painful to the delicate nasal and sinus tissues, which is why other saline solutions only have around .9% particulate (salt and sodium bicarbonate). However, Xlear's saline spray with xylitol has 11% particulate. The higher percentage

is achievable because xylitol can safely be added in higher amounts without causing damage to sinus tissues.

The high tonicity washes the nose and allows the solution to osmotically pull extra moisture out of sinus tissues, reducing inflammation, a major cause of congestion. Doctors normally prescribe steroidal nasal sprays to reduce inflammation. The xylitol solution performs this function safely and naturally.

In a study performed at Georgetown University, researchers found that people who used a xylitol saline solution had 35% higher peak airflow in the nose when compared to those who used saline alone. Xlear saline with xylitol opens up the airway by reducing sinus inflammation. *(References available upon request.)*

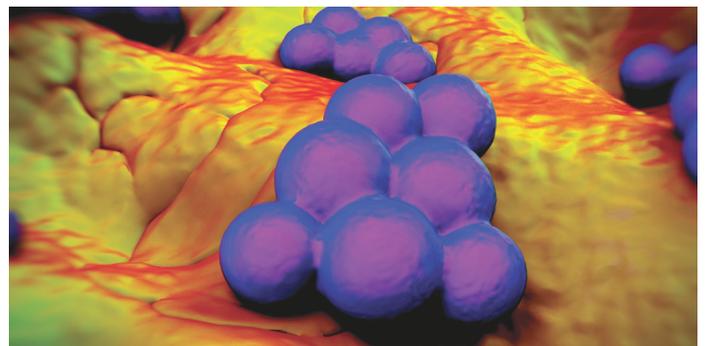


Superbugs

Washing with a xylitol saline solution can help reduce the rapid formation and spread of superbugs. In a recent study, researchers found that physicians overprescribe antibiotics 30% of the time, with approximately 50% of them being the wrong regimen of antibiotics. Overprescribing antibiotics creates dangerous problems, one of which is superbugs.

Xlear saline with xylitol is a safe and effective front-line therapy for common upper respiratory issues instead of using antibiotics because the solution washes the nose, breaks

up bacterial biofilm, reduces bacterial adhesion, alleviates congestion, and reduces inflammation without the use of steroids. *(References available upon request.)*



Complete Line of Sinus Care Products

Xlear SINUS CARE[®]

Since the company was formed in 2000, Xlear, Inc. has been recognized as the leading manufacturer of xylitol-based products in North America. Xlear, Inc. is committed to producing health-enhancing products based on the safety, effectiveness, and science of xylitol. From the beginning, Xlear, Inc. has been the industry leader, providing the newest innovations in drug-free sinus care in the natural and mass food and drug channels.



The Original 1.5 oz. Measured Pump Spray

Intended for daily use, Xlear Nasal Spray is the primary tool for nasal hygiene. The simple, natural solution helps keep the nose filtering the air well, keeping the air one breathes clean. It can be used as much as needed and is safe for all ages. The bottle delivers approximately 240 consistent, measured sprays with each pump and also ensures that the solution stays uncontaminated. It is easy to use and highly beneficial.



Xlear Rescue

Xlear Rescue is the nasal spray for when you need a stronger, but still natural, punch against whatever is causing your upper respiratory problems. Herbs and essential oils have long been used for natural relief from dozens of ailments. Xlear Rescue features herbs like Pau d'Arco, and essential oils like oregano, parsley, eucalyptus, and tea tree to give you fast, effective relief when you need it most.



Xlear Max

With the addition of capsicum annuum to the Xlear solution, Xlear Max alleviates serious cases of congestion. Capsicum also has anti-inflammatory and antihistamine properties, making it perfect for allergy relief. Aloe vera is also added to soothe delicate nasal and sinus tissues. This is not meant for daily use.



Xlear 12-Hour Decongestant

Xlear 12 Hour's patented formula is 99.9% natural and includes oxymetazoline to instantly relieve the worst cases of congestion. Xlear 12 Hour adds the benefits of xylitol to cleanse, moisturize, and soothe delicate nasal tissues. One of the biggest complaints of people who use nasal sprays with oxymetazoline is dryness—not so with Xlear 12 Hour. Xlear relieves congestion while also alleviating dryness and assisting the body's natural defenses so your airways can be healthy and clear.



Xlear Sinus Rinse Bottle

Sinus irrigation has been used for centuries to improve breathing. The Xlear Sinus Rinse dispenses the xylitol saline solution throughout the sinus cavity for a complete wash. The positive-pressure bottle lets the user squeeze the solution into the nose and sinuses with the amount of pressure he or she prefers. We do not recommend a complete sinus rinse on a daily basis.



Kid's Xlear Nasal Spray

The solution in Kid's Xlear is unaltered since it was originally developed with children in mind. However, the packaging differs from the original Xlear Nasal Spray, making it more approachable for children. This is important since a nasal spray is something many children haven't used previously. The bottle can also be used on babies. It allows drops to be placed in the nose—a gentler and recommended approach for infants.

Xlear Sinus Care: Safe, Effective, Widely-Available

Xlear Sinus Care products are widely available nationwide in health food and grocery stores, and pharmacies. All products are over the counter. Other than Xlear 12 hour, Xlear Sinus Care products have no contraindications and are safe to use by everyone.



Look for Xlear Sinus Care products at these and other fine retailers.



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