

ENT SURGICAL CONSULTANTS

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NASAL COMPLETE PACKET

NASAL & SINUS HYGIENE (12/05)

This information should help you understand how the nose and sinuses work so that you can maximize the beneficial effects and minimize problems.

Function of the Nose:

A healthy nose is open on both sides. The three most important functions of your nose are to humidify the air you breathe, filter out airborne particles (pollutants, pollen, etc), and warm the air to body temperature. It also lets you smell and taste the food you eat.

The lining of the nose and sinuses normally produce about 2 quarts of liquid mucus each day, which aids in keeping the entire respiratory passage clean, warm, and moist. A conveyor belt of millions of tiny beating hairs called *cilia* move the mucus (along with dirt particles, inactivated bacteria, and viruses) against gravity out of your sinuses and nose. It is then swept towards the back of the throat, where the mucus with germs is swallowed and destroyed by your stomach acid.

Background Information:

When the vital functions of humidifying, filtering, and warming are stressed, the nose responds by swelling. This increases contact time between the air and mucous. It also increases the amount of mucus produced.

The ideal humidity for your nose is 40-60% relative humidity. Your nose is responsible for humidifying the air you breathe to 100% relative humidity for your lungs. Unfortunately, forced air heating during the winter really dries out this air. As a result, the drier the air you breathe, the more nasal congestion occurs.

Excessive dryness inside the nose causes the delicate cilia to stop working and also makes the nose more susceptible to viruses. This is common during the winter months, when many homes and offices are warmed by forced air heating. Many medications (antihistamines, decongestants, diuretics, antidepressants, etc), caffeinated beverages (coffee, tea, cola, etc), and alcoholic beverages result in dryness. When the nose is not properly functioning, excessive moisture is lost by mouth breathing. Sometimes it is thick tenacious mucus that gives the sensation of "excessive" postnasal drip when, in fact, there is a problem with not enough secretions.

The nose filters a tremendous amount of airborne particles each day. Particles which trigger an allergic reaction in only a portion of the population are called allergens (dust mites, grass, molds, trees, animal hair, etc). Other particles (cigarette smoke, pollution, dust, etc) irritate everyone's nasal linings and therefore should be avoided. Nothing is more effective as removing the source of the problem.

Living with a problem nose can be frustrating, but you can make it easier by giving your nose proper care and avoiding unnecessary irritation at home and at work. Fortunately, even troublesome noses can get back into working condition with good nasal hygiene. This care is directed at promoting moisturization and normal clearance of excess mucus from nose and sinus linings.

Nasal Hygiene Suggestions:

- Drink 8-10 glasses of water each day.
- Avoid caffeinated and alcoholic beverages.
- Use preservative free nasal moisturizers (Table 1). Benzalkonium chloride (a commonly used nasal spray preservative) should be avoided since it may cause rebound nasal swelling with prolonged use.
- Avoid the certain medications (Table 2) which dry nasal membranes.
- Perform nasal saline irrigations twice a day or more (see *Nasal Saline Irrigation* handout).

- Use mucous thinning agents (guaifenesin, plain Robitussin®) for thick mucus.
- Keep the home thermostat at or below 65 degrees.
- Use a humidifier or vaporizer (clean it regularly to prevent mold buildup).
- Use a home air cleaner with a high efficiency particulate filter and change disposable filters regularly.
- If you have a central heating/air-conditioning system with a humidifier and/or air cleaner, set the fan switch to the “On” position, rather than the “Auto” position to improve filtration and humidification.
- Follow environmental control measures for allergies (Table 3).
- Quit smoking and/or avoid tobacco smoke.
- Exercise daily.
- Eat a balanced diet with supplemental vitamins, especially Vitamin C.
- Wash your hands regularly.
- Avoid daycare (for children).
- Sleep with your head elevated 30 degrees.
- Breathe Right® nasal strips (improves nasal breathing when congested).
- Antibiotics as prescribed for bacterial infections of the sinuses.
- Steroid sprays as prescribed (see *Nasal Steroid Spray* handout).

Table 1: Nasal Moisturizers (Preservative free is preferable)

Nasal Moisturizers	Brand names	Instructions	Distributor
Yerba Santa/saline spray	Pretz Spray®	2 sprays each nostril as often as needed.	800-457-4276
Saline nasal spray	Natru-Vent®	2 sprays each nostril as often as needed.	N/A
Nasal saline gel		Apply to inside of nostrils as often as needed.	N/A
Nasal emollient (used by NASA)	Ponaris®	Apply to inside of nostrils morning and night.	201-262-6363
Petroleum jelly	Vaseline®	Apply to inside of nostrils morning and night.	N/A

Table 2: Medications causing nasal dryness.

Preparations	Common Brand Names	Reason to Avoid
Nasal decongestant sprays	Afrin®, Dristan®, Neosynephrine®, etc	Continued use (>3 days) causes dependence and rebound swelling. Dries out the nose and sinuses, thickens mucus, and slows down the cilia. Helpful during the first few days of a common cold.
Oral decongestants	Entex®, Sudafed®, Actifed®, etc	Dries out the nose and sinuses, thickens mucus, and slows down the cilia. Helpful during the first few days of a common cold.
Sedating (Non-Prescription) Antihistamines	Tavist®, Benadryl®, ChlorTrimeton®, Antivert®, etc	Dries out the nose and sinuses, thickens mucus, and slows down the cilia. No benefit in treatment of the common cold. Beneficial only for allergic nose swelling.
Antidepressants	Prozac®, amytriptyline, etc	Dries out the nose and sinuses, thickens mucus, and slows down the cilia.
Diuretics	Lasix®, Diazide®, hydrochlorothiazide, etc	Dries out the nose and sinuses, thickens mucus, and slows down the cilia.

Table 3: Environmental control measures for allergies.

General Measures	Specific Measures
General household measures	Dust and vacuum frequently. Cotton (not nylon) mop to gather (not spread) dust. Avoid dust-collecting interior furniture, nonsynthetic drapes, and shag rugs. Use high efficiency particulate air filters on vacuum cleaners. Use air conditioner during peak pollen months.
Bedroom measures	Remove all rugs, non-synthetic drapes, overstuffed furniture, dust-collecting books and toys. Use synthetic foam pillows. Cover box spring and mattress with plastic liners. Keep bedroom window closed during allergy season. Remove pets (particularly cats).
Mold control	Remove houseplant. Clean bathroom crevices and grout with mold-killing cleanser. Use mold killing agents when able. Clean humidifiers regularly as recommended by the manufacturer.

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NASAL SALINE IRRIGATION (12/05)

Your doctor recommends that you irrigate your nose at least 2 or more times each day with this special solution. The use of over the counter nasal saline sprays (*Ocean, Ayr, Natruvent*, etc.) available in most pharmacies does not substitute for the beneficial effects of this high volume nasal irrigation as outlined below.

PROVEN BENEFITS

- Washes away allergens, dust, dirt, and pollens.
- Increases mucus flow out of the nose and clears sinus passages.
- Improves breathing by pulling fluid out of swollen mucous membranes.
- Reduces nasal swelling and other upper respiratory problems.
- Helps prevent sinus infections.
- Increases effectiveness of topical medication within the nose.

INSTRUCTIONS

- We strongly recommend purchasing the nasal saline rinse kit *Sinus Rinse*. It is a simple, convenient, and inexpensive system that provides premixed, single use packets to be diluted with fresh tap or distilled water. The irrigation bottle and nozzle may be taken apart and washed so as to minimize the risk of contamination. This can be purchased at some pharmacies and health food stores, or ordered online from NeilMed Products (www.nasalrinse.com 877-477-8633)
- Stand over the sink or in the shower and squirt the mixture into each side of your nose. Aim the stream toward the back of your head, *not* the top of your head. If you say “ah” while squirting, the solution will come out your other side of the nose rather than down your throat.
- Most people notice a mild burning feeling the first few times they use the mixture. This usually goes away in a few days.

IF YOU USE A NASAL STEROID

- You should always use this irrigation mixture before you use your nasal steroid spray (i.e., *Flonase, Nasacort, Nasonex, Rhinocort*, etc). These steroids work better when sprayed onto nasal membranes that have been cleaned and decongested by the saline irrigation.
- Steroid sprays also work better if you direct the spray up and out towards the outer part of the nose.

FOR YOUNG CHILDREN

- You can put the mixture into a small spray container, like a saline spray or nasal steroid spray-bottle. Squirt it many times into each side of the nose. Do *not* force your child to lie down. It is easier to do when sitting or standing.

COMMERCIALLY AVAILABLE SUPPLIES

Numerous companies offer products, which simplify nasal irrigation or provide alternative techniques. Only a few are listed here. A more comprehensive list of products can be found by searching online using the keywords “nasal saline irrigation”.

Sinus Rinse

Saline nasal wash kit containing an irrigation bottle and 100 packets of sodium chloride mixed with sodium bicarbonate.

NeilMed Products 877-477-8633 www.nasalrinse.com

SinuCleanse

Complete nasal irrigation system with single use packets, which work well with tap water.
Med-System, Inc. 888-547-5492 www.sinucleanse.com

ENTsol Buffered Hypertonic Nasal Wash

Drug-free, hypertonic nasal wash with reusable bottle and powdered solutions.
Kenwood Therapeutics 800-929-9300 www.entsolwash.com

Lavage Sinusitis Treatment Kits

Complete personal nasal irrigation kit with irrigation bottle, measuring spoon and cup, storage bag, and complete instructions.
Lavage (Oakland, OR) 800-652-8243 www.nasalcare.com

Simply Saline

Sterile isotonic saline nasal mist with cleansing mist technology.
Blairex Laboratories 800-252-4739 www.simplysaline.com

Pretz Nasal Products

Moisturizing irrigating solution with glycerin and yerba santa.
Helpful for patients with excessive nasal crusting and dryness.
Parnell Pharmaceuticals, Inc. 877-457-4276 www.parnellpharm.com

RinoFlow Nasal Wash and Sinus System

Small compressor unit and hand-held misting chamber that delivers a saline mist into the nasal cavities.
Respironics 800-962-1266 www.rinoflow.com (\$159)

Water Pik

A pulsating liquid delivery system requiring the use of a nasal adapter.
Water Pik Technologies, Inc. www.waterpik.com

Grossan Sinus Irrigator

Specialized nasal tip for a Water Pik dental machine
HydroMed, Inc 800-560-9007 www.sinus_relief.com/whatsirr.html

HOMEMADE RECIPE AND INSTRUCTIONS

- You may choose to make your own recipe for nasal irrigation.
- Carefully clean and rinse a 1-quart glass jar. Fill the clean jar with tap water or bottled water. You do not have to boil the water.
- Add 1 to 1.5 heaping teaspoons of "pickling/canning" salt. Do *not* use table salt. Table salt has unwanted additives. You can ask for pickling salt at the grocery store. It is often difficult to find during the winter months.
- Add 1 rounded teaspoon of baking soda (pure bicarbonate).
- Stir or shake before each use. Store at room temperature. After a week, pour out any mixture that is left over and make a new recipe.
- Make the saline and baking soda mixture according to the recipe. Plan to rinse the nose with it 2 or more times each day. You will need a bulb/ear syringe or medical syringe (30 cc). The blue bulb syringes (*Davol*) used to suction newborn babies works great. These can be purchased at most drug stores. Unfortunately, these syringes cannot be cleaned adequately.
- Pour some of the mixture into a clean bowl. Many people like to warm it in a microwave oven to body temperature. Be sure that the saline is *not* hot.
- Fill the syringe with the mixture from the bowl. Do *not* put your used syringe back into the jar, because that will contaminate your weekly supply.

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NASAL STEROID SPRAYS (12/05)

General Information

- These sprays, unlike decongestants, do not give immediate relief. In general, it takes up to two weeks to achieve full effect.
- It is important to use the spray regularly (not on a "as needed" basis) since missing doses will decrease the effectiveness.
- Improves mucous membrane swelling in the nose from allergy, sinusitis, nasal polyps, and other non-specific causes without thickening nasal secretions.
- Some of these preparations are FDA approved for use in children (see below). Although not FDA approved, clinically we have significant experience in safe use in even younger children if used as directed.
- Your nose should be examined at least yearly by a physician when taking this medication for long periods of time.
- After the desired control is obtained, it is very important to reduce the maintenance dose to the smallest amount necessary to control your symptoms while minimizing complications.

Available Preparations

Brand Name	Recommended Adult Starting Dose	Age Approved
Flonase® Nasal Spray	2 sprays per nostril once daily	4 & up
Nasacort AQ® Nasal Spray	2 sprays per nostril once daily	6 & up
Nasarel® Nasal Spray	2 sprays per nostril 2 times daily	6 & up
Nasonex® Nasal Spray	2 sprays per nostril once daily	2 & up
Rhinocort® Aqua Nasal Spray	1 spray per nostril once daily	6 & up

Directions for Use

- Shake the canister or bottle before each use. Read the enclosed instructions with each medication.
- Best if used after clearing your nasal secretions (with nasal saline irrigations, nasal saline sprays, blowing your nose, etc.). These steroids work better when sprayed onto nasal membranes that have been cleaned and decongested by the saline irrigation.
- While sitting, lean forward and tilt your head forward between your knees until it is upside down. This maneuver spreads the steroid medicine deeper into the nose and sinuses.
- Hold your breath when activating the dose.
- *Direct the spray towards the outer part of your nostril.* Directing the spray towards the center of the nose cavity (nasal septum) increases the likelihood of bleeding, crusting and complications.

Rare Side Effects

- Nose or throat irritation with cough.
- Nosebleeds, especially when sprayed toward the middle of the nose. If nosebleeds occur, discontinue the spray since continued use risks forming a septal perforations.
- Headaches
- It may reduce the rate of growth in children.
- Increased susceptibility of glaucoma in older adults.

Other Points To Keep In Mind

- Intranasal steroids have been in use since the 1970's, and have been one of the safest and most effective drugs marketed to treat nasal disorders.
- The incidence of corticosteroid complications is directly proportional to lifetime absorbed dose. Minimize your risk by reducing the dose as soon as relief is obtained and use them only during seasons when you have maximum symptoms.

- People who are not using corticosteroids in any other form (oral, pulmonary, injection) except via the nasal route are already using very low doses and thus have a very low risk.
- New generation nasal steroid sprays have up to a 100-fold decrease in bioavailability (i.e., theoretically safer) compared with older generation nasal steroids. Even these older generation nasal steroids were nearly complication free.

Contraindications

Patients with systemic fungal infections, tuberculosis, ocular herpes, nosebleeds, and recent exposure to chickenpox or measles should not use this medication.