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NASAL COMPLETE PACKET

NASAL & SINUS HYGIENE (4/14)

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, such as decongestants.
- 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®, hydroclorothiazide, 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 (7/13)

Your doctor recommends that you irrigate your nose at least 2 or more times each day with this special solution. We also encourage the use of over the counter nasal saline sprays (*Ocean*, *Ayr*, *Natruvent*, etc, but this 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 infection

Correct Nasal Wash Technique

- Wash your hands.
- Make the nasal wash solution.
- Do not use tap water for the nasal wash (unless boiled or filtered as described below). Do not use well-water.
- You may use:
    - Distilled water,
    - Sterilized water,
    - Tap water that has been boiled for 1 minute (at elevations above 6,500 ft., boil for 3 minutes) and cooled or
    - Tap water that is filtered using a filter with an absolute pore size of 1 micron or smaller.
- Whichever water you use to make the saline solution replace container or water at least weekly.
- To make the saltwater solution, mix one-half teaspoon uniodized ("pickling/canning") salt in an 8-ounce glass of water (described above). Uniodized salt is used because iodized salt may be irritating when used over a long period of time. Add a pinch of baking soda. A pinch is a small amount you can pick up between two fingers. If you are congested, use the entire 8 ounces of saltwater during the nasal wash; otherwise, 4 ounces should be enough.
- The recipe for a larger quantity would include 1 to 1.5 heaping teaspoons of uniodized salt and 1 rounded teaspoon of baking soda (pure bicarbonate) in one quart of water.
- Discard any unused saltwater and prepare a new saltwater solution before the next nasal wash.

Position for the Nasal Wash

- Adults and older children - Lean far over the sink with your head down.
- Younger children - If possible, have your child lean as far over the sink as possible. A small child may have trouble cooperating with a nasal wash and may need to be held and assisted. Ask your health care provider about ways to hold a small child when doing a nasal wash.

Techniques for Adults and Older Children

- **Sinus Rinse Kit Technique (preferred technique)** - The Sinus Rinse Kit comes with a Sinus Rinse bottle and mixture packets. When using the Sinus Rinse Kit you can use the prepared mixture packets that come with the kit or you can make your own nasal wash solution described above. The Sinus Rinse bottle is filled with saltwater. The bottle is placed against the nostril. After the bottle is squeezed, saltwater comes out the opposite nostril and may come out the mouth. The nose is then blown gently. The procedure is then repeated with the other nostril. Smaller sized bottles come in the Sinus Rinse Pediatric Kit.
- **Bulb Syringe Technique** (alternate technique) - Use a large all-rubber ear syringe. An ear bulb syringe can be purchased at most pharmacies. Fill the syringe completely with the saltwater. Insert the syringe tip just inside your nostril and pinch your nostril around the tip of the bulb syringe to keep the solution from running out your nose. Gently squeeze the bulb to swish the solution around in your nose; then blow your nose lightly. Repeat the procedure with the other nostril.
- **Water Pik® Technique** (alternate technique) - Use a Water Pik® with a Sinus Irrigator Tip. Pour the saltwater into the water reservoir and set the Water Pik® at the lowest possible pressure. Insert the tip just inside your nostril and allow the fluid to run out of your mouth or other nostril. Blow your nose lightly. Repeat the procedure with the other nostril.

- **Hand Technique** (alternate technique) - Use your hands for this technique. Pour some saltwater into your palm. Sniff the liquid up your nose, one nostril at a time. Blow your nose lightly. This technique may not be as effective but may be used in some situations.
- **Techniques For Babies -** Babies - Use Nasadrops™ or a saline spray for doing a nasal wash with a baby. Place a small amount of the saltwater in your baby's nostril. Use a bulb syringe to suction the mucus from your baby's nose. Repeat the procedure with the other nostril. Ask your health care provider to show you how to do this.
- With any technique, the saltwater solution may get into the mouth during the nasal wash and leave a salty taste. You may want to rinse the mouth with water after the nasal wash.

Cleaning the Equipment

- You must thoroughly clean the equipment used for a nasal wash to prevent the growth of bacteria. It is important for each family member to have his/her own bulb syringe or nasal adaptor.

Cleaning the Sinus Rinse Bottle

- After each use put a small amount of dishwashing detergent in the bottle. Add water (described above). Secure the cap with the tube onto the bottle. Shake the bottle. Rinse the bottle, tubing and cap with water. Shake off any excess water and allow the pieces to dry on a clean towel.
- If you feel the system is discolored or contaminated clean the bottle, cap and tubing with rubbing (70 percent isopropyl) alcohol or white, distilled vinegar (1 part vinegar to 3 parts water). After the use of either solution, rinse the pieces well with water and shake off the excess water. Again, allow the pieces to dry on a clean towel. You may also place the bottle tubing and cap in the microwave for 1.5 – 2 minutes.
- The Sinus Rinse bottle is not cleaned well using the dishwasher.
- Replace the Sinus Rinse bottle every 3 months or if it becomes discolored.

Cleaning the Bulb Syringe (dropper, syringe or nasal spray bottle)

- After each use (which may be several times a day) fill the bulb syringe with water (described above), swish the water around, and empty the bulb syringe completely. Always suspend the bulb syringe tip-down in a clean glass to allow the bulb syringe to drain completely. Do not allow the bulb tip to sit in a puddle of water.
- In addition to rinsing the bulb after each use, clean the bulb daily with rubbing (70 percent isopropyl) alcohol. Draw the rubbing alcohol into the bulb syringe. Swish the liquid around, and empty the bulb syringe. Again, suspend the bulb syringe tip-down in a clean glass to allow it to drain completely.
- If you have any questions about these nasal wash techniques please ask your health care provider. Your health care provider can discuss which technique is best for you.

If You Use a Nasal Steroid Spray

- 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.

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NASAL STEROID SPRAYS (7/13)

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.

Brand Name	Recommended Adult Starting Dose	Age Approved
Flonase® Nasal Spray (generics available)	2 sprays each nostril once daily	3 & up
Dymista® Nasal Spray*	1 spray each nostril twice daily	12 & up
Nasacort AQ® Nasal Spray	2 sprays each nostril once daily	6 & up
Nasarel® Nasal Spray	2 sprays each nostril 2 times daily	6 & up
Nasonex® Nasal Spray	2 sprays each nostril once daily	2 & up
Rhinocort Aqua® Nasal Spray	1 spray each nostril once daily	6 & up
Omnaris® Nasal Spray	2 spray each nostril once daily	6 & up
QNasl® Nasal Aerosol	2 puffs each nostril once daily	12 & up
Veramyst® Aqua Nasal Spray	2 sprays each nostril once daily	2 & up
Zetonna® Nasal Aerosol	1 puff each nostril once daily	12 & up

*Combination of azelastine hydrochloride and fluticasone propionate

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.
- **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. Hold your breath when activating the dose.

Side Effects, and Concerns

- Nose or throat irritation, cough, and headaches.
- Nosebleeds, especially when sprayed toward the middle of the nose. If nosebleeds occur, discontinue the spray since continued use risks forming a septal perforation.
- Increased susceptibility of glaucoma in older adults.
- 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. 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.
- Theoretically, it may reduce the rate of growth in children, yet this has never been found despite decades of use and extensive study.
- 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.

Contraindications

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