Introduction to FESS

Functional endoscopic sinus surgery (FESS) is a technique that was initially introduced to the United States in the mid-1980's. While the nasal telescope was developed in the 1950's its application for nasal and sinus surgery took many years to develop. Today, FESS is the preferred method among Ear, Nose, & Throat Surgeons (Otolaryngologists) for the treatment of chronic rhinosinusitis and nasal polyps in symptomatic patients that have failed maximal medical therapy.

FESS is considered “functional” because during surgery as much normal tissue as possible is spared, key areas or drainage pathways of the sinuses are opened, and the surgery itself focuses on addressing the underlying cause of the problem. Before the development of FESS, healthy and diseased tissue was stripped from the sinus cavities. Today, by using meticulous technique in the operating room and during post-operative care visits, healing is quicker and overall outcomes are improved.

The nasal endoscope is a small metal rod that contains light and optical fibers. It is connected to a camera and allows the surgeon to visualize your sinus cavities through your nose. Small endoscopic sinus instruments are then inserted through the nostrils to perform the surgery in the sinuses. No facial incisions are made during the surgery except in very rare instances when the endoscope is inserted through a small incision. Traditionally, sinus surgery was performed through external facial excisions along the side of the nose (external ethmoidectomy), under the lip (Caldwell Luc), or across the top of the head (osteoplastic flap).

When is FESS indicated?

The decision to proceed with FESS is a complex one and is reserved for patients with chronic rhinosinusitis (inflammation of the lining of the nose and sinuses) and/or nasal polyps that persist despite maximal medical therapy. Medical therapy usually includes antibiotics, oral steroids, topical nasal sprays, mucus-thinning drugs, nasal irrigations, and/or allergy treatments that are tailored to each patient’s disease severity. It is also important to remember that many disease processes may cause sinus and nasal symptoms, thus the diagnosis of chronic rhinosinusitis depends on a detailed history, nasal endoscopy, CT scans, and review of the pertinent previous therapies. Most patients with chronic rhinosinusitis will not undergo FESS because they will achieve satisfactory and sustainable relief from medical therapies alone. When a patient fails to achieve meaningful relief of their symptoms then FESS is considered as the next step.

On some occasions FESS may be required on a more urgent basis if there are clinical indicators that a more serious process has developed. Mucoceles are collections of mucous that develop slowly over time and cause dramatic expansion within the sinus cavities. These may expand through the adjacent sinus walls and put pressure on the eye or brain. Thus, early drainage via FESS is required to prevent this complication. Sometimes benign or malignant tumors of the nose and/or sinus cavities also require urgent surgical intervention. Finally, patients who are immunodeficient due to illness or medication may develop serious sinus infections that also require prompt attention.
How will I be evaluated for FESS?

The first-line treatment of chronic rhinosinusitis, including nasal polyps, is medical therapy. This may include a combination of antibiotics, oral steroids, topical nasal sprays, mucus-thinning drugs, nasal irrigations, and/or allergy treatments. Most patients will undergo multiple “rounds” of medical therapy prior to consideration of FESS.

In addition to medical therapy, a detailed history and physical exam is necessary to complete a thorough evaluation. Nasal endoscopy in the office allows for detailed visualization of the nasal cavity and key areas of sinus drainage. CT scans provide images of the sinuses that are beyond the reach of the endoscope. They also provide a surgical roadmap if FESS is going to be performed. Review of old CT scans may also help in the diagnosis and treatment of the disease process.

Once it is determined that medical therapy has been ineffective at bringing significant relief of symptoms, it is appropriate to discuss FESS as an option.

What will happen in the operating room?

All FESS procedures are performed under anesthesia, either general or local with heavy sedation, and thus the surgery is typically well tolerated and not uncomfortable. The surgery will begin once the anesthesiologist has administered the anesthetic medications.

The surgical plan will be discussed in the office during your pre-operative visit; however, intra-operative findings may require adjustments to the surgical plan to help maximize your results. Everything possible is done to help anticipate these adjustments in advance of your surgery. However, certain decisions can only be made at the time of surgery.

The surgery is performed using the nasal endoscope, a small camera, and endoscopic sinus instruments. The endoscope and instruments are inserted through the nostril. Diseased tissue and small fragments of bone are removed in key areas to open the sinus cavities, and sometimes cultures are obtained for review in the lab. The surgery does not change the shape of your nose and should not routinely cause bruising around the eyes.

In addition to FESS it may be necessary to straighten the septum (septoplasty) or reduce the inferior turbinates (turbinoplasty). These procedures are separate but are also performed through the nostril. If you require these procedures they will be reviewed with you during your pre-operative visit.

On some occasions it may be necessary to place traditional nasal packing in your nose at the completion of surgery. If so, it will usually be removed at your first post-operative visit. Some patients will have no material placed in the sinus cavities. These decisions are made at the time of surgery.

How do I prepare for FESS?

• A history and physical exam will be performed. If chronic medical conditions exist, a letter of medical clearance will be requested from your primary medical physician.
• Blood work, chest X-ray, EKG, and other tests may be required depending on your health.
• A recent CT scan of the sinuses will be obtained and reviewed.
• In certain circumstances, an MRI of the brain and sinuses may be obtained and reviewed.
• Do not eat or drink anything after midnight the night before surgery. If you are taking medication, please ask during your pre-operative visit if these pills may be taken the morning of surgery.
Functional Endoscopic Sinus Surgery (FESS) is a technique that was initially introduced to the United States in the mid-1980’s.  While the nasal telescope was developed in the 1950’s its application for nasal and sinus surgery took many years to develop.  Today, FESS is the preferred method among Ear, Nose, & Throat Surgeons (Otolaryngologists) for the treatment of chronic rhinosinusitis and nasal polyps in adults.  FESS is considered “functional” because during surgery as much normal tissue as possible is spared, key mechanisms associated with chronic rhinosinusitis.  Also, each patient may suffer to varying degrees from the disease and thus may have variable success and long-term outcomes.  It is important to realize that chronic rhinosinusitis differs from patient to patient.  Additional surgical procedures may be necessary in the future to help maximize your long-term treatment strategy for this disease process when medical therapy has failed.  FESS has been shown to attain these goals after surgery.

When is FESS indicated?

The decision to proceed with FESS is a complex one and is reserved for patients with chronic rhinosinusitis.  It is also important to remember that many disease processes may cause sinus and nasal symptoms, thus the diagnosis of chronic rhinosinusitis depends on a detailed history, nasal endoscopy, and surgical procedures may be required, although it may close spontaneously with bedrest.

Will FESS cure my sinus problems?

The eyes rest above the maxillary sinuses and next to the ethmoid sinuses.  The optic nerve, which controls vision, travels adjacent to the sphenoid sinus.  There have been occasional reports of damage to the orbit and eye including loss of vision on one side or double vision.

What are the possible risks and complications of FESS?

- **Bleeding**
  The risk of significant bleeding during FESS is very low.  Significant bleeding may require termination of the procedure, nasal packing, and/or hospitalization.  A blood transfusion is very rarely necessary.  Minor bleeding (oozing) for a few days after the surgery is considered normal.

- **Infection**
  Any surgical endeavor carries the risk of infection due to manipulation of the native tissues.  Many patients with sinus disease already suffer from chronic infections.  If an infection develops after surgery it will be treated with appropriate antibiotics.

- **Cerebrospinal Fluid (CSF) leak**
  CSF is fluid that surrounds the brain tissue.  The brain sits above the ethmoid and sphenoid sinuses and behind the frontal sinuses.  Breach of these boundaries may result in leakage of CSF into the nose.  If this extremely rare complication occurs a pathway for the spread of infection from the nose to the brain may be created, possibly leading to meningitis (brain infection).  Today, most sinus CSF leaks are repaired using the nasal endoscope.  If this complication occurs, additional hospitalization and surgical procedures may be required, although it may close spontaneously with bedrest.

- **Visual damage**
  The eyes rest above the maxillary sinuses and next to the ethmoid sinuses.  The optic nerve, which controls vision, travels adjacent to the sphenoid sinus.  There have been occasional reports of damage to the orbit and eye including loss of vision on one side or double vision.

- **Persistent tearing (epiphora) from injury to the tear duct**
  The tear duct (lacrimal system) lies in close proximity to the sinuses.  Inadvertent damage to the tear duct system may cause blockage and persistent tearing that may require additional surgical procedures to repair, although it usually resolves spontaneously without surgery.

- **Decreased sense of smell and taste**
  Many patients with chronic rhinosinusitis and/or nasal polyps have a poor sense of smell and taste.  Undergoing FESS may improve these senses, however, it is also possible for these senses to decrease or become permanently absent.

- **Avoid cigarette smoking.**  If you smoke, please do your best to quit or at least significantly limit your cigarette usage 2 to 3 weeks prior to your surgery.  Tobacco smoke is known to increase the risk of anesthesia and may adversely affect post-operative healing.

- **Avoid alcoholic beverages 7 days prior to your surgery.**  Alcohol is dehydrating and increases your risk of bleeding.

- **Do not take aspirin or salicylate containing medications for at least 10 – 14 days prior to surgery.**  These medications increase the risk of bleeding.

- **Do not take non-steroidal anti-inflammatory (NSAIDS) medications (i.e. Ibuprofen, Advil, Motrin, Aleve, Naprosyn, etc.) for at least 7 days prior to your surgery.**  These medications increase the risk of bleeding.  It is okay to take Tylenol (acetaminophen) as needed for headache or pain.

- **If you are taking blood thinners (Aspirin, Plavix, Coumadin, Lovenox, etc.), on the recommendations of a physician, ask if they will need to be stopped in advance of your surgery.**  The timing of this should be discussed with me and the prescribing medical physician.

- **Do not take any supplements or herbal remedies that may increase your risk of bleeding (Garlic, Vitamin E, Ginkgo, Ginger, Sal Palmetto, etc.) for at least 7 days prior to your surgery.**

- **Please ask during your pre-operative visit if these pills may be taken the morning of surgery.**

- **A history and physical exam will be performed.**  If chronic medical conditions exist, a letter of medical clearance is required to proceed with FESS because they will achieve satisfactory and sustainable relief from medical therapies and thus may have variable success and long-term outcomes.  It is important to realize that chronic rhinosinusitis differs from patient to patient.  Additional surgical procedures may be necessary in the future to help maximize your long-term treatment strategy for this disease process when medical therapy has failed.  FESS has been shown to attain these goals after surgery.

- **Need for additional surgical or medical interventions**
  In addition to medical therapy, a detailed history and physical exam is necessary to complete a thorough workup prior to consideration of FESS.

- **Routine post-operative office visits for nasal endoscopy and debridement (cleaning) in addition to nasal irrigations, and/or allergy treatments.**  Most patients will undergo multiple “rounds” of medical therapy and sinus surgery took many years to develop.  Today, FESS is the preferred method among Ear, Nose, & Throat Surgeons (Otolaryngologists) for the treatment of chronic rhinosinusitis and nasal polyps in adults.
• **Anesthesia risks**
  FESS is performed under anesthesia and carries its associated risks. Adverse reactions to general anesthesia should be discussed with the anesthesiologist.

• **Change in voice**
  This may be due to change in airflow through your nose after the surgery which affects the quality and character of your voice.

• **Temporary numbness, discomfort, swelling, or bruising of the upper lip, cheek, or teeth (or around any external incisions).**
  These rare symptoms are usually temporary, but in some patients, they may be permanent.

• **Temporary swelling or bruising around the eye**
  These rare symptoms are usually temporary, but in some patients, they may be permanent.

• **Scarring (if an external incision is necessary)**
  A scar will result if an external incision is made on the skin. These incisions are often placed in cosmetically acceptable areas, but in some instances may result in noticeable scars.

• **Need for additional surgical or medical interventions**
  Additional surgical procedures may be necessary in the future to help maximize your long-term results. Each patient’s individual healing process cannot be predicted in advance, and the severity of chronic rhinosinusitis differs from patient to patient.

**What will happen after my surgery?**

Most FESS procedures are performed on an out-patient or short hospital stay (23 hour) basis. If other significant medical conditions exist additional hospitalization time may be required.

Post-operative care after FESS is an essential component of the overall healing process. This includes routine post-operative office visits for nasal endoscopy and debridement (cleaning) in addition to nasal irrigations, antibiotics, and other medical therapies as prescribed. The overall goal of this post-operative care is to promote healing and prevent recurrent or persistent sinus disease. Most patients tolerate the surgery and post-operative recovery very well as the surgery and healing is not particularly painful.

**Will FESS cure my sinus problems?**

Chronic rhinosinusitis is a “chronic” inflammatory disorder of the nose and sinuses. FESS is part of the long-term treatment strategy for this disease process when medical therapy has failed. FESS has been demonstrated to have excellent outcomes and long-term results at decreasing the symptoms associated with chronic rhinosinusitis. FESS does not alter or cure the underlying inflammatory and immune mechanisms associated with chronic rhinosinusitis. Also, each patient may suffer to varying degrees from the disease and thus may have variable success and long-term outcomes. It is important to realize that continued medical management in combination with FESS is designed to modulate the disease process, alleviate symptoms, and provide satisfactory long-term results. We will certainly work with you to attain these goals after surgery.