Instructions on Preparing for Medical Exams

Instructions for Patients Undergoing Bronchoscopy

What is a bronchoscopy?

It is an *endoscopic* technique used by pulmonologists to examine your airways (trachea, bronchi, etc). It is usually performed with a flexible bronchoscope, i.e. a narrow fiber-optic tube used by physicians to observe the bronchi internally, collect tissue specimens for biopsy or perform bronchial brushing.

When must a bronchoscopy be performed?

Some of the medical conditions or indications that may require a bronchoscopy include:

- **Hemoptysis**
  The physician examines the area of the lung where the blood is coming from and may even be able to stop it in some cases.
- **Abnormal chest X-ray or CT**
  The physician collects tissue specimens from the suspect areas detected during the imaging scans (i.e. the X-ray or CT) for biopsy.
- **Persistent cough** that has not responded to pharmaceutical treatment, and after all conventional medical exams to determine the cause have been performed.
- **Noisy breathing**
  The physician uses bronchoscopy to determine whether there is some internal damage to the airways that causes pathological respiratory sounds.
- **Respiratory infections**
  During bronchoscopy, the pulmonologist may collect sputum from the affected lungs and send it to the lab for sputum culture, so as to detect the bacteria that caused the infection. The pulmonologist may also remove fluid or mucus plugs from the bronchi.
- **Dilation of enlarged mediastinal lymph nodes**
  If a chest CT performed with contrast agent or a PET-CT have revealed enlarged lymph nodes, the physician may use a special bronchoscope to collect tissue specimens for biopsy (*endobronchial ultrasound transbronchial needle aspiration – EBUS-TBNA*). This way a mediastinoscopy, which is a surgical procedure, is avoided.

How do I prepare for a bronchoscopy?

The physician will take down your medical history, including any diseases and disorders (diabetes, hypertension, arrhythmias, coronary disease, etc), medications you may be on and possible allergies.

Attention! *If you are taking anticoagulants (**Aspirin**, **Salospir**, **Sintrom**, **Plavix**, **Xarelto or any other blood thinners**) you must definitely inform your pulmonologist because these medications may prolong bleeding, so it may not be possible to perform the bronchoscopy safely. In this case, you will be given special instructions.*

On the day of the scheduled appointment, you must have ***not eaten or drunk anything up to 6 hours before the exam***. You will also be asked to sign a consent form prior to having the bronchoscopy.

How is the bronchoscopy performed?

The exam is performed in a special room of the Hospital's Bronchoscopy Lab. You will lie on an exam table and a nurse will measure you arterial pressure and oxygen saturation. Oxygen will be administered through your nose and a venous catheter will be placed on your arm. Local anesthetic will be used on your mouth and throat so that the bronchoscope may pass through your mouth or nose without causing discomfort. A mild anesthetic (neuroleptanesthesia) that causes sleepiness will be administered intravenously. During your sleep, the pulmonologist will pass the bronchoscope through your airways and take samples from the affected area. With the help of the endobronchial ultrasound, the pulmonologist will also detect any lesions on the bronchial walls (pulmonary or lymph node) and collect specimens for biopsy under ultrasound guidance. The exam runs from 15 to 45 minutes, depending on what needs to be examined. You will then remain in the recovery room until the effects of the anesthesia have worn off.

The majority of patients usually return home after a couple of hours, however, *they are forbidden from driving themselves*. You may eat soft, lukewarm (not hot) food two hours after the exam.

What are the possible complications of bronchoscopy?

Bronchosopy is a safe medical exam with a very small chance of adverse events (approximately 0.9%). On rare occasions, patients may detect a small amount of blood in their saliva, may experience sleepiness or mild irritation in their throat, or may run a fever. On even rarer occasions, air may accumulate in the lungs and ribs (pneumothorax), which may either be absorbed by itself or removed through a special suction device.

The bronchoscopy results are available immediately after the exam and are accompanied by photos depicting the most significant findings. The results from other lab tests on specimens collected during the bronchoscopy (cytology, histopathology, cultures, etc) are usually available in two to three working days.

Instructions for Patients Undergoing Pulmonary Function Tests (Spirometry, Diffusion, Plethysmography, etc)

Bronchial asthma and chronic obstructive pulmonary disease (COPD) are very common diseases nowadays. They are called obstructive lung diseases because they cause obstruction of the airways. Another significant group of lung diseases are the restrictive ones, as they cause restriction in lung expansion. Pulmonary fibrosis is an example of such a restrictive disease.

Pulmonary function testing is considered pivotal for diagnosing these as well as other diseases. The most frequently performed tests include spirometry, lung diffusing capacity (diffusion) and plethysmography.

These tests are performed easily and patients just need to breathe according to the instructions given by the technician. That is why absolute cooperation between patient and technician is necessary. Tests whereby patients are not in a position to understand and follow the instructions correctly will not produce reliable results.

If you suffer from the following conditions, you must notify the lab physician:

- Pneumothorax (even suspected)
- Recent or unstable cardiovascular disorders (e.g. acute myocardial infarction, pulmonary embolism, severe heart failure)
- Recent thoracic or abdominal injury
- Hemoptysis
- Recent retinal detachment or cataract surgery
- High blood pressure (hypertension)
- Pulmonary emphysema
- Known aortic or cerebral aneurysm
- Any type of myopathy or neuropathy

You may eat a light breakfast and take your usual medications (if you are on medications), **apart from any respiratory medications**. In particulal, you should not take any bronchodilation medications 8-12 hours before the exam, provided this is possible and only after consulting with your attending physician.

Patients undergoing diffusion testing **should not have smoked for 24 hours before the exam**.

On the day of the exam, it would be convenient if you carried with you a brief medical history from your attending physician which would explain the *aim of the test*.

The spirometry and diffusing capacity test results are available on the same day, while the plethysmography results are available in two working days.

Instructions for Patients Undergoing a Sleep Study (1st and 2nd Part)

The Sleep Apnea Hypopnea Syndrome (SAHS) is a common pathological condition, as well as a significant social and medical problem because it not only greatly affects the lives of people suffering from it, but also the lives of people around them. For example, just imagine the devastating consequences if a bus driver suffering from SAHS falls asleep on the wheel while driving on a highway!

Apnea during sleep means that at certain periods which last for a specific timeframe, the airflow drops down to zero.

Hypopnea during sleep means that at certain periods, the airflow drops significantly, but not down to zero.

*SAHS is usually accompanied by **snoring** and **bad sleep**.*

In most cases, the area that is fully or partly obstructed, leading to complete (*apnea*) or partial (*hypopnea*) interruption of the airflow is located at the level of the pharynx, behind the soft palate, at the base of the tongue. In this case, it is called ***Obstructive Sleep Apnea Hypopnea Syndrome (OSAHS)***, it is the most frequently encountered syndrome and it usually affects middle-aged men. The most significant risk factor for developing the syndrome is obesity.

A *Sleep-Related Breathing Disorder Lab* operates within the Athens Euroclinic, headed by a pulmonologist with long experience in this field. Patients potentially suffering from the syndrome may undergo a polysomnography (sleep study) at the Lab.

The sleep study is usually performed over two nights. A diagnostic study is performed on the first night, which will show whether you are suffering from sleep apnea. If this is the case, a second study will be performed to titrate the continuous positive airway pressure (CPAP) device, i.e. to regulate the pressures so as to alleviate the apnea. On the second night, you will sleep wearing a mask (it is not very large and it is well tolerated). Air passes through the mask at a certain pressure, which helps with the apnea.

You must undergo a physical exam before participating in the first part of the sleep study (not necessary for the second part). To do this, you must first book an appointment at the Pulmonology Department by calling on +30 210 6416345.

If you have Medi System insurance, you must first obtain approval from the Medi System physician before undergoing the specific test. If you have another insurer, they must contact the Pulmonology Department beforehand. If you do not have private health insurance, just book an appointment at the Pulmonary Department reception.

On the day of the test, you must arrive at the Athens Euroclinic at around 10:00 pm and tell the Reception that you are scheduled for a sleep study.

Once you have settled into the sleep study room, you will be asked to fill out three forms, while you will fill out a fourth one in the morning. The sleep study technician will help you fill out the forms and collect them. At night, the technician will place some electrodes on your head, chest and legs, as well as two belts (one on the chest and one of the abdomen). This is how the signals are received and the sleep parameters are recorded.

You must:

- Not sleep at noon, if you usually do
- Not drink any coffee or tea from the afternoon onwards
- Eat a light dinner, without any alcohol
- *Take your medications as usual*, provided you are on medications
- Bring your pajamas and a book if you want
- Be clean-shaven (applies for men)
- Remove any nail polish (applies for women)

Note that it is a straightforward exam and instead of sleeping at home, you will sleep at a hospital.
At 5:00 am on the following morning, the technician will remove the electrodes and you may leave if you are in a hurry. Otherwise, you may continue to sleep and speak with the pulmonologist once you have woken up to get an update on the initial evaluation of the study.
After three working days, the Pulmonology Department receptionist will call you so that you may visit the Hospital and discuss the test results with the physician.

Instructions for Patients Undergoing a Cardiopulmonary Exercise Test (Ergospirometry)

This test is considered the most comprehensive method to examine the cardiovascular and respiratory system. It is indicated for *exploring breathing difficulty that cannot be explained through other medical exams*.

At the Athens Euroclinic Lab, the test is performed on a treadmill with both a Pulmonologist and a Cardiologist present. Patients are evaluated by the Lab physicians and if deemed fit for exercising, they undergo ergospirometry, based on individualized exercise protocols.

What you should bring with you on the day of the exam:

- A short medical history from your attending physician, which stipulates *the aim of the exam*
- ECG
- Blood work (blood test, blood glucose, urea, creatinine, K, Na)
- Heart Doppler ultrasound
- Chest X-ray or CT
- Spirometry-Flow/volume curve before or after bronchodilation, diffusion and arterial blood gases, if you suffer from pulmonary disease
- All your medications
- Previous cardiopulmonary exercise test or simple stress test results, provided you have undergone these tests before

What you must and must *not* do on the day of the exam:

- *Take all your medications as per normal,* unless you have been instructed otherwise by your attending physician or the Lab physician, who may have advised possible interruption of certain medications.
- Eat a light breakfast *without tea or coffee*.
- Be well rested and bring with you *exercise clothing and shoes*.
- Do not smoke beforehand

After the Ergospirometry, you will rest at the Lab for about 15-20 minutes. You may drink water or eat a light meal.
The Ergospirometry test results will be available in two to three working days.

Instructions for Patients Undergoing Skin Prick Tests

Bronchial asthma is currently one of the most common diseases. The mechanism governing the disease has not been fully clarified yet; however, it is believed that allergy plays a significant role in the development of the disease. Therefore, occasionally it is necessary to establish a patient's allergy profile. Skin prick tests can assist a physician in better understanding the disease.

The exam is simple and is based on the reaction caused by a drop of an allergen coming into contact with the skin, which is pricked through the drop using the tip of a lancet. No preparation is necessary. The only thing required is that patients **do not take any antihistamine medications in any form at least four days before the test**.

The skin prick test is usually performed on the inner forearm, where drops of different allergens are applied at set intervals and then pricked through. The results, i.e. the reactions caused on the skin, are observed within 15-20 minutes.

It would be convenient if patients have been **previously tested for blood IgE** and carry the results with them.

Note that *if a patient suffers from dermographism, the results are not deemed reliable*. The skin prick test results are available on the following working day.